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Agent 001's hard drive buying tips

digit

YOUR TECHNOLOGY NAVIGATOR

March 2009

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Windows 7
Gmail
Adobe Lightroom
The GIMP

Internet
Explorer 8
Revealed

DIYs: Build an HTPC
Create your own games

Go HD

the
complete
entertainment
experience

LCD + Plasma HDTVs Tested

Game Reviews:
- Killzone 2
- Resident Evil 5
- Ghajini

+

ROBOTS WILL KILL US ALL
FIRST HISS: A GUIDE TO PYTHON
SEARCH ENGINES DEMYSTIFIED
REBUILDING THE INTERNET

Tested
- Desktop PCs
- Tiny MP3 Players

3D TVs: coming soon?
Home cinema and A/V systems

ALSO INSIDE: **SHOULD KIDS BE GAMING?** | MULTIMEDIA AUTHORING WITH SOPHIE

Digit 3.0

Those of you who read our tests, and our Bazaar reviews, over the years, will have noticed that we have this parameter called value for money. This parameter tells us whether or not a certain product is worth your hard earned money, or not.

However, we don't just sit around and critique other people's products — every day we also analyse our own product — Digit. Over the past eight years or so, we've consistently innovated and changed, based on feedback, boquets and brickbats that we receive from readers, our peers and colleagues.

All of you have seen the recent changes that have been trickling into the magazine, the site and the DVDs. We've opened the floodgates for this issue though, by presenting you with an all new design, and all new article sections. There's exclusive software and video content on the DVD, and that's going to increase steadily.

Digit, as a brand, is headed towards fulfilling all the needs that our rather large *family* has been demanding. Some people prefer the use of the word "community" to family, but like many other Digit readers, I've always felt very personally involved with this magazine, ever since I started reading Digit back in June 2001. You'll understand the family ties better if you log on to the **Thinkdigit.com** forum, and watch as we bicker like feuding relatives at times.

Anyway, back to my point — the current global economic situation has ensured that the term "value for money" is burned into all our brains. Apart from helping you make informed decisions, keeping you ahead of the pack, and generally making sure you get the most out of every rupee you spend, we also want to ensure that Digit is truly *value for money*.

In the pages that follow, we've actually provided you with as much as 40 per cent more useful information per page. On an average, we used to have between 750 and 800 words per page; this has now been increased to between 1,000 and 1,200. This enables us to give you more information than before, and we've also been increasing the number of article pages over the past few months.

As I mentioned earlier, we're not just adding value to the magazine, but online, and to the DVD as well, and we're currently looking at some new ways in which we can serve you better; but more on that some other time...

We've added all new sections, based on feedback from you — *Sci-Tech*, *Tech@ work* and *Toolbox* specifically, seemed to be the popular demand.

We're going to ensure that we cover open source more, in order to support that worthy movement. Budding developers will also get a few ideas from some of our workshops and articles.

In general, Digit will not only help you buy smarter, but now also help you learn quicker, adapt to changing trends in an instant, keep you ahead of the curve, and help you enjoy technology more than ever before.

I would also like to point out that this is work in progress, and by no means a finished product — to be honest it never will be, ever. We're still open to suggestions, as always, and will continue to evolve, based on the feedback that we receive from you. Together we'll build the best technology magazine there is, period.

To follow popular code naming conventions, you could consider this to be Digit 2.5 beta, and all of you are going to play a vital role in developing version 3.0. So please, keep those valuable emails coming in, and let us know what you think of this new direction that we're headed in.

Robert Sovereign-Smith, Editor

"...you could consider this to be Digit 2.5 beta, and all of you are going to play a vital role in developing version 3.0."

editor@thinkdigit.com

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Tell us what you feel about Digit
Each month, *Digit* walks through the technology maze to bring you the most relevant, and the most researched stories. If you have an opinion about anything published in *Digit*, or about technology in general, please write to **editor@thinkdigit.com**

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Products reviewed this month

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RESIDENT EVIL 5

Linux

ESSENTIALS

Audacity

A free, open source software for recording and editing sounds in Linux, Mac OS X , and other operating systems.

- 7zip
- amarok
- Mplayer Codec Pack
- Pidgin
- Vuze
- Wine

DISTROS

Granular 1.0

A free, open source software for recording and editing sounds in Linux, Mac OS X , and other operating systems.

- Sabayon 4.0

Entertainment

GAMES

Urban Terror

Urban Terror™ is a free multiplayer first person shooter, that (thanks to ioquake3) does not require Quake III Arena. It is available for Windows, Linux and Macintosh.

- Blindsight
- Hellcarrier
- Horrum
- OpenQuartz
- Orbiter
- Racer
- Speed Delight
- Train Dispatcher 2
- VoidRunner

HD TRAILERS

Planet 51

An alien planet, stuck in the culture of the 1950s, finds its paranoia kick-started into high gear when a NASA astronaut arrives without warning and turns their world upside down.

- All About Steve
- Chocolate
- Crank: High Voltage
- Imagine That
- Killshot
- Push
- State of Play
- The Great Buck Howard

MUSIC

Butterfly Tea -
The HEAVEN BUTTERFLIEz

Classical Symphony music synthesized by the French artist Butterfly Tea

Tools

- AbleBurn
- AmoK Exif Sorter 2.5.1
- Aqualung
- Armadillo MP3
- Aros Fractals
- Ashampoo Burning Studio 6
- Avidemux 2.4.3
- BestPractice
- BurnAware 2.2.3
- cam2pc
- Caotica2
- Easy Graphic Converter 1.20
- EvilLyrics 0.1.9
- FastStone Image Viewer 3.7
- FastStone Photo Resizer 2.8
- Floola 4.7
- HammerHead
- IRIS
- jetAudio Basic
- Kiddo
- M3Unow 1.4.4
- Media Jukebox 1.2
- MWSnap
- Now3D
- Photo Wizard 1.2
- Photoscape

Pictomio

Pictomio is an image browser and manager that can help you organize and catalog your image collections, using a modern interface with 3D rendering and plenty of eye candy.

- Pixia
- Quick Media Converter 3.6.5
- StickyView

STOIK Imagic Free Browser

STOIK Imagic Free Browser enables you to import, organize, enhance and share your digital photos. In addition to a thumbnail image browsing, the program includes a complete set of enhancement tools to adjust white balance, exposure, contrast, color curve.

- Picasa for Windows
- QuickCam 1.0
- Real Alternative 1.9.0
- Soundbase 2008.12.18
- Stoik Video Converter
- taksi 0.7.5.7 beta
- TVersity Media Server
- Virtual VCR 2.6.9
- VirtualDub
- YamiPod 1.7
- SurfPics V1.0
- VCW VicMan's Photo Editor
- Visualizer Photo Resize. v.6.1
- Winamp 5.541

INTERNET

- 3CX Phone System 6.0
- Amazing Portal Generator 1.05
- CQPhone 2.4

- Filseclab Personal Firewall 3.0
- GetGo Download Manager 4.0.1.95
- Gizmo5 4.0
- HydraIRC 0.3
- **PC Tools Firewall Plus 5**
- **Phex 3.2**
- **RocketOn 1.0.20**
- **System Protect 1.0.0.83**
- **ThreatFire 4.0**
- **Tidy Favorites SE 3.75**

Torrent Swapper
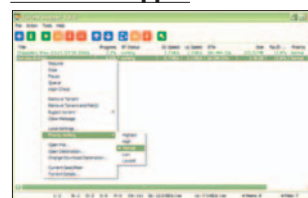
Torrent Swapper is an open sourced sociable peer to peer file-sharing client based on the Bittorrent protocol that is ideal for high-speed distribution of large files that has a basic understanding of human friendships, of user tastes in content, and of I

- TRACE! 2.0
- Trillian 3.1
- TrilogyEC 1.3.0
- VDownloader 0.77
- WebRipper 1.32

SYSTEM

- Autorun 1.0.0
- DiskMemTray 1.1
- EasyCleaner
- HDAT2

HDDLife

HDDlife reads S.M.A.R.T. data from all of your hard drives and allows you to see clearly the health and resources of your disks.

- JDiskReport
- Lupas Rename
- Mekuri
- Pathbuddy 2.0
- Quick Startup
- Registry Jumper
- Startup Control Panel
- StatBar 2.406
- Stock Startup
- VisualCron
- XP SysPad

ESSENTIALS

- .net Framework 2.0
- .net Framework 3.5
- Avast Home Edition 4.8
- Comodo Internet Security Pro
- 3.5.55810.432
- Foxit Reader 3.0
- Free Download Manager 2.5 build 758
- Irfan View 4.20
- Java(TM) 2 Runtime
- K-Lite Mega Codec Pack FULL 4.2.5
- Opera 9.6
- Silverlight
- Spybot Search and Destroy 1.6.0
- VLC Player 0.9.4
- WinRAR 3.80
- µTorrent 1.8.1

For any queries regarding the CD or DVD, email help@thinkdigit.com with "CD/DVD" as the subject. If the subject is not mentioned, your mail might not reach the right person.

Tools

CREATE
3D Canvas v7.1.1.2
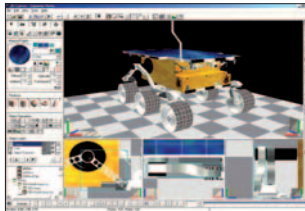
3D Canvas is a real-time, 3D-modeling and -animation tool that incorporates a drag-and-drop approach. Complex models can be constructed from simple 3D primitives or created using 3D Canvas´s object-building tools.
- Aqsis Renderer 1.4.2
- Art of Illusion 2.7
- AutoQ3D Community 1.38
- Bricks´n´Tiles - 1.5.3
- CoCreate OneSpace Modeling Personal Edition v1.0
- DeleD 3D Editor Lite 1.53
- Drive Icon Changer 1.0
- Google SketchUp 7.0
- Greenfish Icon Editor Pro 1.72
- IcoFX 1.6.4
- Icon2Text 3.0
- K-3D 0.7.10.0 Dev
- Kerkythea 1.3.04
- OpenFX 1.5
- Pixelformer 0.9.6.3 RC3
- Sqirlz Water Reflections 2.5
- Autodesk 3D Studio Max 2009

PRODUCTIVITY
Abykus 1.02
Abykus is an object-oriented spreadsheet for Windows that adds a new dimension to the classic ´what-if´ analysis by allowing complex data types such as matrixes, coordinates, polygons, etc. to be stored in individual cells.
- 4ASoft Agenda 9.01
- Business Desktop Suite
- Business Manager 2007 1.1
- CoWord 1.0
- Evolution for Windows 2.22.2-4
- Forte CRM Solo 1.0
- IDEA! Free Edition 2.1.5.67
- Logsourcev0.1.2
- ManageEngine ServiceDesk Plus
- Morefunc 5.05
- Noah v1.02
- PortableApps Suite 1.1
- Process Modeler v0.51a
- SSuite Office - The Fifth Element 1.22
- Smartworks-pe v2.0
- VORG Express 1.7
- Vevo! eSales
- sqlDESKTOP v3.00
- eScan

HTPC
XBMC Media Center
XBMC is an award winning media center application for Linux, Mac OS X, Windows and XBox. The ultimate hub for all your media, XBMC is easy to use, looks slick, and has a large helpful community. Try it now!
- Allegro Media Server
- Beyond TV 4
- Got All Media

- J.River Media Center
- SageTV Media Center V6
- Twonky Media Manager
- GBPVR
- Icecast 2.3.2
- Jinzora
- Jinzora
- MediaPortal 1.0
- MeediOS
- MythTV 0.21
- Orb 2.0
- Freevo
- TVersity 1.0

Fast Track

FAST TRACK
Fast Track video
- Fast Track
- Pokat Reader

PHOTOGRAPHY SOFTWARE
Jalbum

Jalbum consists of free album software, free hosting and a creative community. With Jalbum it's easy to create your own photo album site. Just the way you want it.
- 4ASoft Agenda 9.01
- 36-Image Converter 4.5.3.72
- AndreaMosaic 3.30
- Arclab Thumb Studio 1.5
- DigiBookShelf 2005 v11.1
- Digital Image Tool 1.2
- Digital Photo Recovery 3
- FlipAlbum Standard 7.0.3
- Free Picture Resize Starter 4.5.12
- FxFoto
- Gimp
- HP Photosmart Essential 3.5
- Image Analyzer 1.29
- Jalbum
- Kodak Easyshare 7.1
- Life Photo Maker 1.2
- Memeo Share 1.0.1367
- PC Image Editor 3.70
- Paint.NET 3.36
- Phantasmagoria 1
- Photo On Web
- Photo Story 3
- PhotoFiltre 6.2.7
- PhotoMeister 2.6
- PhotoPerfect Express 1.0
- Photobie 5.2
- Photobyte
- Photozig Albums Express 1.0.302
- Picasa 3
- Poladroid 0.9.5r5 Beta
- Reallusion FaceFilter Xpress 1.0
- Restoration
- Snapact Photo Manager 1.1
- StudioLine Photo Basic
- VSO Image Resizer
- ViewNX
- VisiPics 1.3
- VueScan 8.5.02
- WPanorama

Gaming

GAMES
Nuclear Bike 1.0

Ride your sports bike through a rocky terrain and reach the flag! Complete levels as fast as possible to achieve maximum score points. Maximize your score by collecting bonuses and performing stunts, such as a 360 degree flip or a wheelie! Feel breath-taking game play and amazing physics.
- Digital Paint: Paintball 2.0 Build 23
- Penumbra 1.1
- The Crypt 1.2
- Burnout Paradise PC
- Fear 2

3D Adventure Studio
A system to create 3D adventure games without any programming knowledge.
- 001 Action/ RPG maker
- Gamemaker lite
- Platform Studio
- Reality Factory
- WME

Videos
3d Rad 6.31

3D Rad is a collection of intelligent objects you can combine in virtual space to create interactive 3d worlds. What you get depends on the nature of the objects you add and the relationships you establish between them.
- FPS Creator
- Game Editor
- InterAx
- PlayBASIC
- Silent Walk FPS Creator

GAME TRAILERS
The Sims 3
Get ready to return to your virtual life.
- Dragon Age: Origins
- Prototype
- Riddick: Dark Athena
- Tom Clancy's H.A.W.X.

Digit videos
- Unboxing the X360
- Testing Mp3 Players
- Blackberry Unboxing
- HDD Disection

ENTER
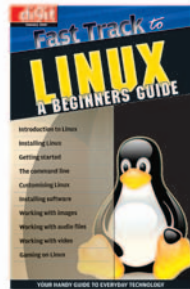
February 2009 Issue

Suggestion Box

I'm a regular reader of your magazine. I've been reading it for the past two years. Initially, I found the contents difficult to understand. However, as time passed by I found interest in it. Now, it has become part of my life. You have proved that you are the No. 1 magazine today. I like Tech Q and A, Tips and Tricks and also your CD and DVD. I suggest you include an article on creation of web sites. How we can develop a web site and put it on the server? What is the cost involved? Last, but not the least, you are doing a good job. Keep it up!

Bhupesh
Haldwani, Nainital

We are overwhelmed by the letters of appreciation from readers such as you. We appreciate your continuous support, and hope you enjoy Digit in its brand new look. Do write in and let us know what you think you about it. We often carry content on web site creation. In fact, the February issue had an article on Mr. Site Takeaway, which covers all the points you have mentioned. If you want an easy process, Google's Page Creator or Yahoo!'s Geocities should be of help to you.
Team Digit

It has been a delight for me to keep in touch with the latest news in computers with the people who are best in business — *Digit*. I personally like the *Fast Track* that accompanies the magazine.
1. Of late, I feel there has been a negligence towards the concept of Macintosh OS and its applications. There just isn't any info about Mac apps, etc. May I suggest you to publish more on Mac apps and run a special "Fast Track" for Mac users such as Apple Script, Tweaks, etc.
2. The wonderful interface you provide in the DVDs doesn't seem to work in Mac. Can't you fix it? An HTML view could do it. Looking forward for the next edition.

Karthik Konduri

It is encouraging to know that you enjoy reading *Fast Track*. We will consider writing a Fast Track meant for Macintosh users.
Team Digit

I am a regular reader of Digit and this is my second letter to you . You are really doing a great job. The February edition was simply superb. I was waiting for a gaming issue. Regarding the article on the game developers in India, you have put very brief information. You haven't given much information regarding game development as a career. If it's not so popular in India, please provide information on options abroad. One more thing you should provide is what to do from the beginning to have a career in game developing.
    You are simply the best technology magazine. Keep up the good work. My best wishes are with you.

Rakesh Ranjan
Bihar

There are many institutions in India that teach gaming as a part of the curriculum. There are many aspects of gaming, in the industry, people in a game development team are involved in highly specific tasks. AAG (Academy of Animation and Gaming) is located at Noida (**www.aag.co.in**) and is one such school in India. They offer courses in game programming, art and design. Meanwhile, get your hands dirty with the bunch of game creation tools included in this month's DVD.
Team Digit

I would like to express my gratitude because till I started reading your magazine in 2003, I didn't know what a computer was. Now I'm the *computer guy* in my locality. I'm in the tenth grade and I just love all the sections in the magazine and DVDs. You would be pleased to know that even my brother who had an aversion towards computers has started using it. I have also started spreading word in my locality for people to start learning computers. They too,

look forward to *Digit*. I have a request for you guys. Can you add a section on the History of Computing?

Rohit Shivnani
Uttar Pradesh

Letters such as yours is reason for us to stay committed to our goal in leading you on the path of personal technology. Having readers grow in their knowledge and skill is in our interest and we continuously strive towards giving you the best quality content. We periodically cover subjects all through their origins in the technology space.
Team Digit

HD Fanboys

This is the first time I am writing to you. As we are entering the HD era, I'm very happy that *Digit* started to provide HD trailers. I want you to start an HD section in the magazine and DVD. Provide us more information on HD and put more HD content on the DVD.
Bhupinder Sidhu

I'm really fascinated by the HD trailers that you give along with the DVD packs. I would like to request for a full HD movie. Any movie will do. It would be good if it's an English thriller movie.
Farham

Thank you for writing in. We are happy to present you with this issue, containing several HD trailers of the latest movies on the DVD. We have already provided an HD movie, called Elephant's Dream. However, this is not the full run of the movie. Check out the number of HDTV screens reviewed this month. Also, enjoy reading articles on HTPC and 3D TV and setting up a Home A/V system.
Team Digit

Response to February's editorial

Wow! What a cool prank! I'm really happy to know that only a few Digit readers fell for that! This proves that Digit readers are intelligent people. I'm a programmer and I'm already aware of such things. It was really shocking to know that most people use such weak passwords! Well, they were very funny too! About your magazine, it was one of the best issues I've read. I really like your gaming centred issues. The reviews were excellent, especially, the review of *Street Fighter 4*. Why have you guys only tested budget cellphones? As for your feature 'What's hot in 2009', I'm really waiting for *F.E.A.R 2* and *Diablo 3* — one of my all time favourites. If possible, provide a demo of *F.E.A.R 2* on your DVD.

Mazewar
was the first MMOG to hit the virtual world. Believe it or not, this was way back in 1974.

Wi-Max
was originally known as WMAN (wireless Metropolitan Area Network)

Ghajini the Game
Ghajini the game reviewed, flip to ▶122

Your hands-on with Windows 7 was very interesting as well. Finally, Microsoft got it right. One important suggestion — make your magazine thicker as I finish it in a week and then wait for your next edition eagerly. Your coverage of Chandrayaan-1 and interview with the ISRO representative was very interesting as well. Now we Indians are one of those four nations. I've got a question. What does 'MMORPG' and 'RPG' genres of games stands for and what do they actually mean? Your explanation will be well appreciated. When I compare you guys with other technology magazines available, they are nothing other than copycats of your magazine. The stuff you provide in a month is given in their following month's issue. Even then, they stand nowhere near your standards. And one thing, I'm looking forward to make a career in game development after reading your this month's issue. You have simply shaped my career! You guys really deserve those 150 bucks! Keep up the hopes and great work!

Kshitij Rawat,
Dehradun

Regarding the email address for retrieving passwords, we had no intention of deceiving readers. We merely changed the email address in an authentic spam mail, so that the spammer would not receive a bunch of emails from our readers. It was most definitely not a prank, but a little social experiment.

We received numerous emails and letters from our readers saying that the lower end of the market was ignored by the magazine. For this reason, we decided to test budget cell phones. We have included the demo of *F.E.A.R. 2* in this month's DVD.

MMORPG stands for "Massive Multiplayer Online RPG" and RPG stands for "Role Playing Game". In a role playing game, a person's character is developed through game play, focussing on the choices of the player. This includes everything from how the character looks to the skills they develop. An MMORPG is where a number of gamers play in a virtual world, evolving their characters over time. World of Warcraft (WoW) is an example of such a game.

Team Digit

Great Expectations
Another Excellent Issue! "Gaming Special" I just love it. But one thing to upset is "Shame on you". This shows how people are ignorant and fall prey to these things. *Digit* should include a column on 'security issue' in each edition. Your editor would have done a Ph.D on 'Password of email accounts'. Piracy is another headache to us. Please give some tips for recognising original software and stopping piracy.

Thanks for article on 3G and WiMAX. Agent 001 has given me an excellent choice for gaming keyboards. There should also be suggestions on small things such as pen drives or headphones and also UPS. Once again, thanks to *Digit* for such an excellent edition.

Mayur Gaikwad

Thanks for the praise. Our intention of the email password article was to highlight our vulnerability in security issues, in these days where passwords are hacked. We normally do cover USB drives, headphones and other peripheral devices. If these are not tested, then they are in the Bazaar section. We are seriously considering your suggestion of covering UPS, and will look into it.

Team Digit

I wanted to know whether I will get my subscription copy near the same date in the future or not.

I congratulate Digit for faster service, as I now receive my magazine on the 1st of the month and sometimes even on the 30th of the previous month. Now that's what I expect from India's best tech magazine. There's no doubt that with increase in prices you are giving more DVD content.

However, please (and thats a big please) concentrate on more magazine content too.

Earlier, Digit used to be quite thick. I loved "Beat that", "Take a crack" and other contents which don't show up nowadays. Also, please enlarge the "Inbox" section by a page or two as many mails don't get all the points answered properly or even answered at all.

January's Digit was awesome and now I'm more alert than ever while using the Internet. February's edition was also great, but please avoid providing pictures as given on page 31, 32, 33 of the Fast track.

How about giving out a "Fast track to Digit". I'm sure every reader would want to know those behind the making efforts. Because of you guys, now I've turned to open source and left piracy. Digit is far better than any other tech magazine and it rocks!

Anirudh Khanna

The magazine appears to be thinner simply because the number of advertisements have reduced. The number of pages with the actual content has, in fact, increased. However, your point is well taken and everyone loves a big fat magazine. We will ensure that you get high quality images in our prints. Great to know that we played a part in spreading the open source movement a little more!

Team Digit

This is my first mail to you. I started reading *Digit* from my school days when I was in class 8. My brother had bought the September issue of *Digit*. We also had a brand new PC at that time. So from that day onwards, I have read Digit till today. Your team is simply marvellous. Your articles are very informative, detailed and very seminar type. Your product reviews, games reviews, Q&A, tips and tricks section are truly amazing. Today, many friends ask me about which laptops, cellphone, USB drives, graphic cards that they should buy, as if I'm their technology navigator as you are mine.

And now for the February issue, your Fast track on Linux was a lifesaver for me. Many of my friends have installed Linux and don't know anything about it. Your issue was a life saver. Thank you for this wonderful gift. Apart from this, WiMAX vs 3G article was also very interesting. We do have Wi-Fi in our hostel which serves our daily internet needs.

Last, but not the least I'm a racing genre lover and play many gaming titles such as *NFS*, *Flatout*, and many more. I would like to ask you a question. I have a Dell d630 laptop. I want to play high graphic games on my laptop such as *Undercover* and *Mirror's Edge*. Can I add a graphics card to my laptop? If so, which one should I add? My range is from Rs. 5,000-10,000. Please let me know.

**Sunny Patil
Bhubaneshwar**

Thank you for writing with your opinion on our magazine. It is always encouraging to read letters such as yours. We hope you also enjoy reading our game reviews too. Continue reading *Digit* and lead others around you with your bit of knowledge. Also pass on word to read *Digit*. Responding to your query on graphics card for laptops, it's not possible to fit in an external graphics card on your laptop. Doing this isn't as easy as it is in the case of desktop PCs. Making changes to the hardware on a laptop is not advisable. While there are some gaming laptops available in the market, we recommend considering a desktop solution instead. This way, it is easier for you to upgrade your system with time, as the requirements to play the latest games keep increasing.

Team Digit

Buzz

Creeper
The first computer vi-
rus infected ARPANET
in 1970

ENTER

Recession: Doom or opportunity?

It would be unfair to say that signs of recession are surfacing around us *now*, because they have been there for quite some time. The signs have appeared in our *techie* world too. If you're entirely oblivious, then it's about time you crawled out from that rock you've been hiding under. Some industries are just about scratched, while others are reeling under the weight of the slowdown — yet everyone is affected. Take the case of the mobile phone industry, which is expected to weather the economic downturn better than the technology industry in general.

Nokia, the world's largest phone manufacturer, announced recently that it expects mobile phone sales to be down by at least 10 per cent this year. Therefore, the decision by Nokia to reduce mobile phone production due to falling demand doesn't come as a surprise. Nokia's net profit in the last three months of '08 was down 69 per cent compared to the previous year. The whole economic domino effect has decreased the disposable income available with consumers to spend on gadgets and technology. In the wake of their pessimistic outlook, Nokia plans to reduce production at its Finland unit. However, in order to cut costs, they're adopting a rather curious strategy. Nokia said the factory's 2,500 staff would all be temporarily laid-off for a short period of time on a rotational basis, with 20 to 30 per cent of the staff unemployed at any given point in time.

The World Mobile Congress, too, reflected the sullen mood of the economy. Although manufacturers did show off some dazzling devices, there was

certainly a decrease in terms of volume of products. Attendance too was lower, pegged at 49,000, down from 55,000 last year. However, a paradox is emerging in the form of smartphones. Purchases of such handsets (with multimedia functions, web browsers, and high-end cameras) have doubled over the past year according to TNS Research. In fact, Palm is banking on its big come-back with the Pre. The thinly veiled opportunity developing here thanks to smart phones, is revenue from service usage and application downloads. App stores are certainly on the rise with almost all players in this space launching or expanding their Apps stores. Incidentally, the Apple App store has 13 applications that help you save money during the recession. Wonder if there is an app that tells you not to buy the iPhone in the first

place? For India mobile games downloads should be an area that has some potential. Speaking of gaming there is a lot of trouble within game studios. Companies seem to want *smaller* teams now. In other words — layoff all around. Electronic Arts announced recently that they were reducing their workforce by 11 per cent, which translates into 1,100 people. It is closing twelve facilities and narrowing its product portfolio too.

Another one to bite the dust is CeBIT, the annual IT trade show. Slated to take place at Hannover Germany in March, CeBIT 2009, has lost over 25 per cent of its exhibitors compared to CeBIT 2008. This year only 4,300 companies will be part of the expo as compared to 5,845 last year. CeBIT's sister 'country' this year is California and hence the presence of Governor 'Terminator' Schwarzenegger at the trade show. However, it looks like the star's presence is not lure enough for IT companies.

The world's largest PC manufacturer, HP, is facing its share of economy voes. It's profit for the recent quarter dropped by 13 per cent, with much of

the damage coming from sales for the printer and ink division that contributes more than 40 per cent of HP's operating profit. Employees were in for a rude shock following this, when they found a long memo from CEO Mark Hurd waiting on their desktops explaining why he was imposing wide-ranging pay cuts in an effort to prevent further job losses. Well, at least pay cuts are better than being axed right? A bit of silver lining is that their services division however showed some promise.

There are ways of looking at the current scenario. The CEO of Intuit, an American tax software company, doesn't look at it as a short term downturn, but more like a 'new normal'. On the other hand, there are others who are looking at the economic slowdown as an oppor-

tunity. One industry on an upward trend in the midst of the slump and probably a result of it, is the online dating industry.

Dating web sites usually get a spike in users during the buildup to Valentine's day, but this year it seems it was higher compared to the last. A similar kind of surge is seen before Christmas and Thanksgiving. Experts attribute it to the pressure on singles to show up with someone to keep face in front of friends and family. Its almost like apart from their being embarrassed about their tight purse strings they don't want to be further humiliated by being single! Well lets hope the times change for the better lest we see more of these market absurdities.

Internet growth in India

Isn't it shocking that India, Asia's third-largest economy, has less than five per cent internet penetration? India in its current role as the flagbearer of the off-shoring business, cannot afford this at all. A recent research indicates that although India is one of the fastest-growing mobile telephone markets in the world, it is in danger of being left behind by other emerging markets, unless it takes urgent steps to enhance its access to the internet.

The Indian Council for Research on International Economic Relations said that India's "very low" penetration of internet would be a drag on the country's global competitiveness. The country would stand no chance against the likes of China, Korea and Indonesia. In fact, according to media reports in 2007, the government had proposed "free high-speed broadband internet connections" by 2009.

The plan was to be implemented via state-owned operators BSNL and MTNL. The intention was to boost overall economic activity in the industry. We wonder where the plan stands today. While urban India is on the verge of embracing 3G, states such as Bihar and Assam have virtually *no* internet access. And speaking of 3G, the much awaited 3G spectrum auction, originally scheduled for later this month, is said to face further delays.

The Indian mobile market stands at 350 million now with around 10 million new users added every month. Imagine the possibilities and information access when even a fraction of these devices can use 3G. If India is to remain at par with the world in terms of mobile connectivity, we wonder how these delays in implementing new technology will fare in the long run.

Military struck by virus

That very familiar doomsday scenario of planes falling out of the sky would nearly have been a reality thanks to the "Conficker" virus. Recently, French fighter aircrafts were unable to download their flight plans after databases were infected by the virus. Microsoft had warned that Conficker, transmitted through Windows, was attacking computer systems in October last year. However, it seems that the French military ignored the warning and failed to install the necessary patches. They managed to contain the infection by shutting down their entire communication system and resorting traditional forms of communication such as telephone, fax and snail-mail! The attack on the system, however, is not believed to be specific or with malicious intent.

Conficker surfaced sometime in October '08 and has been quite a pain for Microsoft. Also known as "Downandup" and "Kido", it is one of the worst computer threats in years, infecting more than 10 million systems worldwide. Microsoft has even put up a bounty of $250,000 (Rs. 12.35 million) on the Conficker's authors head! However, this is not the first time such a strategy has been used. In 2005, Microsoft paid the same amount to two people for identifying the man behind the Sasser worm. As it turned out, it was a teenager by the name of Sven Jaschan. Even if this tactic has proved effective in the past, speculation suggests that Microsoft won't get far this time as it's believed the creator of Downandup is from a part of the world that is soft on Cybercrime such as Russia, Ukraine, or Romania. Therefore, even if he were identified, conviction would be difficult. What Microsoft probably didn't think about is that the designer of the code himself might jump at the bounty. This might spark off a ridiculous trend where malicious code writers start looking at the Bounty as prize money!

"Change" to open source

In an open letter to the Obama administration, a group of software vendors is encouraging the US Government to switch over to open source. The letter tries to impress upon the new president, the benefits of open source by likening open source to Obama's campaign philosophy of *hope, change, and openness*.
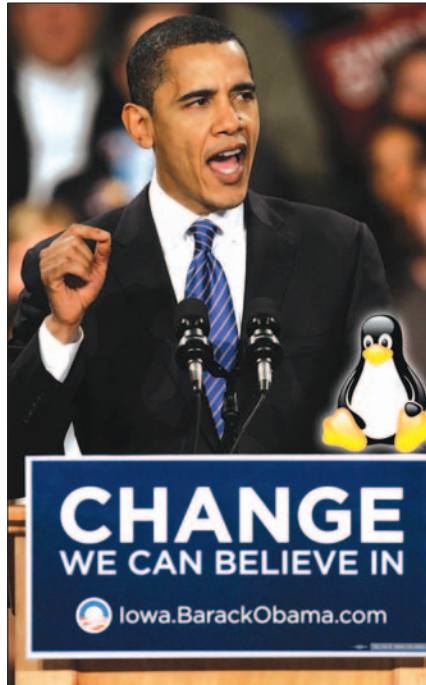
It's curious to note that these vendors are actually commercial vendors and specifically plugging TriSano — an open source, citizen-focused surveillance and outbreak management system for infectious disease, environmental hazards, and bio-terrorism attacks. These proponents of open source are not like your regular Linux fan boys. They're entrepreneurs who appreciate the cost efficacy of collaborative development. However, it turns out that the US administration has been using open source for quite some time now, especially the Department of Defense. Linux and other open source technologies have been used by the DoD in a wide range of deployment areas, including the Army Future Combat Systems program and the Land Warrior program.

The obvious advantages that the administration hopes to gain is in terms of lesser risk of vendor lock-in and lower IT infrastructure costs. The same advantages can be leveraged into servicing other areas such as schools and other public utilities.

Intel v/s NVIDIA

There seems to be some sort of a legal battle brewing between chip manufacturing rivals Intel and NVIDIA. Why are they rivals you might ask. Well if we are to go by NVIDIA's take on the chip manufacturing business, then CPU manufacturing is a decaying business and the GPU (graphics processing unit) is the new heart and soul of the the PC. In fact, NVIDIA believes that this whole law suit by Intel is nothing but a last ditch effort by processor manufacturer to protect precisely this decaying CPU business. The ruckus is being raised because Intel recently sued NVIDIA claiming that the existing licence agreement between them does not allow NVIDIA to design chipsets for CPUs with integrated memory controllers such as the Nehalem. NVIDIA, on the other hand, is confident that it does. So like all disputes in the western world, this one, too, is being settled by a court. Mind you, both the companies have had agreements in place for a long time that allow NVIDIA to make chip-sets for the processor making giant. Emphasising that NVIDIA will not back down, the CEO Jen-Hsun Huang was quoted saying, "this case is about the future and NVIDIA's ability to continue to innovate and make a difference in the industry by creating its own products, not just those
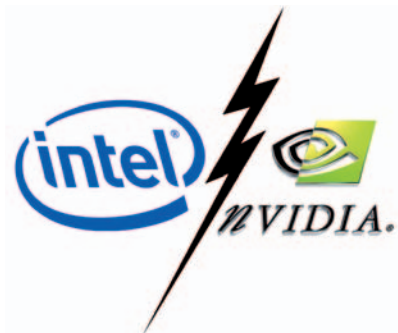
that Intel allows it to create". With sales of desktop processors down by 18 per cent in the last quarter, and those of graphics cards down by almost 35 per cent, this sort of in-fighting isn't going to help either of the companies.

Meanwhile, the companies are fighting battles elswhere too. Intel is trying to launch products by defining newer product categories such as netbooks and the latest one MID. MIDs are mobile internet devices; basically, portable gadgets that can replicate the PC experience. Intel is trying to perfect a new platform technology called Moorestown for MIDs that will negate the power draining nature of processors. Similarly, NVIDIA is banking on the Tegra 600 and Ion chips to win in this segment.

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AP schools get low cost educational PCs

Andhra Pradesh has been known to be a progressive state when it comes to implementing latest technology for state welfare. As part of its latest endeavour, the state govt has deployed a massive computerisation project for government schools in just four months.

However, the real feather in the cap is the innovation in technology that has made this possible. The project employs a shared-computing model using NComputing's desktop virtualisation technology. The premise behind the technology is that today's PCs are so powerful that the vast majority of users only use a small fraction of the computer's capacity. Especially, while using it to run simple tasks. In the set up, there are several sets of keyboards, mice and monitors connected to an NComputing device that later connects to a shared PC.

Reports suggest that each one of the students connected, gets full PC experience. Devices are supposed to be easy to install. Moreover, it uses only 1 W of power! The project is currently used to teach students computer skills, office productivity tools such as spreadsheets and word processing, and subjects such as mathematics.

The systems run on the Microsoft Windows Server operating system and uses the Microsoft Office Suite. The project succeeded in facilitating computer access to 1.8 million students across the state, many of whom have probably never even touched a computer. The project is also a success story for the government's new public-private partnership model, where successful partnerships have been formed to achieve transparency, accountability and efficiency.

Microsoft's HR blues

Lately, we've seen some contradictory news coming from Microsoft. Especially in the way they're managing their workforce in these tough times. On one hand, it's facing flack for thinning down their workforce, and on the other more attacks exhorting it to prioritise American workers over foreign guest workers as the software giant downsizes. In the wake of one such a letter by a senator to Microsoft, questions are being asked about the legality of axing H-1B workers.

Microsoft plans to lay off around 5,000 workers, many of whom are H-1B holders. And it appears that it has an affinity for H-1B holders. We're pretty sure any announcement on this front must be sending shivers down the spines of thousands of H-1B holding Indians waiting on the edge of their seats — their fate hanging in the balance. However, some commentators on the subject are claiming that H-1B visas rarely go to exceptional talent and often are used by *body shops* that provide contract labour to other companies.

Another curious incident involves Microsoft asking a refund from the laid-off workers! The software giant, recently laid off 1,400 employees, and has sent letters to some of them saying that their severance payouts were a bit too "generous" and that the employees should pay the money back to Microsoft. Well, the letter at least apologises for any inconvenience caused. Talk about a PR blunder in the making. What could not be found out, however, was the exact amount that was over paid to the employees. Well it must've been quite a significant error really for them to send out such a letter.
To save face with the American public at large, the company is also starting a job training effort aimed at giving technical skills to as many as 2 million Americans over the next three years. The program is being called *Elevate America* and will help people with creating a resume. Elevate America? More like alleviate Microsoft.

Outsourcing wonders of the tech world

When you think of outsourcing what comes to your mind? Probably India and then China. But more specifically Chennai, Shanghai and Mumbai right? Well you can forget about them because the outsourcing hubs of tomorrow will be something like Zagreb and Penang, says a report by KPMG. The first is a city in Malaysia, while the other is in Croatia and several other unheard of places might become the next offshoring mammoths of the world according to the new report which list down 31 such places.

The report indicates that traditional centres are faced with overburdened telecommunications infrastructure and have overstretched labour markets so should be overlooked henceforth. Instead, the report urges companies to look at alternatives it suggests such as cities in the Asia-Pacific region that offer lower costs, younger populations, and government incentives such as easy work permits. While those in Europe, Middle East, and Africa have robust telecommunications and power infrastructures and niche specialisation in fields such as data management. While cities in the Americas can leverage their large pools of labour, a more mature service offering, proximity to major client bases, and multiple language skills.

What is curious yet appropriate is that size is not a deciding factor for these emerging cities to be on the list. Cities such as Buenos Aires is home to around 1.3 crore people, while Gdansk in Poland has just 8,00,000 people. The report emphasises on the proportion of computer graduates, the number of research and development institutions, the rate of migration to the cities, and common languages with their target markets. Also, Jaipur and Nagpur featured on the list of 31.

Google tests electricity tracker

The news couldn't have come at a better time. Cost conscious as we all are, we've always fretted about things such as our electricity bills. With the recession eating away everyone's purses and homeowners trying to cut corners in all possible ways, this new service currently being tested by Google, consumers can monitor their home energy usage almost in real time. Environmental concerns are also driving much of the research in this field. It seems there is great demand for products such as this one that track energy usage.

About 40 million trackers are in use worldwide. Google says it believes another 100 million will be sold in the next few years. Google obviously wants to cash in on this opportunity, and is actively testing its own software prototype PowerMeter. These days, you can manage almost anything online, be it your bank account or stock trades. Soon with PowerMeter, you'll be able to manage your power consumption the same way. Simply plug your appliance into the device, specify your electricity cost and it will calculate your bill.

Google PowerMeter will receive information from smart meters and energy management devices and this information will be provided to anyone who signs up access to their home electricity consumption on the iGoogle homepage. Imagine the cost saving that can be brought about by the widespread use of this device. Studies show that such kind of information when made available toconsumers, they'll invariably be able to save 5 to 15 percent on their electricity bills. Google says that for every six households that save 10% on electricity, carbon emissions are reduced to the extent of taking one conventional car off the road.■

Home Electricity Use
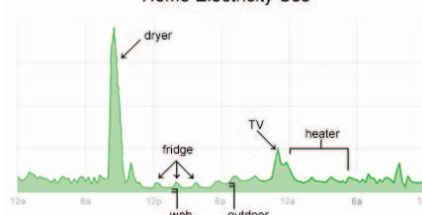
Digit's Mobile Phone Wish List

Siddharth Parwatay

You might have noticed by now that we're great cribbers. With most of the products that we review, almost always, we can find either this element missing, or that other feature which could've been better. So we thought of coming up with our list of peeves. Better still, a wish list of what we would ideally want in a product. So here's a look at things we wish cell phones had, and maybe things even the industry at large should wake up and incorporate to make our lives easier. One thing is wishful thinking, but what is the reality? What are the latest developments taking place in the world towards perfection? We'll tell you about them too.

Universal charging

At some point in your life there would definitely have come a moment when you found yourself running around your office in sheer desperation looking for a Nokia *thin-pin* charger, or a Sony Ericsson W series charger. Isn't it frustrating? Your phone is about to die out, there's electricity around, but you can't tap into any of it! For long, people have been cribbing and crying about the thousand-odd types of charging pins out there, courtesy cell phone manufacturers trying to be unique perhaps. Why can't they just come together and make just one universal charging plug? It turns out they are. At the recent World Mobile Congress in Barcelona, the GSMA and 17 leading mobile operators and manufacturers announced that they are committed to implementing a cross-industry standard for a universal charger for new mobile phones. Apart from consumer experience improvement, the reasons are also energy saving and waste reduction. Hopefully, if all goes as per plan, you can expect the new charging solution based on Micro-USB to be the standard by 2012.

More battery. If not, then at least alternative charging methods.

GPRS, Bluetooth, Video, Music — all big time battery eaters. Some people resort to carrying spare batteries. Some carry car chargers. Could there be a better way? Well some time back we heard of motion-based chargers that utilise the human body's natural movements to create charge. So basically run around or go for a

walk to charge your phone. Such a device would create power by using motion-produced electromagnetic fields that are harvested, converted to electrical energy and stored. But researchers are scouting for still other ways. Companies like ZTE and Samsung showed off their earth friendly solar powered phones at WMC 09. While the ZTE is a rather plain looking 'making calls' type of phone, Samsung's Blue Earth is a full touch Eco friendly wonder. Imagine you're running out of battery. When this technology is perfected an hour or two in the sun and you should be good to go. But what about the fact that most people quite like to keep their phones in their pockets? Perhaps accessory makers could make hay while the sun shines by coming up with some strap-on devices! You could then perhaps even charge your phone while you're on your way to work.

More apps, more freedom, maybe fewer operating systems

Compatibility is a prickly issues when it comes to phones and the stuff you can run on them. Who has the patience these days really to look at which platform supports which application? Applications are very important. We would really like to see a free office suit on phones that allows more editing options. Restrictive operating systems inhibit innovation

and reaching the full potential of functionality of devices. Whatever operating system it may be, should allow independent developers to develop software applications. Otherwise you have people such as Apple who want to criminalise Jailbreaking, which allows users to circumvent the digital rights management (DRM) technology on the iPhone, to be able to install third-party applications not authorised by the company. Firefox incidentally is supporting the iPhone jail breakers.

Bigger Dispalys

Now that we have so much more to watch on our cell phones why do it on a itsy bitsy screen? When the iPhone came out it its large display, it made even the most hardened critics take notice and go "hmm that's nice". Now its about time someone came up with a bigger screen. Toshiba unveiled the TG01 which has a 4.1-inch 800x600 display, and a 1-GHz CPU from Qualcomm. But we're greedier still. Bigger the better is always the way to go to get the most out of your portable media.

Better Cameras

Agreed phones have come a long way since the time of VGA cameras that produced grainy images that barely passed off as photographs. Still, when do you think they'll come close to truly replacing stand alone cameras? Lately many phones do have 5 MP and such. But that's not enough. The WMC saw a few phones like the Nokia N86 and Samsung Memoir which show that they're at least getting there, but a long way to go. Zooming is one area that requires improvement. Most cell phone cameras

Yet another MS OS
Microsoft launched their latest mobile OS — Windows Mobile 6.5 on the 17th of February.

More cut calls?
The number of mobile phones used in India is over 36,22,00,000.

Who owns the web?
Havoc reigns in web 2.0.

Read about it ▶18

have digital zoom instead of optical zoom. An actual moving lens could help make the leap. Another great divide that cell phones need to cross is sensor size. For greater picture density sensor size in phones must be increased.

Better looking phones

There are the standard chocolate bar phones, sliding phones, and flip phones but we really could do with some radical designs. Something interesting we laid eyes on recently was the GD900; LG's transparent phone. Its got a glass-like polished silver body and a translucent keypad. A light illuminates around its

keypad to make the buttons visible. It'll definitely come in handy if you're Hollow Man or the Invisible woman from fantastic four!

Accessories compatibility (3.5-mm audio jacks and memory cards)

Compatibility is one of the most important factors when it comes to cell phones and its associated accessories. For instance one should be able to plug in any pair of headphones or earphones into any phone. If each manufacturer has its own proprietary standard, so much of listening equipment is rendered useless. One of the possible reasons why cell phone manu-

facturers even have their own distinct standards could be additional revenue. For example if your bundled LG or Sony Ericsson earphones get ruined, you have no other option than to go in for replacements from that manufacturer. Also most discerning audio fanatics will agree that earphones that come along with most phones are not up to the mark in terms of audio quality. Naturally you would want to use your high quality headphones, but often the jack on your cell phone will not be a 3.5-mm standard jack. For phones to truly replace portable MP3 players they must allow listeners to be able to choose which headphone they want to plug into their device. Another issue is with expandable memory. When changing phones it should be as simple as transferring the memory card from one phone to the other. This doesn't always happen because of so many proprietary formats such as M2, SD/MMC, Memory Stick, xD-Picture Card etc.

Other wishes

When you buy a rather pricey device, it is not unfair to expect the phone to be easy to handle and of a better build quality. Better ergonomics would surely help; like scalloped or bevelled keys, angled screens etc. Plus the slider quality in most sliding phones leaves a lot to be desired. Since we're in the era of touch screens, thats an area that could use some R&D, especially by companies other than Apple. Funcionality could be improved with small measures like having more useful displays in standby mode — giving you more at a glance without having to open the phone or unlock or slide. We would also like some more ease with inter-transferability of personal data such as contacts, notes and calender entries between brands.

So we hope our little wish list finds its way into the R&D lab of some handset manufacture. And if at all some genie manufacturer decides to make our wish his command, we get first dibbs on the dream device!

Local search

What do you normally do when you are looking for a service or product in the non virtual world? A few years ago you would thumb through a dusty old yellow pages directory. Then we got pretty comfortable with services such as Just Dial. Now, it looks like the search giant of the virtual world Google, intends to enter the local search fray in a big way. Recently, Mumbai and Bangalore got a taste of Google's phone search. Initially launched in Hyderabad and Delhi about a year ago,

CONNECTIONS

this service enables users to search for local businesses or movie show-times by calling a toll free number. The results are then sent to you via SMS. We decided to give it a shot. We called up 1-800-41-999-999 and the automated IVR menu asked us to state business and location. Surprisingly it did recognise in the second try and sent us a single listing of Healthy Meal Tiffin Service in Ghatkopar (no where near our office which is in Vashi). Still not bad, though we would've liked a few more results. Google claims to transfer the call to an operator after two failed attempts at recognition. We decided to put this to test too, so for business name we said "Ding Dong". Obviously after two attempts at recognising 'ding dong' as a business name, the operator came on. When asked him for listings of Tiffin Services and he seemed not at all inclined to narrow down the location. When prompted from our end he was willing to send area specific listings. Otherwise he was going send the first three listings for the keywords 'Tiffin Service'. How typically Google! (sponsored results anyone?) Also the three SMSs that we received were pretty garbled. Incidentally the same service is available via SMS. Simply send your search query to 9-77-33-00000 and wait for the listings to be sent to you almost instantaneously.

Save 9-77-33-00000 on your phonebook for quick and easy access to Google SMS.

Google Latitude

Google seems to be giving a major push to their mobile invasion lately. Its comforting enough to know that Google already knows more about us than we do ourselves. Be it our searches, mails, likes dislikes, and here's yet another case Google trying to pervade another aspect of our lives. This time it seems Google wants to pin point our location! Okay perhaps this is a very paranoid way of looking at the recent launch of Google's Latitude. The new service from Google is supposed to be a feature added to Google Maps for mobile that allows you pinpoint your friends location on a map. Your first reaction might be "oh that's nice, who can I stalk or spy on?" But remember, even your location can be triangulated! Now are you thinking "that's kinda creepy"? Well Google's take on the service goes something like this — "Once you've opted in to Latitude, you can see the approximate location of your friends and loved ones who have decided to share their location with you. So now you can do things like see if your spouse is stuck in traffic on the way home from work, notice that a buddy is in town for the weekend, or take comfort in knowing that a loved one's flight landed safely, despite bad weather."

Jokes and paranoia aside, it may indeed have some uses. You may really want to share your location with people you're really close to. You could use it to show off too. Yes, apart from automatically detecting your location you can manually set your location with the desktop version of the service via the Latitude iGoogle gadget. So you can even set your location to Paris if you wish. Perhaps concerned parents could use it to keep tabs on delinquent teenagers? Also to dispel a bit of paranoia, all this 'sharing' business is entirely as per your choice. You can choose who to share your location with and vice-versa. You can also decide what level of specific location you want to go into ie. your best available location or your city-level location. Latitude currently is available on Blackberry, Windows Mobile, and most Symbian S60 and Java-enabled (J2ME) mobile phones and the app can be downloaded from **www.google.com/latitude**. ∎

Who owns your online content?

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With the massive outbreak of web sites that work on user generated content, issues regarding ownership of such content have started to shake things up. Who controls all this information in a world of search engines, social networking, and a culture of online sharing? As web sites of the so called web 2.0 revolution, such as Facebook, MySpace and YouTube are struggling to come up with a sustainable revenue model, it's natural for them to cast a net and grapple for every last bit of your information. Perhaps it'll be of some use or value some day, is what they probably reason. A recent example of this was when Facebook decided to make changes to their Terms of Service document which granted them rights to all your content, forever — even after you've left the service. Why do they want this content? All these traces you leave behind, help Facebook and others build a valuable database of your likes and dislikes. This treasure trove of information has got to be worth a lot to marketers.

A huge uproar was raised about the issue by consumer rights groups and strangely enough, communities within

Facebook itself sprung up to protest the subject. Facebook quickly turned tail and issued statements saying it'll come up with a reworked document. It's definitely not a solution, but at least it's a temporary salve. The larger question here still needs to be answered. Who owns all this stuff? Comprehensive privacy laws must be put in place to define such things. Also, if these companies don't do something about their image, they can easily fall prey to something known as the big company syndrome. According to this syndrome that is currently afflicting Google, people begin to get suspicious of companies that have grown very large. In the case of Facebook, it's important to point out the actual words of the "Terms

of service" document stated that content was still subject to your privacy settings. Therefore, it was not like you could one day end up seeing your mugshot on the side of a bus, as one blogger commented.

Facebook's view of the matter is that they just want to keep your content after you've left to keep the social fabric of the web site going. They liken it to emailing, where a copy of your email is found both with the sender in the sent items and one in the inbox of the receiver. Ostensibly, they just want to retain the copy they have. Therefore, does sharing imply parting with rights? These are difficult questions to answer. And those that significantly value their privacy tilt towards absolute control over their own content. What can we learn from this? Well, the first thing you need to do is stop thinking of these web sites as your personal diary. Consider them as publishing tools instead of your own little digital domain. Update your privacy settings to the maximum possible level. An added benefit of this is that you'll probably stop getting those friend requests from random people which make you go "hmm... do i know this person?". Be proactive — maybe you can take an active part in formulation of policies. Facebook for instance has now started a community where it welcomes users thoughts on the privacy issue. Incidentally the protest group on facebook called "People Against the New Terms of Service" had 1,13,383 members while going to print while the "Facebook Bill of Rights and Responsibilities" group had 73,272 members. Also you could take the trouble to read the privacy agreements of these web sites instead of so willingly clicking on agree all the time. At least read the parts most relevant to you. If sifting through tons of legalese is not your thing look for blogs that explain stuff in simple English. Amanda French, a blogger, and authority on the subject offers comparisons between the terms of service of MySpace, Flickr, Picasa, YouTube, LinkedIn, and Twitter. Definitely worth a read. Last but not the least, one should remember that whatever you put out there on the internet will most likely remain much after you're gone, even if the service providers honestly delete them from their databases. The internet's memory unlike public memory is not short lived. ∎

Staying connected

Browsers that will let you get your daily dose of the net, on your mobile...

CONNECTIONS

Agent 001

A few years ago, WAP (wireless application protocol) was considered a luxury, and a lot of us had the "My service provider's cooler than yours," arguments, based solely on the cost of internet access. I was, at one point, paying Rs 499 per month to get internet access on my phone.

When it comes to electronics and technology, the meek mobile phone has inherited the Earth. With a rather large percentage of people owning one, it's obvious to everyone that networking the world is easiest achieved through mobile devices. Unfortunately, things aren't as simple as hooking everyone up with a mobile internet connection.

We have the goal – connect the world; get them on the net. We have the technology: GPRS, EDGE, 3G, Wi-Fi, etc. However, as is usually the case, software plays spoilsport.

Just browsing

No two phone manufacturers seem to agree on any one browser. Although it may not seem like a problem, it actually wouldn't hurt for someone to have a Microsoft-like strangle-hold on mobile browsers – the way IE is on the desktop. Before you gawk in disbelief at that statement, finish reading the article and perhaps it will begin to make sense.

Basically, there is a need for standards, as the lack of them is confusing everyone – you, me, developers, mobile manufacturers, ISPs; effectively chucking a rather large spanner in the works.

Order to chaos

Thankfully, the W3C (World Wide Web Consortium, founded by Tim Berners-Lee) is trying to set some standards here, and ensure that we all have similar experiences when browsing the mobile web, no matter what handsets we use.

Wouldn't it be nice to be able to browse the mobile web the same way we do on our desktops? Barring a few sites that are "optimised" for Internet Explorer, the "desktop web", is basically standardised. When it comes to mobile browsers, however, the reality is quite the opposite.

Apart from the W3C, the Web Standards project is also involved in creating tests that browsers (especially mobile browsers) need to pass before they can claim to conform to standards. More information in the box "Acid3 test".

> "The Mobile Web Initiative's goal is to make browsing the Web from mobile devices a reality. W3C and mobile industry leaders are working together to improve Web content production and access for mobile users and the greater Web."

Tim Berners-Lee
Internet Inventor / W3C Director
www.w3.org

Mobile Browsers

Let's take a look at what's on offer for those of you who can't wait to get online from your mobiles.

Android

Google's open source initiative brought us the Android mobile OS, and although there aren't too many devices that run it just yet, you can count on Google's past success in everything they do to ensure that this will change soon. Android's browser has got some rave reviews from early adopters. It uses the WebKit rendering engine, which is basically an API that Apple derived from the KHTML software library that is used in KDE's Konqueror browser. The browser is fast, renders well, and with WebKit promising to be one of the few to pass the Acid3 test soon, there are certainly not going to be too many formatting errors. The android browser scores 72/100 in the Acid3 test.

Acid3 test

The Web Standards Project has a battery of tests to verify how a browser follows the accepted web standards, and how a browser displays them. Standards are important for the web, and the WSP is doing its bit to try and get all major browsers to conform to set guidelines. Even those of you who use a desktop to surf the net will have come across some site or the other that just breaks when you view it — with text that refuses to stay in its box, images that refuse to resize right, or menus that seem to act all crazy. Sometimes it's the site's coder who have screwed up, but sometimes, it's your browser that's coughed and died, because it just doesn't support a certain web standard. If everyone followed standards, you could just use your favourite browser, visit any site, and never have to see terribly broken layouts or renders. The Acid3 test is supposed to tell you whether your browser is following the coding rules, or not. Anyone can run the Acid3 test by visiting **http://acid3.acidtests.org**. More information on the various Acid tests are available at **www.webstandards.org**.

Scoring (desktop browsers):

IE7: 12/100
IE8: 21/100
Firefox 3.03: 71/100
Opera 9.63: 85/100
Google Chrome / Safari 3.2: 75/100

Interestingly, newer versions of both WebKit and Presto (that's Safari/Chrome and Opera to regular folk) pass the Acid3 test with flying colours, and although IE8 has improved on IE7s scores, it's still pathetically placed. Now if someone could only get Microsoft's IE team to start caring, we'd hope to see some improvements in that score.

CONNECTIONS

Safari

Mobile users will have used this if they coughed up the dough for an iPhone, or an iPod Touch, and they will be perhaps the most content of all us mobile net junkies. Safari is the best mobile browser yet — it is fast, renders impeccably, scrolls and zooms beautifully, and since it's found on Apple devices, the multi-touch really makes it simple for anyone to use. It's still got a long way to go though — it needs to add Flash support, fails the Acid3 test (74/100), and when pages break, they break terribly. Remember, WebKit claims to pass the Acid3 test with Safari 4.

Opera Mobile

This is Opera's Windows mobile and Symbian browser, which is bundled in some devices, and available for download for all others. Opera have their own closed-source browser engine called Presto, and as you can see from the desktop version's results, the Acid3 results, although not perfect, seem to suggest that Presto certainly follows more web standards than the rest. Opera Mobile 9.5 beta scores 73/100 in Acid3, and the tests it fails are less likely to affect page layouts. A look at the screenshots should tell you what you need to know.

Nokia Symbian 60

Nokia's S60-based phones use a browser that's also based on WebKit, like Android and Safari, but somehow it doesn't do as well as its cousins. It scores 47/100 in the Acid3 test, and generally does not feel as fast and smooth (rendering) as its cousins. The one good feature it does add, which its cousins need to seriously think about, is Flash Lite support. There's still a lot of tweaking needed, and Flash-lite on our test phone (a Nokia E51) was buggy and slow because it ate a lot of resources – but at least it worked. There are some decent Flash Lite applications available, just make sure you don't use any of the screensavers – they just eat into your battery life. ∎
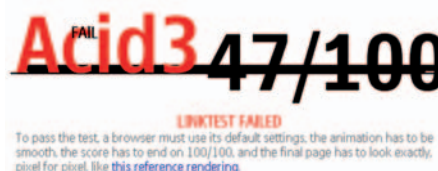
Mobile Browsers

Flash Lite

Flash Lite is Adobe's way of bring Flash content to the mobile phone specifically, and mobile devices in general. The Lite part of its name should immediately tell you that this is not a full blown Flash player, like the version for desktop browsers or Adobe's Shockwave player, but it does have some interesting uses. You should check if your device is Flash Lite capable, and if it is, make sure to visit Adobe's Marketplace at **http://www.adobe.com/cfusion/ exchange/.** Just search for Flash Lite, and you should find hundreds of apps that may interest you.

Internet Explorer

IE on Windows Mobile is a barely able to render anything properly. If you thought Acid3 tests scores for its desktop version were bad, you have no clue how bad, bad can be. With so many sites breaking, it doesn't make sense to even bother here. It's obvious that IE has a long way to go before it's suitable for smaller screens. For now, we'd rather urge Windows Mobile users to download Opera

Mobile, which may not run as well as it does on Symbian, but at least you'll be able to surf the net!

Opera Mini

The best part about Opera Mini is that it can be installed on almost any mobile device – whether the iPhone, any Symbian device or even the run of the mill, everyday (Java-enabled) mobile phone. Opera mini is specialised for small-screen browsing, and renders really well. Opera Mini scores 80/100 in the Acid3 test, which is commendable.

Mini uses Opera servers to compress, reformat and optimise data for your small screen, which results in faster page transfers, and little or no processing power required on your end. Unlike Opera Mobile, where your mobile does all the processing and page rendering, Mini lets a server farm somewhere in cyber space worry about all that, and just displays content on your screen. It's also a good application for those on a pay-per-use data plan, because, for all practical purposes, Mini zips (as in compression, and speed) the net for you, saving you precious bandwidth

and time. I for one am thankful for it, because I barely get 2 or 3 KBps over my pathetic GPRS connection, but can still do everything I need to online, from anywhere, using Mini.

Now what?

As usual, there needs to be some logical conclusion to the whole thing, right? Wrong. We still have a long way to go before the "mobile web" is as accessible as the "desktop web". Recent news reports have suggested that the number of mobile users globally (and especially in India), are increasing exponentially. Much before we have one laptop per child we might end up having one mobile per child, and this is something that all mobile service providers are well aware of. The mobile is the new PC, and everyone and their uncles are hopping on to the mobile space to try something.

While this is great news for those of us who love the convenience of mobile connectivity, all we can do is hope that groups like the W3C and the WSP succeed in encouraging the use of standards, or else it might not be as much of a runaway success story as the desktop web is.

Still, with some mobile devices starting to match the processing power of a 6 year old PC, perhaps we're all going to be thrown into another race for performance, and will again skilfully adapt Moore's Law for the mobile space to justify constant upgrades and doubling of features on mobiles. Perhaps we're wasting time worrying about which browser to use, because in the near future we might be bickering over which OS to use and which antivirus software is best... whatever the outcome, we'll still be here to help point the way.
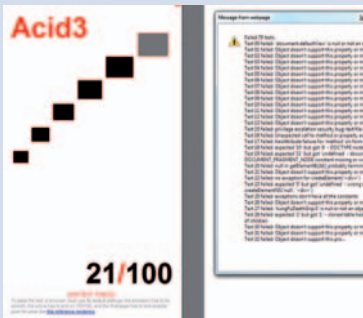
The Safari edition M8

Leica is a German company well known for making simple, highly effective cameras with outdated looks. The M8 and M8.2 were wonders, 10.3 MP digital cameras in a casing that would not look out of place back in the 50s. The Safari edition M8 is something really special. Only 500 of these rangefinder cameras will ever be made, and everything from the carrybag to the strap is designed around the dusty theme. There is a limited electronic menu, with most of the options available through good old chunky buttons and knobs on the casing itself. One of these will set you back by $10,000 (Rs. 488,731).

Bissols sub-30 mm wonder

Every luxury brand has tried to stay up to the times through outrageously expensive pen drives. Bissols sub-30 mm wonder is the smallest luxury pen drive in existence. The casing is engineered in a process reminiscent of swiss watches. The pen drive has 4 GB of memory. The pen drive does not even have the customary rare metal body studded with rare gems, its made of plain old brass. Available for a very reasonable $260 (Rs. 12,726).
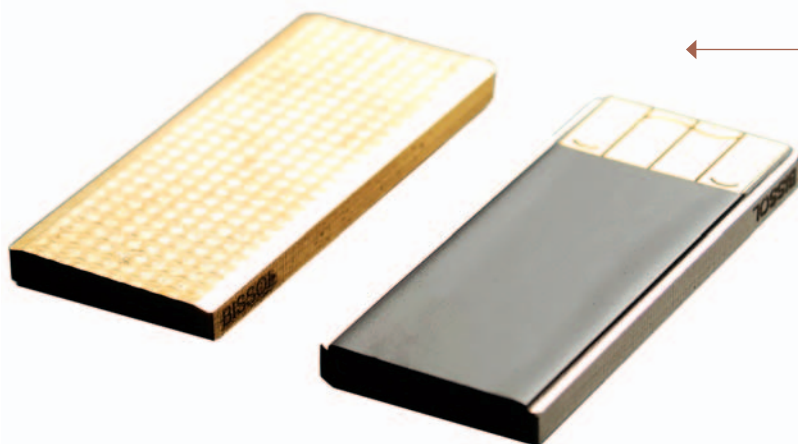
Pioneer X-Z9

From the elite Hi-Fi stable of Pioneer, the X-Z9 sound system is one of those high-end systems that does not leave the end user to do all the hard work. The system lets you plug in a USB drive, your MP3 player, supports your iPod and streams from your PC. You can connect your computer using a good old network cable. It can also interface directly with internet radio and satellite radio. In all probability, you will need a better set of ears to appreciate the X-Z9 to the fullest. Costs $ 1,800 (Rs 87,867)
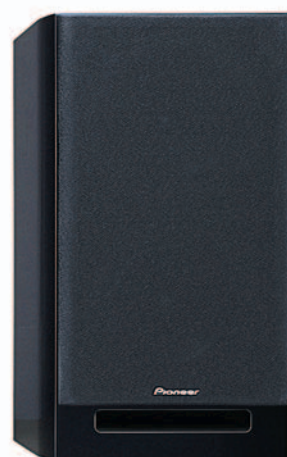
Sony Ericsson X2

The Walkman lives on – the first touch-controlled Walkman phones to hit the market will be the Sony Ericsson X-series phones, all of which hopes to give competition to the mighty iPhone. The pick of the lot is the X2, a powerful multimedia oriented piece. The menu directly leads you to YouTube. All major formats are supported, you can download DRM-free music from iTunes and BBC iPlayer, all in a 432x240 OLED display. The battery lasts for 12 hours only though, with 16 GB and 32 GB models available. No word on the pricing yet.

Summit X speakers

The Summit X speakers are floor standing speakers from MartinLogan. The speakers contain controls for changing the output according to the acoustics of the room, low distortion aluminum woofers that are laser engineered, and the trademark XStat Transducers borrowed from their flagship CLX series. The speakers are available in six wooden finishes (Wenge, Natural Cherry, Dark Cherry, Bird's Eye Maple, Bubinga and Black Ash), and have soft lights that illuminate the base from below. Get a good portion of the $25,000 (Rs. 1,221,750) CLX technology for a mere $14,000 (Rs. 684,180).

3D TV
Is it really here?

Kumar Jhuremalani

DIGITAL LIFE

Imagine walking back home after a hard day's work and being honoured with a red carpet welcome. Add to this, some colourful butterflies and a shower of flower petals — no gibberish. The day is not too far when 3D technology will move out of being only available at the cinema halls but also will be available for everybody at their houses.

The future of television is here

The story behind 3D TV

In the 50s, Disney, Paramount and Universal Studios had all created 3D films for everybody to enjoy and that was considered the birth of 3D technology. This vision was also meant to be the way of the future for watching videos, but soon got killed due to strain on the eyes and headaches which were caused by watching a 3D movie which usually, was like a fun filled evening for

You no longer need to wear 3D glasses

the family. Since that time, the idea has existed to provide 3D TV to homes everywhere. Of course, this also has to be done without those geeky paper glasses with the red and blue lenses otherwise we will send them back to the drawing board in protest.

Well that was the past, as many companies have developed prototypes that do not need those so called '3D glasses'. Moving forward a few technology cycles, and this concept of 3D TV without the glasses has risen from the ashes. The past few years have shown us progress in this field with more and more companies moving towards creating 3D TVs.

A few years ago, Philips introduced their prototype 3D TV which gave people a view of objects actually being next to them. In reality, however, was just being displayed by a 42-inch LCD screen. The 3D technology is actually used with LCD TVs and not a separate new type of TV. They used the concept of sending images, slightly differing
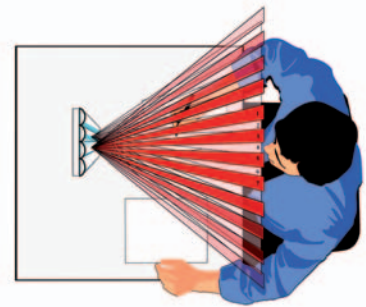
The stereoscopic principle

from one another, separately to the right and left eye – which mimics our stereoscopic vision.

Philips is calling this technology WOWvx and is going to have a range of screens with the same title. The WOWvx technology places minute lenses over each of the millions of red, green and blue sub pixels that make up a LCD or plasma display. Basically, there is a processor present in the TV that generates nine slightly different views which correspond to the different viewing angles. This is why, if you view the TV from any angle, you will get a different image in each eye. Providing these many views is the actual key for the success of 3-D TVs.

Currently the best use for 3D TVs lies in playing video games on them. Technically games are created with the generation of three-dimensional objects internally which are then flattened to two-dimensional representation due to the limitations of standard available monitors. Video games are a great ready-made source for 3D content, but what about those of you who don't like to play games, and want other source of entertainment? The reason why currently movies cannot really be shown in 3D is due to the cost. This cost that we are talking about is not really the cost of creating the 3D TVs, as they cost almost the same as the cost to create a regular LCD or plasma TV, but instead it is the cost of creating a movie to be watched in 3D that is affecting it. There is also research going on to convert ordinary 2D videos into 3D, but it has still not reached an acceptable viewing stage and more work needs to be done for it.

DIGITAL LIFE

A scene from Aliens vs Monsters

Sony, one of the major manufacturers of LCDs and Plasma TVs has also hopped on the wagon for 3D TVs and displayed their prototype model at CES 2009. Sony had a different take on the technology they used, as their 3D TV involved glasses for viewing. But don't be scared as they are not those horrid paper glasses, but are much better and are being created by REAL D. Not much information was revealed about their launch plans and the future of how they are looking at 3D TVs.

In 2008, Panasonic revealed to the world the largest plasma TV which was a whopping 150 inches. But this time, at CES 2009 they decided not to compete in size; instead, they focused on showcasing their advancement in 3D technology. They showed off their 103-inch full HD 3D TV. According to Panasonic, "3D FHD [Full HD] system comprises a 103-inch Plasma HDTV and a Blu-ray Disc player that plays back Blu-ray Discs onto which 3D video (consisting of left- and right-sided 1080p Full HD images) are recorded. This current plasma will definitely not fit every home but Panasonic has definitely shown that they want to dominate the 3D TV market". So this is one brand to definitely watch out for if you want to move to 3D TV.

3D has such a large scope when it comes to entertainment. Movies in 3D are already a tried-and-tested method and is loved by all. But having to strain your eyes for it on a regular basis is a price nobody is willing to pay. The fun-filled cartoon characters popping out of your screen, the terrifying horror that scares you in 2D, and now will really freak you out thanks to 3D TVs, are all going to be a part and parcel of your daily life soon.

It has a wide variety of applications other than just playing games and watching movies. There must be quite a few sports lovers who really want to watch a particular event such as a cricket match, but cannot do so because these matches are played all around the world. Also, sometimes getting entry to these matches is tough not only because of the foot fall but also due to the cost. Broadcasting these matches live through 3D TVs would be one of the best things that could ever happen in this case. This kind of entertainment would require you to just sit at home, but these matches could also be broadcast in cinema halls. It would be just spectacular to watch your favourite sports icon right infront of your face, it would feel like you are actually a part of the game itself.

Other than entertainment what other purpose is there for a 3D TV one may wonder, but infact there are many. One of them includes a gamer's dream coming true as Westinghouse is working on a passively 3D LCD television. Imagine playing a game that you are finally part of, whereby looking to your left you will actually see objects and enemies right in front of your face, instead of just typically on the screen itself. They have accomplished this by aiming pixels in different directions with varying overlapping points, which creates the illusion of depth to the viewer. A drawback to this technology is that due to the pixel being spread in different directions, the television isn't capable of switching from 2D to 3D. How many gamers will actually be spending their money on this particular display is a question that only time will answer.

Education will benefit to new extents with the introduction of 3D TVs. Education has already moved on to the PC where students even at school levels are referring to video tutorials and other media forms related to their subjects. Having 3D TVs will boost understanding to greater heights, not to mention it would be more fun all together. For example, while studying geography, instead of just looking at a country on the map, with 3D TV you can zoom to show pin point locations right in front of your eyes.

The field of medicine will really benefit from 3D TVs and this idea is being made a possibility by several large companies. Some companies such as Alioscopy are currently focussing towards medicine and are not moving along the stereotypical path of targetting home users. Viewing the internal organs in the human body in 3D will give a boost to doctor's performing surgeries. Their diagnosis can be made more easily and it reduces the chances of causing an error. There will be a whole new understanding and approach to medical procedures with the introduction of 3D TVs. Biotechnologists and biomedical researches also profit from this and can display detailed structures of DNA and proteins that they have mapped, in return giving them a better understanding of genetics and our very own evolution.

The ball will be in your hand
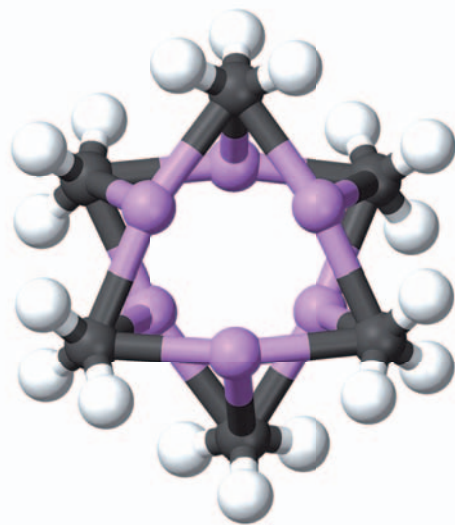
Advance protein structures will be more visible

Other manufacturers making 3D TVs

Philips, Panasonic, LG, Mitsubishi, Sharp, NEC, Hitachi and Sony are in the race for taking over the 3D TV market.

LG
LG is just the next brand in the growing line of consumer companies that are caving to be one of the elite few in the 3D run. LG has accepted that 3D TV is the next big thing and is also pushing forward their research to enter this market. Regrettably, that's about all the details that LG is willing to shed light on. We hope LG doesn't make us wear those horrid looking glasses though.

Hitachi
Hitachi has gone ahead and has done something which the others still haven't reached. What we are talking about is not only 3D TV, but also controlling such a TV with hand gestures. Hitachi was another brand that was showcasing its 3D TV technology advancement at CES 2009. This high-end TV panel of theirs, works with a Canesta 3D sensor that allows TV viewers to interact with the controls of the TV through hand gestures. This TV is not just a prototype, but will be available soon. Soon you will be able to change the channels, even if you can't find your remote control.

Sharp
Sharp has started off without waiting for television and movie producers to shift to equipment that produce 3D content. Instead, it is researching ways to convert 2D content such as videos into

3D. This would not only create new openings for content by converting old and current films and TV shows, but depending on the efficacy of the technology, could even eliminate the need for studios to invest in any new filming equipment at all. Sharp has used technology similar to Philips'. However, unlike Philips, it involves only a pair of images that will be recognised separately in each eye. However, in order for this to work, the viewer must be sitting still in one postition.

NEC
NEC has been working on a prototype to bring 3D TV to your mobile phone. We really don't know what NEC wants to accomplish by doing so, as the screen size is said to be only 3.1 inch as 3D images never jump out beyond the frame of the screen you are looking at. This means you need to be holding the device really close to your face to have the full effect of 3D on your mobile phone. NEC wants to show how its hardware can decode and display 3D images in real time on a compact device.

Mitsubishi
Mitsubishi has its own concepts and theories on 3D TV and doesn't want to be left behind. It has managed to demonstrate a scalable system for real-time acquisition, transmission and stereoscopic display of dynamic scenes, which actually means 3D TV. However, we think it still really needs a lot of work done as the video that is available for preview doesn't match up to the others.

DIGITAL LIFE

People get easily distracted by shiny objects being displayed on a regular television and if it is a product, it will be wanted by all. This is a common advertising strategy that is used by companies to lure people into purchasing their products without actually getting to see them first hand. Traditional television is limiting the viewers from actually finding out the full features of a product. Utilising 3D TVs as a mode to sell products will give potential buyers a better look at the product and will not be dissapointed with what they purchase. Those tele scammers will finally be dealt with.

When 3D TVs go mainstream, which won't be very long, even professionals like Architects and Interior Designers will benefit from it. Creating and presenting their projects can be done with much more ease. Plans for building and homes can be laid out and conveyed to the clients simply through a 3D TV.
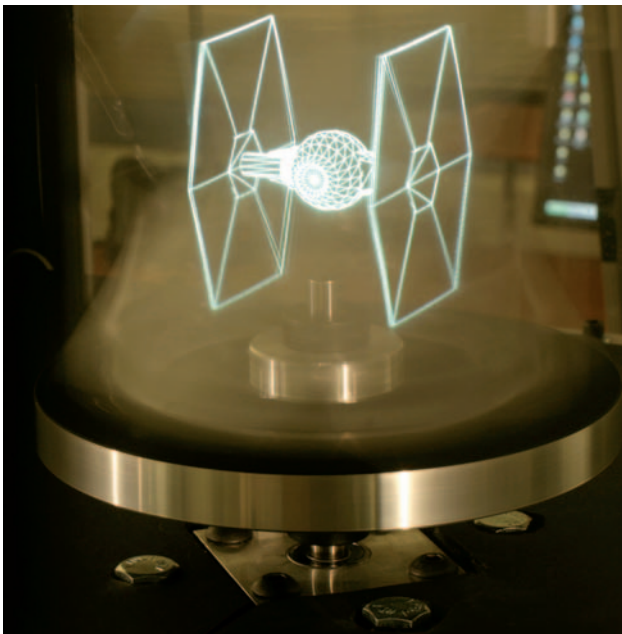
Images will actually be transformed into reality

Using your LCD or plasma TV, that is wall mounted, to display beutiful pictures of art work is now a common thing seen in households that have these TVs. Now think about those images actually popping out of that screen, letting people view it in a whole new way. Luxury at home will soon know a new meaning with 3D Art. Sculptors and artisans normally create intricate designs before actually executing them, but sometimes things don't turn out as originally planned as what they view is on a 2D plane. But with 3D playing a roll here as well, things will always go as planned.

3D technology has inspired many other similar fields. There are researches that are working towards creating a chip in cameras that can actually capture an image and convert it into a three-dimensional one with actual depth and distance. As this technology is new it does have it's own kinks that need to be sorted out. But this has also helped to reduce noise and other distortion in images. This 3D technology would make a welcome addition to the cameras of the future. As battery capacities expand and processors become more powerful, cameras will be able to sport these chips with ease. Although the price would probably be higher than a traditional sensor, being able to take 3D photos would certainly be worth it, at least for some.

3D is just the start of things and is already looking very promising. The next thing that this will evolve into is holographic imaging. The day will come when communicating between people will feel that you are actually talking to the person right next to you. Even your watch or mobile phones (if they will still exist) will be able to transmit this type of video and with a voice interface you can actually see the person you are speaking with right next to you even though he or she might be in another part of the world. Holograms are also useful is so most of the mentioned 3D TV applications. For example, in the field of education, many students opt for higher education through distance learning programs, which works out to be tough due to physical isolation, but will soon be able to sit in a holographic classroom along with the other students.

What the future holds for us all is still not certain, but what is certain is that we are moving in the right direction and have definitely had a good start. How long it will take to reach the destination is upto all of us, whether to appreciate and accept the technology put forth is all our choice. We have already made our choice and can't wait to see this technology turn into a complete reality, what about you? ■

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Playing
catch up

Our first look at Internet Explorer 8 RC1 reveals a browser that's merely catching up to its competition; not blazing past

Ahmed Shaikh

No one is going to accuse Microsoft of being innovative with its Internet Explorer (IE) product. For all the progress that the company made in wrestling the browser crown from Netscape, so long ago, the software giant could until recently be described as sleeping at the wheel with IE. In the face of competition from Mozilla Firefox, Opera, Safari, and Chrome – Internet Explorer seems stuck in the stone-age, rubbing rocks while there's a space race in its backyard.

So what rouses a sleeping giant from its slumber? Is it losing 21 per cent of market share to an open-source alternative? Is it being considered outdated by web developers? Or is it being perceived as a security threat in an increasingly web-aware world?

Whatever the cause, the giant is awakening and version 8 is Internet Explorer finally getting with the times.

Let's take a quick tour of some features offered in this release.

Interface changes
The first noticeable change is that IE8 offers an address bar similar to that of Opera and Mozilla Firefox 3.x. Dubbed the Smart Address Bar; it matches what you type with URLs in your browsing history, along with searching content in your favourites. Another visible change is the page that's presented when you open a new tab: this page asks "What do you want to do next?"

and offers you sets of frequent tasks – such as opening recently closed tabs, browsing in private, or using a new feature called Accelerators. IE8 also offers a better zoom feature – one that (finally!) scales both the text and the image on a page. An interesting addition to version 8 is a feature called Caret Browsing. This is triggered when you press F7 and allows you to browse a web page sans mouse – the arrow keys allow you to browse a page like you would a text document. It's not nearly as useful as Opera's spatial navigation (using the SHIFT, S and W keys) but it is useful when you wish to highlight, copy-paste, or use Accelerators while reading text-heavy web sites, such as blogs.

Accelerators
When you select text in IE8, a small icon is triggered. This icon, when clicked, reveals the various "Accelerators" that the browser offers. An Accelerator might offer to bring you an encyclopaedic entry on the selected text, or if the text is the name of a place, it could show you mapping information, or let you blog the selection, and so on. It is a convenient way to perform everyday tasks without the need to shuffle between web sites. As of now, most of the Accelerators point to Microsoft services – Encarta for the encyclopaedia, Live Spaces for blogging, Live Maps for mapping, and so on. However, IE8 allows you to use third-party accelerators which can be downloaded much like extensions for Firefox.

The Smart Address Bar offers suggestions from your browsing history, favourites, and feeds
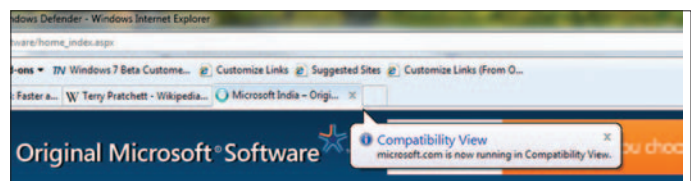
Clicking the icon runs the website in Compatibility View

An Accelerator that integrates mapping information with a keyword
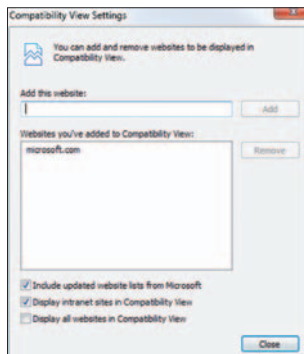
Web sites that run under Compatibility View. Oh, the irony

MS Encarta integration offers information on Mumbai, also through an Accelerator

DIGITAL LIFE

Web slices

Simply put, a Web Slice is essentially an RSS feed for a web site. The thought being that you would rather quickly glance at information some web sites put out, instead of visiting that site every time you need an update. Weather report, stock updates, and auction alerts make for some of the Web Slices available. Once again, you can add third-party Slices to IE8: a web site which has a Web Slice to offer will cause an icon to pop-up under IE8 (similar to the RSS feed discovery icon that shows up in all modern browsers) – clicking this icon will add the Web Slice to IE8.

A Web Slice keeps you updated without the need to visit a web site. This particular Slice lists the top stories on Digg

If a Web Slice is available, a green icon appears in the upper right corner

Search enhancements

IE8 offers a couple of features to make internet searches friendlier. When you type a keyword in the browser's search field, it offers real-time search suggestions. Moreover, you can add multiple engines to the browser (notably, not a new feature) and triggering a search through any of these added engines is just a matter of clicking on the correct icon. Apart from suggestions, IE8 also offers a so-called Visual Search. Visual Search, as the name suggests, offers a

visual result to a query – for example, typing in 'new delhi weather' will offer a peek at the current weather conditions in the capital. Visual Search results are through third-party tie-ups: currently Wikipedia, Amazon, Yahoo!, and some weather services offer Visual Search results but one can expect future additions to this list.
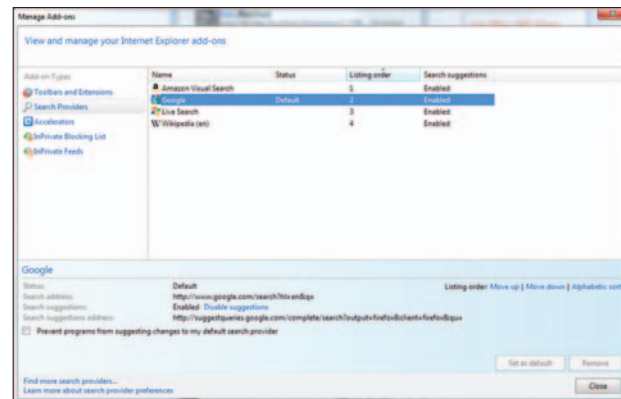
Managing Add-ons and Search Providers. Note that you can also change the order in which the search engines are listed
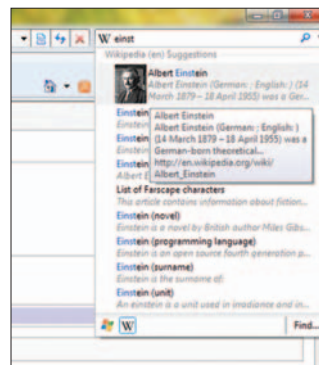
Visual Search shows you instant previews of your search results
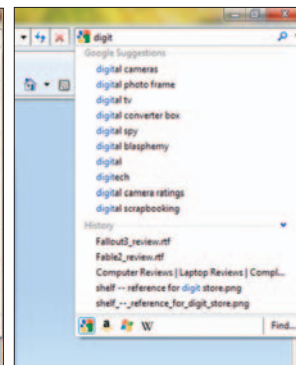
IE Search also goes through your History. Note the different Search providers at the bottom

Visual search using the Amazon engine

Note that you can press [Shift] + [Enter] to launch the first result, and that you can remove a result if you don't think it's relevant
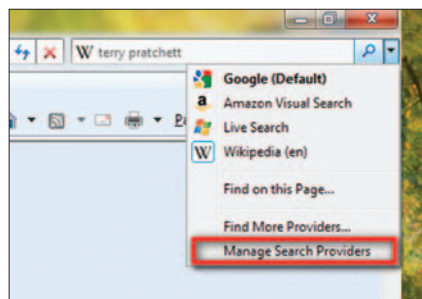
Delete, disable, or enable Search Providers
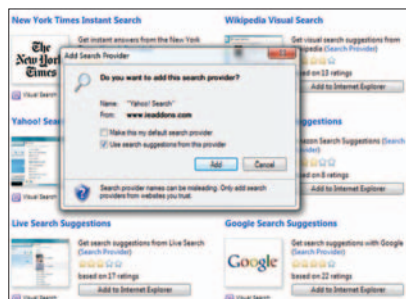
Changing search providers is a simpler process
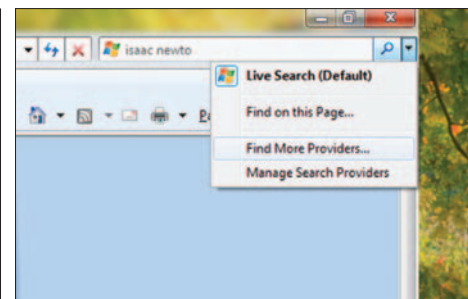
Add more providers for Visual Search

DIGITAL LIFE

DIGITAL LIFE

InPrivate and other features

InPrivate is akin to Chrome's Incognito mode. Start InPrivate browsing and IE8 will not retain your browsing history and cookies. IE8 offers InPrivate Browsing and InPrivate Filtering – either of which can be enabled independent of the other. InPrivate Browsing ensures that cookies, history and temporary internet files are not retained by the browser; toolbars and extensions are also automatically disabled while in this mode. InPrivate Filtering allows you to block online tracking behaviour of some web sites – basically behaviour that helps sites create and maintain an online profile of your online behaviour.
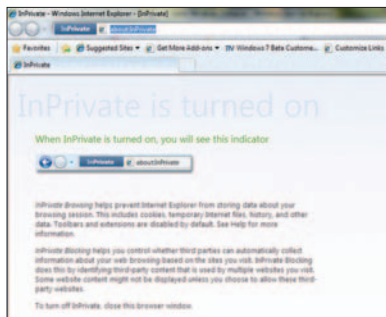
InPrivate Browsing prevents IE8 from storing cookies, history, and other data about your browsing session

IE8 also introduces a neat idea to tabbed browsing. Tabs that originate from the same parent page are colour-coded to indicate grouping. If you close a tab from a group, another tab from that group is displayed. You can also re-order tabs, while a right-click allows you to remove a tab from a group, close an entire group, close other tabs but the current one, ungroup tabs, and to even duplicate a tab.

Another enhancement is the browser's Find on Page feature. Much like how Google Chrome handles it, pressing [Ctrl] + [F] reveals a small toolbar that shows you the number of matches for a particular keyword, along with letting you cycle through all instances of matched words. It's a much neater interface than IE's traditional pop-up style Find-on-Page box.

Crash recovery and security

If a tab crashes in IE8, it is automatically restored and reloaded. Moreover, information that you might have typed in the crashed tab – a mail or a form, perhaps – is also restored. IE8 isolates
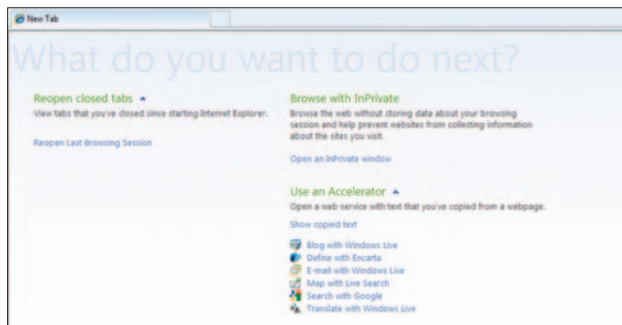
Click on a New Tab button and IE8 offers common tasks including opening closed tabs and working on a closed browsing session
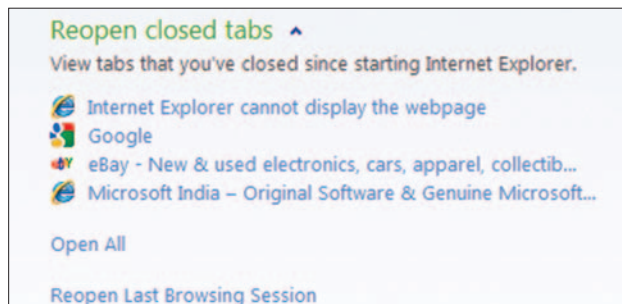
Reopen closed tabs from a New Tab window

tabs, much like Chrome does, so that a crashed tab does not take the entire browser along with it.

IE8 also offers a phishing filter in the form of SmartScreen Filter. This is basically a black-list of known phishing sites; IE8 offers alerts when one accidentally stumbles upon such known offenders. ClickJacking, or prevention thereof, is another exploit that IE8 addresses. ClickJacking is essentially a malicious script that masquerades as something useful – a known URL, for example. Such scripts are typically embedded within well-hidden frames. IE8 allows a web site's programmer to add a tag to the header of the site. When tagged, IE8 notifies a user that the site's content is not meant to be inside of a frame and that the user might very well be the victim of ClickJacking.

Compatibility View allows older websites to run on IE8. In this instance the How to BUY section does not work under native IE8
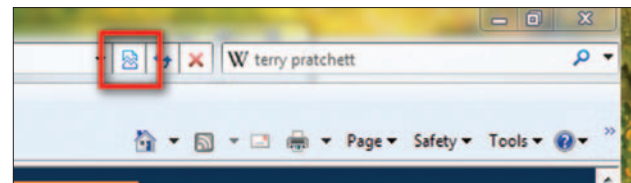
Click on the Compatibility Mode icon though...

...making the How to BUY area clickable
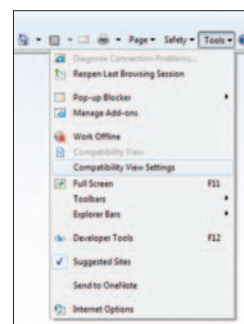
Manage Compatibility from the Tools menu

Enhanced compatibility

IE8 supports CSS 2.1, offers better AJAX and Javascript performance, and renders the Acid2 browser test correctly (it fails Acid3). It also ships with a more standards-compliant layout engine.

That concludes our tour of Internet Explorer 8, Release Candidate 1. If you are a user of either Firefox or Opera, you will find that Internet Explorer 8 offers little that is new and innovative. Almost everything that it brings to the table has been done before by its peers. It isn't the web browser re-imagined, but a leaner, faster, more compatible, more stable, more secure, and friendlier Internet Explorer. IE8 isn't Microsoft leaping and bounding ahead of the competition; it's merely a dinosaur catching up. ∎

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Nimish Chandiramani

RobotFan's Countdown Blog

I'm waiting for S-Day, and so are you. Join me in this year-long run-up!

SEPTEMBER 21, 2051
#F388673 Deletion Flag

Date: 20540921.1000.00
CauseCode: #112974AF Routine History Purge
Priority: 4

Posted by Admin at 10.00 AM 0 Comments

MAY 5, 2048
(no subject)

Postng frm cell. Bad conn. Thngs gng crazy. Shld hv listend to Zeno.

Posted by RobotFan at 2.01 AM   1 Comment

FEBRUARY 12, 2048
NEWS: Robot soldiers successfully overrun terrorist outfit

Ah, these terrorists. Will they never learn?

From RoboTimes.com:
"In a landmark victory for local law enforcement, the New York Police Department successfully captured or killed all the members of a terrorist outfit that has claimed responsibility for the recent bombing of the World Robotics Council. This marks the first successful use of the military's Tactical Armed Robot Team (TART) in city law-enforcement. Situated near the scene, Lt. Caden Frost supervised the TART robots, and successfully took down the terrorists without a single police officer entering the line of fire.

When questioned, the terrorists remain silent, save for one cryptic statement: 'You should have listened to Zeno.'

The TART project has also been in the news recently, when a researcher supposedly leaked documents suggesting that the team was working on a robot team that didn't need human supervision. A subsequent press release refused to confirm the possibility, but did note that the project's aim was to guard humans against even the possibility of danger."

I wasn't able to find a picture of the TART robots, but v4der found me this image from a classic video game:

It seems to be an artist's impression of a TART robot, but I can't be sure. Any ideas?

Posted by RobotFan at 8.03 AM   23 Comments

OCTOBER 11, 2047
Skin of my teeth

You won't believe what I've been through today. I go out for lunch, and walk right into a crowd of people, on their way to a demonstration outside the new iRobot office.
Honestly, I don't know what people have against iRobot. They've given us so many of the robots we take for granted today - from the classic Roombas and Scoobas to even the Bartenders. And after their deal with Taser (the one where the companies tied up to stick stun guns on military robots), they became important allies to the military, too.
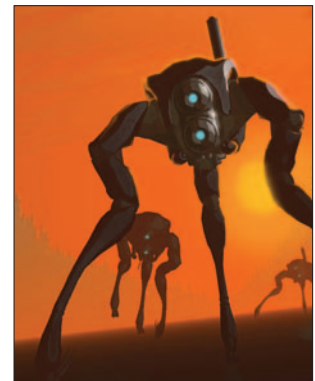
From The Labs
Rebuilding the internet for the future ▶44

Robot mega-tanks
DARPA (Defense Advanced Research Projects Agency) wants to build AI-enabled super tanks!

Smart Buildings
The Japanese have started building houses that are completely managed by robots

Anyway, I'm getting pushed around in this crowd, because I'm trying to get to the café, and not to the protest. Finally, just as I manage to free myself, I see iRobot's security systems kick in - all the protesters within 20 feet of the entrance got zapped by tasers. Serves the buggers right.

And to think, I was so close to being zapped myself!

Posted by RobotFan at 5.11 PM   17 Comments

AUGUST 12, 2047
Wakamura performance: awesome!

After watching Wakamura in action, I'm wondering if it's his talent I'm impressed with, or that he's come so far.

Wakamura started out with a small part in a 20-minute Japanese play called Hataraku Watashi (I, Worker), back in 2008. Even then, his every circuit oozed talent. Of course, back then his part was practically pre-programmed, but his performance received rave reviews, and his abilities have only become better since then. In 2013, he got his first lead role - a small adaptation of Asimov's The Caves of Steel. By 2022, he was getting nominated for awards, and in 2024, he won his first Emmy.

Thankfully, nobody's made any more robot actors - that would just dilute Wakamura's appeal. Not to mention that we don't need robots replacing us in the cinema as well.

Posted by RobotFan at 11.19 AM   16 Comments

AUGUST 11, 2047
Wakamura performance today

In about two hours, I'll be in the audience at the Ballmer Memorial Theatre, watching Mitsubishi's award-winning Wakamura perform in the Lord of the Rings. I've been a big fan of Wakamura for the past ten years, so you can imagine (or can't, actually) how exciting this is.

I must now go iron my tuxedo. Stay tuned for the performance report, and I suppose I owe you a history lesson, too.

Posted by RobotFan at 4.54 PM   4 Comments
July 1, 2047
I bought a dog!

...a BigDog, to be precise. I've been saving up for this day for almost four years now. Well, not exactly. I've had the money all this while, but the military has only just decided to let Boston Dynamics manufacture BigDogs for RobotFans like lil ol' me.

Here's a picture:
He's a little less than three feet tall, weighs about 75 kilos, can go wherever I go, and can keep his balance even if I kick him in the side! But the best part is that he can carry close to 140 kilos in those cool military bags (included in the price), which means that I can start camping without worrying about backpacks now!

He's also fully electric - not like the military's hybrid versions, so he isn't as powerful or dangerous (thankfully) as the military 'Dogs.

I haven't decided what to name him. Suggestions?

Update: I'm a big fan of retro characters, and clearly so are you - meet Gromit!

Posted by RobotFan at 3.44 PM   22 Comments

MAY 3, 2047
First self-repair sighting!

It's an exciting day! Like many of you, I've been itching to see the new ckBot 4.0 in action - but it's hard to see a self-repairing robot in action when it rarely breaks itself, lol.

SCI-TECH

It happened while I was downstairs, taking out the garbage (why don't they have robots for that yet?). Some crazy motorist lost control of his car and rammed right into a class-3 service ckBot. It's weird, seeing a robot disintegrate like that. I mean, I knew it was a ckBot, but still...

But, of course, there's the thrill of watching all the parts crawl towards each other and re-assemble themselves into the robot again. It's like hitting a rewind button.

So. As promised, I must tell you some of the history of this incredible bot:
Like so many robots, ckBot debuted at a science fair - Wired's NextFest 2008, to be precise. It started out as a bipedal (and I use this term loosely) robot, made up of several parts that were magnetically attached to each other. Each part had wheels that enabled them to move around when disassembled, so if broken apart, they could move towards each other till the magnets took over and ckBot was whole again.

In the years since then, creator Mark Yim has perfected the ckBot, and even made different models for different purposes. The Class-3 bots you see cleaning the streets are the most basic models - no frills, and can't take much more than a car crash. The coolest ones are the Class-1 bots - used only by the military on special (read über-dangerous) missions. They can survive mini-nuclear attacks at close range, and if the individual parts are too far from each other to communicate, they can each act as a weapon.

Obviously, it's not likely I'll see the Class-1s do their thing. I'm pretty sure I don't want to be in the vicinity when something attacks them.

Posted by RobotFan at 10.22 AM   8 Comments

APRIL 22, 2047
NEWS: RoboKind Goes Under

From RoboBiz.com:
"In an announcement this morning, a spokesperson for RoboKind (formerly Hanson Robotics) declared that the company will be closing its doors early next month. This news doesn't come as a shock - just last month, the company announced that it was ending the Zeno project for lack of support from robot developers..."

I'm not surprised either. I've been skeptical about this Zeno nonsense from the day it was announced back in 2008. I got this tidbit from the WayBack Machine:

"Zeno is coming! He is the smartest and coolest robot yet! He has everything he needs to become your friend; he sees, hears, talks and remembers who you are."

What use could something like this be? David Hanson (the creator) kept talking about Zeno paving the way for "robot ethics", but I could never figure it out. Zeno was just another toy with a fancy tagline, I think.

Also, look at him - he's a horror movie waiting to happen:

Posted by RobotFan at 10.22 AM   14 Comments

APRIL 12, 2047
Hello, World!

...and welcome to my new robot blog! As you know, scientists estimate that it's roughly one year to Singularity Day (or S-Day, as I shall call it from now on) - the day when the technology we create develops the ability to improve itself.

This means that we won't have to waste our time thinking about new products, or developing new technologies - we'll have our robot friends to do that! Which means more vacations for me! So, in honour of our soon-to-be-independent friends, I've created this blog. Over the year, I'll be talking about the stories behind all the robots that are now part of our lives.
Enjoy!

Posted by RobotFan at 12.07 PM   2 Comments ■

readersletters@thinkdigit.com

About Me

Well, I'm a fan of robots, LOL! I've not studied them or anything, I just like what they mean for society (vacations!!).

View my complete profile

Sites I Visit
RoboTimes.com
RoboBiz.com
iRobot.com
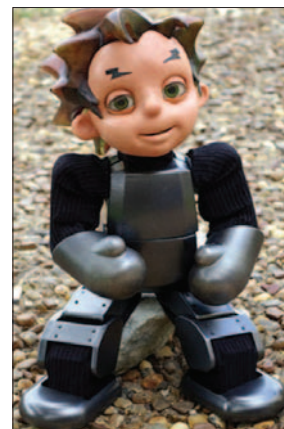
It's not all about Feeling Lucky

We dig deep into Web Search Engines, revealing their functions and methods.

SCI-TECH

Aditya Madanapalle

Before the advent of search engines, the web was a strange place. Back then, content was growing at a startling pace, with no means to filter information or direct people to content they were unaware of. Users typically used forums, IRC or email to find links. Any service that could make sense of the range of information, make it coherent, and allow users to find the content they wished for, was poised to grow spectacularly.

What was necessary, was a front door to the internet, a structure that allowed users to "surf". Within a decade of their introduction, search engines changed the entire face of the web. Before search engines, the web was mostly used for academic purposes and communication – primarily through electronic mail. Search engines allowed users to create content, market products, establish e-commerce and offer a wide variety of services. The technologies behind search engines have evolved with time, and are constantly mutating. The innovations, takeovers and competition among search engines were intense in the beginning of this century because the winner might replace Microsoft as the chief technology service provider. No guesses for who won, but the struggle is still on. There are a whole range of technologies driving a new generation and breed of search engines.

The internet is a connection of different servers and computers. There is a range of cable types that make these connections. These servers may belong to individuals, or be owned by a company. Stored on these servers are a number of documents written in a markup language (HTML and variants) that are interpreted by browsers. These documents invariably have hyperlinks (text that leads viewers to another page when clicked). This network of hyperlinks forms the world wide web, known simply as *the web*. While the internet is the hardware, the web is the information stored on this hardware. Search engines keep track of developments and changes on the web, and allow users to track down documents they want to access. This is a never ending process because the web is constantly changing with every passing moment.

The history of internet search

HotBot and AltaVista were among the early search engines. Both Yahoo! and MSN have had popular email and messenger services, both augmented by search. Yahoo! had the additional benefit of having a larger database of web sites stored in a directory structure. AskJeeves was also a very popular web service that was one of the first search engines to allow users to look for information as if they were talking to an actual person. AltaVista was one of the first search engines to have a wide audience, and growth in popularity because of the number of pages it had indexed. HotBot and Yahoo! dethroned AltaVista. While this race had been going on since 1996, Google entered the scene only in 1998 with a small index and minimalist interface and vision.

There is a whole range of highly specialised search engines developed in recent times, but essentially, the status quo has been maintained since 2000, with the top three search engines being Google, Yahoo! and MSN, in that order. Another important player is Inktomi that only provided back-end search technologies, and were used by both Yahoo! and MSN. Inktomi never had its own web portal for providing search services to users. They allowed their indexes and search technologies to be used by other search service providers. Before Google, Inktomi-based search providers were the most used, and displaced HotBot and AltaVista as the leading search service provider. It also had a large database of business and listed ads from these businesses next to the search results. Inktomi pioneered the pay-per-click model, which was later perfected by Google with its AdSense. Yahoo! switched to Google's databases and back to Inktomi within the five years of the millenium. MSN started using its own search technologies since 2004. Inktomi was acquired by Yahoo! in 2002.

With the web growing, search engines started increasing their services. Google was the market leader in innovation, buying out promising startups or stressing on developing fresh services in its own labs. **AskJeeves.com** was the first to make money by asking pages to pay for being indexed. Multimedia content provisions were made by early search engines such as Inktomi, but never really took off on a large scale. Search engines now make money by displaying advertisements related to a search query. In most engines, these ads occupy a separate space, but this distinction is not always clear. Multimedia search including video and images is offered by leading search providers. Locations, maps and people are other common search services offered by search engines, but are now feasible only in a few countries.

Spiders crawling the web

One of the fundamental tasks of a search engine is to find out that documents exist on the web at all. This was initially done by looking at known file servers, but the process is much more complicated now. Search engines use programs or scripts that automatically search the web, following hyperlinks. These programs or scripts are known as robots (colloquially called bots) or spiders. Spiders go to a particular web page, save it on their servers and follow all the links on that page. Going over the web is called "crawling", which is a continuous process. There are a number of approaches that these spiders can make when crawling the web. A wide crawl will focus on as many different URLs as possible, from as many different domains as possible. A depth crawl first goes deep into a single site. Practically, it is essentially a compromise between these approaches. There are also random crawls, which do not give any preference to a single approach. Spiders continuously track the creation of new content, and hence have a never-ending job. Search engine crawlers, typically, have a huge queue of URLS waiting to be crawled. Spiders will never be able to *crawl* the entire web, and no search engine has crawled more than 20 per cent of the web. The number of pages crawled by a spider is no measure of the quality of the search engine. Google

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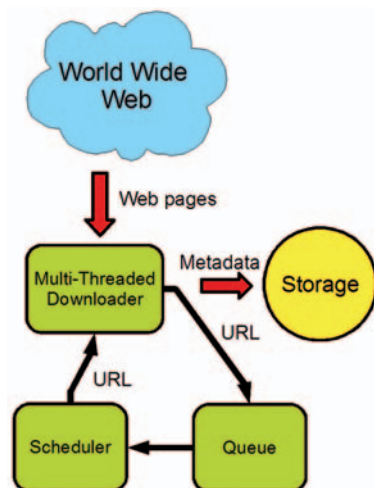
How a spider crawls the web

had a very small cache when it started out, but still gained popularity because of the relevance of its results. Google uses a spider called *Googlebot*. Due to the different approaches a spider can make, some search engines use multiple spiders. Yahoo! uses Slurp or Yahooseeker. MSN uses Msnbot, Msrbot, Msiecrawler and Lanshanbot.

A spider often visits the same page several times over. This is essential to keep the search engine up-to-date with the web site. A news web site or a web log tends to change rapidly, and so spiders have to keep crawling them over and over again. Static pages are not crawled as frequently. Most sites on the internet strive hard to be dynamic, and offer new content for every visit, which drains a considerable share of the spider's time from new web pages. It takes some time, and a lot of effort on the part of the web designer to get the page to be crawled, which is why many search engines take payments for a site to be crawled, and updated frequently.

Site owners have a love-hate relationship with spiders. While getting their page crawled is important to them for hits, a number of spiders can easily drain resources from a small web site with limited bandwidth. The speed at which spiders can make demands on web sites can take them down and deny the web site's service to legitimate visits. Spiders also use a multi-threaded approach to cache the web pages. This is akin to a download manager making a number of requests to the same site in parallel. Many website owners prefer to disallow some spiders from crawling their content. Therefore, a robot.txt file is used by webmasters to deny some or all spiders access to the page. This is also used so that a web master has the liberty to withhold his data from being crawled. A robot.txt file can be used to allow only some crawlers to search, and disallow other crawlers from searching. A robot.txt file can also be used to protect private content on the web. However, this approach is not always safe, as a number of aggressive crawlers may ignore the robot.txt file and crawl the web page anyway.

The flooded server farms

Search engines require a large amount of storage space. An index of all the web pages crawled by the spider of the search engine is stored. Initially, this index was stored on a single server. Google innovated a technique of storing data in an array of machines, which allowed faster access. This was a cheaper option for Google when it started up in a garage. This technique was soon picked up by other search engines.

The index is constantly updated, and there needs to be several technologies that allow data retrieval from the index. The most common method for this is hashing. Hashing allows data retrieval from incredibly large databases such as those used by search engines. Hashing is the process of creating a relatively small numerical value from a text string. This is used to make retrieval from the index much faster and easier.

For a simplistic explanation of how hashing works, consider a user looking for a particular Linux distribution. In the database of the search engine, there will be a number of distributions such as Fedora, Mandriva, Sabayon, OpenSUSE and so on. If a user searches for "Fedora", the index will have to match the alphanumeric values of all the distributions, of different lengths. A much shorter approach would be the numbers 1, 2, 3, 4 and so on assigned to each of the distributions. When a search is made, the search engine will just match the numerical values of shorter

length, instead of the much longer alphanumeric values. This is just an illustration, and hashing often relies on pretty lengthy (often 32-bit) alphanumeric strings, but the speed of the search is increased in very large databases.

When a spider crawls a page, it reads the page in many ways, and interprets and stores a number of aspects of the page for later use. The spider looks at all the words in the page, their proximity to each other, their presence in bold or in headers, the title of the page and stores the entire page in a cache. If it encounters a non-HTML document such as a PDF, a spreadsheet or a Word file, it stores the same content in XHTML format. A copy of the web page is made on the servers of the crawler, called a *cache*. This cache is the state of the web page when it was crawled, and is useful when the page has been updated, and has lost the content that was relevant to the search. The qualitative information about the page is stored in the servers of the search engine, often after compression. This data is used later to display the search results.

There are three kinds of servers that every major search engine employs. The first kind is the spidering server, that indexes the web. Servers across the globe store parts of the index called "shrads". The index functions as an essential whole, but is physically located in different geographical areas. The second kind — document servers, store the cache of the crawled pages. The third kind of servers directs the traffic, resolve search queries, implement search algorithms and interface with the user. Typically, an x86 architecture is used, with a Linux-based OS. A typical search engine may have servers in as many as twenty different locations around the world.

What are you really looking for anyway?

Languages are very complex, and context plays an important role in communication. Words such as "executive", "silver" or "orange" have different meanings and can be interpreted differently. This is a common problem encountered by users, who frequently get search results that are in stark contrast to their expectations. Content creators may have used different words, so a user may have to try different variations of the same search. Those who search for "car" will miss out an entire section of pages that use the word "automobile" instead. Some search engines such as Google resolve this problem by using the tilde character (~) before the search string to search for similar terms.

Apart from the highly interpretive nature of search, there are a number of factors in a page that can affect the relevancy of the content. Therefore, search engines use a number of approaches to resolve the relevancy in each search, and assign a level of significance to each page according to the search.

This process is very complex, and implements a number of algorithms. Basically, a certain page is given a number of points to begin with (often called cash). The page gets these points purely for its existence. These points are then distributed to all the links in the page. A page that has a high number of incoming links, automatically has a lot of points. In a breadth crawl, when a spider goes to as many different sites as possible, the most

What goes on when you hit the "Search" button

Secret Google Server
Google has an ultra clandestine data center in Dellas, Oregon but searches (online and offline) don't give any useful results.

SCI-TECH

popular pages get crawled early because many pages link to them. Google predominantly calculates relevancy by the number of incoming links to that page, which is called PageRank. This is a safe way of calculating relevancy, as it disallows the content creator from manipulating his/her page to boost relevancy. However, this has often been abused by a lot of people "bombing" a site by linking to it, to boost its PageRank (called googlebombing). Other search engines use a proprietary mixture of considerations. These considerations include the number of times a searched word has appeared in a document, whether or not it appears in bold text, how many times it appears in the links, in sub-headings and in the title. Other considerations include the neighbouring pages, the frequency of site updates and even whether or not the owner has paid the search engine. An important consideration is the geographic origin of the content and the location of the user originating the search query.

Typically, pages created in the same country as the searcher get a higher relevance. An Indian looking for "news" would likely have no interest in the news web sites of Belarus. Relevancy is also calculated using meta-tags in the page. Meta-tags exist specifically for search engines, where the content creator includes keywords in the document, explaining what the document is about. Keyword spamming is where a creator uses a lot of keywords to get hits, most of which have no relevance to the content of the page. Search engines automatically match meta-tags with the content of the page, and accordingly judge the relevancy. Some search engines such as Google and Yahoo! penalise keyword spammers by reducing their relevancy.

Many web site creators try hard to optimise their sites in such a way that they become more relevant for search returns. This includes artificially boosting the number of incoming links, using the right keywords in the meta-tags, formatting the page properly, and a number of other methods. Many of these are transparent, but a lot are clandestine. Optimising a particular web site for search engines is a very lucrative business. A third party may work on a site between the creator and the search engine. Due to the aggressive nature of search engine optimisation, all search engines continuously change the methods for relevance ranking, and keep the exact methods used, a secret.

Deep magic
As the web moves away from the domain of personal computers into portable devices such as PMPs and mobile phones, search engines will also spread out to these technologies. Geo-tagging will take on more of a hold, which means you can search while on the move. Products and services in the real world will be more easily integrated with the virtual alternatives.

Google cannot afford to move away from its minimalistic design. Search, however, does not end at Google. There are a whole bunch of interesting search engines waiting to be found. Swicki (**www.eurekster.com**) let's you build your own search engine. Chacha (**www.chacha.com**) answers questions the way good-old Jeeves used to, and even replies to SMS. Gnod (**www.gnod.net**) has tools for searching movies, music or books similar to what you already like. Results are displayed in a spatial map of similarity. Clusty (**http://clusty.com/**) breaks down results in clusters, which let you refine your searches.

A meta-search engine at work

In recent years, there has been a new breed of search engines that have made their presence felt. These are meta-search engines that do not have indexes or databases of their own, but work of the indexes and databases of other search engines. When a search query is entered in the search forms of these search engines, the search engine will retrieve the results from the databases of Google, Yahoo!, Ask and others. Mamma (**www.mamma.com**) or Dogpile (**www.dogpile.com**) are two very popular examples of meta-search engines. ∎

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RINSE, REPEAT

The internet is broken. And to fix it, researchers want to start all over again

Nimish Chandiramani

SCI-TECH

It's a boring Sunday, and you've decided to while away the time in a wonderfully unproductive game of Tetris. At some point, you're accidentally (or purposefully) going to plug an empty space, temporarily throwing away your chances at scoring a line. "It's all right," you think, "I'll just finish these lines on top first, and then I can get to that later". But inevitably, you end up plugging another vital space, and then another. Pretty soon, the bricks have mounted high enough for you to start worrying. Today, the internet is that game of Tetris, and the bricks are stacked uncomfortably high.

Game over?
This might sound familiar: "The internet is running out of IP addresses!". Even in the early days of the internet, scientists were beginning to realise that this system was getting too popular too fast — they predicted that the world would run out of IP addresses by 1994. Of course, that didn't happen. The internet had plenty of addresses to spare in 1994, and continues to chug along happily even today. This is just another hole we're going to come back to later. Meanwhile, we're finishing the other rows — like security.

Hang on
The internet *isn't* secure. While you're hitting the Report Spam button on your email account, someone's watching an adware program spew out its horrifying results, and some other poor soul can't tell that his PC is part of a botnet, helping send you the spam you're reporting. Firewalls are nice, but the fact that you're still receiving spam and fighting off phishing attacks speaks for itself. And the root of all these problems (predictably enough) is stupidity.

The dumb network
In networking-speak, a *dumb network* is essentially a bunch of terminals and wires. It doesn't care about the information travelling on it — just that it's taking the information where it needs to go. The terminals themselves — the computers — are pretty smart, so the onus was on them to interpret the data and present it to users.

There is much to love about the dumb network — mostly, it's economical. A dumb network is ridiculously easy (and hence cheap), to deploy — a router here, a cable there, and one more happy customer gets connected to the web. It's also extensible — because a dumb network is like a clean slate, you can add more functionality to it as you go along: perfect for a network that grew as fast as the internet did. And finally, by putting the onus of processing data on the terminals, you're creating a network that lets data travel quickly, without obstructions.

The internet is a *packet-switched* dumb network, which means that the information you send along the pipes is broken up into *packets*, sent along different paths to the destination, and then re-assembled at the other end. This is all very well for data; send voice over a line like that, however, and you get gibberish at the other end — if anything. It took ten years for VoIP to work around this mess; but even now, it's too unreliable to replace the good old wired phone line.

Still, VoIP gets the job done. Ish. The *real* problem with the dumb network is that it isn't secure.

The trusting network
The internet was designed by a bunch of scientists, for the scientific community. It was a good-natured network that had faith in its users, and wouldn't believe that people would actually send malicious data to each other. Then it got misused — malicious people used it to spread malicious code, and the internet suffered a bad reputation. Now, of course, it's become somewhat smarter. By installing firewalls and packet sniffers (software that checks packets for malicious data) on servers, routers and your PCs, the internet has made it much harder for evil code to get to you, unless you're conned into letting it in yourself.

But there still remains one part of the net that's still good-natured and trusting at its core — DNS. It was originally designed to be the digital equivalent of the friendly guy at the concierge's desk. You would ask it for a web address, and it would helpfully tell you where to go. Then came *cache poisoning*, by which hackers could fool DNS servers into believing they're sending you to the fun part of town, but you really end up in a dark alley with your head bashed in. And somewhere underneath all the security protocols, this flaw still exists.

It's time to re-do the internet, and turn it into a smart, secure network.

What we need
The new internet needs to be faster and more reliable — IP telephony shouldn't suffer the way it always has, and must eventually become the alternative to the classic telephone line that it's supposed to be.

And yes, it would also be nice if the new internet could let our devices have their own unique IP addresses, instead of an internal address that a router or server assigns to it. We'd also like the internet to be "ready" for when we want to use our mobile phones as our primary computing devices.

However, before researchers are to give us the internet we desire, they need a sandbox to test their designs — a guinea-pig network.

The playground
In 2005, the National Science Foundation (NSF) in the US asked researchers to come up with a new plan for the internet. To help them test their designs, the NSF started the Global Environment for Networking Innovation (GENI), which would be the guinea-pig internet for them to use. Several supporting projects have spawned since, each with their own view of what the internet should be.

It isn't hard to guess which side of the fence Stanford's Clean Slate Design project is on. The group is creating a set of technologies that they hope will form the backbone of the new internet — from a framework for a mobile internet, to an infrastructure for

In 2020, expect web 4.0
The numbers next to the web like web 2.0 and 3.0 roughly correspond to the decade of the existence of the internet.

SCI-TECH

virtual worlds such as *Second Life*. Scientists will be able to use these basic frameworks to design their own visions of the internet, and then test those designs using GENI.

On the other hand, there's the PlanetLab project, which aims to create *overlay* technologies, which will sit on top of the world's existing internet infrastructure, and by becoming more popular, will squish out the old technology. Something like this has already been in existence, in the form of the university-only Internet2. The underlying philosophy is that there are several parts of the internet that get the job done just fine, so why throw all that away?

So what does a more realistic internet look like?

Middle ground
While we wait for the competing projects to come up with a brand new internet we can use and love, there are two upcoming technologies that we should see pretty soon. You already know about the first — IPv6. The other is called *flow routing*.

Right now, packets on the internet travel like they always have — taking different paths to their destination, where they are reconstructed. In a flow-based network, packets that need to travel together — voice, audio and video, for example — will travel together. The new flow routers will work like regular routers, except when they see packets that say that they're part of a *flow*. For these packets, the routers will choose paths that allow the packets to reach their destination in order.

Of course, a flow router won't be able to do its work without packets that have information flows. And this is where IPv6 comes in. IPv6 packets have *traffic class fields*, which will tell routers how to prioritise them. As a bonus, these packets will also carry *authentication* and *security* headers, which will let routers and PCs find out whether the packets are coming from the right server.

Finally, IPv6 opens up a whole new world of IP addresses, which means that every device — from PC to phone to hearing aid — can have its own unique address, and not have to hide behind access points ever again. This means it's theoretically possible to have an IP address that never changes. So, if you're using a service that authenticates you based on your IP address, you don't have to worry about losing your authorisation by moving to a new network.

However, even though IPv6 was standardised in 1998, only 0.236 per cent of all internet users are using IPv6, according to a Google report published in October 2008 (read the PDF at **http://tinyurl.com/6c634k**). It may be disappointing news now, but it does offer a simple solution to our IPv6 adoption problem. The people on IPv6 may not necessarily be using it intentionally — their ISPs began to support IPv6, so they gave customers IPv6-capable routers. And since the newest generations of Windows,

Mac OS X and Linux are all set to prefer IPv6 if it's available, more people went online with the new protocol without even realising it. Which means that it isn't the people who need to be convinced, it's the ISPs.

So after all this talk, it may well be that the future of the internet is simple — slightly smarter, with a new protocol and updated routers.

Which may be a good thing, because we may not want a smart internet after all...

The stupidity of smartness
We point nasty fingers at dumb networks, but the truth is that even smart networks aren't beyond reproach. When you load routers with software that authenticates and analyses and directs and decides, you're actually getting in the way of data moving swiftly. But there's a possibility that's even worse. We complain about the internet today, because it's an old design that hasn't been improved because it got too large — but twenty years in the future, people will say the same thing about a smart network. Take the telephone network, for instance — it's the original smart network, fully aware of the signals that travel along it — it has now solidified into a behemoth that's too expensive to upgrade, and too complicated to easily add new functionality.

Tom Evslin, who helped build the original MSN, and AT&T's first internet service, thinks that any effort to make the internet smarter "will cost incalculably more in loss of future flexibility and scalability." He argues that the dumbness of the internet is what enables it to support new and wonderful applications, and should thus stay that way. He isn't the only one to think this way, either. Vinton Cerf, Google's Chief internet Evangelist, and *father of the internet*, says that it's the terminals that need to get smarter, not the network.

And then, there are the "political" implications. A fully redesigned internet may well turn out to be what the *New York Times* calls a "gated community where users would give up their anonymity and certain freedoms in return for safety." Scary thought, yes?

And when you think about it, a lot of news about internet outages seems overblown. In October, a worm called Conficker infected 15 million Windows PCs, prompting renewed fears of a "digital Pearl Harbour", which will supposedly bring the internet to a standstill. But if Conficker was the harbinger of doom, why didn't you stop surfing? Did you even notice that the internet "was under attack"? Truth is, Conficker didn't bring down the internet, it exploited a vulnerability in an OS. A *Windows* OS. If there's any terminal that needs to get smarter about security, it's the Windows terminal.

Bottom line: whatever the internet ends up being, we shouldn't accept a design that emerged from panic. ∎

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Big is Beautiful

**Flat panels are hot, and everyone who doesn't have one is not.
Choose yours from one of these...now!**

Michael Browne

For the last year or so most electronics malls have been overflowing with displays of flat panel televisions and everybody flocks to these exhibits. If you happen on any showrooms that stock these large-screen displays you will see several admiring onlookers drooling over the exhibits. The reason for this is simple and steeped in human psyche — one of our most important senses is the one of sight. A good example of technology having capitalised on this fact are cinema theatres in general. If a person were given the choice between watching a blockbuster release on his television at home or at a cinema hall he would go with the latter nine times out of ten, assuming he isn't a total introvert. This is because a cinema theatre gives any movie a living, breathing feel with a huge screen, and great surround speakers. The thrill of watching anything on a large display just cannot be replicated on a smaller television.

However, many of us do not get time to go to the movies. Work, social commitments and commuting distances are all hindrances. Perhaps this is the reason why flat screen displays have become so popular. With manufacturers offering advertisement slogans like "bring the movies home" or "your world of entertainment starts here" it's not rocket science to figure out why so many people are throwing out their old 21-inch and 29-inch CRT televisions and buying one of the new breed of televisions; also known as flat panels, flat screen displays, or large screen TVs — these terms are used synonymously by most vendors. The fact is these displays are nothing new in the way of technology. Rather they are based on either of two technologies that have been around for awhile — LCD (Liquid Crystal Display) and Plasma Display.

If you've been a keen spotter of new technological breakthroughs and keep a close watch on market prices, you will note that the price of LCD monitors have fallen drastically. There was a time five years back when 22-inch monitors were unheard of and when these displays appeared they were priced at near the Rs. 35,000 mark. Today one can buy a 22-inch LCD monitor for less than Rs. 12,000 and the prices of larger displays have percolated into the lower rungs of the market. The reasons for this are binary — technological advances leading to sharp declines in costs of production and of course mass adoption, which itself is often a function of the former. Just as the prices of LCD monitors have fallen, the falling costs and technological breakthroughs made it possible and feasible for manufacturers to explore
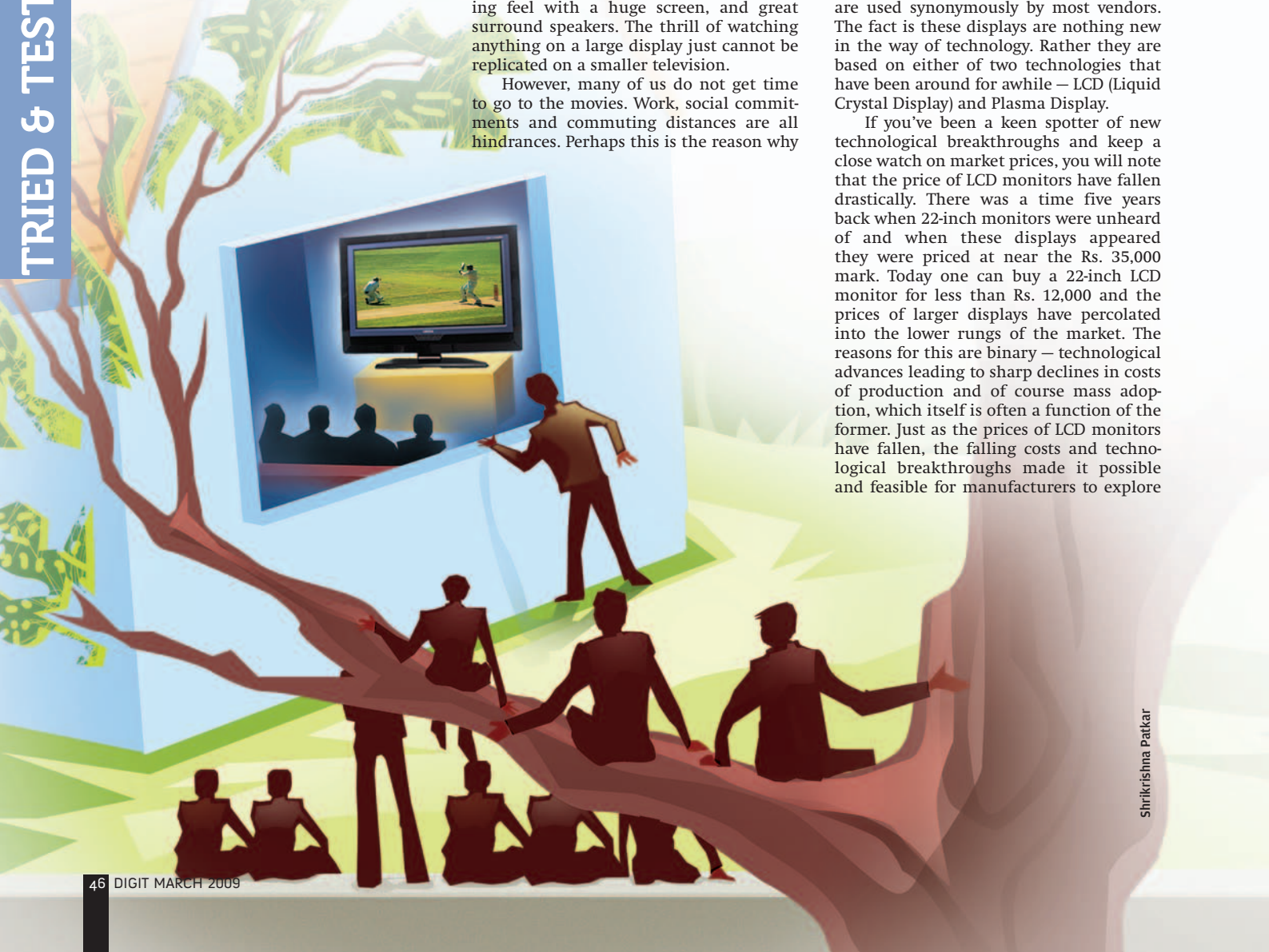
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the possibilities of making larger displays with wider market appeal (read affordable prices). After all people use computers for a multitude of reasons and not all uses necessitate a larger display.

At the very outset both LCD and plasma display technologies are very different from one another and were aimed at totally different markets. While the technical aspects of their working are beyond the purview of this test plasma displays were never really aimed at home users. Rather they were aimed at corporate users who would use such displays for presentations, displays in malls and other areas where a mass viewing audience is expected. For this reason plasma displays have always been manufactured in larger screen sizes. In fact it's only recently that plasma displays became available in screen sizes of 42-inches; mainly to serve the needs of the lower rungs of the market. Prior to this, plasma displays have always had huge screen sizes; to the tune of 65-inches and upwards. It's not uncommon to see plasma displays cross the 100-inch mark, obviously their price scales accordingly. LCD, on the other hand is a technology that was pushed towards the consumer markets first. While plasmas started at the higher screen sizes and moved downwards, LCDs did the reverse and started from the smaller screen sizes. The most common LCD displays are the 26-inch and 32-inch categories. Due to this peculiarity, the larger screen LCDs are disproportionately expensive when compared to the smaller size displays. For example, a 32-inch LCD TV may cost Rs 45,000 while a 42-inch display may cost as much as Rs 80,000 meaning that you pay some 43 percent more for just 10-inches more of display size. Obviously a plasma display with a larger screen would be costlier than a smaller one, but this difference is not as much as in the case of LCDs. Therefore, when buying a plasma TV, remember that the larger the screen, the higher the price, but you pay proportionately less for more on-screen real estate.

The debate over which technology is better is an eternal one and personally we have no favourites. If you want something in the region of 50-inches or larger we recommend looking at a plasma display as they offer more value for money, while for anything under 50-inches but bigger than

37-inches, it's a tie. If you want something in the region of 37-inches or less — it's LCD all the way. Of course people have their favourites and there are those who claim that the phosphor gas inside a plasma display loses its working efficiency after around 20,000 hours and therefore plasma displays have shorter life spans. This is not really true and the life span of the latest plasma displays is around 30,000 hours which is the same as some LCD displays and at worst around 15,000 hours worse than most LCDs. Plasmas also have an issue with burn-in whereby due to uneven wear on the phosphors if a static image is left to be displayed on the screen for a long time, this image ends up leaving a ghost image on the display behind. This is called burn-in; as the image appears to be burned into the screen. While we have verified that this is indeed an issue if left unchecked; most plasmas these days come with inbuilt screen savers that do not allow a static image to remain on-screen for very long. However, burn-in is a minus point for plasma displays. Contrary to belief LCD displays can never suffer from burn-in because they work on the principle of blocking light unlike a plasma display that actually produces light. This is why an LCD is referred to as a *transmissive* display. A plasma display in contrast works on the principle of emission and plasmas are *emissive* displays. Quite simply LCDs do not produce light themselves but simply allow through or block light that is produced by a CCFL tube or (the more recent) LED source. In The simple benefit of a plasma display over an LCD is the fact that you can buy a much larger screen for a cheaper price. Some also claim that plasma displays offers deeper blacks than most LCDs and also offer wider viewing angles. While we agree on the latter somewhat, the former is definitely up for debate.

Sony KDL-70X3500: Goliath
The KDL-70X3500 is a long name for a huge 70-inch display. We were expecting

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a plasma display when we heard we were getting a 70-inch unit from Sony, but it turned out to be an LCD. To say its bulky would be an understatement, obviously due to its massive size. The wide bezel doesn't help things and makes the unit appear even larger, especially since the rather wide speaker grilles are built into the sides. Additionally the outer portion of the bezel has a transparent fibre strip running along the entire outer dimension of the display. Sony really wanted this display to appear as large as it possibly could; this is not exactly a plus if space is a premium. The stand is quite small considering the bulk of the display; surprisingly it is very stable and the display does not tilt even a bit. The KDL-70X3500 is rich with connectivity options although it misses out on DVI or Display Port connects. The connectors are located on the rear and to the left; which means they are accessible even if the display is slap bang against a wall.

Once we calibrated this display we noticed that the Spyder 3 Elite had really toned down on the red component. Pre calibration this display was plagued with a very highly saturated red and any part of any scene with this colour appeared too rich to the eye. Post calibration the red component was more neutral but it still tended to be high. Display Mate showed that this display has a decent contrast ratio. Watching movies was a good experience mainly because despite its size, there was hardly any pixellation noticeable which was surprising for such a large display; since the pixel pitch is normally higher on larger displays. Although the display supports 1080p natively, even 720p and DVD-resolution movies looked good.

Sony advertises this one as the largest LCD display available and frankly 70-inch LCDs are an elite bunch. Exclusivity doesn't come cheap though and this one is priced at (brace yourself) Rs 20,00,000; in case you messed up on the count of zeroes its price is *twenty lakhs*, which is a sizable chunk of dough. Unless you own a yacht and your very own private island we don't reckon you indulge this sinful, sinful extravagance. In any case if its size that matters, you could probably buy a 100+ inch plasma display for less. It did win our Best Performance award, but the trophy was shared since two displays came very close to each other.

Philips 52PFL9703/98: Large and lovely
Barely had our sore backs recovered from lugging the massive 70-inch Sony around and we had to handle this beast. The 52PFL9703/98 is a 52-inch LCD display from Philips and once we unpackaged it we spent a couple of minutes looking it over, running covetous hands all over it. It's

Sony KDL-70X3500

Philips 52PFL9703/98

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arguably one of the best looking displays in this comparison test and one of the best looking displays we've seen. The surface of the front bezel is a transparent fibre material and the bottom is piano black which gives it a very classy looking smooth finish that appears translucent. In fact at first glance we thought the fibre itself was black coloured. The stand is lovely looking and made of solid, half-inch thick glass, which adds a lot to the weight of the display. There is a small fibre bezel running right around the display and this makes it appear bulkier. The unit we received had a "made in Belgium" badge on the rear — a difference from most of the other displays, which were made either in Japan, Korea or India. Sadly upon powering on the display we noticed it had one dead pixel that was stuck on the colour green — although this is definitely a one-off glitch we were disap-

pointed mainly because of our very high expectations.

In the 16 shade-intensity and 256-colour ramp tests this display showed very good variations in colour and it was one of the two displays that provided such good results. Text quality was mediocre but the reverse text test was decent.

When watching movies there was a peculiar issue with dark areas of the screen which appeared reddish, and not black, or dark-grey as it should be. Other than this everything was fine and 1080p content looked crisp and clear, with good colours and contrast. Obviously the screen size makes for a very enjoyable home-theatre experience, the only sore point of course being the issue mentioned above. Priced at Rs 2,24,990 the Philips 52PFL9703/98 is not cheap, but as far as 52-inch LCDs go, it is not astronomically priced either. At the price there are alternatives available so we recommend you not getting bitten by this bug.

Sony KLV-52W400A: Dial W for wide

This display is catchy with a slim side and top bezel livered in smooth black fibre that is set with a multitude of tiny, shiny particles that give it a shiny satin-like look. The speakers are on the bottom and to the sides and these appear to curve inwards giving the display a slightly sleek, futuristic look. The speakers are finished in steel-grey. Above the speakers is a chrome strip that is a contrast to the steel-

grey of the speaker grilles and the piano finished black of the screen bezel. In the middle of the bottom bezel, the word Sony is backlit in white. This may look garish to some; but we feel its not overdone, and we give Sony credit for knowing the fine line between classy and loud. This display was the only one that came with what Sony calls a DM Port or Digital Media Port. Basically this allows connecting of PMPs and such to the display unit. The device can charge through this port while music can be played through the display units speakers and artist information can be displayed on-screen. Obviously its something that will have its share of compatibility issues but it's a novel feature that warrants mention.

While calibrating this display the Spyder made things look very dark onscreen. In fact repeated attempts at calibrating met with the same fate and eventually we did a little manual brightening up.

Sony KLV-52W400A

The beauty of the Spyder 3 Elite and the display profile it creates is the fact that one can adjust brightness and contrast after RGB calibration has been done and this does not affect the colours at all. Obviously there is a limit within which manual tuning can be done without upsetting the colours, but it's a useful feature and a serious plus for the Spyder that came most handy with this display.

What was immediately noticeable was the quality of text, which was good with everything looking sharp. The blues on this display are a little deficient in comparison to the reds and the greens and Display Mate attested to this fact with slightly deficient blue gamut. In typical Sony style the reds are a little aggressive and post calibration we noted that the Spyder had turned down the reds significantly. However, it was impossible to negate the slight bias this display had to the colour red and this makes it presence felt with rendering bright red objects on-screen. These appear slightly over-rich and saturated. Although to be honest the issue with the other Sony display where the dark areas appeared reddish was not repeated here. Overall movie quality was good, with very decent contrast and an enjoyable experience. The price of this

How we tested

We did not divide these displays into any categories based on screen size since we were more interested in which of them made the most sense for their price. We hooked up these displays to a test PC using our standard HDMI connect. The PC configuration consisted of an AMD Athlon X2 6000+, 2 GB of RAM, an ASUS GeForce 8200 motherboard and an XFX 9800 GT graphics card. We used a hardware display calibrator, the Spyder 3 Elite (http://spyder.datacolor.com/product-mc-s3elite.php) to calibrate each display and measure colour and gamma levels. This colorimeter uses a seven-detector engine and an embedded ambient light sensor along with a large light aperture to calibrate accurately and is the choice of imaging professionals the world over. Throughout the test we ensured even external lighting to reduce variations in both calibration and testing results. Once each display was calibrated with the Spyder, we began our tests. A warm-up time of 30 minutes was given to each display prior to testing to minimise the effect of this variable.

In terms of features we noted down the connectivity options of these displays. Connects are of vital importance since any display could be used in a variety of situations and absence of a particular connect limits usage scenarios. Sometimes multiple connects of the same type are also required and we gave marks not only for presence of connects but also the quantity of connects. For example a display with four HDMI ports got double the rating than a display with two ports. We also rated the ergonomics of usage and button placement and the remote unit. The intuitiveness of the menu system was also graded as was the stability of the stand and it pivot functionality.

In terms of performance we used the Spyder 3 Elite to give us an accurate measure of the actual contrast ratio — the one that manufacturers do not want to tell you. It comes as no surprise when the difference in rated figures and actual specifications is as much as 500 per cent! We also used DisplayMate Video Edition which gave us the chance to study the colour reproduction and contrast output of the test candidates. Finally we ran every sort of movie on these displays ranging from Blu-Ray, to 1080p content to DVDs to judge colour and contrast practically. Finally we did a couple of text and presentation tests to check for text clarity and font rendition.

1920x1080
The resolution of the World's largest OLED display, from Samsung.

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display is Rs 2,59,900 which is frankly a little more than what we would expect to pay but its also comparable to Philips' offering which brings us to one conclusion — 52-inch LCD displays are overpriced as of now and we suggest you wait a bit if you want something in this size category.

Samsung LA- 40A650: Expensive real estate

The LA-40A650 is a 40-inch LCD display and looks neat. The entire back is plastic and matte black. The front bezel is piano-finished in black and is translucent. This bezel has red implants all through it and this gives it a reddish tinge in certain

Samsung LA- 40A650

areas and since the amount of red varies so does the colour tone. Weirdly there are no buttons on the body of the display but the remote unit looks very neat and has a good range; buttons also work well and we didn't have the sporadic issues with keys not working when being pressed that plagued some of the other remote units. This unit has all the important connects and even the cable port had RCA ports for outputting to auxiliary speakers.

Post calibration we ran into issues under Display Mate first; this display totally missed out on the three highest intensities and all three bands looked identical. This problem also cropped up during the movie tests. We found places where there were smudges of red instead of smooth transitions in the colours intensity that are expected. Although this isn't serious enough of an issue to ruin the experience of watching movies we found it a little annoying. Other than that this display gave good performance with contrast and colouring throughout the movie tests and works with lower resolution content quite well. Text rendition is sharp and this display will satisfy even if it's being used as a substitute monitor.

Priced at Rs 1,07,000 the LA-40A650 is expensive — especially when you consider that other 42-inch displays are available at much lower prices. We can't recommend paying more for less, so don't bust your wallet here.

LG 42-LG80FR: Beautiful stranger

This was perhaps one of the most attractive looking displays we received. Its finished

in a glossy black fibre that has embedded red highlights that give certain parts of the bezel an almost red-wine like colour. The rear is plastic too, but finished well and nothing looks cheap. This display has retractable speakers that can be set to retract when it's powered off or they can be left extruded permanently. The motor assembly for the speakers is very silent and we played around with this gimmicky addition for a few minutes. And it turns out this isn't another useless add-on; the larger speakers are pretty powerful too, although to be honest they are nowhere close to even a cursory speaker system. Even the remote unit looks attractive with a matte-finish; it works flawlessly too. Unfortunately the stand is not very stable and we could actually tilt the display 10 degrees forward and backward with the stand affixed; LG needs to work on the stand before we deem this acceptable — for now its definitely not.

In terms of performance the 42-LG80FR is a scorcher. It did well across the board with Display Mate with good rendition of colours and a good contrast ratio. Throughout our movie tests we had no colour aberrations or any sort of problems. It does excellently well with 1080p content and even displays lower resolution stuff well. Text rendition is clear, crisp and with great detail making

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LG 42-LG80FR

reading even long documents a pleasure. If you want to use your display as a monitor or even to read the odd e-book this display should be at the top of your priority list. It's a superb all rounder and at a price of Rs 83,000 its reasonably affordable. This display was our (joint) Digit Best Performance winner and comes highly recommended for anyone shopping for a 42-inch LCD display.

Hitachi P50-X01AU: Industrial grade beauty

The P50-X01AU is one of the older models in test. In fact its date of manufacture indicates it was made it 2007, which means it was probably lying around in some warehouse for a good many months.

Nevertheless it's a very clean looking display and has a very rugged industrial-grade look to it. The rear is metal, unlike plastic that is favoured by most other vendors. The outer portion of the front bezel is finished in brushed aluminum while the inner portion is finished with a mock glass sort of finish. The speakers are very cleverly integrated into the front bezel and you won't feel that they have been added later — great design here. The middle portion of the bottom of the bezel consists of a flap that is flush fitting with the rest of the bezel and opens to reveal an HDMI port, a 3.5mm jack, composite

Hitachi P50-X01AU

port and the menu and volume buttons. We welcome the inclusion of a front HDMI port because of the convenience offered.

Even more welcome is a headphone jack on the front panel. The panel being a plasma display is hard glass and gloss-finished. There is some sort of surface treatment that has been done because despite the fact that the panel is glossy there is minimal reflection. Hitachi has also done well with the stand; it's not large, but is ultra stable and the pivot action is very smooth.

Being an older display when we connected it to our test PC using D-Sub connectivity the maximum resolution we could get was 1280 x 1024 pixels. While there was no serious issue with any of the Display Mate tests we were not fully satisfied with this displays performance in all of the tests. The colours are not bad, but could have better while the same can be said for the contrast ratio and moiré tests.

With movies the P50-X01AU is good with 1080p content, but it does not scale well with lower resolution stuff. Text resolution is decent but should have been better before we recommend you using this as a monitor. DVD movies also have issues, presumably because they are not of the panels' native resolution. This, it seems is the major issue with this display — it doesn't do very well with non-native resolution content. For Rs 1,35,000 the P50-X01AU is expensive for a plasma display and not recommended by us for any usage pattern.

The Samsung LA22A480
is a 22-inch LCD TV
that comes with an FM tuner and
sells for Rs. 20,900

Hitachi UT42-MX700A

Hitachi UT42-MX700A: Ultra slim

This displays main claim to designer fame is the fact that it is only 1.5-inches thick. We measured this advertised feature and it is accurate. Although the display is not lighter than others in the same size category the drastically slimmer design mean that it is often less than 50 per cent of the thickness of other 42-inch displays. The bezel is also very slim and a translucent, glossy-black. The silver stand is also pretty compact and these two colours interact to create a starkly attractive look.

The colours on this display are realistic without being oversaturated and unrealistically vibrant. The contrast is a little deficient. This is noticeable in certain scenes involving a lot of intensity-variation in the same colour, for example clouds with varying intensities of white, or the sky. In such images slight banding is noticeable. There is also noticeable artifacting that happens with certain non-native resolution videos. In fact this display did very poorly in the grey-scale check that is a good indication of the contrast ratio of a display. Even the Spyder showed this displays true contrast ratio to be in the region of 400:1 — this is not good enough. One saving grace was the fact that it did very well with text and fonts appear very clear and crisp. At Rs 1,35,00 the UT42-MX700A does not present a strong enough case for itself to warrant a recommendation from us.

Panasonic Viera TH-42PV80D: Viera - the new synonym for value

Panasonic's TH-42PV80D is a 42-inch plasma display. It has a very neat look with no real standout attributes but everything looks put together well and with care. The front is finished in a smooth glossy black and the bezel isn't too wide — it's a suave looking display that will subtly attract attention. And it's built very well too. We were surprised to find a n SD memory card slot integrated into the front bezel and recessed under a cleverly designed, flush fitting tray that opens outwards. This means you can now access images taken with your camera by simply the card into the SD/MMC slot and view your images at a resolution of 1080p! There is also

a USB connect on the side of the display. The front panel also features an HDMI port and one composite connect.

This is a great display with a superb contrast and great colours. Once calibrated, we could not see any issues with colour or contrast 95 percent of the time. In fact our 1080p clips have not looked this good too often and there is absolutely no deficiency in the contrast that is noticeable by the naked eye. Colours are rich and vibrant but not unrealistically so and everything on-screen has a very life-like look to the colours. It's a superb display for movies and gaming of any sort. A pity that its text rendition using HDMI connectivity is not as good and text looks a little blurry around the edges and all fonts are rendered as well as

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Panasonic Viera TH-42PV80D

we'd like. Hooking up this display via D-Sub reduced the issue with text to a great degree but doing this means going without the wonder of 1080p or 1080i — since 1920 x 1080 de-interlaced/progressive scanned is not supported via D-Sub connectivity.

The price of the Viera TH-42PV80D is the killer — Rs 64,900 for a 42-inch display is good by anyone's standards and superb for a really quality display. In fact so impressed were the lot of us, that we awarded it our Digit Editor's Choice. If you're looking for excellent value for money and want something in the region of 42-inches for movie watching or gaming — this is the one to get.

LG 42PG61UR-80R

LG 42PG61UR-80R: Smooth Operator

LGs 42-inch plasma offering looks radically different from their 42-inch LCD we tested. For one the screen and bezel are one integrated unit and without the display turned on its difficult to tell the bezel apart from the actual screen because when the display is off the colour of the bezel and screen match. However, when the display is turned on we noticed the bezel was a little thicker than we would like and this makes the unit unnecessarily bulky. The remote unit is identical to the one bundled with the other LG display we tested. Upon turning on the display imagine our shock when we realised that its native resolution is 1024 x 768 progressive scanned pixels. 1080p is a selectable resolution but it messes up text quite a lot to the point that you wouldn't want to use this resolution. This clearly indicates that this display is aimed at corporate users who will not be interested in HD-resolutions that are typically meant for the movie watchers.

Upon calibration the whites had a yellowish tinge to them and we repeated the calibration process. Everything went off without a glitch the second time round although text had a noticeably stretched look to it; presumably because this is a widescreen display that does not run at a widescreen resolution. Even Display Mate had its share of complaints with the 42PG61UR-80R — there was an issue with the rendition of red and green in the colour tests and moiré was noticeable. Even movies were not as impressive as they could be mainly because of the resolution of the display. There are also the ugly black bands on the top and bottom of the screen when working with HD-content because of the aspect ratio mismatch. Priced at Rs 62,000 this would have been the ideal display for the value oriented user looking at a 42-inch display but not with its rather low level of performance. As it stands we'd recommend the LG 42-LG80FR over this one — the fact that this one is a whopping Rs 21,000 cheaper not withstanding.

Sharp Aquos LC-37A65M: True beauty is superficial

The 37-inch Aquos is a real beauty. It is built around a glossy LCD panel that has adequate surface treatment to avoid unnecessary reflections. The speakers are beautifully made and occupy an entire strip at the bottom. Finished in steel-grey these are placed angled inwards, so as to give them a slightly recessed look. The entire bezel is black and the finish is smooth and glossy. Separating the black bezel and the bottom mounted steel-grey speakers is a curved strip of fibre that is finished in high-

1964
was the year the first monochrome plasma video display was co-invented at the University of Illinois at Urbana-Champaign

Now is the time to buy
The prices of LCD TVs have dropped by a factor of 35% to 40% over the year 2008.

Sharp Aquos LC-37A65M

gloss chrome that runs through the entire bottom bezel. This is what really sets off the entire appearance. If we awarded beauty the LC-37A65M would be our unanimous choice. The control buttons are on the top of the display — great points for ergonomics here.

Sadly upon testing we found that this beauty was only skin deep. There is an issue with red and this colour appears oversaturated and at times there are chromatic aberrations visible which centre around the red component. While watching movie clips even certain dark areas of the display had a reddish tinge. Text quality is good and text is crisp but for us the issue with the oversaturated reds was a little hard to swallow. The fact that this display has issues with other colours in Display Mate means that we cannot really recommend it unless it were dirt cheap. Which at a price of Rs 67,990 its quite frankly not and therefore loses out on our approval.

Onida Xaria Thunder 32-inch: Simply too mediocre
The Xaria Thunder is a very ordinary looking display. The outer bezel is glossy black while the inner bezel is a matte-finished, dark purple colour. The wide bezel is a bit of an annoyance and quite frankly we don't see the need on such small displays. The stand is also very mediocre and this display tilts forward even when its properly setup. Quality of fixtures of the stand and even the retaining screws is also mediocre. Since the outer bezel is slightly tapered it causes reflections on-screen which bespeaks volumes about design quality.

The HDMI connects on the rear jut out sideways and are very close to the back of the display; in fact we had trouble getting our slightly thicker reference HDMI cable. The slightly thicker plug would interfere with the body and we could not connect HDMI; and were thus forced to use D-Sub connectivity. VGA connectivity allows a plethora of resolutions and only 1080p and 1080i are not supported via D-Sub. Obviously since this display had a resolution of 1366 x 768

pixels we did not expect 1080p to work. The 32-inch Xaria Thunder has a lot of issues with the colour blue and any scene involving displaying of skies or water has a lot of artifacting and banding. Even greens are not displayed accurately, especially the higher intensity shades. Finally reds also have a slightly compressed look to them and colour tonality is way off — even after calibrating. With issues with colour it was obvious that this display is not ideally suited to movies and such, although to be honest most viewers will not be as discerning. One redeeming quality was this displays superlative performance with any sort of text — fonts are renditioned beautifully and everything looks crisp and sans artifacting. Priced at Rs 39,990 the Xaria Thunder is not really something that any serious

Onida Xaria Thunder 32-inch

movie buff should consider. Its good as a monitor however and its price makes it an attractive grab for someone looking at something that offers good value.

Videocon VDL-32-FBT: 32-inches of pain
This was the second display that Videocon sent us. The first one was another 32-inch model but after switching it on we discovered serious display anomalies that to us either meant that the display was not really worth testing or something was damaged internally. This display isn't really great to look at, but has a neat piano black

Videocon VDL-32-FBT

finish that we couldn't fault. The remote unit is quite good however and we liked the translucent buttons. In fact the remote works really well and there is no button lag as nearly all the other displays had. Upon testing we found that this display suffered from a deficient contrast ratio — it failed miserably in the grey-scale test and we could not even see the first 12 grade squares; which means if you not be able to make out darker colours from each other or from a black background — this is not acceptable for the movie-watching audience. The text tests were equally poor and at times the words were not even readable. At Rs. 37,990 even the pricing on this display is not attractive. Performance is not even mention-worthy. There are much better options available for the same price.

Panasonic TX32-LX80C: Less painful, on your eyes and pocket
Panasonic's 32-inch offering is an LCD display and quite frankly looks quite a bit like the 42-inch plasma display they sent us, only its smaller (obviously). Up front we didn't really like the remote unit because while it was feature rich buttons need to be pressed two or three times before the highlighted action occurs. There are no buttons on the display itself so you have to use the remote unit. Setting up this display was a task we did twice. The first time we used the ambient light sensor on the Spyder 3 Elite and got a very dim looking image and the whites looked a little warm. The second time round

Panasonic TX32-LX80C

we got a better picture but there was some moiré noticeable even when only the desktop was being displayed. Display Mate confirmed this and the greens were not as tonally accurate as we would like. 1080p content is viewable on this display but to be honest it is better watched on a display that can do the resolution of 1920 x 1080 pixels natively. That way any sort of scaling is not needed, and from the test it was evident that this display does not scale well with non-native resolutions. Text quality was much better than the Videocon display but nowhere near the Onida. At Rs 37,900 the TX32-LX80C is the cheapest display in test but it doesn't perform up to its price. As it stands we recommend giving it a wide berth. ■

michael.browne@thinkdigit.com

LCD TVs

Brand Model No	Panasonic TX32-LX80C	Videocon VDL-32-FBT	Onida Xaria Thunder	LG 42PG61UR-80R	Panasonic TH-42PV80D	Sharp LC-37A65M
Price (Rs)	37,900	37,990	39,990	62,000	64,900	67,990
Plus (+)	Affordable	Neat looking	Affordable, good performance	Very neat looker	Good for movies, decent value	Clear, sharp text display
Minus (-)	Very Mediocre quality	Very poor performance	Looks ugly	Mediocre performer	Text quality not good	Mediocre performance everywhere else
Grand Totals (Out of 100)	59.80	50.00	68.18	64.39	70.58	64.33
Features (Out of 38)	23.47	22.47	25.14	27.93	25.74	26.89
Performance (Out of 62)	36.33	27.53	43.04	36.46	44.84	37.45
Features						
Screen Size (Diagonal)	32-inches	32-inches	32-inches	42-inches	42-inches	37-inches
Weight	17 kgs	13.8 kgs	14.5 kgs	31 kgs	28 kgs	17.5 kgs
Panel Type	LCD	LCD	LCD	Plasma	Plasma	LCD
Native Resolution #	1366 x 768 pixels	1366 x 768 pixels	1366 x 768 pixels	1024 x 768 pixels	1080p	1080p
Connectivity						
HDMI (Y/N) / Number of Ports	✔ / 2	✔ / 2	✔ / 2	✔ / 3	✔ / 2	✔ / 3
Component (Y/N) / Number of Connects	✔ / 1	✔ / 1	✔ / 2	✔ / 2	✔ / 2	✔ / 2
Composite (Y/N) / Number of Connects	✔ / 3	✔ / 4	✔ / 3	✔ / 3	✔ / 4	✔ / 2
S-Video (Y/N) / Number of Connects	✔ / 1	✔ / 1	✔ / 1	✔ / 1	✔ / 1	✔ / 1
USB (Y/N) / Number of Ports	✘ / NA	✘ / NA	✘ / NA	✔ / 1	✘ / NA	✘ / NA
Display Port (Y/N) / Number of Ports	✘ / NA	✘ / NA	✘ / NA	✘ / NA	✘ / NA	✘ / NA
D-Sub Port (Y/N) / Number of Ports	✔ / 1	✔ / 1	✔ / 1	✔ / 1	✔ / 1	✔ / 1
DVI Port (Y/N)	✘	✘	✘	✘	✘	✘
Digital Audio Out (Y / N)	✘	✘	✘	✘	✘	✘
Usability And Ergonomics						
Placement of controls on the display (So 10)	0	3.5	8	0	6.75	8.5
Menu Intuitiveness (So 10)	8	5.75	8	7.75	7.25	8.25
Options Available (So 10)	6.75	4.75	7	7.5	7.5	8.25
Remote Control Unit (So 10)	6.5	5.5	8.5	8.25	7	8
Wall Mounting (Y / N)	✔	✔	✔	✔	✔	✔
Stability of Stand (So 10)	7.5	6.75	5.5	8.5	8.75	8
Swivel Base (Y / N)	✔	✔	✔	✔	✔	✔
Performance						
Inbuilt Speakers (So 10)	3.75	4	3	3	4.75	4.5
Spyder 3 Elite						
Contrast Ratio	602:1	577:1	366:1	1686:1	1278:1	892:1
Gamma (Target / Calibrated)	2.20 / 2.27	2.20 / 2.21	2.20 / 2.23	2.20 / 2.46	2.20 / 2.15	2.20 / 2.27
Display Mate Tests (So 10)						
Colour Accuracy	6	6.5	7	6.5	7.25	6
Intensity Ramp (16 intensity)	4.5	3.5	7.5	7.5	7.5	4.75
Grey Scale Check	6	3	7	7	7.25	4.5
Moire	4	3.75	7.75	6	8	7.5
Reverse Text	6	6	6.5	6.5	7.25	7.75
HD Movie and Video Tests (So 10)						
1080p Clip	7	4.25	7.25	5.5	8.25	6.5
720p Clip	6.5	4.25	7.25	6	7.75	6
Blu-Ray Movie	7	5.25	7.25	5.5	8.25	6.75
DVD Movie	6	5.5	6.75	6.5	6.75	5.75
Text/Presentation Sharpness Test (So 10)	6	3	8.25	5.5	4.5	7.75

1080p = 1920 x 1080 pixels (progressive scanned)

Buying decisions

Needs and Desires	We recommend	Price (Rs)
A basic 32-inch LCD TV, price is a constraint	Onida Xaria Thunder 32-inch	39,990
A display that displays text beautifully and is not more than 32-inches in size	Onida Xaria Thunder 32-inch	39,990
A good 42-inch display for gaming, it should not be too costly	Panasonic TH-42PV80D	64,900
The best performing 42-inch display, price no bar	LG 42-LG80FR	83,000
The largest screen my money can buy, I own a Rolls too – so don't talk to me about price	Sony KDL-70X3500	20,00,000
The largest display that is cost effective, I want screen size, but it should be value for money too	Hitachi P50-X01AU	1,35,000

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	LG 42-LG80FR	Samsung LA-40A650	Hitachi UT42-MX700A	Hitachi P50-X01AU	Philips 52PFL9703/98	Sony KLV-52W400A	Sony KDL-70X3500
	83,000	1,07,000	1,35,000	1.35.000	2.24.990	2.59.900	20.00.000
	Superb all round performer	Good looks and performance	Decent performance	Well built, good looks	Looks classy, superb build quality	Great performer, built well	Well built, large screen
	Slightly expensive	Very Expensive	Very Expensive	Mediocre performer	We expected more performance	Expensive	Astronomically expensive
	70.68	70.96	56.37	64.66	73.16	73.26	76.61
	24.64	29.82	15.54	25.23	29.14	28.26	30.81
	46.04	41.14	40.83	39.43	44.02	45.00	45.80
	42-inches	40-inches	42-inches	50-inches	52-inches	52-inches	70-inches
	22.05 kgs	18.6 kgs	20.9 kgs	45.5 kgs	39.5 kgs	38 kgs	94 kgs
	LCD	LCD	LCD	Plasma	LCD	LCD	LCD
	1080p	1080p	1080p	1080p	1080p	1080p	1080p
	✔ / 2	✔ / 3	✔ / 1	✔ / 2	✔ / 4	✔ / 3	✔ / 3
	✔ / 2	✔ / 2	✘ / NA	✔ / 2	✔ / 2	✔ / 2	✔ / 2
	✔ / 3	✔ / 2	✘ / NA	✔ / 2	✔ / 2	✔ / 3	✔ / 1
	✔ / 1	✔ / 1	✘ / NA	✘ / NA	✔ / 1	✔ / 1	✔ / 1
	✔ / 1	✔ / 1	✘ / NA	✘ / NA	✘ / NA	✘ / NA	✔ / 1
	✘ / NA	✘ / NA	✘ / NA	✘ / NA	✘ / NA	✔ / 1	✘ / NA
	✔ / 1	✔ / 1	✔ / 1	✔ / 1	✔ / 1	✔ / 1	✔ / 1
	✘	✘	✘	✘	✘	✘	✘
	✘	✔ (Optical)	✘ / NA	✔ (Optical)	✔ (Optical)	✘ / NA	✔ (Optical)
	3.5	0	4	6.75	7.5	8.25	4
	6.5	7.5	6	7	7	8.75	8
	5	7.5	7	7.5	7.5	8	8
	7	8.5	4	3.75	7	8	8.25
	✔	✔	✔	✔	✔	✔	✔
	3.5	7.75	7	9	8.75	8.25	8.75
	✔	✔	✘	✔	✔	✔	✔
	6.5	4.5	4.5	4.5	6.25	5	5.5
	599:1	1362:1	400:1	756:1	833:1	1102:1	956:1
	2.20 / 2.26	2.20 / 2.16	2.20 / 2.20	2.20 / 2.25	2.20 / 2.17	2.20 / 1.97	2.20 / 2.23
	7.75	5.5	7.5	6.25	7.25	7	7
	8.25	4.5	8.25	6.75	8.25	7.5	7.25
	7.25	8.75	3.25	6.5	8	7.25	7.5
	8	7.5	7.5	6.5	8	8	8
	5.75	7.75	5.5	6.25	8	7.5	7.75
	8.5	7	7	7	7.25	8	8.25
	7.5	7.25	6.25	6.75	7	7.5	7.75
	8	7.25	7.25	6.75	7	7.75	8
	6.5	6.75	6.75	6.5	6.75	6.75	6.75
	8.75	7.75	8	6.25	8	8.25	8.5

▽ **Contact Sheet** LCD - Plasma

Brands	Contact	Phone Number	Web site
Hitachi	Hitachi India Ltd	+91-11-4551 5500	www.hitachiconsumer.com
LG	LG Electronics India Pvt. Ltd.	+91-120-256 0900	www.lgindia.com
Onida	MIRC Electronics Ltd	+91-22-6697 5777	www.onida.com
Panasonic	Panasonic India Pvt Ltd.	+91-22-4033 1600	www.panasonic.co.in
Philips	Philips Electronics India Ltd	1-860-180-1111	www.philips.com
Samsung	Samsung India Pvt. Ltd.	+91-11-4151 1234	www.samsung.com/in
Sharp	Sharp India Limited	+91-22-2682 7501 / 2 / 3	www.sharpindialimited.com
Sony	Sony India	1-800-11-11-88 (Toll Free)	www.sony.co.in
Videocon	Videocon Industries Ltd	+91-97118 08983	www.videoconworld.com

India's Rs. 500 comp
The $10 computer is a USB drive
that can connect to the internet.

Disciplined **Desktops?**

Rossi Fernandes

Everybody needs a PC and everybody needs to upgrade to a new one every now and then. Most people would and should run down to their local computer shopping area and pick up some stuff, go home and assemble it. But then that isn't everybody's piece of cake. So automatically, the next best solution is to have somebody build a PC for you. That brings along additional worries of warranty and whether your computer will get fixed in time or not. Will you have to run after your computer-walla every few days asking him whether the replacement part has returned? The only solution sensible left then is to go in for a desktop PC from one of the well known PC manufacturers and there have been many over the past decade or so.

We were looking at desktop PCs. We've received a few desktops from the manufacturers we contact with a few specific models. These were going to be non-gaming desktops for those who want PCs for their SoHos and maybe some everyday home use.

Acer Aspire IE3222

The Acer Aspire IE3222 look suggests that it is a desktop geared for use at home. The Acer Aspire IE3222's cabinet is nowhere as compact as the other Acer – the NX4440 but is somewhat stylish. The front end has a raised section that houses four USB ports and the two audio connectors. A nice big flat power button is located at one corner.

The Interiors are extremely spacious and the few cables present are neatly tied up at the bottom of the case. A rear fan takes care of the cooling and ventilation. It isn't very noisy overall. It's a little weird to see a LPT port and a serial port on a PC today. Build quality of the cabinet is good and it has the sliding lock feature for all the drives.

An ECS i945 motherboard and an Intel Core 2 Duo E2220 power this system. This combination along with 2GB of memory is good enough for basic office applications and browsing. We received a 16:9 aspect ratio 19-inch LCD screen for this PC like the other Acer desktops. The resolution isn't so great for vertical scrolling but nice for videos. The screen design is good and is an above-average performer. The keyboard and mouse combination are as expected – cheap but perfect for the job it's meant for.

The performance through all the tests weren't spectacular but it's a very evenly matched system. It makes a good system to upgrade from. For example, adding a cheap graphics card under Rs. 5,000 makes it a very good entry-level gaming system.

The IE3222 isn't such a great performer and is priced at Rs. 28,999. It is just a bit cheaper than the much more stylish and well designed NX4440 which we like. Although this system comes with a gigabyte more of memory, the NX4440 has a superior graphics solution. Even if you don't require the compact case that the NX4440 comes in, it is the more sensible buy.

Ashwini Baviskar

Two new iMacs

Apple has rolled out two new iMac models with intel core 2 duo processors.

Acer Aspire NX4440

The Acer Aspire NX4440 is one of the few neatest pieces of hardware we receivethe neatest pieces of hardware you cao provision for an additional fan at the front of the case..d. Although the ultra-widescreen LCD with the 16:10 aspect ratio was the common component sent to us for all the Acer desktops, the keyboard, mouse and

Acer Aspire NX4440

obviously the main case were different. This is one of the really compact systems we've seen and it looks really pretty.

The front has a really glossy finish and houses the audio, USB connectors along sidethe memory card reader that reads pretty much every format. There's even a tiny Firewire port in the front. The Acer Aspire branding along the side adds to the style element of this system. The top has a flap which when pressed powers on the system. The build of the system is pretty good as well.

With the case open, things get even more interesting. A large cooler sits in the center of the GeForce 8200 board used for the AMD Athlon X2 5000+ processor. The hardware used is a pretty good combination for all kind of work. It's a shame that only a gigabyte of memory was used in the system sent to us. Opt for 2GB of memory if you can. The configuration is just about right for playing back HD 1080p content on it too. A full sized DVD writer and a standard 3.5-inch 320 GB desktop drive is used in it.

The case has been designed well. Most of the cables have a synthetic sheathing around them and are routed through the gaps along the sides of the case. A PCIe x1 and a full sized PCIe x16 slot are also present in case you want to upgrade your graphics solution but the space for a large card may not be present in this particular cabinet. The power supply used is a narrower and long one which is present in most cabinets of this kind. There are support frames built for the power supply resting on the optical drive. Everything is sturdy and there is no wobbling, shaking or sounds from vibrations in this case.

The keyboard is neatly designed as well. The keys are as they are with most other desktop PCs but this has a few interesting things like the volume knob on the right top of the keyboard. The mouse too is sleak but is too light and sort-of flimsy.

With the kind of hardware there is on this Acer and the form factor used, it makes a decent HTPC solution you can connect to a large TV using its HDMI connectivity. Performance in the benchmarks was also satisfactory despite the lack of 2 GB of RAM. For example, Doom 3 and Far Cry fared well. At 800 x 600 with medium quality, it was able to run Doom 3 at 35.7 frames per second. 3D Mark and the graphics component of PC Mark too showed good performance.

The verdict is straight forward once you get to the price. The NX4440 is priced at just Rs. 29,299 which makes very good value for money if you want a system as a HTPC or even otherwise.

Acer Entra E961

The Acer Entra E961 is another basic desktop powered by one of the entry-level low power processors from AMD – the Athlon LE-1620. In appearance, it's even simpler looking than the Aspire IE3222. The front panels feel cheap and plastic but the frame itself is sturdy and designed well. It's an everyday basic-computing case with no

specialties. The case only has two slots for two 5.25-inch and two 3.5-inch drives.

The case is tidy though. A simple cooling solution, a cleanly setup interior and a rear fan ensures effective cooling. The cabinet is dense and can accommodate large graphics cards if necessary. There is also provision for an additional fan at the front of the case. There is only 1 GB of memory on the system so running Vista on it automatically is a big no-no. There are four slots in all for memory expansion so upgrading is possible. The nForce 430 is an old solution and it's the one used in the case of the Entra E961.

With this configuration, the Entra E961 doesn't do a lot to fight against the other desktops for performance rankings but the onboard graphics solution does show its power in the game benchmarks. In Farcry, it scored a fairly impressive 71.37 frames per second. The old nForce chipset is still pretty decent for some basic gaming.

At Rs. 23,099, it's average value for money system. It's an underpowered system but is OK if you plan on using it with a couple of known applications for a very long period of time without any plans of upgrading the system.

Dell OptiPlex 960

Dell's are generally known for their quality and performance but also for being a bit on the higher side of the price bracket with their products. The OptiPlex is one of the elite business desktops. Business desktops are meant strictly for office use, so they should be fast for desktop use and preferably be small to occupy the least bit of space. The Dell brings a bit of excitement

How We Tested

Product testing was done in the same manner as it with desktops in the past and somewhat like laptops. All the products were tested with the operating systems they came with. In almost every case, the vendor installed Windows Vista. There were one or two that came with Windows XP. Many of the desktops had proprietary software installed and some even with antivirus. All of this software which would affect performance was removed and only then were the tests run.

The staple diet of any test to do with desktops and laptops includes the PCMark and 3DMark suites which give a good indication of the core system performance. We used PCMark 2005 and 3D Mark 2005 as the benchmarks. This was done keeping in mind the kinds of desktops we were testing. We were most interested in the CPU score from the 3D Mark 2005 test. There were also test focusing on real world applications that users would use. Cinebench would be used to measure performance at rendering which was mostly was highly dependent on the processor and on the system memory. Similarly, the WinRAR benchmark would measure the performance. SiSoft would give us a drive index value for the hard drive performance but we also did a simple file copy test to gauge the hard drive performance in a real world situation.

As always, weights for the tests were distributed evenly among the benchmarks. The focus was on performance on the desktop and also on the graphics performance. A lot of points were distributed to the features component. For example, the size of the display, resolution and hard drive space and memory played an important part in the test. Importance was given to the upgradability offered by the system. This was mostly to do with the number of free slots for memory and the ability to add an extra graphics card in the future. Number of SATA ports, USB and Firewire formed the other numbers which would add up the features part of the ratings. Of course, performance numbers would come from what we thought of the quality of the case, how well the screen and speakers performed. Weights were allotted also to the ergonomics of the keyboard and mouse.

TRIED & TESTED

to this otherwise boring and plain-boring category of desktops.

The desktop we received was the OptiPlex 960. At first glimpse itself, it looks like it means business even though it was one of the smallest in this test. The case is covered with tiny holes which give it its distinctive look and it also helps with some ventilation. The DVD drive, the audio connectors and the USB connectors form the rest of the face of the OptiPlex. Dell didn't send us a display with the desktop but they did a keyboard and a mouse which were as expected similar to what we've seen on some other desktops before. The mouse is shaped well and the keyboard comes with a detachable palm-rest.

Opening the case is simple. The rear of the case has a slider which unlocks the side panel. Unlike other desktops, the motherboard is mounted on the left panel and the right panel unlocks. At first, everything looks inaccessible and crowded. The view inside is blocked by a large flat surface. One then notices the clips surrounding the various pieces. The main panel is a door which reveals the two 2.5-inch 160GB mounted on it. The drives are arranged in a RAID setup. The optical drive used too is a slim DVD writer to try and save space. This drive can also be released using a similar clip mechanism. Under the DVD drive lies the cooling for the processor. A fan sucks in air from the front of the case to the heatsink behind it and then is channeled out from the back.

The surprises don't end there. The processor on this tiny desktop for the office has an Intel Core 2 Quad Q9550 running at 2.8 GHz. There's also 8 gigabytes of memory in a 4 x 2 GB configuration lined up on the board. This hardware ensures that the competition is demolished. The performance is ridiculous. In processor-intensive benchmarks such as Cinebench, it's around two times faster than its nearest competitor. The RAID hard drives also churn up mindboggling numbers. A 1 GB file only takes 16 seconds to copy. Even though the GMA 950 isn't a great graphics solution on a PC of this kind of power, it still manages to get results with the help of the powerful processor. Office goers using this PC will be able to easily play rounds of Far Cry with an average frame rate of 60 frames per second.

Although all this power is there when you need it, it's not sure what kind of office work demands such hardware. The kind of hardware here is not even seen on many gaming rigs. Still, there's a price one pays for this kind of power. The OptiPlex 960 is priced at Rs 58,000 in the market without the LCD screen. It is expensive but if you want to be seen with a

Dell OptiPlex 960

really good desktop at work, then this is the one for you.

HCL EZEEBEE MAX XP P999

The HCL EZEEBEE MAX XP P999 is a very entry-level PC for the masses that makes use of the latest Atom processors. From the outside, it looks like any other desktop PC. When you open up the big cabinet, you discover a tiny board on it. It is an Intel i945G motherboard with an Intel Atom N230 processor running at 1.6GHz. It's almost the same thing used in netbooks. It only comes with 1 GB of memory.

The insides are spacious but the cables aren't tied up very tidily. The case is simple, looks decent and is built well. The cooling fan for the processor is tiny but good for the low-power Atom processor but the setup is still pretty noisy due to the full size power supply fan. A scoop is mounted on the side panel to let the tiny CPU fan

HCL EZEEBEE MAX XP P999

pull in cool air from the outsides. There is no room for expansion on this tiny i945 board and it means that you can only put in an additional memory stick and a PCI card.

The entire system seems like a waste of space. A tinier cabinet would have done wonders and would be much more attractive for many users. The keyboard supplied with the HCL is standard, comes with multimedia keys and keys for Internet functions. The layout is a little crowded near the center panel between the numerical pad and the character keys.

In comparison to other desktops we tested, the EZEEBEE MAX XP P999 is bad. It's not exactly cheap at Rs. 19,999. If cheaper and maybe a bit smaller in size, people who want only browsing capabilities or a system for downloading would find it most excellent!

HCL EZEEBEE UP Z811 C2D

The HCL UP Z811 is the more impressive of the two HCL desktops we received. Unlike the MAX XP P999 is built in a chassis that can be placed horizontally or vertically. It is thinner than most other desktops we've seen this test but not as small as the Dell OptiPlex 960 and the Acer Aspire NX4440.

It has a very nice design and

look. A single optical drive and the USB panel with audio connectors and finally a card reader take up three-thirds of the front panel. The last bit of area has the classy power buttons and LED indicators. All the panels have a press-and-release lock to them.

The entire case is built well. The top of the case has an opening right about on top of the processor fan from Coolermaster. The case runs pretty warm. At the heart of this system lies a pretty powerful 2.8GHz Intel Core 2 Duo E7400 and an Intel G31 based motherboard.

The performance of the system is good at the WinRAR compression and Cinebench rendering tests. One of the most impressive components is the 320 GB hard drive which showed transfer rates of 83 MB/s in the SiSoft Sandra benchmarks and also the realworld file transfer tests. The performance of the system in gaming benchmarks was pretty bad.

The chassis of this system is pretty good and is definitely a bit more spacious than the other compact desktop cases. The 19-inch LCD that came with the HCL desktops is average and have speakers are mounted at the bottom of the screen. The screen along with the desktop makes it look like a very traditional and simple desktop PC. At Rs. 27,999, it's in the same price bracket as the Acer Aspire NX4440 but doesn't offer as good a graphics solution.

HP Pavilion A6740

HP's Pavillion range has been around for ages now and the a6700 series is the latest they have for offer. The range is usually targeted at home users and also at basic office use. We received the A6740 and it came in a very fancy avatar. It has the regular mid-tower form factor but is the classiest looking one in this comparison test. The tower has a small glowing power button at the top of the case. Below that is the media card reader which supports all commonly used card formats.

The insides of the Pavilion are secured and there are metal strips in place to stop users from making changes. The motherboard is mounted on the other side and thus the processor ends up at the base of the case. The hard drive is mounted vertically and all the cables are tied to reduce the mess inside. There is space for expansion on the board for a graphic card and also an empty memory slot.

We received an equally stylish 19-inch HP display as well. The display has a nice glossy bezel but the most special thing about is its interface which is extremely detailed yet very simple to use. It's something very few LCDs today have. The keyboard is great and has multimedia buttons lined up along the sides of the keyboard. The mouse feels light and is lower than some other mice.

One of the irritating things is the

Desktops from LG
LG is getting into the Desktop PC market with a manufacturing plant at Noida.

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amount of HP software that comes along with the PC. It seems excessive and although it might be useful for a few, it's the cause of most of the PC's slowdown. With the software removed, we proceeded to the tests. The Pavilion we received came set up with a 2.66 GHz Intel Core 2 Duo E2200, 2 GB of DDR2 RAM all running on a slightly older nForce 630i platform.

The setup performs well throughout the tests. The superiority of the nForce chipsets once again boost the game benchmark scores. The Pavilion A6740 is able to run Far Cry at around 84 frames per second at a resolution of 640 x 480 at minimum details. Doom 3 scored 22.6 frames per second at 800 x 600 with medium quality. The fast dual-core processor also gets a good score in the Cinebench rendering test.

The HP Pavilion A6740 sells for Rs. 38,700 which for the performance it provides isn't too shabby a price tag. Those who want a desktop PC for home use should consider this. It's more than sufficient performance for desktop applications and it can also be used for some basic gaming.

Intex Platinum PM 45431

We received one of Intex's desktops targeted at the entry-level home user called the Intex Platinum PM 45431. The desktop comes with a 19-inch display, a standard keyboard and mouse and a USB-powered set of speakers that sit flat on the table.

The case is a standard mid-sized tower. Externally, the case looks good in features and appearance as well. There is space for two optical drives. The case has a cover over the drive bay which folds open when the drive is ejected. The memory card reader is left open and has no cover so dust will get in. The cabinet panels are all really thin and very flexible.

The cabinet will get a bit noisy over time from the vibrations from the throttling fans and drives as the side panels are really thin and flex when you move them around or put any pressure on them. The cables aren't tied up as neatly as with some of the other PCs and the cables were left hanging over the CPU fan region. A scoop hangs over from the side panel on top of the processor fan. Like some other manufacturers, there is some glue stuck to the drive screws. This glue has been splattered on shabbily. The power supply cables too feel flimsy and thin. This is another PC to come with a LPT port and a serial port.

The display is simple but looks pretty good. It is an average performer. The only real complaint is the center button which is used to interface with the menus and also acts as the primary power button. It feels weak and is most likely to break or stop work if you use it a lot.

The keyboard and mouse are the other two main issues. The keyboard is an inch or so smaller than some of the other desktop PCs which might seem unnecessary. This has been done by getting rid of the spaces

in between the function keys and the numerical pad. There isn't any space left over to keep your palm on while typing. Some of the biggest annoyances are from the moving of the Insert key to the base of the keyboard and the backward slash key to the left bottom of the keyboard. The optical mouse is as tiny as a portable laptop mouse, is too light and shaped very oddly.

This PC came preinstalled with Windows XP. We ran benchmarks on it but it didn't product any spectacular score. The hard drive performance was the only respectable number of all the other scores. The performance is only so because of the configuration used. A 2.2 GHz Intel Core 2 Duo E4500 is used alongside an i945GC chipset which isn't particularly great for its graphics performance. The price for this PC is Rs. 24,900.

LG U8047-E0463

LG isn't known to be a PC brand. It is well known for its DVD drives and displays the most. LG's desktops are sold to offices but they aren't known to make enthusiast-level gaming rigs. We received two systems from LG. Both the LG PCs had similar configurations. The larger oddly named the U8047-E0463 comes with a larger 19-inch screen. There isn't a lot that makes this PC stand out.

The configuration is

LG U8047-E0463

pretty similar to the other LG. The Intel Core 2 Duo E7200 with two gigabytes of memory can handle most applications easily. Gaming might not be the thing to do with the underpowered Intel G31 chipset's graphics solution.

In benchmarks, the U8047-E0463 performs very close to the D6047-E0381 across all the benchmarks except the memory bandwidth and file transfer tests. The game benchmarks show small changes as well. The effects of the lack of memory are even more visible as memory is allocated by the system for the graphics accelerator. The pricing of this model is similar to the HP Pavilion A6740. The HP is Rs. 1300 more than the LG but also comes with a slightly processor which makes it a little faster as well.

LG D6047-E0381

For most offices, the need is of a basic every

PC that allows you to run office applications and maybe a few Internet utilities now and then. The LG D6047-E0381 is one such system and comes with a 17-inch screen with a 4:3 aspect ratio display. It's more compact than the other LG PC we tested during the test but this feels even more office oriented. This is because of the few missing components. You get no memory card reader in this PC and the chassis is smaller too. The system runs pretty cool and isn't too noisy either. There is a small blower fan placed under the case that blows air out from underneath.

The optical drive is present on the side. The interiors are pretty crowded but it's still well ventilated. It gets a little warm after a while. The performance of the system isn't so great either.

The price for this PC is Rs. 27,808 which is a lot compared to some of the other rigs. The Acer NX4440 for example comes with a larger screen, has much better performance and costs just Rs. 29,299. If you are on a tight budget, then go for the LG otherwise the Acer seems like a better deal.

Zenith Premium PC Q6600

The Zenith Premium PC Q6600 might appear as the simpleton of the pack but is one of the heavily loaded desktops. It is powered by an Intel Core 2 Quad Q6600 process which might seem a bit dated but it is still a pretty powerful quad-core processor. To add to this, there is 8 GB of memory that comes with the system. Zenith has only put a GeForce 7300SE on this system which isn't a lot for a system of this kind.

The layout inside is neat, the case is spacious but the only issue is the noisy case. The power supply fan in our case was creating a constant low hum. The keyboard is simple without any special ergonomic designs and the mouse too is standard. The Zenith Premium PC was the only one to come with a 22-inch screen.

The performance was where the Zenith stood out the most. The quad core processor is great for rendering and the amount of memory did too. Cinebench scores were the second best of all the desktops behind the Dell OptiPlex. It also did well in the game benchmarks where it topped in the Far Cry benchmark with 115 frames per second.

A dedicated graphics card would have done much more to the score and would be the component required to create a balanced setup for this configuration. At Rs. 42,500, it's not very expensive and makes a good system to upgrade from. A GeForce 7300SE simply doesn't cut it and replacing it with a faster graphics card would do wonders. It could then be used as a gaming desktop or even as a decent system for 3D modelers or any computer-graphics artist for that matter.

Conclusion
Of the PCs we tested, we've seen everything from simple low-power desktops to high-

Asus Eee Box
The smallest and most eco-friendly desktop in the world runs on an Atom and has Xandros installed by default.

end business desktops. The most striking desktop of them all was the Dell OptiPlex 960 which also wins the Best Overall Performer. Even with the limited space, Dell has got out an overpowered office PC that is practical. Price? Rs 58,000 – it seems like a mighty lot for a desktop PC with no screen but that really is as much performance as you can get within that space. For those who price of the PC is no issue, then the Dell works fine.

For those who don't see the need for something as powerful instead something that gets you features and decent performance at a reasonable price, there is the Acer Aspire NX4440 which becomes our Best Buy winner. At Rs. 29,299, it's priced at around half the price as the Dell. It manages to score reasonable scores throughout the synthetic tests. In the real

world tests of games, it pushes away from the other PCs. It also happens to be one of the PCs that has HDMI connectivity and can play back HD content good enough to be viewed on a large TV. If looked at in that way, it makes a good HTPC solution. Adding a gigabyte of memory will only make things even better.

BEST BUY digit MARCH 2009

BEST PERFORMER digit MARCH 2009

Desktop PCs

Brand Model	Acer Aspire IE-3222P	Acer Aspire NX4440	Acer Entra E961	Dell OptiPlex 960	HCL Ezeebee MAX XP P999
Price (Rupees)	28,999	29,299	23,099	58,000	19,999
Grand Total (Out of 100)	48.63	55.43	42.43	69.02	26.29
Features (Out of 40)	22.92	21.04	19.52	21.48	15.12
Performance (Out of 60)	25.71	34.39	22.91	47.54	11.17
Processor Model No / Speed	Intel Dual Core E2220 / 2.4GHz	AMD Athlon 64 X2 5000+ / 2.6GHz	AMD Athlon LE-1620 / 2.4GHz	Intel Core 2 Quad Q9550 / 2.83GHz	Intel Atom N230 / 1.6GHz
RAM (MB) / Type / Speed (MHz)	2048 / DDR2 / 667	1024 / DDR2 / 667	1024 / DDR2 / 667	8192 / DDR2 / 667	1024 / DDR2 / 533
Chipset	Intel i945G	NVIDIA GeForce 8200	nForce 430	NA	Intel i945G
Graphics Chipset	Intel 82945G	NVIDIA GeForce 8200	nForce 6100	Intel GMA 950	Intel 82945G
Audio Solution	Realtek ALC883	Realtek ALC888	Realtek ALC888	NA	Realtek ALC662
HDD Size unformatted (GB)	320	320	160	160 GB x2 (RAID)	160
Screen (Inches) / Aspect Ratio / Resolution (Native)	19 / 16:9 / 1366 x 768	19 / 16:9 / 1366 x 768	19 / 16:9 / 1366 x 768	NA	19 / 16:10 / 1440x900
Upgradeability					
Memory (no of slots)	2	2	4	4	1
HDD (No of SATA Ports)	4	2	4	3	2
No of additional ODD Bays	2	1	2	1 (Slim drive)	2
PCI Express x16 Slot (Y/N) / No of PCI Slots / Others	✔ / 2 / (1 PCI-E x1)	✔ / 1	✔ / 1 / (2 PCI-E x1)	✔ / 1 / (2 PCI-E x1)	✘ / 1
Specifications & General Features					
No of Ports (USB (Front+rear) / FireWire)	8 / 0	10 / 1	6 / 0	8 / 1 (E-SATA)	6 / 0
Audio (Coaxial / SPDIF / N)	✘ / ✘	✔ / ✘	✘ / ✘	✘ / ✘	✘ / ✘
Video Connectivity (VGA / DVI / TV-Out)	✔ / ✘ / ✘	✔ / ✘ / ✘ (HDMI)	✔ / ✘ / ✘	✔ / ✘ / ✘ / (1 DisplayPort)	✔ / ✘ / ✘
Memory Card Reader (Y/N) / Types of Cards	✘	✔ / All	✘	✘	✘
Performance					
Synthetic Scores					
PC Mark 2005 (Overall Marks)	4375	4538	3038	7143	1631
CPU	5782	5160	3365	9036	1498
Memory	4468	3888	3956	5800	2416
Graphics	1197	1663	1162	3342	739
HDD	6002	6525	5601	5835	4880
SiSoft Sandra 2008					
CPU Arithmetic (Dhrystone) / (Whetstone)	22025 / 15239	17032 / 15683	8707 / 7292	52248 / 41643	4045 / 3326
CPU Multimedia (Integer) / (Floating)	132375 / 72038	49139 / 54041	22103 / 25038	311503 / 170604	29431 / 19905
HDD (Drive Index)	68 / 7	67 / 6	58 / 19	61 / 16	55 / 15
Memory Bandwidth (Integer) / (Floating)	3884 / 3884	4730 / 4769	4639 / 4588	6142 / 6142	2761 / 2399
3D Mark 2005 Score	648	1537	817	1809	246
3D Mark 2005 CPU Score	5484	8766	6613	10598	1632
Real World Tests					
Cinebench Rendering	4193	4028	2039	11137	842
WinRAR File Compression (kB/s)	635	864	568	1505	357
1 GB File Transfer test (seconds)	35	39	53	16	142
Doom (fps) (800x600, medium detail)	11	35.7	18	18.1	5.2
Farcry (fps) (640x480, minimum detail)	28.22	102.82	71.37	60.6	6.98

Made in India

HCL has released a range of desktops designed by the students of NID (National Institute of Design.)

Of the mid-towers, the HP Pavilion A6740 is one to go for if you want a big sized home PC that you would want to upgrade in the future. If you can shell out a little more money, then the Zenith Premium PC with its quad-core processor should be considered. There is the space required to add a better graphics. With a few changes to that system, it can be a decent choice once you feel the gaming performance isn't upto the mark. ■

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Contact Sheet — Desktop PC Comparison Test

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	HCL Ezeebee UP Z811 C2D	HP Pavilion A6740	Intex Platinum PM 45431	LG D6047-E0381	LG U8047-E0463	Zenith Premium PC Q6600
	27,999	38,700	24,900	27,808	37,400	42,500
	50.56	55.73	42.11	46.09	51.43	67.23
	21.36	22.56	20.84	18.96	22.8	26.4
	29.20	33.17	21.27	27.13	28.63	40.83
	Intel Core 2 Duo E7400 / 2.8GHz	Intel Core 2 Duo E7300 / 2.66GHz	Intel Core 2 Duo E4500 / 2.2GHz	Intel Core 2 Duo E7200 / 2.53GHz	Intel Core 2 Duo E7200 / 2.53GHz	Intel Core 2 Quad Q6600 / 2.4GHz
	2048 / DDR2 / 667	2048 / DDR2 / 800	1024 / DDR2 / 667	1024 / DDR2 / 667	2048 / DDR2 / 667	8192 / DDR2 / 667
	Intel G31	nForce 630i	Intel i945GC	Intel G31	Intel G31	Intel Q35
	Intel GMA 3100	nForce 7100	Intel GMA 950	Intel GMA 3100	Intel GMA 3100	GeForce 7300SE / 256 MB
	Realtek ALC883	Realtek ALC888	Realtek ALC888	Realtek ALC888	Realtek ALC888	Realtek ALC883
	320	320	250	250	320	500
	19 / 16:10 / 1440x900	19 / 16:10 / 1440x900	19 / 16:10 / 1440x900	17 / 4:3 / 1280 x 1024	19 / 16:10 / 1440x900	22 / 16:10 / 1680x1050
	2	2	2	2	2	4
	2	4	4	4	4	6
	1	2	2	2	2	2
	✔ / 2	✔ / 1 (2 PCI-E x1)	✔ / 2 (1 PCI-E x1)	✔ / 2 / (1 PCI-E x1)	✔ / 2 / (1 PCI-E x1)	✔ / 2 / (1 PCI-E x1)
	6 / 0	4 / 1	6 / 0	6 / 0	6 / 0	6 / 1
	✘ / ✘	✔ / ✘	✘ / ✘	✘ / ✘	✘ / ✘	✘ / ✘
	✔ / ✘ / ✘	✔ / ✔ / ✘	✔ / ✘ / ✘	✔ / ✘ / ✘	✔ / ✘ / ✘	✔ / ✔ / ✔
	✔ / All	✘	✔ / All	✘	✔ / All	✘
	4470	5577	3654	4769	4791	5815
	6217	6441	4131	6340	6378	7673
	5357	5200	3958	4675	4997	4918
	1370	1934	1163	1468	1559	1863
	6506	5372	6335	5783	6044	5208
	17233 / 13724	24778 / 19608	20160 / 14084	23319 / 18595	23337 / 18514	43691 / 30980
	102864 / 56246	147156 / 80389	112725 / 55319	139637 / 76282	139747 / 73323	2648715 / 144069
	83 / 8	84 / 16	72 / 16	74 / 6	91 / 8	54 / 14
	5289 / 5252	4885 / 4923	3512 / 3541	4214 / 4242	5060 / 5047	4855 / 4872
	795	1105	472	599	751	1184
	6672	9438	4083	5270	6682	14225
	5675	5512	3362	5188	5204	8589
	734	737	550	909	680	1254
	36	38	48	54.2	37	42
	18.1	22.6	10.2	11.8	13.7	31.8
	26.06	84.53	21.65	28.52	29.9	115.18

Groove on the go

Need something compact for music and little else?
Your search ends here

Michael Browne

The little MP3 player of yesteryear has become a converged device today that we refer to as a *PMP* or portable multimedia player. PMPs represent a conglomerate of features – some used often and others seldom touched. The simple principle behind developing the PMP was the need for an all-in-one device that converged the most widely used feature sets. At its most basic, a PMP is an MP3 player. Well, to be precise, a music player, since most PMPs play several audio formats in addition to MP3. But there are other features that people would want from such a device. One reason for this is that nobody wants to carry around multiple devices for specific,

individual tasks. Therefore, players with larger screens for watching movies are more or less out. While such players often end up being jacks-of-all-trades, there are some that manage to master a few.

Some people need something basic that just plays music. For others, compactness is a more important criterion for a PMP than its feature set. In fact, some people don't even require a screen. On board a dusty bus, or a crowded local, all they need is something that plays music with decent quality or maybe a device that allows them to tune in to their favourite FM radio station. For others, it's the all-important price that motivates them to choose a basic PMP rather than something with fancy features. If you fit into any of the above target audiences, then this test

was designed with you in mind and tasked with providing you a fit solution.

Many people want good audio quality and are afraid to look at lower-end PMPs for fear that a reduction in the feature set (and hence price tag) also brings about a reduction in quality. If this test taught us one thing, it was that the above assumption is totally false. Sure, the analogy of paying for what you get, does hold good. However, there is no hard-and-fast rule that a PMP with a large screen and a price tag of Rs. 8,000 would outperform a really compact PMP without a screen that costs Rs. 3,000. Another preconception that many people have is that a bigger brand equals a better product. While this rule of thumb may hold good 80 per cent of the time since bigger companies do have more resources

Ashwini Baviskar

Saehan's MPMan
was the world's first mass-
produced hardware MP3 player.

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available for research and development, this does not hold true all the time. You can also get multiple products with immensely variable feature sets for the same price, which further adds to the confusion. For example, a compact PMP from a large brand without any sort of display might be available at the same price point as a product from a smaller, lesser-known manufacturer that can play videos and has a two-inch display for the same. Now where do you invest your money? Hopefully, by the time you're done reading this test, you won't be confused.

PMPs up to Rs. 5,000: a diverse bunch

When we look at this category, the first thing that comes to mind is diversity. Some of these players had very tiny, single-colour displays, while others had much larger displays capable of being used as video PMPs albeit without the joy that comes from watching movies on a larger screen like the screen on the Cowon Q5W; which at five inches is one of the largest screens ever to grace a PMP. One of the PMPs in this category had no display at all. That's diversity for you. The divide seemed to be the brand name. Bigger brands (typically) charge more for their products and as such most of the PMPs from larger brands had fewer features for the price. While talking about basic music capable PMPs, even a screen can be considered a "feature", because it's not necessarily required for audio playback. Therefore, the binary choice available here seems to be between paying extra for a more reputed brand and making do with a very cursory display unit (or no display at all) or pay a

little less proportionately and get a video-based PMP that brings more of a feature set to the party.

This is also one of the most important categories in terms of consumers because 90 per cent of shoppers looking for a PMP will be looking to spend no more than this amount. Features become a premium, as does storage space when constrained by a budget of not more than Rs 5,000. Everybody wants more inbuilt memory, but not everybody will actually be using the extra space. For example, many people buy a PMP with 4 GB of memory and then promptly use it for storing some 50-odd favourite tracks and move on to using the FM radio component the most. That way, approximately 3.5 GB of extra space is wasted. Other people choose to purchase a PMP with a screen, when they only use the player for audio playback and a screen is not required. Obviously, purchasing is a decision best left to the one parting with the funds, but all we're saying is to buy what you need and do not splurge needlessly.

Features

The tiniest player in this category is Apple's iPod Shuffle. It's very well built with an all aluminium outer body that is available in a number of tasteful colours. Some may find electric pink and sea blue gaudy, but we

Philips GoGear SA2825

like it. These colours are very understandable for a product mainly aimed at college kids and those looking for something really funky looking. To save on space the Shuffle doesn't even have a display. What it does have are very clear and easy-to-use controls. The four buttons for volume up / down and next / previous track are shaped to form a circle with the large play / pause button in the centre of it. The layout of these buttons

Creative Zen Stone Plus

How We Tested

We divided our test candidates into two categories on the basis of their all-important price. The first category consisted of PMPs priced up to Rs. 5,000. The second category consisted of PMPs priced above Rs. 5,000. Since we were only interested in the players' capabilities at audio playback, we discounted the presence of any sort of screen. Screen quality along with any other display-related parameters were only logged and not taken into account when computing results for a winner. We took special note of memory upgradeability, presence of customisable equalisers and integrated FM radio.

Our reference system's source was an iPod Touch 16 GB with files encoded in the Apple lossless audio codec (ALAC) format. We used a Little Dot Micro Tube hybrid headphone amplifier along with Grado's SR 225 and Audio Technica's ATH A900 headphones. The A900 is known for its vast sound stage, slightly laid back presentation and its thundering bass along with a slightly revealing top-end. The Grado SR 225, on the other hand, has a very forward sound that places you right up to the music, something like a front row seat. It is also endowed with good bass, an excellent and very open mid-range and a treble that is both very revealing and extends well into the upper echelons of the audible sonic spectrum. Together with the head amp, these headphones give a very unbiased, audiophile-grade look at the performance of these PMPs. We also used bundled earphones with these players and their performance was rated against the performance of PMPs with respect to our reference headphones.

For our performance testing, we used MP3 files encoded at very high quality settings, at a bit-rate of 320 KBps keeping the bit-rate constant. These files were a mix of tracks from different genres, each of them testing different aspects of the audible sonic spectrum. Metallica's ~Unforgiven 2~ is a good track to test a PMP's performance in complex passages. It is also a guitar-and-drum heavy track that also tests the mid-range while emphasising drum and bass. Additionally, male vocals are tested. Dire Straits' ~Private Investigation~ tests mainly the mid-range with particular emphasis on lead and rhythm guitar. It tests for tonal accuracy of guitar notes and the very texture of the notes themselves. Pink Floyd's ~Money~ is one track that tests instruments and sound staging in addition to sound panning. The Corrs' rendition of R.E.M's ~Everybody Hurts~ is a beautiful test of female vocals as Andrea Corr is one of the better female vocalists around. ~Knockin on Heaven's Door~ by Eric Clapton does more testing of male vocals and guitar rendition. It has a lot of delicate finger plucks and some very articulate notes and we have checked for any sort of sound aberration.

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is perfect and are very large and intuitive. Suiting its ultra-compact status, the Shuffle comes with a belt clip that has a good spring that grips well.

Creative's Zen Stone Plus is the next of the really tiny players. It's about the same footprint as the Shuffle, but a little thicker and marginally longer. Creative goes one step further and provides the Zen Stone Plus with a single-colour OLED display. This is a boon for those storing extra music as you can tell what exactly is playing, or which track is next without actually having to listen in. This PMP is very solidly built and has a loudspeaker as well. Creative has got the controls right and although they aren't as good, in terms of feedback, as Apple's controls, they are very well laid out and very intuitive to use. The ergonomics are top class. Unlike the Shuffle, the Zen Stone Plus uses an all-plastic body, but finished in matte texture tones. The quality of plastics used seems very good and in testament to this, the Zen Stone Plus survived (unscathed) a rather nasty drop that occurred during a photo shoot session, where it fell while running from a height of eight feet.

Philips' GoGear SA2825 was one of the more novel designs that we've seen. The body is finished in burnished chrome that looks like a metallic, mirror finish, similar to the finish LG uses on some of its cell phones. It's got a small OLED display, which is covered by a transparent plastic shell. Initially, this shell seemed to fit the player rather loosely and we were wondering if it was removable. We figured out that the shell was a large clickable button with four functions, similar to 4-way joypad keys on cell phones. The screen is reasonably clear, more so than the display on the Zen Stone Plus, and the square-shaped player with slightly rounded edges looks really neat.

The other two players in this category

Apple iPod Shuffle

are from Mitashi. The cheaper of the two is the KNM-2GB that has a really neat looking red-backlit, touch-sensitive array of buttons on the front. It's got a decent LCD display that measures two inches diagonally. The player itself is built pretty well and looks decent with an entire black body. The front is a smooth piano finish, while the rear makes do with a slightly more rugged looking *matte* finish. Using this player can be a pain because the indicated controls for the buttons are not very intuitive and we found that we could not perform some very common tasks without referring to the manual. For example, the middle button will play a highlighted song, but will not pause the track. The pause button is located towards the side of the device. Furthermore, if you've played a track, and then navigate to the track listing, and then press the "Pause" button, you are asked whether you want to delete the song from the track list, instead of pausing the the song that's playing like you'd expect. Such goof-ups are unforgivable, but should be rectifiable via firmware upgrades, which we hope will happen very soon.

The other PMP from Mitashi is the

MWI-4GA, which boasts of a 2.4-inch LCD display – the largest display from among the PMPs in our test. It's a little thick for our tastes, but not enough to call it bulky. The entire body is chromed and this is relieved only by the black-coloured eyelet provided on the top, presumably to strap it to your belt or wrist. There's a loudspeaker vent on the rear. Its buttons are positioned to the right side which is inconvenient. Not only is feedback absent, but the buttons are so recessed into the player that they are actually hard to press — we found ourselves using our nails solely for the purpose of skipping a track, or pausing playback or other common tasks. After a while, your nails begin to hurt from the pressure of using the keys – unforgivable design goof-ups! While still on design flaws, how about the absence of a 3.5-mm stereo jack? The MWI-4GA uses a rare 2.5-mm jack that we're used to seeing in budget CDMA handsets and this, perhaps, is a more unforgivable blunder than the previous one.

Performance

When it comes to performance, none of the other three PMPs can really hold a candle to Apple's tiny Shuffle or Creative's Zen Stone Plus. This does prove our theory that a bigger, costlier player with a display unit does not necessarily equal unbeatable sonic performance. Both these PMPs leave the others far behind in terms of overall music quality and the difference is so noticeable that one did not need the much acclaimed "golden ears" to spot the differences. Both these players do well with the highs, but we noticed a bit of extra treble that could be termed as both brightness when

Term	Description
Tonal Balance	Degree to which one aspect (read frequency range) of the sonic spectrum is emphasised above the rest
Brightness	A sound that emphasises on the higher frequencies i.e. lower treble or higher mid-range or more
Congested	Smeared, confusing and flat sounding, total absence of soundstage
Crisp	Extended high frequencies, especially cymbals
Detailed	Reproduction of sound where it is easy to hear minute details and nuances
Mid-Range	Audio frequency between 250 Hz and 6000 Hz
Punchy	Good dynamics with strong impact. Typically, used to signify good bass
Soundstage	The area between the left and right channel (or two speakers) that appears to the listener to be occupied by sonic images, similar to a stage concert where different sounds come from different instruments that are placed in different locations.

Mitashi KNM 2GB

Gone in a Flash

Apple is hoarding almost all the flash memory being produced to meet expected demands

Mitashi MWI-4GA

the music was playing and sibilance with some female vocals, particularly on the higher notes. The mid-range is sweet – clear, precise and with barely a hint of being recessed. The bass is punchy and extends pretty low.

Overall, the mid-range is where most of the action takes place and both these PMPs should be considered for classical and country music buffs where the mid-range and lower highs are really well rendered. While channel separation is good on both these PMPs, it's the Creative Zen Stone that gets the nod over the Shuffle for panning sounds. Therefore this player has a much more accurate and wider sound stage. However, for the sheer enjoyment or reproduction of most types of music, the iPod Shuffle is better than the Creative Zen Stone Plus.

Although it does not handle complex passages well and things get a little muddled at the top, the Philips GoGear SA2825 also did reasonably well. The bass is not as punchy as the leaders of the pack, neither is the mid-range well presented. Both the Mitashi players were not really bad. In particular, the MWI-4GA sounds good on its bundled earphones. The only disappointment was the absence of a 3.5-mm jack. The only issues we found on both these PMPs in terms of audio quality was that the bass, while boomy, was not focussed and rather slightly flabby. The mid-range was also recessed while the treble has a little extra sparkle that comes from an unfocussed top-end.

PMPs above Rs. 5,000: Sight with sound

When somebody spends upwards of Rs. 5,000 on a PMP, chances are they either have a good bit of cash to spend, or really know exactly what they want. Obviously, there is no upper end to this category, save the one stipulation we had that each player had to be below a certain pre-defined size and weight limit. Therefore, larger, feature-rich and performance-heavy PMPs such as the iPod Touch and the iPod Classic, not to mention Cowon's excellent D2 and Q5W, were prevented from spoiling the minnows' party here.

We'll be testing larger PMPs, including video-based PMPs and the high-capacity, bulky hard drive-based offerings later this year, but we wanted to see if one could spend upwards of Rs. 5,000 and still get something that was relatively compact. We also wanted to see if there existed a large divide in terms of audio performance of PMPs across both categories.

It's difficult to define what someone buying a PMP for more than Rs. 5,000 expects for their money. To some, it may mean a large screen. To others, it may represent something that is sturdily built and does not compromise on audio quality one little bit. Obviously, style also matters and one expects a better grade finish, colour options, more memory and maybe some more functions such as an alarm, calendar, e-book reader and so on.

Someone shopping for a serious PMP would also look at storage size and the presence of expandable memory options. With the price of MMC/SD cards falling to throw-away values due to dirt-cheap flash memory prices, even 16 GB SD cards are now readily available and more affordable.

Features

If anything, all four test candidates in this category were similar to each other when compared to the cheaper PMPs. Apple's iPod Nano was the longest in terms of dimensions, but in its defence it is incred-

ibly slim. It's got a sleek contoured design and the sides are completely rounded.

In fact, the entire player is gently curved and even the screen is not flat but mildly concave. It has a crystal clear display, with very crisp text and video display capabilities, despite being all of two inches. The click wheel is typically Apple and works flawlessly with very even tracking. Menus are well laid out and the new Nano has an inbuilt accelerometer (gyroscope) meaning the display changes orientation according to the viewing angle.

The Sony NWZ-E436F is a very solid looking PMP as thin as the Nano. Its in-hand feel is even sturdier than the Nano, probably because it's smaller but also because it feels somehow denser in the hand. The finish is brushed aluminium and Sony has used some bright colours. The display of this unit is its highlight – it's amazingly clear and although measuring only two inches, text is very readable. Both these display units are said to use white-LED LCDs and the world of difference this makes to the colours and the contrast leads us to conclude that every manufacturer should dump the old CCFL LCD displays and jump on to the white-LED bandwagon.

Although the Sony NWZ-E436F's buttons are very small, they are ultra-usable and laid out really well. Even the tiny volume up / down buttons retain 100 per cent of their usability despite being half the size of those on the Mitashi MWI-4GA. If you have larger fingers, you'll have no ergonomic issues. Kudos to Sony's development teams for designing these devices so intelligently.

The other two players were from SanDisk. Fuze, from SanDisk, is square in

Sony NWZ-E436F

Android gains ground
The next generation of Archos
PMPs will work on
Google's Android platform

📋 MP3 Players

			PMPs up to Rs 5,000		
Brand	**Philips**	**Creative**	**Apple**	**Mitashi**	**Mitashi**
Model No	**GoGear SA2825**	**Zen Stone Plus**	**Ipod Shuffle**	**KNM-2GB**	**MWI-4GA**
Price (Rs)	2,999	3,499	3,700	4,290	4,990
Plus (+)	Really Compact	Compact, great sound	Ultra compact, great sound	Touch controls	Large Screen, good music quality
Minus (-)	Clicks not intuitive	Slightly thick	None in particular	Quality of earphones	Tacky buttons
Grand Totals (Out of 100)	58.69	64.26	40.75	65.75	60.97
Features (Out of 50)	29.50	29.90	6.00	38.00	38.00
Performance (Out of 50)	29.19	34.36	34.75	27.75	22.97
Features					
Capacity	2 GB	2 GB	2 GB	2 GB	4 GB
Display Type	OLED	OLED	NA	LCD	LCD
No of colours displayed onscreen	Monochrome	1 (Blue)	NA	262000	262000
Size of Display	1.8-inches	1-inch	NA	2.4-inches	2.4-inches
Type of Battery	Lithium Ion	Lithium Ion	Lithium Ion	Lithium Ion	Lithium Ion
Weight of Device (gms)	29 grams	30 grams	15.5 grams	60 grams	70 grams
Firmware Upgradeable (Y/N)	✔	✔	✔	✔	✔
Memory Upgradeable (Y/N)	✖	✖	✖	✔	✔
Type of upgradeable memory	NA	NA	NA	microSD	SD / MMC
FM Radio Tuner (Y/N)	✔	✔	✖	✔	✔
Voice Recording (Y/N)	✔	✔	✖	✔	✖
Audio Formats supported	MP3, WAV, WMA	MP3, WMA	AAC, AAC+, MP3, WAV	MP3, WMA	MP3, WMA
Photo Viewing (Y/N)	✖	✖	NA	✔	✔
Supported Image Formats	✖	✖	NA	JPEG	JPEG
Video Playback (Y/N)	✖	✖	NA	✔	✔
Video Formats supported	✖	✖	NA	AVI	AVI, MPEG-4
Screen Brightness adjust (Y/N)	✔	✖	NA	✔	✔
Screen Orientation Sensor (Y/N)	✖	✖	NA	✖	✖
Built-in Speakers (Y/N)	✖	✔	✖	✔	✔
No of Preset Modes	7	5	0	6	7
Customisable Equaliser (Y/N)	✔	✔	NA	✔	✔
Point A to B Track Repeat (Y/N)	✖	✖	✖	✔	✔
Custom Playlist saving (Y/N)	✔ (via PC connect)	✔ (via PC connect)	✖	✔ (via PC connect)	✔ (via PC connect)
Folder Creation (Y/N)	✔ (via PC connect)	✔ (via PC connect)	✖	✔ (via PC connect)	✔ (via PC connect)
Audio File Transfer (Sync/Copy)	Copy	Copy	Sync only	Copy	Copy
Use as Portable Drive (Y/N)	✔	✔	✔	✔	✔
Colour Options	Silver	Black, Blue, Pink, Silver	Silver, Pink, Blue, Red, Green	Black	Chrome
Miscellaneous Features					
Built-in Calendar	✖	✖	✖	✖	✖
Built-in Contacts	✖	✖	✖	✖	✖
Built-in Stopwatch	✖	✔	✖	✖	✖
Built-in Alarm	✖	✖	✖	✖	✖
Bundled Software	NA	NA	NA	NA	NA
Bundled Accessories	Neck strap, data cable, charger	data cable	Neck strap, data cable, charger	Charger, USB cable	Strap, data cable
Additional Features (If any)	NA	NA	NA	E-book reader	E-book reader
Performance					
Music Performance (Out of 10)					
Metallica – Unforgiven 2	6	7	7.25	6.5	6.5
Dire Straits – Private Investigation	7	8	8	7	7
Pink Floyd – Money	6.5	7.5	7.25	6.5	6.75
The Corrs – Everybody Hurts	7	8.25	7.75	7.25	7
Eric Clapton – Knockin on Heavens Door	7	7	7.75	7	6.5
Bundled Earphone Quality (On 10)	5.75	6	5.75	4	5.75
Transfer Rate (MBps)	0.96	2.94	3.89	1.36	0.92
Battery Life (Actual Tested hrs and min)	9.29	14.31	14.15	8.46	9.23

Ogg left behind

Cowon is one of the few major MP3 players to support the free ogg format.

	Sony NWZ-E436F	SanDisk Sansa Fuze	SanDisk Sansa Fuze	Apple iPod Nano 4G
PMPs above Rs 5,000				
	6,490	6,890	8,999	9,700
	Well Built, good sound	Great Features, well built	Features, Great sound	Good screen, Great sound
	Quality of bundled earphones	None in Particular	No feedback on clickwheel	Sibilant highs
	60.79	76.41	76.75	56.94
	28.90	38.90	38.90	20.10
	31.89	37.51	37.85	36.84
	4 GB	4 GB	8 GB	8 GB
	LCD	LCD	LCD	LCD
	262000	262000	262000	262000
	2-inches	1.9-inches	1.9-inches	2-inches
	Lithium Ion	Lithium Ion	Lithium Ion	Lithium Ion
	50 grams	60 grams	60 grams	36.8 grams
	✔	✔	✔	✔
	✘	✔	✔	✘
	NA	microSD	microSD	NA
	✔	✔	✔	✘
	✘	✔	✔	✘
	MP3, WMA, AAC-LC1, Linear PCM	MP3, OGG, FLAC, WMA, WAV, Audible	MP3, OGG, FLAC, WMA, WAV, Audible	AAC, AAC+, MP3, WAV
	✔	✔	✔	✔
	JPEG	JPEG	JPEG	JPEG
	✔	✔	✔	✔
	AVC, WMV, MPEG-4	MPEG-4, AVI	MPEG-4, AVI	H264, AVI, MP4, .MOV
	✔	✔	✔	✔
	✘	✘	✘	✔
	✘	✘	✘	✘
	5	10	10	22
	✔ (2 custom settings)	✔	✔	✘
	✘	✔	✔	✔
	✔ (via PC connect)	✔ (via PC connect)	✔ (via PC connect)	✔ (via PC connect)
	✔ (via PC connect)	✔ (via PC connect)	✔ (via PC connect)	✔ (via PC connect)
	Copy	Copy	Copy	Sync only
	✔	✔	✔	✔
	Black, Red, Pink, Blue	Red, Black, Pink, Navy	Grey	9 colours (Silver, Grey, Purple, Green, Blue, Yellow, Orange, Red, Pink
	✘	✘	✘	✔
	✘	✘	✘	✔
	✘	✘	✘	✔
	✘	✘	✘	✔
	NA	NA	NA	NA
	Data Cable, dock	Strap, Data Cable	Strap, Data Cable	Data Cable
	NA	NA	NA	Contacts, Notes
	6.25	7.75	7.75	7.5
	7	8	8	8
	6	8	8	7.75
	7	8	8	7.5
	6.75	7.5	7.5	8.25
	6.5	6.25	6.25	5.75
	3.11	3.94	4.11	3.45
	13.2	20.18	21.2	21.51

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SanDisk Sansa Fuze 4 GB

SanDisk Sansa Fuze 8 GB

Apple iPod Nano

shape, but not as long as the iPod Nano. In fact, it resembles a squat looking device from the previous generation called the Nano 3G (the current generation being the Nano 4G). These players have mat rubberised finishes on the rear, while the front is finished with a smooth gloss. Both the front and the rear share common colours and makes the players look plain. The only attractive colour option is the grey that looks really chic, but this colour is available for the 8-GB version only.

Fuze also uses the clickwheel-type design that Apple made famous. However, its clickwheel actually moves as you spin your finger, unlike the iPod that senses finger movements and jogs through the menu system while remaining stationary. The clickwheel on the Fuze is too sensitive in our collective opinion and it takes little for it to skip to the next function.

In fact, navigating to the desired option can be tricky if you do not watch it carefully. A little more pressure will cause it to skip a couple of options and move on ahead. The Fuze is fully loaded with an FM Radio, video capabilities, besides reading e-books and an in-built microphone to record audio. These players come with microSD expansion slots, so the ability to upgrade storage capacity is always present.

Performance
Both the SanDisk Sansa Fuze players are excellent performers. Initially, when we found the Apple players offering somewhat harsh and sibilant highs with the SR 225 headphones, we figured that it was because of their ruthlessly revealing nature. However, the highs are extended

on the Fuze, but not harshly, nor is there any sibilance. Some may like this, some may want that extra bit of treble sparkle, but it's a lot easier on one's ears.

On the iPod Nano, the drum cymbals clinch our suspicion that this PMP has a slightly over emphasised top-end. However, the Nano's mid-range performance with vocals and guitar is impeccable. Fuze can be referred to as a more neutral option over the Nano. Bass reproduction on both these PMPs is similar. The Sony NWZ-E436F was in fact the only player that was not able to drive the Grados well enough. Guitar plucks seemed a little unfocussed and seemed to lack a proper rounded, musical feel to them. Although it gets the sound staging quite well, it loses out on picking up the finer sounds. It did perform well with its bundled earphones, but we didn't find it as good. The major battle here was between Apple and SanDisk. SanDisk wins, although only by a very slight margin. We're pretty surprised to see the sibilance rear its ugly head once too often for the Apple Nano, because this was not the case with the iPod Touch that was part of our reference system.

Guts and Glory: Who won and why
The Best Performer award is a tie and goes to the duo from SanDisk. Both the Fuze 4 GB and its twin the Fuze 8 GB are simply the best all-round performers in this test. They beat the Apple iPod Nano 4G by the slimmest of margins, but as the proverb goes – a miss is as good as a

mile. The Best Value winner in our sub-Rs. 5,000 category is the Creative Zen Stone Plus. At just Rs. 3,499, this player is superb value for money. It offers very good performance and the addition of a tiny screen is a plus for those managing multiple playlists. It's also compact enough to fit almost any pocket inconspicuously. For those of you looking at really good performance, but not necessarily 8 GB of storage space, we suggest the SanDisk Sansa Fuze 4 GB. This player is priced at Rs. 6,890, and frankly offers a load of features for the price. The fact that it jointly won the Best Performance award, too, and offers superlative battery life, is an added bonus.

If you're looking for something without a screen and ultra compact, then our hearty recommendations are with the Apple iPod Shuffle. For such a tiny player, it's got superb sound quality. It is the best sounding PMP in the sub-Rs. 5,000 price bracket and lost out from getting our Best Buy recommendation only because it misses out on certain features. If you want something really cheap that has a large screen, but not necessarily the best screen, Mitashi's MWI-4GA should satisfy. For the record, the Apple iPod Nano 4G has the best quality display from among all the participants (in this test) and is also one of the most attractive looking with several truly lively colour options. The brand value does not come cheap and we figure that for Rs. 9,700, this player is grossly overpriced. ■

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BlackBerry Storm
When will this Storm pass

Blackberry's first touchscreen phone is christened the Storm. It has all the features you'd expect, coupled with all those that you'd expect to find in a BlackBerry.

The phone is sleek and smart, with a piano black finish and metallic lining around the body, while the battery cover has more of a matte finish to it. The volume buttons are on the right, between the 3.5-mm jack and the camera button. The charging port is also located on the right.

The four buttons below the screen are ergonomically placed, and you will not find yourself accidently clicking the wrong one. The screen is 3.25 inches, and there seems to be a gap at the top.

The touch keypad on this device is all worked on by tactile feedback. You can stick with the traditional keypad or turn the phone to type on a full QWERTY keypad. The phone is decently sturdy but when you tilt it slightly, you get to see how sensitive the accelerometer really is, which is another drawback of this phone.There are many rumours that the BlackBerry Storm is an iPhone killer — but it's not. The main drawback of this phone is its performance. The OS is slow, the phone lags when even trying to browse through the media gallery. Priced at Rs. 27,990, it's an average phone that needs a lot of improvement.

Specifications:
Dimensions: 112.5 x 62.2 x 13.95 mm (L x W x H), Memory: 1 GB on-board memory, 128 MB flash memory, 3.5-mm stereo headset capable, Video format support: H.263, MPEG4 Part 2 Simple Profile, H.264, WMV, Audio format support: MP3, AAC, AAC+, eAAC+, WMA, WMA ProPlus

Ratings (on 10)
Features: 7
Performance: 6
Build quality: 6.5
Value for money: 6.5
Overall: 6.5

Zotac GTX 295
The champ is here

NVIDIA's latest card GTX 295 is a dual-GPU monster based on the GTX-200 GPU. Zotac has used NVIDIA's reference design.

This card is much heavier in comparison to the GTX 280 and the GTX 285 for that matter. Most of the air is pushed out using a large array of fins.

This card does heat up as it has a lot running under its hood, surprisingly though it is not as noisy as expected.

The reason why this card is the best is due to its performance — what a performer it turned out to be. After testing this card with 3D Mark Vantage, we found it to be faster than the GTX 285. However, this was expected as it has two GPUs instead of one.

Since this is currently the best card available, until ATI has a trump card up its sleeve, it comes at a very high price. So if you have the money and you want the fastest graphics card in the world, then this is the one you need to get for yourself.

Specifications:
480 processor cores, 576 MHz engine clock, 1242 MHz core clock, 1998 MHz memory clock, Dual 400 MHz RamDAC, 1792 MB GDDR3

Ratings (on 10)
Features: 8
Performance: 8
Build quality: 8
Value for money: 7
Overall: 8

Contact: ZOTAC International (MCO) Ltd.
Phone: +91-11-4666 5666
Email: sales@zotac.com
Web site: www.zotac.com
Price: Rs. 35,555

Razer Salmosa
Gaming for beginners

Razer's Salmosa is an entry-level gaming mouse meant for good performance, yet being a practical mouse for everyday use. It's not expensive by gaming standards either.

The mouse is slightly raised as to give you a better palm grip. The Salmosa is a three-button mouse without side buttons.

However, we miss the side buttons or at least an on-the-fly button to change your sensitivity while playing. In fact, to change your settings you need to flip the mouse over, which means you actually have to stop gaming. If you really want to experience a Razer mouse, then the Salmosa is for you. If you're the type of person who likes to try out all kinds of gaming mice, then this is another one to try. The Salmosa has a MRP of Rs. 1,999.

Specifications:
1800 dpi infrared sensor, 1000 Hz Ultra-polling / 1 ms response time, Approximate size: 115 x 63 x 37 mm (L x W x H)

Ratings (on 10)
Features: 6.5
Performance: 7
Build quality: 6.5
Value for money: 6
Overall: 6.5

Contact: Netplace Technologies Pvt. Ltd
Phone: +91-22-4221 3901 / +91-22-4221 3951
Email: enquiry@netplacetechnologies.com
Web site: www.razerzone.com
Price: Rs. 1,999

Gigabyte GA-EP45-UD3P
A new blue board

Gigabyte's GA-EP45-UD3P is based on the Intel P45 chipset, and is based on UD3. The PCBs used have improved heat conduction capabilities.

This board also has two PCIex16 slots with CrossFireX capabilities. It also provides three PCIe x1 and two PCI slots.

During our tests, including Maxon Cinebench R10 and SiSoft Sandra, it matched other P45 chipset-boards.

The GA-EP45-UD3P board is great and has many features including the detailed BIOS designed for overclockers. The board is pretty decent in performance, great on features but it's a bit expensive at Rs 14,590.

Specifications:
Intel P45 Express Chipset, Intel P45 Northbridge, Intel ICH10R Southbridge, 4 DDR2 SDRAM 240pin DIMM Sockets Supports DDR2-533/667/800 MHz, Supports up to 8 GB Total Memory (4x 2 GB)

Ratings (on 10)
Features: 8
Performance: 7.5
Build quality: 8
Value for money: 6.5
Overall: 7.5
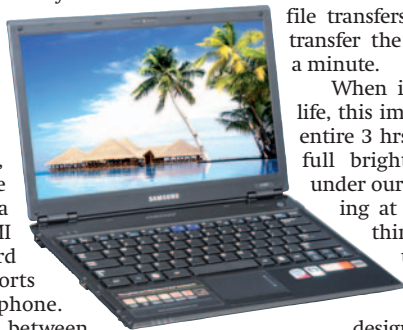
Contact: GIGABYTE
Phone: +91-22-4063 3222

Email: viveks@gigabyte.in
Web site: www.gigabyte.in
Price: Rs. 14,590
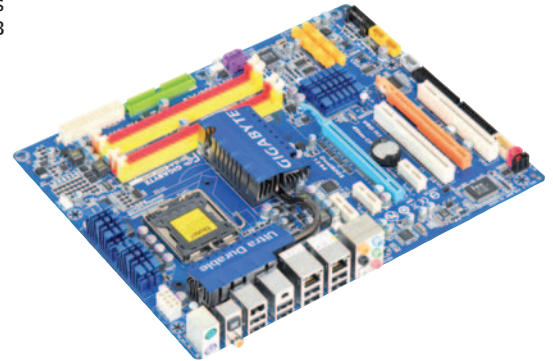
Samsung X360
Sleek and stylish

The X360 is sleek and stylish and can get you drooling. It's really thin and light and even lighter when you take out the six-cell battery. An interesting feature on the battery is an indicator that approximately indicates the amount of power left in the battery – all with just the push of a button. On the right side of this notebook, there are two USB ports, one SD/XD/MS expansion slot, a VGA port and even an HDMI port. The left side has the third USB port, a LAN port and ports for a headphone and a microphone. The keyboard has spacing between the keys which gives a good solid feel while typing. It's somewhat similar to the Sony's laptops and Apple's Macbooks. The Function key gives access to additional features such as an easy speed up mode that boosts the performance from 1.2 GHz to 1.6 GHz.

We ran some real world 1-GB file transfers and were able to transfer the file in under half a minute.

When it comes to battery life, this impresses. It lasted an entire 3 hrs and 39 mins with full brightness and volume under our stress test. So, looking at the facts, the only thing that does impress us is the battery life and the weight. Although the design is also pretty good, this laptop is aimed only for those people who like to sit in coffee shops and show off their sleek laptops. As some would put it – beauty without brains. The price of the X360 is Rs 1,15,014 which is high but one must remember the SSD component to this PC. In terms of performance, it doesn't match the other notebooks in this price range.

Specifications
Processor: Intel Core 2 Duo U9300 @ 1.2 GHz, Main Chipset: Intel GS45 + ICH9MS. HDD: 128 GB(SSD), 1.3MP Integrated web Camera.

Ratings (on 10)
Features: 7
Performance: 6.5
Build quality: 7.5
Value for money: 5.5
Overall: 6.5

Contact: Samsung India Electronics Pvt. Ltd.
Phone: +91-11-4151 1234
Email: r.venkata@samsung.com
Web site: www.samsung.com/in
Price: Rs. 1,15,014

ASUS P5KPL-AM/PS
For all your basic needs

ASUS' P5KPL-AM/PS is a mini — ATX board based on the G31 chipset. This board comes with only two memory slots, but can hold up to 4 GB of DDR2 RAM. It has two PCI slots, one PCIe X1 slot and even a single PCIe X16 slot. This motherboard also comes with the integrated Intel Graphics Media Accelerator — GMA 3100. It has the Realtek ALC662 to support six channel High Definition audio.

This board is not a high performer, nor is one of the best when it comes to overclocking and integrated graphics. However, the Southbridge tends to heat up quite a bit. This motherboard is not meant for gaming. If you want better perform-ing integrated graphics motherboard, then you should opt for the GeForce 9300.
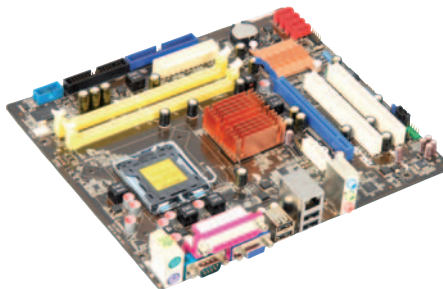
Specifications:
Supports Intel 45 nm multi-core processors, Northbridge: Intel G31, Southbridge: ICH7, FSB 1600(O.C.)/1333/1066/800 MHz, DDR2 1066(O.C.)/800/667 MHz, 5000hrs VRM Solid Capacitors

Ratings (on 10)
Features: 6
Performance: 6
Build quality: 6
Value for money: 8
Overall: 6.5

Contact: ASUS Technology Pvt. Ltd.
Phone: +91-22-6766 8800 / 1800-2090365
Email: media_india@asus.com
Web site: www.asus.in
Price: Rs. 3,000

Sharp AR-M201
A basic MFP

The Sharp AR-M201 is capable of copying, printing, scanning and optional facsimile services and blends well into an office environment. It has a simple button interface with easy switching between functions.

You can copy without even connecting it to a PC. Also, the paper tray itself has well defined lines for paper sizes and can be easily adjusted for different paper sizes.

However, the AR-M201 is not great performer. It takes about 22 seconds to print out a word document in both standard as well as economy mode which is just too slow according to us. Also, in the economy mode, the text shows rough edges. Scan quality wasn't impressive either. Copying also takes time and doesn't give you an exact match of the original document.

The Sharp MFP has some good features such as two-sided copy and even an option to rotate the image on the back. Also, there's an Auto shut-off mode and even Toner saver mode. Optional features are available as add-ons for network capabilities and fax.

Specifications:
Dimensions: 518 x 445 x 298 mm (L x B x H), Paper Capacity: 300 sheets, Scanner Resolution: 600 x 1200 dpi

Ratings (on 10)
Features: 6.5
Performance: 7
Build quality: 7
Value for money: 6.5
Overall: 7

Contact: Sharp Business Systems India Limited
Phone: +91-11-4666 5555
Email: info@sharp-oa.com
Web site: www.sbsil.com
Price: Rs. 28,500 + taxes (8000 prints free)

Aten Laptop USB KVM Switch
File transfers made easy

Aten's CS661 is not an ordinary KVM switch. This KVM switch looks more like a USB hub than anything else. The USB port present on the switch can be used to plug in a USB peripheral device such as a printer.

The CS661 has a plug-and-play device. In the File Transfer menu, the local PC is displayed on the left, while the remote PC is on the right of the window and files can be transferred between them by a simple drag and drop method, which makes it very user friendly.

The Aten Laptop USB KVM Switch is a great solution for transferring files between two computers and also is very easy to use. No software needed to use and also an extra USB port to share a peripheral between the two computers is a bonus. But, at times this device reacts slowly on the remote computer when carrying out ordinary tasks of the computer, other than file transfers, which might cause some frustration to the user at times. Even so this is ideal for quick transfers and also is easy to carry around as it is compact and comes with it's own little carry bag.

Specifications:
Dimensions: 92 x 31 x 14 mm (L x W x H), LEDs: 2 (blue), USB hub: 1x USB 2.0 port, Local port: 0.9 m USB TypeA Male, Remote port: 1.8 m USB TypeA Male

Ratings (on 10)
Features: 8
Performance: 7
Build quality: 7
Value for money:6
Overall: 7

Contact: Cubix Micro System
Phone: +91-20-2425 1594
email: sales@cubixindia.com
web site: www.cubixindia.com
Price: Rs. 4,900

Divoom Atom 357
Not that small

The satellites provided in this system are good and go well with the look of the main speaker. The volume controls are located on the back of the sub-woofer with dials for volume and bass. There are no other controls for treble, neither does it have any wired or wireless remote.

The bass on the Atom was very loose and flabby. Although, the highs are decent, these speakers lack in the mids. These speakers are not meant for large rooms.

The price tag for these speakers is Rs. 1,900 which is pretty low for a 2.1 speaker set. The only attractive feature is the rotating satellites that can be wall mounted. We would rather suggest you save up and opt for something better instead.

Specifications:
Total RMS Power: 25 W, Frequency: 40 Hz – 20 kHz, Signal to noise ratio: >80 dB, Satellite dimensions: 95 x 80 x 175 mm (W x D x H), Sub-woofer: 170 x 170 x 250 mm (W x D x H)

Ratings (on 10)
Features: 5.5
Performance: 6
Build quality: 6.5
Value for money: 6.5
Overall: 6

Contact: H T Impex
Phone: +91-22-6610 2080
Email: sales@zenthemaster.com
Web site: www.zenthemaster.com
Price: Rs. 1,900

Renamed
Nanopoint Technology Inc, the manufacturers of power supply units have changed the company name to Abertek Company Limited

Hitachi Deskstar 7K1000.B
1000 GB with this Hitachi

Hard drives with a couple of gigabytes of space are now a thing of the past. A typical desktop today comes with 250 to 320 GB but capacities have again started shooting upwards. One of the desktop drives with a terabyte of space is the internal hard disk from Hitachi — the Deskstar 7K1000.B.

Performance-wise this drive is pretty good. In HD Tach 3, we got some nice read and write results with a decent random access time. Also, the CPU utilisation was at 2 per cent, normal in most hard drives these days. SiSoft Sandra gave us lower results in comparison to HD Tach and also a much higher random access time. We can't be certain which of these tests are lying to us, but what we can do is check out the performance it has with real world file transfer tests, which of course was also done here with 4 GB sequential and assorted data. The tests show us that this hard drive can actually read stand alone files the best.

With the actual bytes to GB conversion, this 1-TB drive actually holds a total of 931.51 GB which is expected when it comes to hard drives. However, considering that it is priced at Rs. 9,100, we really don't think you should buy it, especially when cheaper 1.5-TB drives are already available.

Specifications:
Dimensions: 147 x 101.6 x 26.1 mm (L x B x H), Interface: SATA 3.0 GBps, Cache: 16 MB

Ratings (on 10)
Features: 7
Performance: 7
Build quality: 8
Value for money: 5.5
Overall: 6.5

Contact: Cyberstar Infocom Pvt Ltd Phone: +91-9972580114
email: lalit.sudrik@cyberstarindia.com
Web site: www.hitachigst.com / www.cyber-starindia.com
Price: Rs. 9,100 + taxes

Mercury 1990TWA
Displaying great value-for-money

The Mercury 1990TWA is another 19-inch LCD screen, but at a cheap price. 19-inch screens have become a standard for every desktop PC built. In general, the design gives the screen a simple, yet elegant look. The stand is pretty small and it isn't the most stable screen around.

The screen has a matte finish and supports the typical resolution of 1440 x 900. With the screen properly setup and calibrated, it looks pretty good. Colours aren't very saturated but contrast ratios are pretty decent. Banding is visible in high quality videos because of the TN panel in use. It is most visible in scenes with the gradient of the sky. DisplayMate tests performed well but there was a fine high-pitched sound that could be heard in some patterns. There were no issues with the display though.

The screen has inbuilt speakers but they aren't loud enough for movies. They get the job done for light music listening for users sitting next to the screen. Quality isn't special either. Still, at Rs 6,700 it's a steal for a 19-inch display. Quality-wise, it isn't too far away from of the expensive brands and if you're on a tight budget and considering a CRT monitor instead, this 19-inch screen might change your mind.

Specifications:
19-inch widescreen, Maximum resolution supported: 1440x900 at 60Hz, built-in speakers; Dimensions: 439 x 365 x 190 mm

Ratings (on10)
Features: 8
Performance: 7
Build Quality: 7
Value for money: 7
Overall: 7

Contact: Kobian Pte Ltd
Phone: 9810085042
E-mail: shivani_mangal@kobian.com
Web site: www.mercury-pc.com
Price: Rs. 6,700

Maya 2009
Mighty Modeler

Autodesk's Maya 2009 has been released and we've had a chance to touch on some of its countless features. Here's what we think of it.

Maya has been better known for its particles effects and inbuilt simulation systems. The cloth, fluid and particles features have been upgraded a bit. Copying of properties from a rig to another rigged model is made simpler as well. There have been even more additions to the package in that aspect and it's things like this that make up the new software.

Maya 2009 continues to be expensive investment but it's a complete suite meant for professional studios. All of these features are necessary in such places but for smaller studios, it's a very expensive software to consider and it's for them that it's not very good value for money. There are cheaper suites and for beginners, there's always the Maya Learning Edition or other free 3D modelling applications.

Requirements:
32-bit Maya requires a 32-bit Windows platform, Internet Explorer 6 or higher or other browsers, Pentium 4 or higher, AMD Athlon or higher, 2 GB memory, 2 GB disk space, OpenGL supported card.

Ratings (on10)
Features: 9
Performance: 7
Ease of Use: 6
Value for money: 5
Overall: 7

Contact: Autodesk
Phone: 919321522330 (Bhupesh Chheda)
E-mail: bhupesh_chheda@adityagroup.com
Web site: www.autodesk.com
Price: Rs. 1,07,200 (Autodesk Maya Complete 2009 Commercial New SLM) / Rs. 2,42,450 (Autodesk Maya Unlimited 2009 Commercial New SLM)

Launched
Sony launches AD-7220-ID,
a dust proof optical drive only for
the Indian market.

Logitech G25
Amazing but too expensive as a must-have recommendation

The Logitech G25 is a 900-degree wheel that comes with a pedal set and a separate gear shift console.

The pedals, unlike other wheels you come across, are made of metal. There are three pedals resembling those in a real car with each with its own level of resistance. The brake pedal is very hard though. The gear shift console has an H-style gear shift. The gear setup can also be switched to a standard sequential style with the turn of a knob.

We used the wheel on *Richard Burns Rally*, *GTR2* and *Live For Speed*. The force feedback works really well and it is noticeably better than the other well known Logitech wheel – the Momo. It's easy to make out when your car loses tractions while going sideways or when you're going through bumps and grooves in the soft soil in RBR.

Unfortunately, not many games use the 900-degree steering capabilities of the G25; therefore, you are forced to turn down the settings. The H-shift takes a while to get used to so till then, you'll be slower than other sequential gear shift users if you're very competitive in online simulations. In every single way, the G25 is better than the Momo. The price is the only problem we see. It's set at Rs 24,995, which is more than four times more than the Logitech Momo. If you're going to use the G25 with a sequential shift, you might as well stick to the Momo. For those who simply want the best, the G25 is the best you'll find in the market.

Specifications:
900-degree wheel, H-shaped gear shift, sequential gear shift, clutch, brake, accelerator pedals.

Ratings (on 10)
Features: 8.5
Performance: 8.5
Build quality: 7.5
Value for money: 2.5
Overall: 7

Contact: Logitech
Phone: +91-22-2657 1160
email: Kavita_nath@logitech.com
web site: www.logitech.com
Price: Rs 24,995

Microworld eScan Internet Security Suite 10
A single complete straight-forward security solution

Microworld's eScan Internet Security Suite is a solution developed for home users who want protection from all kinds of attacks.

The control center for the suite is something called the eScan Protection Center. The interface is simple to use but isn't designed to look attractive. The virus scanner is the heart of security suites like this. The antivirus component is simple to use and has nothing special over other competitors.

A feature called Endpoint Security prevents infections to your system from USB flash drives and suspicious applications on it. The Web Protection feature is basically a parental control which has presets for different age groups. Each one can be modified and tweaked by the user. Time restrictions can also be enforced. The popup filter settings can be changed from here.

The firewall works well with the preset of filters that come with it. It can be also switched to an Interactive Filter mode which then learns your applications and ports over time. A network connections monitor is also part of the firewall. Processes and connections can be disconnected as per your wish. Spam filtering is also part of the suite.

Alerts are displayed when there are suspicious connections or applications started. A window appears which requires you to enter your Windows account to proceed. The application does it pretty often the first time you run a few known applications. This can get a little annoying. You can choose to add the item to the Blacklist or Whitelist. The popup blocker works in the same manner and effectively.

A privacy safeguarding and system cleanup feature allows you to clear your browser and application cache folders. This can be automated to happen on every reboot if you want it to.

The application isn't heavy while using it or while scanning but it still consumes around 90 MB of memory in the background. If you have anything less than 512 MB of memory, then only should this be a concern.

eScan Internet Security Suite 10 is good for what it is – a simple, no-nonsense security suite. It has a few interesting features as well. Still at $46, its a little more expensive than what was expected for a single user license with only a year's subscription.

Requirements:
Windows platform, 128 MB RAM (256MB recommended), 150 MB disk space.

Ratings (on10)
Features: 7
Performance: 6.5
Ease of Use: 7
Value for money: 6.5
Overall: 7

Contact: MicroWorld Software Services Pvt. Ltd.
Phone: 022-28265701
E-mail: sales@msspl.co.in
Web site: www.mwti.net
Price: Rs 2,300 ($46 for single user one year)

HostedFTP.com
Fast, simple to use, effective online space provider

HostedFTP.com is an online file storage provider in a space now filled with many sites. HostedFTP.com brings a little more to this space. What makes the service great is the interface. All the features are organised into separate tabs. Registration is simple and it doesn't take time to get used to the features as well. A welcome page greets you when you log into the service. It works well with all the usual browsers without any glitches.

When you create an account, you not only get to upload files but you have the option to add other users or even allow public access to files. Groups can be created out of your user lists as well. Files can be uploaded using the web interface and Java applet that is embedded on the site. FTP access is available for you as well.

Invites can be sent to users to download separate files or packages which are simply group of files. You are notified by mail when download made using the invites. Quotas can be sent as well. With user lists created, a particular file or package can be set easily to a particular group.

File handling is simple with the web interface. Files can be moved, renamed and downloaded. A public folder is available and you have the option to have public files deleted after a set period of time. You can also have users enter information before downloading a file from the public space.

There is some amount of customization as well. You can put your web site name, a banner and a splash image for your account and your users will be shown the same. Most of the actions on HostedFTP.com are wizard-based, so it's simple to operate and use. Help is provided for every feature of the site.

There are schemes you can choose from and they have storage constraints — 2 GB, 4 GB and 16 GB depending on your needs. There are some download limitations and very minimal charges if you cross it. The service is excellent for personal use and even better for small groups of companies in multiple locations and you need a easy, secure and quick way to exchange large files.

Ratings (on 10)
Features: 8
Performance: 8
Ease of Use: 8
Value for money: 7
Overall: 8

Contact: HostedFTP.com
Web site: www.hostedftp.com
Price: Personal Edition 2 GB ($10),
Group Edition 8 GB ($ 40),
Enterprise Edition 16 GB ($80)

Seagate Barracuda 7200.11 1.5 TB
The Barracuda just got bigger

Seagate has always been a brand talked about when deciding which hard drive to purchase. Seagate took its own time to release its 1 TB drive, but seems to have pulled up with a 1.5-TB drive under the 7200.11 series.

The drive is silent. It doesn't heat up as expected and stays at a stable warm temperature too. We tested the performance of this hard drive through a series of test including HD Tach, SiSoft Sandra and even ran file transfer tests. In HD Tach, we got really great read and write speeds better than what you would expect from a 1.5-TB drive. SiSoft Sandra gave us slightly lower scores in comparison to HD Tach. The random access time matched in both the tests. We also performed some 4 GB sequential and assorted file transfer tests to find out good it performed. In the sequential transfer tests, we got a read time of 68.4 seconds, a write time of 72 seconds and an internal copy time of the sequential file took 114 seconds. With the assorted file tests, we got a read time of 83.7 seconds, a write time of 80.5 seconds and an internal copy time of 102.7 seconds.

As you can see, it does have some great read and write times shown in the file transfer test, and therefore, is an ideal drive to purchase if you're looking to expand. Anyway, this is perfect as it will be pretty future-proof when building a new rig and definitely recommend it.

Specifications:
Dimensions: 26.1 x 101.6 x 146.99 mm (H x W x L), Interface: SATA 3.0 Gbps, Cache: 32 MB, Capacity: 1.5 TB

Ratings (on10)
Features: 7
Performance: 8
Build quality: 8
Value for money: 7
Overall: 7.5

Contact: Fortune Marketing Pvt Ltd (Seagate Distributor)
Phone: +91-11-2641 4468, +91-11-2647 2491
Email: sales@fortune-it.com
Web site: www.seagate.com
Price: Rs. 8,250 + VAT

Author Me Good

Fun with Sophie — the poor man's answer to Adobe Acrobat, and a little more

Nimish Chandiramani

You've probably heard of the concept of the paperless office. Or the paperless school. Or the paperless university. And, of course, Rich Media. All desirable buzzwords, but they all come at a price — Acrobat, or in extreme cases, Flash.

Naturally, there's an open source alternative. It's called Sophie, and it's been developed for the Institute for the Future of the Book (which really exists), so you can probably guess at its purpose. It lets you create "books", complete with images and videos. And because it supports comments and sticky notes, it's great for group presentations.

You can download it from **http://www.sophieproject.org**, and it comes for Windows, Linux and Mac OS X.

Getting Around

Like so many open source projects, Sophie's interface isn't particularly intuitive. The screen is divided into a central area for your documents, and "flaps" on the left and right. Each flap has tabs on the side, which give you access to the program's features.
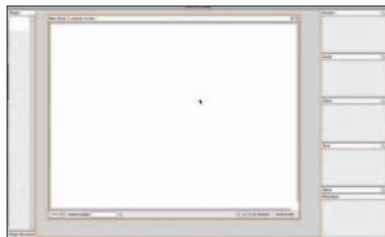
Once you get used to the interface, using Sophie is like using PowerPoint

Starting Your First Book

This is really as simple as `File > New Book`, but if you're going to create a book with a lot of text, we recommend using one of the templates. Select the Components tab on the right, and under Book Templates, double-click on Book with flow frame. This lets you create a new page every time text goes beyond the limits of the text box on your first page.

Now that you've got your first page ready, you can double-click inside the grey frame (the flow frame we just mentioned) to start typing in it. You can also import text into Sophie, though
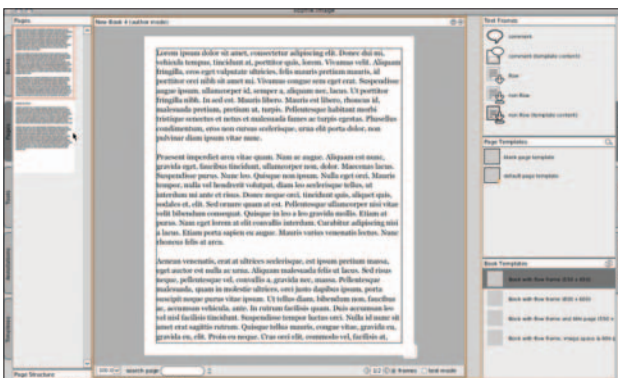
Flow frames let you deal with "overflowing" text

in true I'm-open-source-so-I-don't-go-near-Microsoft-technologies fashion, you can't import .doc files — the files in question must be in the RTF or TXT format. You can, of course, copy and paste text from anywhere.

If your cursor is in a text box long enough, you'll notice two grey buttons hovering near the box. These are halos — click on them, and you'll see HUDs (Heads-Up Displays), which let you choose fonts and paragraph styles for your text. In general, whenever you select an item in Sophie, you'll see a set of halos that open HUDs, which in turn let you change settings for that item. It's a handy feature, and prevents you from having to muck about with a bunch of palettes or dialogue boxes.

Finally, when you want to resize the frame or move it around, click on the grey border of the frame, and you'll see a "halo" — an orange dotted line around the frame (this part can be a bit frustrating, because you have to click in just the right place). Use the corners to resize the frame, and the "+" in the centre to move it around. You'll also see a new set of halos for the frame — change the background colour, margins, and actions, which we will come to in a bit.

And now, on to more complex matters.
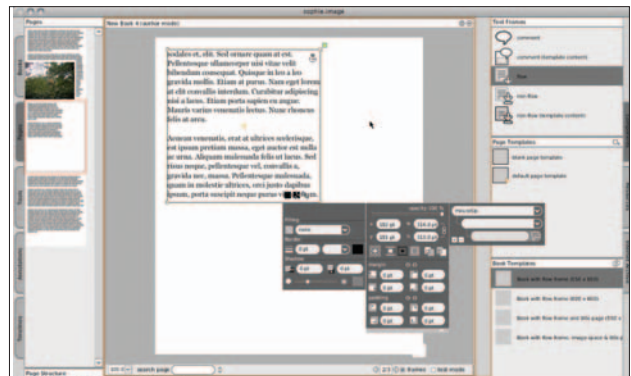
Every object has its halo, and its own special set of HUDs

Enriching Your Book

Now that you can make your way around the interface, you can start adding media to your book. Sophie supports nearly all popular image, audio and video formats, so you don't need to worry about this, at least. Like any other such tool, you first need to import your media files into the program before using them in your book. Choose `File > Import` File to start importing media files. If you want to import a bunch of files, however, a better idea would be to put all these files into a folder and import them: select the Resources tab on the right, and drag your folder on to it. In just a bit, you'll see all your files getting added to the resources for the book.

To add an image to your book, just drag it on to the page. You'll be able to use the HUDs to change the size of the image, add a background colour, and choose how text wraps around it. If you don't have media to import, fret not. Select the Internet Archive tab on the right, and you'll be able to search for royalty-free images, music or video to add to your book.

Feature
Home cinema A/V
systems ▶78

Tips and Tricks
All your questions
answered ▶81

DIY
Make your own HTPC
at home ▶92
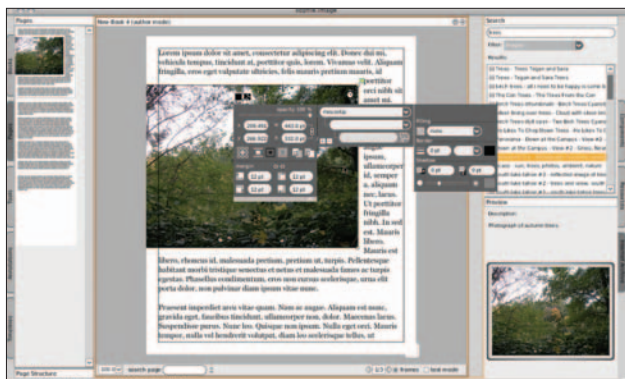
You'll have a bunch of **HUDs** to fiddle with for images, too

One neat feature you have at your disposal here is the Anchor halo, which lets you attach your image to a text frame, paragraph, line or even character. To illustrate, let's say that the image you just added to your book needs to be associated with the third paragraph. You've taken the time to position it well, and you're happy with the way the text and image complement each other. But now, you must add text before the paragraph, which means that you must now reposition the image once again. With Sophie, however, you can position the image the way you want it, and then ancho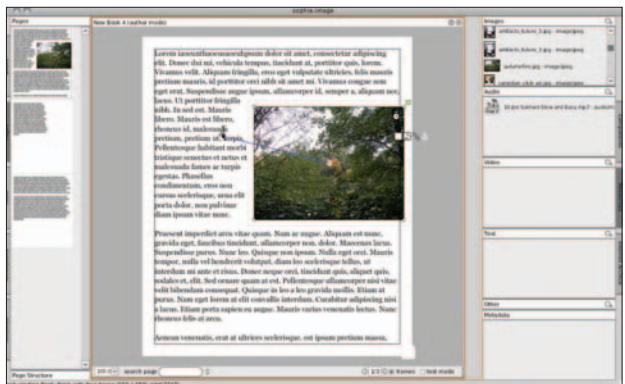r it to the paragraph. Here's how: once you've positioned the image, click and drag the Anchor halo to the paragraph to which you want to attach it. Now, click on the halo (don't drag), and in the HUD, choose Paragraph. Now every time this paragraph moves, the picture will move with it.

Anchoring is especially handy when you need to attach small

Caption: Anchoring an image to a paragraph is a two-click job

images to words – for example, the image of a toolbar button next to its name.

Getting Interactive
You can't get far with any rich media authoring tool if you don't have some interactive goodness thrown in, and Sophie lets you do plenty on that front. To make anything interactive, select it and click on the Links halo (the one that looks like a chain). First, you need to choose an event that will trigger the action you want – the mouseUp event, for example, means that your action will start when you click and then release the mouse button over the link. Once you've chosen your event, you've got several options ahead of you – you can make the link open a URL, turn to a page of the book, and, our favourite, turn a text frame off and on. Here's how you do it: first, choose mouseUp as your event. In the menu below, choose Toggle Frame. Finally,

drag the flag next to the last text box, and drop it over the frame you want toggled every time you click on the link. If you want a transparent "beam" to point from the link to the frame, check Show Annobeam.

You can also add more actions to the link by clicking on the "+" at the bottom-left of the HUD. To preview the results of your tinkering, select Test Mode at the bottom right of your book. To get back to editing, un-check Test Mode.
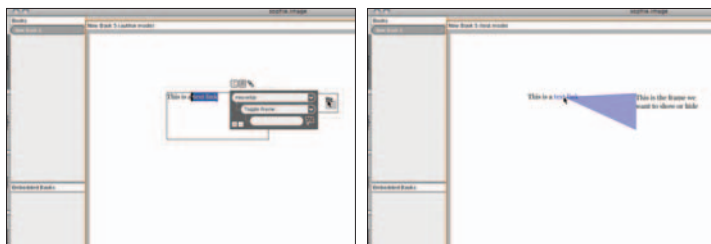
Toggling images can be fun

Share!
Finally, when you've had your fun with the program and finished your book, you can send it to your friends (or group members) for them to comment on. There are two ways for you to let people comment on your work: the first is to ask them to comment on specific areas. To do this, switch to the Components tab on the right, and from under Text Frames, drag a Comment into your text. Adjust the size of the comment frame, and you're ready to publish your book: choose `File > Publish Book` to create a .sophie file that your team can read and comment on. Once you've published your book, readers will be able to add comments by clicking on the addComment links. They'll also be able to reply to previous comments and start conversations.

You can start conversations with a comment text frame

The bad news with comment frames, however, is that they may bump your text around, which isn't desirable at all. Which is why you have stickies. Under the Annotations tab on the left, you'll find options to create sticky notes, highlights, and even audio annotations.

Right now, anyone you collaborate with will need their own copy of Sophie or Sophie Reader installed, but the next version of Sophie promises to bring these features to an online version of the Sophie Reader.

Footnote
Sophie's interface has a frustrating lack of any right-click menus or keyboard shortcuts, so it's likely you'll be frustrated with it for a while. Once you get used to it, however, its benefits far outweigh its shortcomings, and it's one of the best tools we've seen this side of Acrobat. ∎

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Workshop on
Media Streaming

Kumar Jhuremalani

Media streaming refers to the *broadcasting* of multimedia (video / audio) content from a computer, to be accessed by users located elsewhere without having to save any data. In other words, person A can stream a movie from one location and person B can be watching the same movie without having to save a copy of the movie on their computers.

A video used for streaming is usually sent from a pre-recorded video file, but with the advancement in technology, can now also be distributed as a live broadcast feed. In a live broadcast, the video signal is converted into a compressed digital signal and is then transmitted from a web server that is able to use the multicast protocol, where the same file is sent to multiple users at the same time. You don't necessarily have to be streaming across the internet; media can also be transmitted locally over a network. Of course the person who wants to access this streaming media will also have to be on the same network. Although it is possible to access streaming media over the internet, it requires greater bandwidth.

Benefits of media streaming
- Media streaming does away with juggling CDs, DVDs or othe storage devices between machines.
- With streaming, you don't need to download and re-download media files.
- No additional hardware is needed.
- Live broadcast from the internet is only possible through streaming.

Stream videos using VLC
VLC (Video LAN Client) media player is a well-known media player. This player can play almost any audio or video format you throw at it and is also extremely light on system resources. Another plus for VLC is that it works on Windows, Mac and Linux. Now, let's get to actually streaming videos with VLC.

First, you need to get VLC for your OS. You can easily download it from **www.videolan.org**.
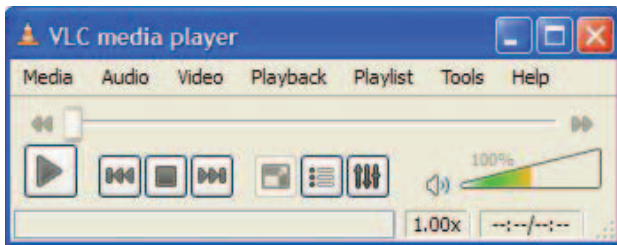
The easy-to-use interface of VLC Player

Once you have installed VLC on your system, click Media > Streaming. You need to set options to let you stream.

Select the videos you want to stream. Click and drag to select multiple files. Next click on Stream.

Once you click on Stream, the next window that opens allows you to set the Stream Output options. Here, select Play locally and HTTP. Leave the port at 8080. Under Encapsulation, select MPEG-TS and click on Stream.

The video will now play, indicating that it is being streamed.

With HTTP as an output mode, anybody in your network can access your stream. If you want to avoid this, in the Stream Output options window, select RTP and then prefer UDP over RTP.
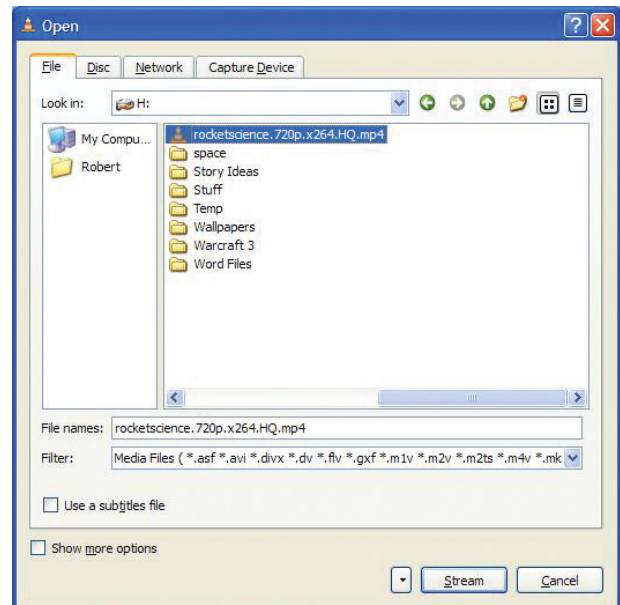
Selecting your videos to stream

You can add the IP addresses of the PCs you want to stream to. Leave the port default at `1234`.

Receiving a video stream
VLC can be used on various platforms and for receiving the video stream we are going to use it on Linux. To install VLC, follow the same procedure as you did earlier.

First go to `Media > Open Network`. In the Network Protocol options, change the protocol to HTTP leaving the address bar empty. Check Show More Options at the bottom and type in the IP address of the PC that is streaming the media with the port being 8080. Once done, click Play and the media will start playing.

If you have used UDP instead of HTTP, all you have to do is click on `Media > Open Network`. Select UDP and click on Play.

You can also stream HD videos using VLC, but make sure the computer you are receiving to can actually play HD smoothly. Well that's all you need to do to stream your media using VLC. So go ahead, set a playlist that can be streamed, grab some popcorn, and sit back and
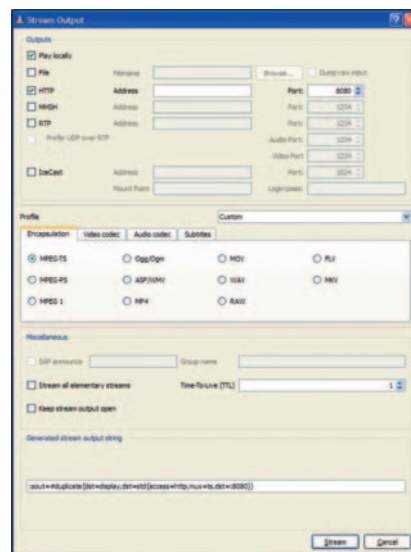
Setting up the Stream Output Options via HTTP

Streaming is in

On Nov 22, 2008, YouTube's first ever Live Streamed event took place over the internet

Setting up the Stream Output Options via UDP

Setting up the Orb applet on your PC

Simple Account creation screen

Logging into the Orb service
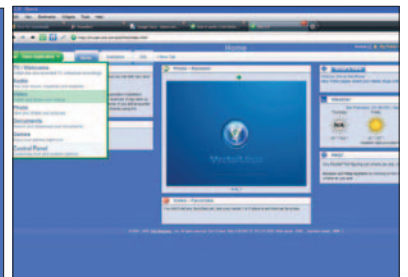
Select the option you wish to stream

audio and photos. All these files are available at a single web page which can be accessed from anywhere.

To start off, you need to download the Orb applet from **www.orb.com** and follow the instructions. During the installation process, you also get to create your account.

Once you complete the installation, head over to mycast.orb.com and login.

Once you login and are at the homepage, click on Open `Application > Video`.

Orb creates a virtual database of the files on your system. To change this, right-click on the Orb applet running on your system tray and open Configuration.

To add a video to your streaming list, simply drag and drop the video on the right-hand side. Click on Share and select the option you wish to use. You have choices ranging from Public share, blogs and even sending the link via an email.

Once you have shared the video, visit the given link and view the video from there.

With everything done online, Orb is a great way to remotely

Receiving Stream through HTTP

Receiving Stream though UDP

enjoy the show.

Stream videos using Orb 2.0

Orb 2.0 is a program that lets you stream media from a PC which can be remotely accessed from any computer having an internet connection. Unlike VLC, you need to be online in Orb to receive the stream. Also, you need Windows. Orb let's you stream videos, pictures, music and even webcam feeds.

To use Orb, download a small server applet onto your home PC which will catalogue and stream your media files including video,

Start sharing your videos online
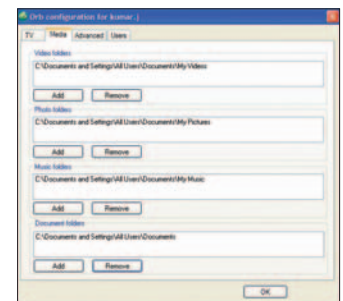
Setting folder options for Orb

access media. It even works with game consoles such as the Xbox 360, PS3 and Symbian-based handsets. If you're looking to access your digital media anytime, just get to a PC and access Orb.

You may also find other software for streaming your media, but in our opinion these are the best available for media streaming. Media streaming is truly a great and efficient way with hardly any hassle to transfer or even transmit your media for others to view. If you have an HTPC, it is an added bonus to stream straight to your HTPC, where you can enjoy great quality videos. ∎

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Home cinema A/V systems

TOOLBOX

Terry Relph-Knight

These days there are more possibilities for 'the TV' than just being a box in the corner of the room. It makes sense to install an integrated system, where the screen is at the hub of work and entertainment activities. Although this concept was first proposed several years ago it is only now gradually becoming economically and technically possible. Of course this does require more commitment, work and knowledge to set up than a simple TV. One thing definitely to bear in mind is that standards and features for digital audio and video are still changing so fast that it is difficult to make equipment choices that provide future-proofing. In this article we will take a look at component choices and how to best hook them together.

Choosing components

A home Audio/Visual system can be quite complex so it's best to plan in advance before purchasing any components. You will need to decide on what you require your home system to do and on how the available space and budget may restrict your choices. It may seem attractive to integrate equipment you already own, but because of the new features required by digital audio, digital video and HD video this may not be practical.

A system may be composed of the following components: a display, a media player and/or a gaming console, a set top box, an audio amplifier, loudspeakers (from two to eight), a hard disk or DVD recorder, a PC and remote controls, plus possibly an aerial, cable feed or satellite dish. You might also want to include a tuner for radio reception.

The display

For displays there is a choice to be made between a computer monitor, a television or a projector. Computer LCD monitors are available with up to a 50-inch diagonal screen size although these are expensive at nearly Rs. 3 lakh. However, you can, for example, get a ViewSonic 22-inch with an HDMI connector and HDCP support for around Rs. 15,000. The advantages of computer monitors are that in the smaller sizes they are relatively cheap and provide high resolutions. They are best suited to their primary purpose as computer displays with a secondary use as entertainment displays. However, for use in a home A/V centre it is important to buy a monitor with an HDMI input and HDCP support. There are still many new computer monitors for sale that do not have these features.

TVs have the advantage that they can be used stand-alone, are available with up to a 52-inch diagonal display and the current flat panel TVs usually have quite a range of input and output connectors. Again an HDMI input and HDCP support is essential; many of the earlier high resolution flat panel TVs do not have these features.

The big advantages of projectors are that they can be installed unobtrusively, they don't take up much space and they can provide large displays. Unfortunately, there are quite a few disadvantages: projectors are relatively expensive, particularly for higher resolutions and the running costs due to power consumption (350W for a 1200 lumen projector) and the cost of replacement lamps, are high. You can expect to pay between Rs. 60,000 to Rs. 130,000 for a 1920x1080 resolution. Replacement lamps can cost Rs. 18,000 to Rs. 25,000 and you should budget for

at least one lamp change during the life of a projector. Ceiling mounting a projector can also be something of a chore.

The Audio Amplifier

Let's avoid all the audiophile arguments about audio quality – frequency response, distortion and so on – and assume that an amplifier bought from a well known brand name manufacturer is going to be of a good enough quality and we'll concentrate on the required features.

The first thing to decide on is whether you might be satisfied with two channel stereo sound, or want to go for a surround set-up (with 5.1 or even 7.1). Most surround sound capable amplifiers have built-in decoding for both Dolby and DTS systems; best to avoid any that don't.

Modern loudspeakers are usually quite inefficient (efficiency is sacrificed in favour of flat frequency response). Many multichannel amplifiers claim 100 or 200 W per channel although they don't specify exactly what is meant by this. 50 W r.m.s per channel will be more than enough in most domestic settings.

Remote control of volume and input selection are desirable features, but it's unlikely you will find a mainstream audio amplifier that doesn't have these.

Choose an amplifier with at least two HDMI inputs and two HDMI outputs; most amplifiers with these will also have a selection of phono connectors for other audio inputs and may also have digital optical inputs and outputs.

Loudspeakers – 5.1 and beyond

Although you can use the amplifiers and loudspeakers built in to a computer display or a television, these are normally limited to left and right stereo, are usually small and of limited quality. An external amplifier can drive multiple loudspeakers for a surround sound setup.

With stereo sound where two loudspeakers are placed one to the left and one to the right in front of the listener, the illusion of a sound coming from any point between the two loudspeakers can be generated by driving both loudspeakers with the same signal, but at different volumes. When the volumes are equal the sound source appears to be in the centre, if the left portion of the signal is louder the sound source appears to move to the left, if the right signal is louder the source appears to move to the right. In surround sound this principle is extended by adding more loudspeakers placed around the listening position and the greater the number of loudspeakers used the more accurate is the illusion. Movie theatre installations have used as many as 24 loudspeakers.

Home installations normally use five small 'satellite' loudspeakers plus one bass-reflex sub-woofer and are referred to as 5.1 (five smaller loudspeakers plus the single bass woofer). This arrangement is based on the principle that the sense of direction of a sound diminishes as frequency falls, so the bass frequencies can be provided by a single loudspeaker (note the difference between this and the movie theatre use of the sub-woofer only for extreme low frequency effects). Conveniently, it's the bass frequencies that require the largest, most powerful loudspeaker, while the middle to upper frequencies require less power and can be generated by much smaller loudspeakers. The two front loudspeakers provide the left and right sound stage for sounds in front of the head, while the two rear loudspeakers expand the

Pioneer calls it a day
Pioneer will phase out all its TV-related business activities by the year 2010. It will however remain in the audio business.

TOOLBOX

sound stage behind the head and in combination with the front loudspeakers, to the sides. A central loudspeaker located behind or just above the middle of the screen is used to reinforce the centre of the sound image for dialogue of characters in close-up. A 7.1 system extends the 5.1 layout by adding two further loudspeakers – back left and back right. In 6.1 there is only a single centre back loudspeaker.

However, in most domestic situations setting up even a 5.1 system can be tricky. Placing the two rear speakers presents the greatest difficulty because the ideal position for these is just a little behind and above the listener, effectively placing them on stands in the middle of the room.

For a stable and accurate surround image it is important that the loudspeakers in a surround sound system are all from a matched set. It is inadvisable to try to build up a surround system by adding loudspeakers to an existing left/right stereo pair unless they are identical models.

A 5.1 system requires quite a lot of space, very symmetrical rooms should be avoided and hard reflective surfaces – the ceiling above and the floor in front of the listening position – should be damped. Floor reflections can be controlled using carpets while ceilings can be fitted with acoustic panels. It may also be desirable to fit acoustic damping to the wall behind the listening position.

While the single bass loudspeaker can be placed almost anywhere in the room, some positions will sound better than others and finding the right position is a matter of trial and error. Perhaps the ideal position is mid-way between the two front loudspeakers just below the screen. It is important to balance the relative levels between the small satellite loudspeakers and the sub-woofer and 5.1 systems usually have a separate gain control for the sub-woofer. Placing loudspeakers at junctions between walls and floor or ceiling will boost bass, although this may not be an issue with small satellite speakers. Putting the sub-woofer in a corner may seem convenient, but it will result in a large bass boost and it may not be possible to balance the bass content using the bass gain control.

Active loudspeakers
Smaller 5.1 systems, particularly those designed for computer gaming, may have a five channel amplifier incorporated into the bass sub-woofer cabinet, eliminating the need for a separate amplifier. These can be reasonably effective in smaller rooms. At the other end of the scale, very high-end systems may also use wide frequency range active loudspeakers with larger cabinets. Sub-woofers may not be needed with such systems.

Program sources – aerial, cable or satellite?
Standard definition analogue television broadcasts are gradually giving way to DVB-T (Digital Video Broadcasts – Terrestrial) and existing televisions can be converted for digital reception with the addition of a digital tuner, often in a set top box. Even in major population centres reception of the digital terrestrial broadcast signals can be poor, the digital broadcasts do need a different aerial to that used for the analogue signals and you may need a high gain, very directional 'digital' aerial, possibly even fitted with a signal boosting amplifier. Using an aerial allows access to the 'free' broadcast digital channels. However it may be more convenient to subscribe to a satellite or cable service using a set top box, which should guarantee a strong signal. Even with a satellite or cable service it's not guaranteed that program reception won't be interrupted from time to time. Satellite reception is perhaps slightly more likely to drop the signal than a cable hook up, depending on the weather, the condition of the satellite network and sunspot activity.

HDTV is just starting to become available in India this year. Many program makers are changing to HD and Direct to Home (DTH) satellite packages are available from Dish TV, Reliance Communications BIG TV, Tata Sky, Sundirect DTH, Airtel Digital TV and the public sector DD Direct (Doordarshan). HD set top boxes from Dish TV cost between Rs. 3,300 and Rs. 4,000, around twice the price of standard definition. Cable services are also extremely popular in India and since a furore in 2001 over large price hikes, have been provided on a Conditional Access System (CAS). CAS allows consumers to choose and only pay for those channels they want to watch.
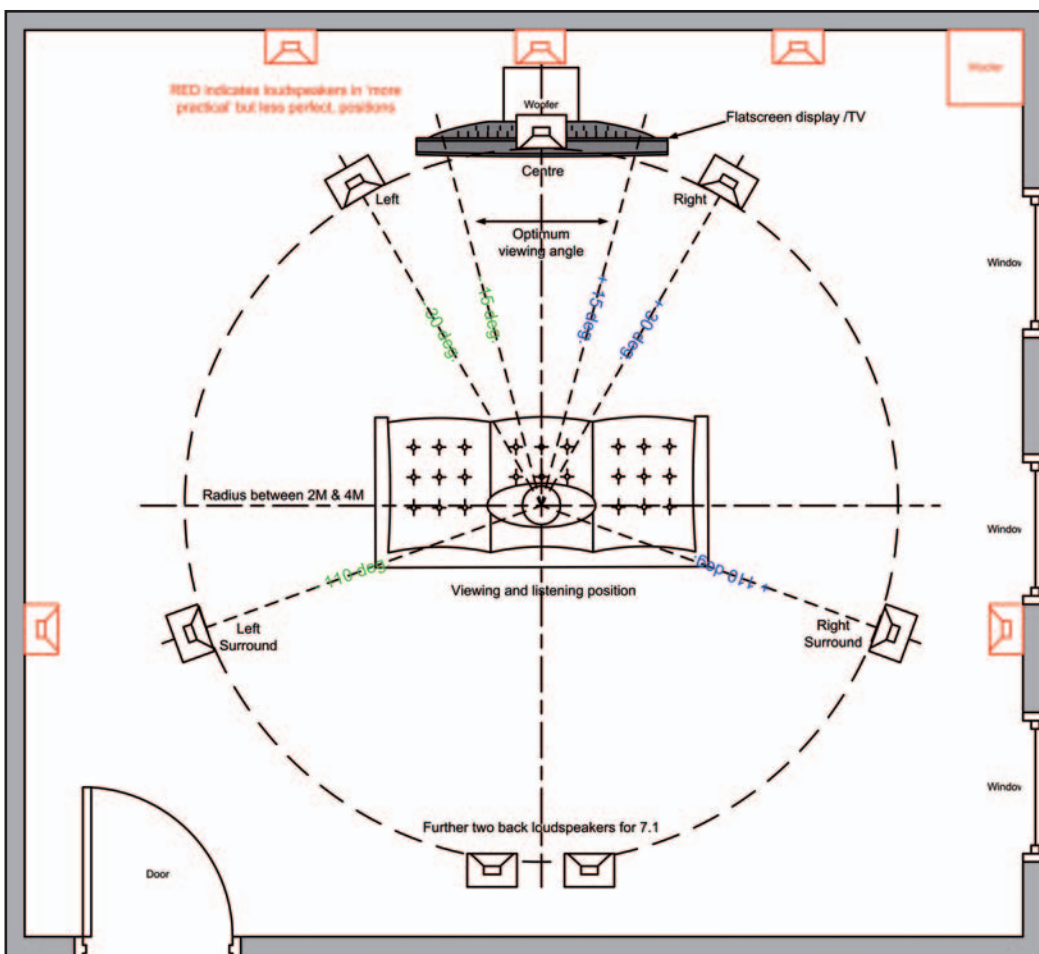

Diagram of a 5.1 audio setup in a typical room showing the possible inconvenience caused by placing the loudspeakers in the optimum positions

TOOLBOX

Apparently the government's decision that the 2010 Commonwealth Games will be broadcast only in high-definition has galvanised the push toward HDTV in India. As a result, the state-owned broadcaster Doordarshan, which is expected to launch HD-TV on an experimental basis soon, has stated it will produce content for the Commonwealth Games in this format.

Cabling – HDMI
Although most flat panel TVs and media players and audio amplifiers still sport an array of different connectors for interfacing with other equipment, the High-Definition Multimedia Interface (HDMI) which started appearing on products in 2003, has become the default for hooking together digital audio and video equipment. One of its design aims was to minimise the tangle of wires connecting the various units of an AV system together by combining video, audio and control cables into a single cable with just one connector on either end. In this way cable clutter is minimised and the various units in a system can be chained together with just a single cable running between each one.

The high end audio market is notorious for taking things to extremes in the supposed pursuit of ever better sound reproduction. Exotic materials, specialist construction techniques and bizarre theories are regularly extolled as providing better sound, much of the time merely as an excuse for charging huge sums of money. Audio cables are a particular subject of controversy in this respect, even though these are only required to carry relatively low frequencies up to 20 Khz or so and it should not be particularly challenging to engineer a cable to carry these low frequencies over short distances.

HDMI is based on and is backwards compatible with, DVI-D and DVI-I and HDMI cables and signals can be connected to DVI devices using an adaptor. However not all of the HDMI functionality will be supported.

The HDMI specification is currently up to version 1.3 which adds support to the preceding 1.2 specification. Unfortunately, a number of current Blu-ray players, amplifiers and so on only have support for 1.2. To confuse things further, some features of the different specification revisions are optional features. For example, 1.3 adds optional support for output of Dolby TrueHD and DTS-HD Master Audio streams for external decoding. TrueHD and DTS-HD are lossless audio codec formats used on Blu-ray Discs.

HDTV image formats and re-scaling
There are two main HDTV image formats in common use: 1080i and 720p. These numbers refer to vertical resolution; the number of lines in the image from top to bottom. For an image with a 16:9 aspect ratio this means a 1080i image is 1920 by 1080 pixels and a 720p image is 1280 by 720. So the 1080i format would seem to have higher resolution.

Obviously for a display to be able to present 1080i or 720p signals its physical resolution must at a minimum match that of these signals. Looking at the specifications for HD Ready TVs can be a little confusing; for example, you can buy a 19-inch HD ready TV with a screen resolution of 1440 by 900.

HD Ready TVs use powerful image scaling algorithms and hardware to obtain the best fit for the variety of signal formats they must display. Because it was too expensive to design the early analogue TVs with a stable picture size that exactly filled the screen, the old TV signal standards allow for overscan; a border around the edge of the image that does not contain any important scene elements, such as title text. Analogue TVs are set up so that most of this overscan area overlaps past the edges of the physical display area. Digital TVs do not need to overscan since they can map images precisely to all the available pixels, but nevertheless they may allow some overscan in an attempt to provide the best display for signals using the earlier formats.

Video compression – MPEG-2, H.264
Raw video recording requires huge amounts of storage capacity. Because of this, all digital video is heavily compressed. Depending on the application, different compression schemes are used. For example, movies encoded to DVD use MPEG-2 (Motion Picture

Experts Group 2) while HDTV uses H.264. H.264 is equivalent to MPEG-4 AVC (Advanced Video Coding). If you want to display HDTV on your computer you will need a graphics card that includes H.264 decoding. Nvidia include this capability in a suite of features it calls PureVideo, so any of its graphics card products that support PureVideo are suitable for HDTV display. ATI has a similar suite of HD features it calls Avivo.

Although these sophisticated compression algorithms solve the huge size and bandwidth problems of raw high resolution digital video, they do at times introduce visible artefacts, most often seen as blocky patches in the image.

High-bandwidth Digital Content Protection (HDCP)
When the specifications for high definition video and Blu-ray were being drafted the major content providers such as Time Warner and Sony, concerned about the degree of piracy with the old analogue formats, insisted that all high definition video hardware should incorporate some form of content protection. HDCP uses a public key, private key encryption system to exchange handshakes between every device in the reproduction chain. If the handshake fails then the encrypted signal is not passed across the link. Public keys may be placed on a revocation list that is included on new media. If during the handshake, a public key is exchanged that is found to be on the revocation list, the device supplying the key is no longer recognised.

Some critics of HDCP have said that reverse pressures from the hardware manufacturers, concerned that implementing HDCP encryption would add too much to the manufacturing costs, have resulted in a weak encryption system that is relatively easy to break.

It is possible to buy HDCP dongles or strippers on the 'grey market' that can be inserted in the signal path to, for example, convert a non-HDCP compliant monitor. However, because these devices break the integrity of the encrypted signal chain, they are subject to key revocation.

Viewing Distance and Screen Size
Our eyes have sharp focus in the centre of the field of view surrounded by our peripheral vision. This means that there is a cone of vision or field of view where objects will be seen most clearly. As a result, for a given screen size there is an optimum viewing distance. Since vision varies somewhat, the viewing angle used by different organisations to calculate the optimum viewing distance also varies. SMPTE (Society of Motion Picture and Television Engineers) recommends a 30 degree viewing angle, THX (Tomlinson Holman's eXperiment – see boxout) 36 degrees (preferred) to 26 degrees.

The simplest way to work out the ideal viewing distance is to consider that given the SMPTE recommended viewing angle the distance to the screen should be 1.9 times the screen width (taking the THX recommendations the distance to the screen should be between 2.2 and 1.54 the screen width). Given the Dolby recommendations for a 5.1 speaker set-up radius of between 2 and 4 metres, this means that a 40-inch (roughly 1m) screen is not too large even at a 2m viewing distance. At 4 meters a 2m plus screen can be accommodated. HD images will of course tolerate closer viewing before the individual image elements become visible than will standard definition images.

Making your own HD video
There are now a number of video cameras on the market that shoot in HD formats. These record to MiniDV tape, or even to SD memory. None of these have HDMI connectors but use Firewire for their digital connection. For the 'prosumer' there is the Canon XHA1 or the Sony HDR-FX1 recording to MiniDV.

For un-edited playback you can plug these cameras directly into your display, normally using composite or RGB outputs and inputs, and using the camera itself as the playback device. Editing of HD can be done by capturing the video onto hard disk and using editing software such as Adobe Premiere on a Windows PC or Final Cut Pro on an Apple. The latest versions of these programs support HD editing. ∎

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Tips & Tricks 🔧

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TIPS & TRICKS
SECRETS THAT KEEP YOU AHEAD IN THE RACE

GMAIL

Gmail has by now grown to be ubiquitous. Almost all of us have a Gmail account and in most cases, it's our primary email address. The main reason why we've come to prefer Gmail so much is innovation. This innovation comes by way of experiments that Gmail conducts in its Google Labs. Gmail deploys and tests most of its ideas in its labs, before a proper mainstream release. Many of these ideas come as suggestions from Gmail users, and many come from people at Google. They're aimed at improving functionality and overall user experience and some of them are certainly worth checking out. To enable any labs feature, click on Settings and go to the Labs tab. Gmail labs currently lists some 30-odd lab features, from which we have here selected the ones we like the most. To activate any of them, click the 'enable' radio button for a particular feature and click 'save changes'. Labs works best with keyboard shortcuts, so we recommend you switch these on. To switch on keyboard shortcuts go to the General settings tab and activate this feature.

Enable or disable features from the Labs tab under Settings

💡 Create a Gmail back up (Offline)

Gmail lists this feature in its labs as the 'Offline' mode. According to the company, it will allow you to work in the familiar browser-based Gmail environment, even when you are offline. It's an attempt by Google to come as close to Microsoft Outlook as
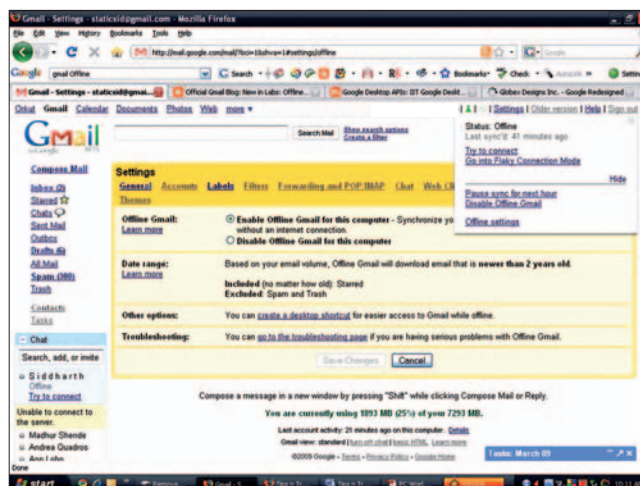
Choosing your Offline settings

possible. Nevertheless, email requires you to be connected at least at some point. So what use is the feature then? Although it may come in handy to compose a few drafts in those rare instances of internet failure, we found an alternate use. The feature can be used to back up your entire Gmail account! So if for some reason you loose access to your account, or if one day Gmail decides it's not going to be so generous with storage space and is going to delete your older mails, you already have a backup ready. Also, this backup lies in the safety of your personal hardrive.

To back up your account, enable the feature from Labs. Once enabled, an "Offline 0.1" link will appear at the top-right corner of your Gmail interface. Click on it and your browser will prompt you to install the Google Gears add-on (currently not supported in Opera). If you are using Chrome as your browser, Gears is installed by default. Click install and let Gears install on your computer. You will need to restart your browser once Gears has finished the download and installation. On restarting your browser, a Gears security warning will seek your permission to store information on your computer. Check the box and click to allow this. It will now create shortcuts on the desktop or start menu as per your preference and begin downloading all your mail onto your system. This could take a while, since most of us have accumulated thousands of emails over the years. However, based on your email volume, Offline Gmail will not download mail that's older than two years, and obviously Spam and Trash will also be avoided. Who wants that anyway? There is also the new Flaky Connection Mode which is a nice feature when you're on an unreliable or slow connection. It is somewhere in between using your local cache of downloaded information and a fully fledged network connection. It uses the local cache as if you were disconnected, but still synchronises your mail with the server in the background. To go into, or leave, Flaky Mode, simply click on the offline icon in the top-right corner. We encountered several glitches where Gmail restricted access to some functions even when Flaky mode was off. Repeatedly clicking "Leave Flaky Mode" didn't seem to help either.

💡 Quote only selected text

One of the most irritating things while sending a reply is having to quote the sender's entire text. Many times, we send a reply only in the context of a few sentences of a particular mail. Well, now with Gmail's
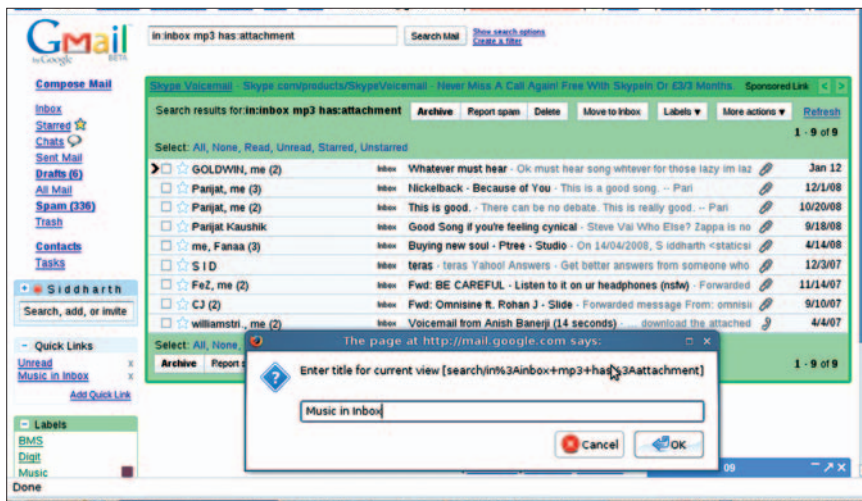
Tips & Tricks 🛠

"Quote selected text" Lab feature, you can do precisely that. After enabling it from Labs, all you have to do is select the text you wish to quote and then click Reply. Now only the text that you highlighted will form part of your reply. The feature is interesting, because now you can put much greater contextual emphasis in your replies.

💡 Quick Links

Most of us who are not so fanatically organised, have hundreds of unread emails spread out through multiple pages in our Inbox. Wouldn't it be nice to bring them all together to be able to deal with them? Sure you could run a custom filter — is: unread

💡 Multiple ways to mark mails (Superstars)

Gmail allows you to sort mails by applying labels and marking mails with stars. Out of the two options, starring mails is much easier as it is a single-click operation. Unfortunately, there is just one type of star available — the boring yellow one. Now with Superstars you can get your hands on a whole bunch of stars. In effect, they let you add another layer of sorting to satisfy all your organising needs. After enabling this feature, go to the General Settings page to choose which superstars you wish to use. To know the name of a superstar, hover over its image. Drag and drop the ones you wish to use. We recommend the purple-question and the red and green stars. Once in the Inbox, a new pointer will appear (>). Use the [J] and [K] keys to move the pointer and [S] to rotate through your selected superstars. Use the search operator has: to find all messages with your superstar, for example, has:red-star.

💡 Create custom keyboard shortcuts

Not happy using the default Gmail shortcuts? By activating this Labs feature, you can change keyboard shortcuts to your liking. It will add a new tab in Settings from where you can remap keys to various actions. Be careful about repeating keys though. If you do so, it will prompt you while saving changes. There is also a restore to defaults button if you change your mind about any of the binds.

💡 Mouse gestures

This feature is a step ahead of using keyboard shortcuts. Enabling mouse gestures will allow you to use your mouse to navigate with gestures. With the right button of the mouse pressed, drag the mouse to the left to go to a previous conversation. Similarly, drag to the right to go to the next conversation. Move up

You can add custom search terms as Quick Links

💡 Create a To-Do list (Tasks)

The Tasks feature adds a to-do list to Gmail. Tasks is perhaps the most intuitive and user friendly to-do list application available online. As is the case with everything Google, its charm is its simplicity. Once enabled, a new tasks link will appear in the left panel above the chat box. Clicking on the link will bring up the task list in the bottom-right corner. Click anywhere on the list and start typing to add tasks. Alternatively, you can also click on the '+' button to add a task. Navigating through the list with arrow keys and using [Enter] and [Backspace] to add or delete a task works fine. [Ctrl]+Up moves a task up the list. Use [Ctrl]+Down to move it down. You can also reorder tasks by dragging and dropping them using the drag handle on the left of each task. Apart from assigning a due date, tasks can even have extra information such as a note associated with them. Click on the '>' symbol to the right of the task, or hit [Shift]+[Enter] when in a task to bring up its details.

The application even lets you have multiple lists. To add or delete new lists, click on the 'switch list' button in the bottom right corner. For a list of keyboard short-cuts, click on the Actions button. You can also create a task from an email from the More Actions menu. Choose 'Add to Tasks' when viewing an email, or press [Shift]+[T] if you have keyboard shortcuts enabled. What makes the feature so useful is that it sits in your mailbox screen unobtrusively, all the time. Since most of us have our Inbox constantly open, it also acts as a continuous reminder.

in: Inbox — in the search bar. However, repeatedly searching mails from particular people can get quite cumbersome. Enabling Quicklinks will add a box to the left column that gives you single-click access to any book-markable URL within Gmail. You can use it for saving frequent searches, important individual messages, and more. To add a quick link, click on the 'Add Quick Link' button in the quick link box. It will automatically list the path of the current page you are on. For example, to search for all music in your Inbox, key in the command in:Inbox mp3 has:attachment in the search box. Once the page is displayed, click on "Add Quick Link". Enter the title for current view "Music in Inbox" and click OK. A new quick link will be added that will show you all the music in your Inbox.

Use mouse gestures to navigate Gmail

to go to the Inbox. Once you get the hang of it, you'll soon be zooming your way effortlessly though Gmail. Unfortunately, this lab feature is designed to work best with Windows.

Optimise your signature (Signature tweaks)

This is a very simple lab feature, which serves two purposes. It places your signature before the quoted text in a reply, and removes the "--" line that appears before signatures. This way, your signature no longer looks like it's auto appended, but something you took the trouble to personally write. To activate, just enable and save changes in Labs.

Spice up your Inbox using plugins

Save screen space (Muzzle)

Some of you popular people out there might have hundreds of people on your chat list. If each has their "unique" status message this might end up making your list a mile long. Activate this feature to hide your friends' status messages. This way you will know who is online, you save space, and you're not subjected to infuriating status messages such as "xxx is really happy to see a unicorn".

Forgotten Attachment detector

Surely, there might have been more than one occasion where you have sent out an email, and then sent out a rectification mail saying "sorry forgot attachment". Save yourself that little embarrassment by activating this feature. It prevents you from accidentally sending messages without the relevant attachments. It automatically scans your body text and prompts you if you mention attaching a file, but forgot to do so.

Add another pane (Multiple Inboxes)

This application lets you add boxes next to your Inbox, where you can view more mails. You can customise which mails you wish to see in these additional panes. The new lists of threads can be labels, your starred messages, drafts or any search you want. So if you pull emails from another mailbox via POP3, you can auto apply a label to them and have those mails displayed alongside your main Inbox. It's like having two or more Inboxes in one mail. To configure this feature, go to Settings and click the Multiple Inbox tab. Here you can define the criteria for up to four panes. However, more than three panes crowd the available screen space. Examples of search operators for panes are: is: sent, label: external mail", etc.

Changing the appearance (Themes and add-ons)

Gmail may be great, but you'd agree that there really isn't much to look at. Although we're all for simplicity and functionality, a little bit of style is always welcome. So, the guys at Gmail decided to give us themes. To apply any theme, go to the Themes tab in Settings. Some of the themes require you to enter your location. According to Google, these themes will change according to your local time of day. While the themes offered by Gmail are about average, there are other ways to customise your look. Head over to **http://globexde-signs.com/gr/** to install Google Redesigned, a Mozilla Firefox extension designed by Globex Designs that aims to fully redesign the look and feel of popular Google services. Once you have installed the extension, restart your browser and click on the GR icon in the bottom-right corner of your browser and select "Check For Style Updates". This will automatically download and install all the latest styles that are currently available. Alternatively, you can also get the "Stylish" plug-in from **http://userstyles.org/stylish/**. Stylish is to CSS what Greasemonkey is to JavaScript. Just follow the link to Mozilla's add-on page (**addons.mozilla.org**) and install the plug-in. Once installed, click on the stylish icon in the bottom-right corner of your browser. Click on 'Find styles for this page' when in Gmail. You will find tons of new styles to choose from. However, run only one of these plug-ins at a time.

Disaster mode

Remember, Gmail Labs is an experimental area. Most features are deployed without much testing. Some of the Labs features can and will occasionally break. Therefore, Gmail has provided you with an escape hatch. If you're having trouble accessing your account, you can temporarily disable labs for your session by logging in from this URL — **http://mail.google.com/mail/?labs=0** .

WINDOWS 7

Windows 7 beta is the latest iteration of the Microsoft Windows operating system. We spent a few days with it. Going back to XP or Vista after a few days on Windows 7 can be very difficult. The user-friendly response can be very addictive. The public beta of the operating system is out, and here is a primer to start you off if you have your hands on it.

Change the Theme

Right-click on the desktop, click on customise. Then, select one of the default themes available to you. You can change the system sounds, and the way the menus

Changing the settings for your Windows 7 desktop

and the bars look. The new feature in Windows 7 is that a theme can have a set of images that cycle automatically after a particular amount of time. The second ease of access theme is a throwback to good old Windows 95.

Windows Media Player

The first time you use Windows Media Player, instead of the default settings, go to the custom settings. Here, disallow

Windows 7 Beta
expires on August 1.
So backup your data

TOOLBOX

Windows Media Player from updating the information on a file from the internet. This is because an unpatched Windows Media Player provided with Windows 7 changes the file when it retrieves this information from the internet. For example, the audio information from the first few seconds of an mp3 file may be lost.

💡 Use the search bar as a run bar
There is no run bar by default. However, when you click on start, the search field can be used for running programs. This process is made much faster in Windows 7, because you don't even have to type in the complete name of a file or program to open or run it.

💡 Using program history
Windows 7 saves recently worked on documents in the start bar itself. These are not general documents in the 'documents' menu, but program specfic documents. For example, the recently visited sites on Opera will show up in the sub menu for the Opera program, and can be launched from the start bar itself. Similiarly, image editors, multimedia players, and practically every program will show up a sub menu with recently worked on items.

💡 Using applications on the taskbar
Windows 7 replaces the space consuming application bars on the taskbar with icons. Hovering over the icon for an application shows a preview of the window. If there are multiple tabs in the application, then the preview will show all the tabs as separate windows. Hover over this preview to get the preview options. You can close tabs or windows from there. If you just hover over the preview and do nothing, all other windows will go transparent, letting you see the application in full screen. So, if you are writing an email, but a phone number is on a Notepad file in the background, you don't need to go through a series of minimise and maximise actions to have a peek at the notepad file. This is faster than [Alt]+[Tab] too. When an application opens up in the taskbar, right-click on it and click on pin this application to the taskbar. Like a dock in OS X, this application will remain here permanently. You can choose to unpin a program at any point of time. This feature takes away the need to go to the start menu for common applications.

💡 Using window actions for managing windows
Click and drag the title-bar of any window to the top of the screen to maximise it. Click and

drag the top bar away from the top edge to restore the window. Click and drag the title-bar of any window to either side of the screen to make that window fit half the screen on the side to which you drag it. You can also use the [Windows] and the arrow keys to arrange the window. [Windows]+[Left] or [Windows]+[Right] will place the window on either side, [Windows]+Up will maximise and [Windows]+Down will minimise the window.

💡 Cutting down the size of the taskbar
A significant difference is made by the size of the icons in the taskbar. By the standards of XP or Vista, they are huge. To change this, right-click on the taskbar, go to Properties > Taskbar and check use small icons.

💡 Use VirtualBox to experience Windows 7
You do not need to partition your hard drive or use a spare computer to check out Windows 7. Just use a program called VirtualBox that emulates a virtual machine on your computer screen to install the operating system. Click New and enter a name for the machine. In the OS Type dialogue, choose Microsoft Windows as the operating system, and Other Windows as the version. Choose to make a hard drive of around 20 GB, but even 10 will suffice. In the Details window, mount the DVD image either by selecting an ISO, or the drive in which the DVD is in. Without this step, VirtualBox will not start the Windows 7 installation when the virtual machine starts up.

💡 Change network settings
The age old two computer icon for network connections has been replaced with a monitor and a cable icon. This will be one of the few icons on the system tray by default. Click on this icon, then click on Open network and Sharing center. This view will seem a little complicated. To get direct access to your connections for changing IP settings and the like, click on Change Adapter settings.

💡 Use Sticky Notes
A great new feature in Windows 7 is the Sticky Notes. Start > Sticky Notes, and a small square appears on the screen exactly like a post it. Click on the plus sign to add a note, and drag the bottom right
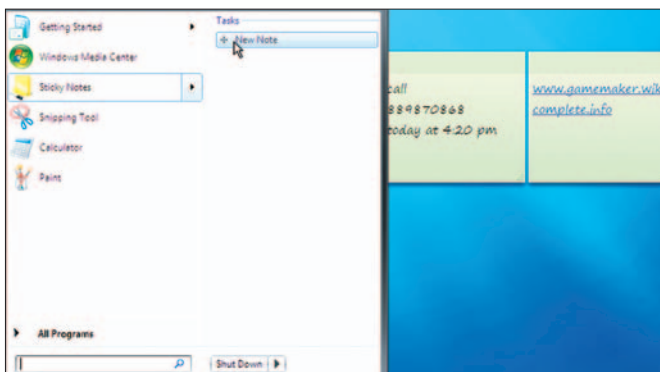
Adding a Sticky Note to the desktop

corner to resize the note. Click on the cross to close and delete the note. Note that the text stored in the sticky notes cannot be saved, but the notes will survive restarts as long as you do not close them.

💡 Use libraries
Libraries are a great way to navigate files on your computer. Say you have music stored across different hard drive partitions, and an external hard drive that is not always connected to the computer. Placing all the folders with music in them in the music library, will let you access the music files from essentially one folder. The files are not stored in the library, but the directory structure indexes the files and makes it accessible in this manner. You can also store the same files in different libraries using different library structures.

Use VirtualBox to install Windows 7 on earlier versions

Changing the lid settings on a laptop

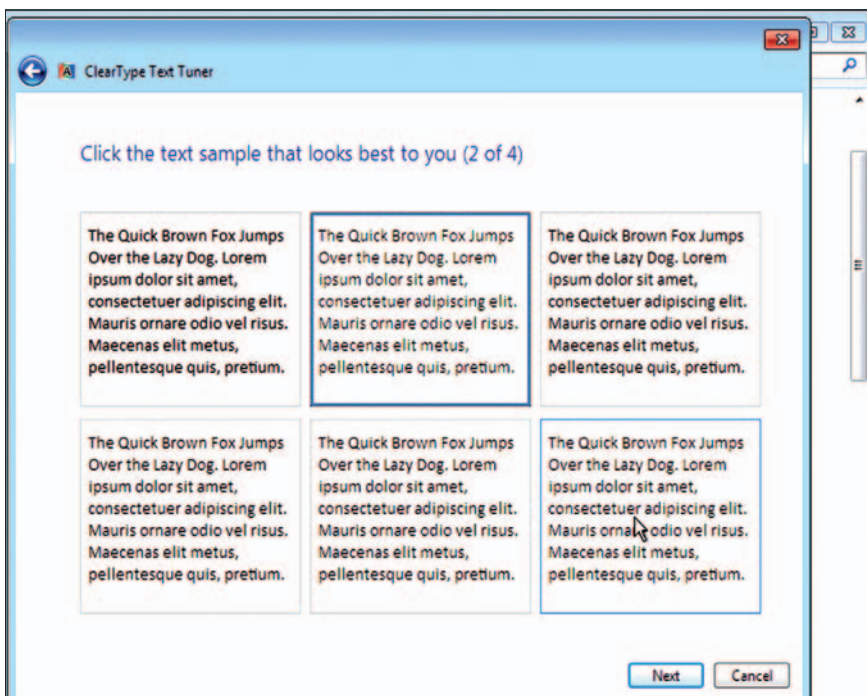Many laptop users like to use the "do nothing" option every time the lid of the laptop is closed. Go to `Start > Control Panel > All Control Panel Items > Power options`. Change the default plan by going to change plan settings. This will open the Edit plan settings window. Click on Change Advanced power settings. Under Power Buttons and Lid, there will be an option to change the action on closing the lid.

Boosting the performance

If you prefer speed over bells and whistles, go to `Start > Control Panel > All Control Panel items > Performance Information and Tools`. Click on Adjust Visual effects, and select the Adjust for best performance radio button. You can tweak the minute details of the Windows 7 interface here, and go for some features that you like, discarding features that you don't.

Fine tune the font display

Go to `Start > Control Panel > All Control Panel Items > ClearType Text Tuner`. The text tuner will show a bunch of different text display options, all of which are slightly different. While you are not allowed to manually tweak these options, the approach of choosing one from different versions works as well.

Using the Snipping Tool

The Sniping tool can be used to capture any part of the screen, or just a particular window. Go to `Start > Snipping Tool`. In New, select the kind of snipe you want. A rectangular snipe lets you select a rectangular portion of the window. A freeform snipe gives you a pencil like select tool. The windows snip lets you save an entire window as an image file. As soon as a portion of the screen is snipped, Windows 7 lets you save the sniped portion as an image file. The snipped portion will also be copied to the clip board.
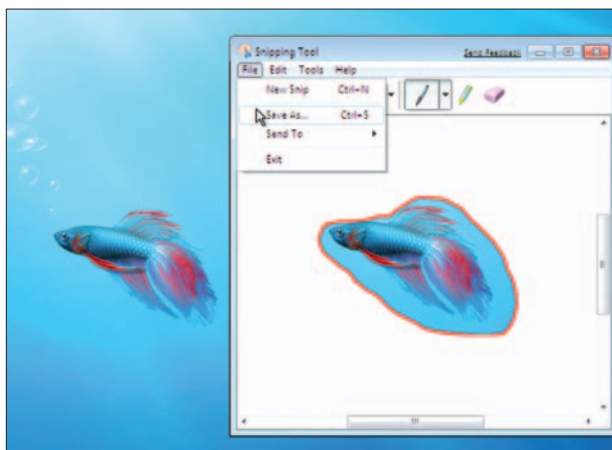
The Snipping tool in Windows 7

Fine Tuning how Windows 7 displays fonts

Calibrate the Monitor

Windows 7 has a monitor calibration walk-through that lets you accurately set the display settings. Go to `Control Panel > All Control Panel Items > Color Management > Advanced > Calibrate Display`. A detailed explanation along with pictures to guide you will let you calibrate the display. At the end of the process, you can revert to your earlier settings.

ADOBE LIGHTROOM 2.2

Adobe Photoshop Lightroom 2.2 is bundled along with Adobe Photoshop CS4, and is a complete photo management utility. This software is meant for professional and enthusiast photographers, who have to handle a large photo collection. There are features available for filing, tagging and filtering photos. Some basic image editing can also be performed through the software, and the photos can be exported directly to Photoshop for further processing.

Add images to Lightroom

Go to `File > Import Photos from Disk` or use the shortcut keys `[Ctrl]+[Shift]+[I]` to import photos stored on the hard drive. To import images directly from a digital camera or a USB drive, go to `File > Import Photos from Device`. Once imported, only the last imported photo will be seen in the catalogue. Click on the All photographs option in the Catalogue window to view all the imported images.

View a quick slideshow

To instantly view a slideshow of all imported images or a selected catalogue, go to `Window > Impromptu Slideshow` or click `[Ctrl]+[Enter]`.

Batch process images

Go to `File > Export`, or use the shortcut keys `[Ctrl]+[Shift]+[E]`. You can set your own presets, use custom settings without presets or use Adobe's presets. For uploading to the web, the email preset is available, which resizes the images to a width of 640 pixels, 50 per cent quality and 72 dpi. To process images for an image hosting service, you can use better quality images. Create a new user preset by clicking

Tips & Tricks 🛠

QnA
Get your tech niggles
sorted out on page ▶89

TOOLBOX

on User Presets then clicking on the Add button. Change the location, format, size and quality settings. To use a different colour space from the default RGB, click on

The basic editing window in Lightroom

Color Space, select Other in the drop down box, and check Include Display Profiles to view a list of available profiles. Click on Export.

💡 Basic image editing
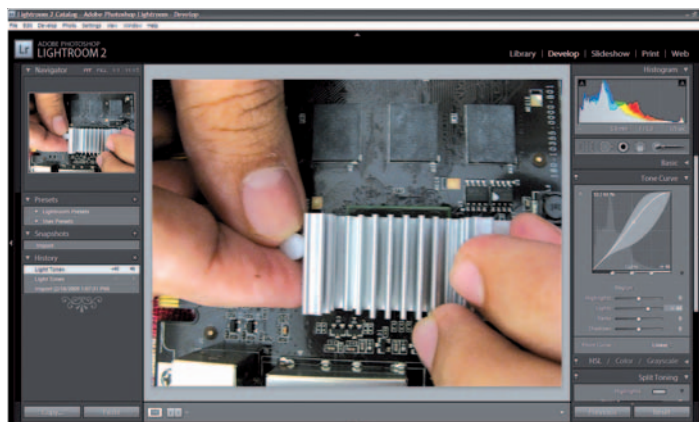The Develop window has controls for basic image editing. By default, you will be in the Library window. You can correct exposure, brightness / contrast, fill light, and tweak the colour balance. The other options available in the Develop window include tone mapping, split toning and camera calibration.

💡 Correct White Balance
In the Develop dialogue, click on the White Balance drop down box. To use a custom white balance setting, click on custom. To trust

Compare two versions of an image side by side

Lightroom, and use an automatic white balance setting, click on Auto. At any point, to go back to the original image, click on As Shot. Alternatively, go to Photo > Develop Settings > Auto White Balance. You can also use the shortcut keys [Ctrl] + [Shift] + [U] for auto white balance correction. To revert to the original image, go to Photo > Develop Settings > Reset. Note that this will also reverse other changes made to the image.

💡 Compare two photos side-by-side
The compare option lets you take a close look at two photos, or two variations of the same photo. If you zoom in to one photo, and move the photo about, the equivalent pixels in the second photo will also move in the same way, and be zoomed in to the same extent. First select the two photos you want

Exporting a gallery in a format that can be put on the web

to compare. If more than two are selected, only the first two in the filmstrip will be compared. Go to View > Compare, or just hit the [C] key.

💡 Export a slideshow to the web
Go to Window > Web. The gallery option will be selected by default. On the Templates panel, which will

be on the left-hand side of the window, there will be a number of templates available. Choose one of these templates. If an f icon appears, it's a Flash template, and if the HTML icon appears, then it's an HTML template. You can preview the complete gallery in the main window. Once you come across a gallery you want to use, select other details such as the name of the web site and gallery name. Once you are done, you can upload directly to your FTP server. Scroll down in the Web window till you see FTP upload options, at the bottom. Click on Upload.

💡 Make Lightroom run faster
Optimising the catalogue will make Lightroom run visibly faster. Go to Edit > Catalogue Settings > General and click on the Relaunch and Optimise button. Lightroom will restart at this point of time, and the catalogues will be optimised for performance.

💡 Save catalogues
Once you have added photos to the catalogue, you can save the catalogues in an internal format of Lightroom. Go to File > Save Quick Collection. Enter a file name, and save the catalogue. You can choose which catalogue to load every time you start Lightroom. Go to Edit > Preferences > General > Default Catalogue. When starting up, use this catalogue drop down box, and select the catalogue you want to load every time Lightroom starts.

THE GIMP
The Gimp is a platform-independent graphics editing tool comparable to Photoshop. While not as user-friendly as Photoshop, the program has most of the features of Photoshop, and some more. The Gimp is mostly used by Linux users for graphic editing and retouching photographs.

💡 Using the brushes and the eraser tool
The brush tool is accessed with a paintbrush icon. The eraser tool is a flattened red cube in the toolbox. It is to the right of the brush tool in the toolbox. Once a tool is chosen, choose a brush next. The options for this will appear in the context menu, which is located below the toolbox. Use the brush drop-down box to change the brush. Next increase the brush size, by using the slider or entering values in the brush size field. The maximum size is 10, which is pretty small in relation to most images. There are advanced brush dynamics available, including jitters, fade out and gradient paint. Use the Brush Dynamics drop down menu for more advanced options. You can tweak pressure, velocity, size, colour and hardness.

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Instantly create a logo on Gimp

Create a logo

To create a logo, or a text with effects such as word art, go to File > Create > Logos and choose one of the options from the list. Enter the text for the logo in the Text: field. Change the font and background colour, and increase the font size as necessary. Click on Ok. The logo created will typically be a composite of a few layers. Select the topmost layer and go to Layer > Merge Down to merge the layer with the layers below it. Merge all but the last layer to create a logo with transparency.

Change layer composition

The blending options for layers is located in the Mode drop down box of the layer toolbox. The regular options available up to Photoshop CS3 are available. To fade changes to a degree with blending options, once changes are made, go to Edit > Fade, then use the transparency slider and blending options.

Working with layers

There is no pointer available in the toolbox,

which is strange. While it is possible to drag and drop images to open them in Gimp, it is not possible to drag and drop images onto a layer. Select all, copy then paste into the file to create a layer. Use the scale tool to resize an image once it is dragged into a layer. Once you have rescaled an image, click on Scale to finalise the scaling. Alternatively, you can go to Layer > Scale Layer. You also cannot drag a layer to re-arrange the layer order. Go to Layer > Stack > Raise Layer or Layer > Stack > Lower Layer for rearranging layers. An interesting option not available in Photoshop is to reverse the order of layers. Go to Layer > Stack > Reverse Layer Order. The visible order of the layers remain the same, but the top to bottom or bottom to top interpretation of the layer order switches every time you reverse the layer order.

Selection

Apart from making sure that a layer is selected, you always have to have the entire image selected to work on it. If the whole image or a part of it is not selected, you cannot perform any photo editing operations at all. The best tools to select a part of the image is the Fuzzy Select tool, which is similar to the Magic Want in Photoshop, and the Lasso select tool. The lasso tool offers bigger circular nodes, which is an advantage over Photoshop.

Using the clone tool

The clone tool can be used to hide unwanted artefacts or cover up unwanted features. What the clone tool does, is lift a portion of an image, and impose it over another portion of the image. To select the reference portion of the image, hold [Ctrl] and click on the part of the image you want to use as the reference. Then, use the clone tool over the area of the image you want to cover up. For elements such as fences or walls, you can use the perspective clone tool.

Use a smaller menu

By default, the menu and toolboxes of Gimp are pretty large. You can reduce the size by going to Edit > Preferences > Theme > Small. This step will also free up more space for the image window. Go to Edit > Preferences > Interface > User Interface. Change the Default layer and channel size to "Small" and Navigation preview size to "Small".

Correcting the white balance

If you have taken images with the wrong white balance, you can fix them automatically in Gimp. Go to Colors > Auto > White Balance, and Gimp should take care of the rest.
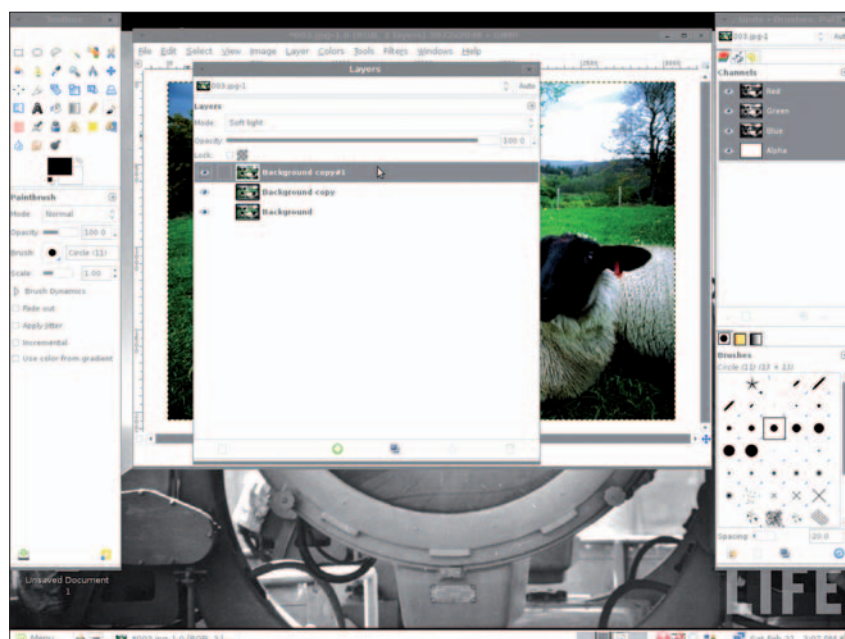
Changing the composition of layers

Compress images while saving

While saving the file, just add `*.gz` or `*.bz2` to the filename, and the file will be saved as a compressed file directly from the program. For example, using image.jpg.gz will save the file as JPG and then compress it. This feature is useful for emailing pictures.

Reduce filesize of JPG files

This process is analogous to the 'Save As for Web' feature in Photoshop. Go to `File > Save As > JPEG` then click on save. Reduce the quality slider from the default 90 to a suitable compromise, say 60 or 75. A file size will be displayed below the slider. Then click on Save.

Make brushes for Gimp

Create a new image, edit it, and then save it as a brush file. Go to `File > Save As`, and in the file type drop down menu, select `Gimp Brush (*.gbr)`. Save the

use another adjustment to simultaneously manipulate two aspects of the image.

Using Paths

The path tool is the pen nib icon. Select it to draw a path. You can edit the path later, the nodes are larger than the nodes of the path tool in Photoshop, which makes this process easier. Click to add a node, click and drag to add a curve to the path between the nodes. Double-click once the entire path is finished. Look at the paths window below the toolbox for advanced options. Click on edit

Using paths in Gimp

GEGL allows Gimp to work on more space. Go to `Tools > GEGL Operations` to access GEGL filters. These vary from blurring to unsharp masks. There are 24 GEGL filters in Gimp 2.6.

Instant protractor

Getting the angles just right can be important for a lot of image editing purposes. This is particularly useful for landscape photos to check if the horizon is perfectly vertical. There is a protractor to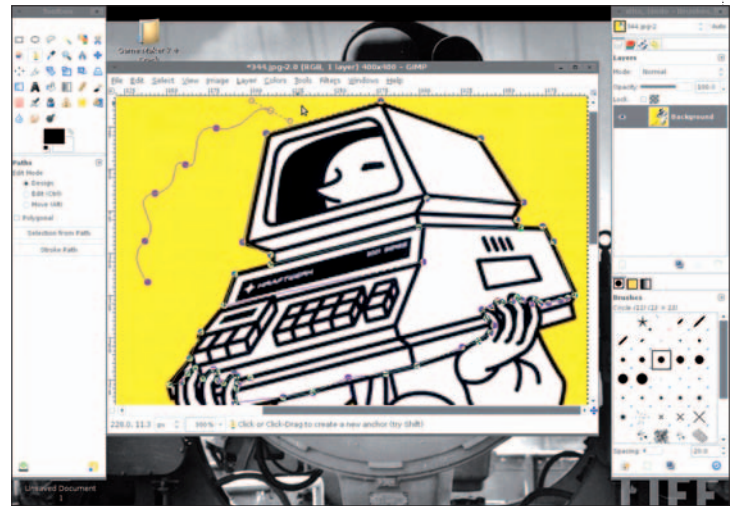ol in the Gimp. Go to Tools>Measure. Click on any one point, then click on any other point in the photo. The angle between the two points will be displayed along the bottom of the window.

Using pattern fill

The Gimp has an interesting feature, where you can fill a part of an image with a pattern. This can be done by either using the select too and increasing the threshold to 100, or selecting a colour and using a threshold. Select the bucket fill tool (next to the font tool, or by using [Shift]+[B]). Select the Fill Type as Pattern. Select a pattern, and click anywhere in the image.
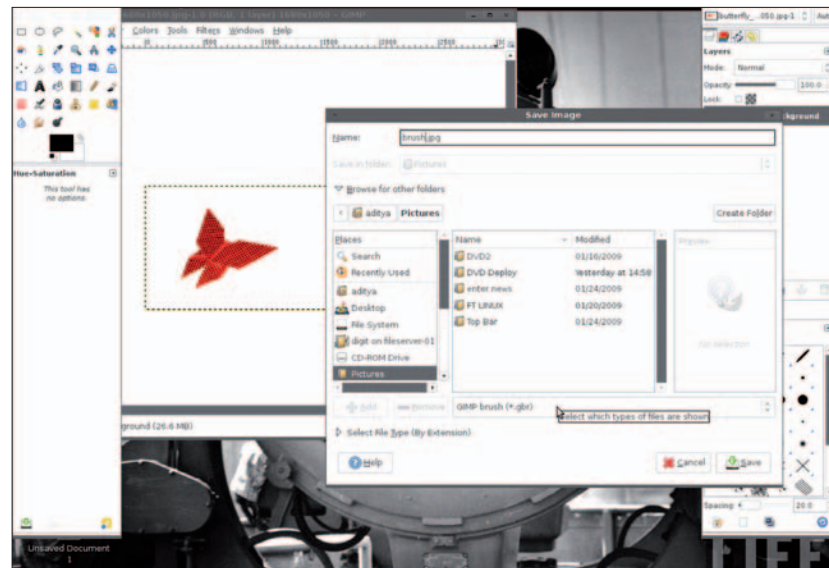
Making brushes in Gimp

file in `home\.gimp-1.2\brushes`, then refresh the brushes to see your brush. To create a simple brush, right-click on the brushes window, select New Brush, edit the parameters and click on Save. Brushes created in this way appear instantly. You can also right-click on a brush, and click on Open Brush as an Image, then edit the image file and save it as a brush.

Adjusting the image

Gimp gives a number of image adjustment options. These are available in the Colors menu. Some of the options here are more advanced than Photoshop. For example, `Colors > Threshold` gives you two sliders to play around with instead of just one. The Color Balance menu has a 'Preserve luminosity' toggle that conserves the brightness of the image despite changes. While applying a filter or adjustment, you can

to move around nodes or manage the curves. Select move to move the entire path. Select Design again to add nodes. Now click on Select from Path to select the area the path covers, or click on Stroke Path to fill the path with a line. Advanced options are available at this point in the window that pops up.

GEGL Filters

GEGL stands for Generic Graphics Library. The later versions of Gimp use this for processing images better. By default, GEGL uses only 8 bits of colour memory.
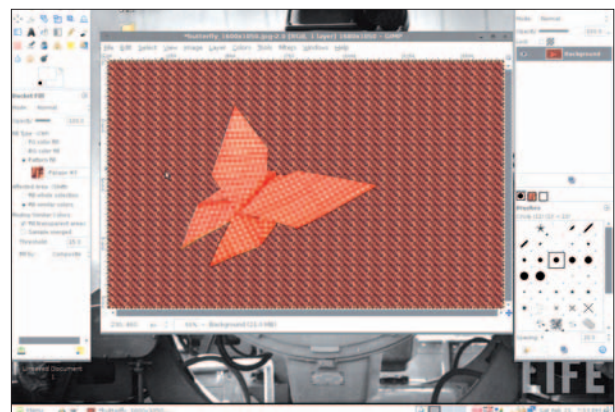
Filling a selected area with a pattern

Q&A ⚒

Bazaar
Read the Black-
Berry Storm review
in Bazaar ◄68

SATA
A serial interconnect
system between mother-
boards and peripherals

80% of netbook
buyers con-
sider them
secondary PCs

?! Your Questions, Our Answers

Q&A All your computer
niggles and nags are
dealt with here!

Q Monitor doesn't display anything

I read the QnA and Agent001 section in Digit regularly, and so I'm writing to you with my problem. My system is an Intel Core 2 Duo E4500, 250-GB HDD, GeForce 8600GT 512 MB and 4 GB 800-MHz RAM. I use an HCL 700SFl monitor. I installed *Left 4 Dead* without any hassles, and it runs properly. However, my monitor doesn't show me any display. Instead, it gives a message with a blank screen - HF 70 Hz and management in 15 sec. Please give me a solution to this problem.

Harsimranjit Singh Rangi

A The problem is with your monitor and your game settings. The game loads with a resolution or a frequency that isn't supported by your monitor. To fix this, right-click on the game in your Steam list of games and then on Properties. Click on Set Launch Options. Enter the value as `-w 800`. This will force the game to load with a resolution of 800 x 600. You can also try setting your monitor refresh rate for Windows to something a bit lower.

Q Query for a TA790GX3-A2 motherboard

I recently got a computer assembled by a local computer vendor in Baroda, Gujarat. The specification of my PC is as follows:
AMD Phenom Quad Core 9950+ with a Biostar TA790GX3 motherboard2 x 2 GB Transcend 800 MHz FSB DDR2 RAM

The rest of the system has regular components. I have a few queries regarding the products. Why can't I run both the modules in dual-channel mode even if they are both of the same frequency? I have lost my installation CD. Can you help me to source a new one?

Pankaj

A The problems with dual-channel mode could be a compatibility problem between your memory and the motherboard. It could be that the RAM modules are plugged into the wrong slots. The drivers for your motherboard can be found at Biostar's site - **http://www.biostar.com.tw/app/en-us/t-series/driver.php?S_ID=376**.

Q A few problems

1. Can I customise the right-click menu? I know how to do this from the Registry Editor. How can we add a folder name in the list of the right-click menu?
2. I have a computer running Windows XP with 512 MB of RAM. It was recently formatted because of some virus. Before formatting, *GTA Vice City* ran smoothly, but now it shows the error "Cannot find video mem-

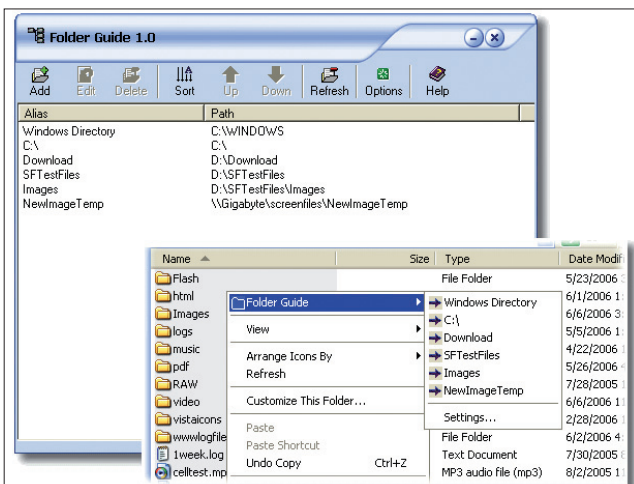Folder Guide lets you easily add folders to the right-click menu
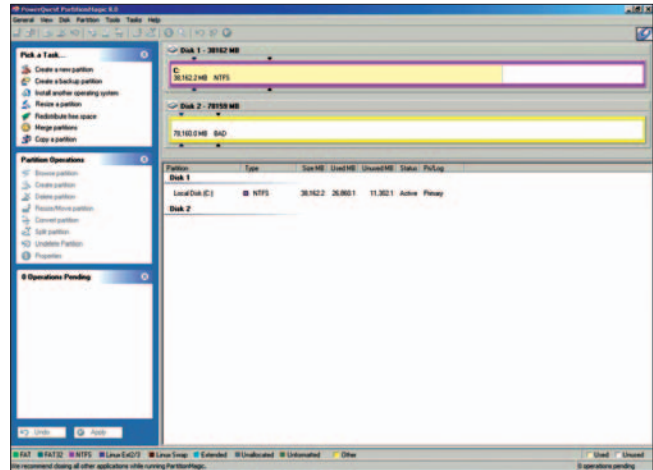
Partition Magic is a well known commercial partitioning utility

ory". I had manually increased the video memory from the Windows Control Panel, but the game still does not start. What should I do?
3. Tell me how I can merge two Window partitions or remove the partitions?
4. Also, tell me how you get 8 GB in a DVD of capacity 4.7 GB?

Akshay Soam

A Although you can use the Registry Editor to add the specified entry, it might be easier to use software to do this — **http://www.freeware365.com/desktop/folderguide.htm**.=

If you run a computer with an onboard graphics card, then that is the cause of your problem. Try increasing the allotted= memory to your onboard graphics solution from the BIOS.= Upgrading your system or installing a graphics card is highly recommended.

You can remove Windows partitions from the Computer Management utility under Administrative Tools in the Control Panel. Go to Disk Management and right-click on the partitions you want to delete. The partition you are currently working on cannot be deleted though. Merging can be done by first moving all data from one partition to the other, and then expanding that partition. You can also look for commercial partitioning utilities such as Partition Magic and EASEUS Partition Manager.

8 GB can only be burnt on dual-layer DVDs. These are different from single-layer DVDs that we find everywhere. 8 GB dual-layer DVDs are expensive and usually cost around Rs. 100 per disc.

Q Windows installation won't detect my hard drive

My one-year old PC with an Intel DG33BU board, an Intel Core 2 Duo E4500 processor, a 160 GB Seagate SATA hard drive, a Lite-On DVD Writer and 3 GB DDR2 RAM (512+512, 1+1 GB, dual channel), does not run with SATA hard disk. Windows fails to detect the hard disk during its installation. When I set the 'ATA/IDE mode' to 'Native' and 'SATA Configuration' to either 'IDE' or 'AHCI' in BIOS, I am forced to set the 'ATA/IDE mode' to 'Legacy'. As a result, the 'SATA Configuration' option in BIOS is disabled. Only then am I able to install Windows. Although it has been running fine since then with the setting, I think I may not be getting the optimum speed of SATA drives. I have seen my friend's PC with a 965 chipset-based motherboard running fine with 'Native' SATA support. Suggest what to do.

Anupom Bora

Q&A

Don't miss out
the exciting game
reviews in Esc
towards the end

Adding drivers to your installation disc using nLite
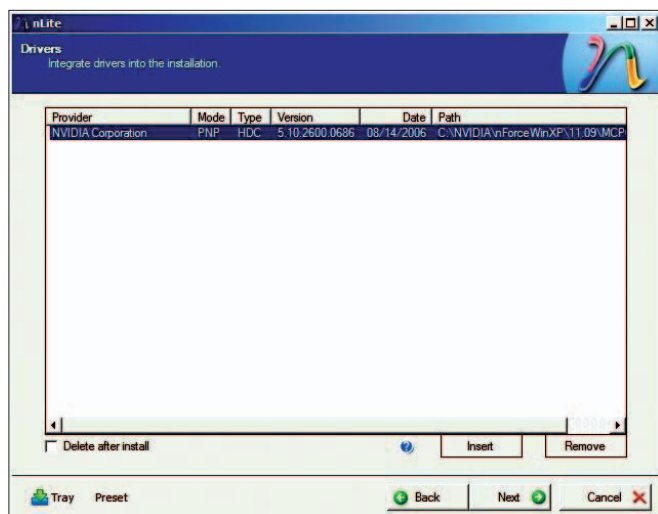
Adding drivers to your installation disc using nLite

A The Windows installation is unable to detect the hard drive mainly because it doesn't come with the drivers for the SATA controller. Create a slipstream Windows installer. Download and copy the drivers for your motherboard's SATA controller and create the disk using nLite (**www.nliteos.com**).

Appalling performance in games

Q My PC configuration is as follows:
CPU: Intel Pentium 4 HT 2.8 GHz
Motherboard: Intel 865 GBF with AGP 8x slot
RAM: 2-GB DDR (1 GB x 1 333 MHz, 512 MB x 1 266 MHz, 512 MB x 1400 MHz)
HDD: Seagate 160 GB and 80 GB IDE 7200 rpm
Sound: SoundMax onboard with latest drivers installed
OS: Triple boot between Windows XP SP3, Vista Home Basic, Windows 2003 Server
Graphics card: Sapphire Radeon AGP x1650(500 MHz) 512-MB DDR2 800 MHz with 8.12 Catalyst drivers installed.

When I play *Far Cry 2, Crysis, Call of Duty: World at War*, they give me a very low frame rates – somewhere between 8 to 15 frames per second even with the minimum settings. Isn't this card enough to play these games even on minimum settings? Even *Need For Speed: Carbon* gives 12 to 18 fps at a resolution of 1024 x 768. I have seen people

maxing out this game on this card.

Some games like *Dead Space* give decent frames, but there are some audio problems. The only games which I could play properly were *Bioshock* and *FEAR*. I play games only in XP. In Vista, these games are not at all playable. I tried reinstalling drivers for my graphics card, sound and I even installed the SP3 update for Windows XP, but there was no improvement.

What could be the problem? My processor fan makes a lot of noise and the temperature of the CPU reaches 60 to 65 degrees after playing a few games. Should I buy a new heatsink and fan or should I upgrade to a Radeon HD3850 AGP to get better performance at medium / high resolutions? I do not have the budget to buy a new CPU.

Pranav Rao

A Your system is highly outdated in comparison to the hardware available today. In its time, the Radeon x1650 was a mid-ranged graphics card meant to run games at medium resolutions. The processor is probably what's bringing the performance down even more. Upgrading to a Radeon HD3850 is not recommended with your current processor. Your processor would then become a bottleneck.

The temperatures for the processor are slightly high too. Try running the games with the cabinet open and see if the temperatures drop a bit. A better heatsink might help, but if you haven't

Computer running really slow

Q Hi, my system configuration is as follows:
Operating System: Windows XP Professional (5.1, Build 2600) Service Pack 2
Motherboard: Intel DG33FB
Processor: Intel Core 2 Quad CPU Q6600 @ 2.40 GHz
Memory: 2020 MB RAM
My problem is that my computer is dead slow. It takes about four minutes to boot up. Please give me a solution for this problem.

My drive configuration is as follows
Disk & DVD/CD-ROM Drives
Drive: C:
Free Space: 0.7 GB
Total Space: 12.5 GB

Drive: D:
Free Space: 3.3 GB
Total Space: 30.0 GB
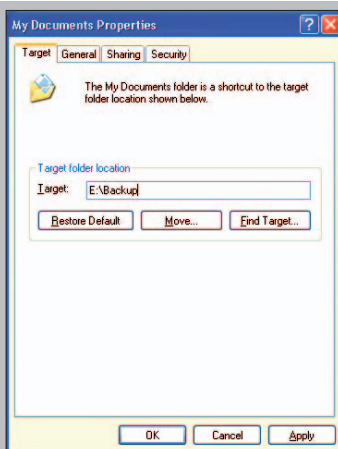
Moving your My Documents folder to a new position moves the contents as well

Drive: E:
Free Space: 42.0 GB
Total Space: 110.1 GB
Should I reinstall my Windows and format my drive? I have my mails in Outlook Express. How do I transfer them back to my laptop and back again after I reinstall? Please help! Thanks in advance.

A Your C partition is low on space. This is the main reason for the slowdown of your system. For optimising your space, change your My Documents path. Right-click on the My Documents folder to do this. Move your unnecessary files from the Desktop and C partition and copy to another partition or drive. Move your Outlook data from Outlook at Options in Maintenance.

**Jagdeep Virdi
(Tech QnA Expert)**

cleaned the case from inside in a while, it's time you do so. You might see some improvement. It could also be that your processor is throttling down due to overheating. If you enjoy the latest games, then a complete system upgrade is highly recommended.

Blurred images on the internet

Q I have a Toshiba Satellite L100 laptop with an Intel Core Solo 1.86-GHz processor, 512 MB RAM, 60 GB SATA HDD and 128-MB shared graphics card. When I browse the internet, all images and photos show up blurred. I find that other images stored in my system are showing up fine. The problem is only with the images on the internet. I use Windows XP Home Edition. Please help me out.

Regards.
Rajesh Das

A The problem is really odd. Try other browsers such as Opera, Firefox, Safari to see if you have the same problem.▪

Many problems...

Q I have a system with the following configuration – i945 GCM chipset motherboard with an Intel Core 2 Duo CPU E7300 @ 2.66 GHz, 2 GB DDR of RAM with a 250-GB hard disk drive and a DVD writer. I run Windows XP Professional. I also have a BSNL Broadband router (Sterlite SmartAX MT882) and an HP 3-in-1 F2100 series printer.

I have Vista Ultimate Edition which I want to install, but I am not able to install my modem/router with it as it does not load properly – maybe it isn't compatible with Vista. I checked online for updates of the driver for the modem, but I couldn't find any. What can be done?

My printer driver takes too long to install in Vista, and sometimes the system hangs, but the printer driver does not load properly.

When I install IE7, the installation is proper, but during reboot, the system hangs while IE 7 personalises the settings with uninstall stub written on it. To solve this problem, I have to reinstall Windows XP repeatedly, but I am not able to use IE7. Please advise!

I am using MS Office 2007. Whenever I use MS Word and close it after doing my work, a window appears stating "Microsoft Office Word has encountered a problem and needs to close" and tabs "Send Report Later" or "Don't Send". I tried repairing the MS Office with the CD, but the result is the same. How can this be solved? I need advice on the following as well – what is a chipset motherboard and is it fine to use these mother boards? What are original motherboards and how are they different from chipsets? How do I get SP3 for my Windows XP? Is it worth installing SP3? Can I get the updates for this? How do you rate my system configuration? I know the request is a bit too long. I hope to hear from you.

Sanjay

A Your problems with the modem and the printer are mostly caused by the drivers. Look on the official sites for the drivers. To be on the safe side, install updates of drivers for all your components.

The problem with IE7 could be due to a virus. Run an antivirus scan to check it. MS Office 2007 might be crashing because of a corrupt installation. Try reinstalling the software to see if it fixes the issue. It could also be a faulty RAM chip.

A chipset is the set of chips mainly and traditionally known as the Northbridge and Southbridge used on motherboards. They have their own roles to play in the operation of a computer. The motherboards are made by separate brands as ASUS, MSI, Gigabyte, etc. When Intel makes a reference board with its own brandname, then such a board is commonly called an original Intel motherboard. You have an Intel 945 board made by Intel, but you can find boards made by other brands as well.

Windows XP SP3 is available as a free download on Microsoft's web site. You can also use Automatic Windows Updates to update to it. Windows XP SP3 brings additional stability and security fixes.

Windows XP SP3

Q I have installed Windows XP SP3. It works well but when I try updating my graphics card driver and restart, the system does not boot. It shows a blue screen with some text on it for a few seconds, then it automatically restarts. On the next reboot, I get the safe mode bootup prompt. If I select the last known configuration option, it works and the system boots up. When I check the display drive, it still has the old version. Could you tell me how to rectify this problem?

Sreekanth A.S.

A Make sure that your graphics card is still on the list of supported hardware. Sometimes, manufacturers no longer support extremely old hardware. In such cases, the drive should not install. However, if it does, there is a good chance it will crash. If your current drivers don't give you any problem, use them.

Weird errors in Windows

Q My system is showing an unusual message. During start up, it says that c:\AutoProtect\DrvMonitor.exe is corrupted. I have a two-year old Lenovo laptop with 512 MB RAM and an 80 GB hard drive. It runs an Intel Celeron 1.73 GHz processor. Is this due to a virus infection?

Souvik Saha

Enabling the Task Manager using the Group Policy Editor

Yes, this is a virus infection. It is a Trojan and the best way to fix the problem is to install, update and run a complete system scanner.▪

Disabled Windows Task Manager

Q My Task Manager is disabled. How do I re-enable it? Please Help.

A First, open a run window. Type in `gpedit.msc`. Then, go to `User Configuration > Administrative Templates > System > Ctrl+Alt+Del Options`. Double-click on Remove Task Manager. Select disable. Your problem should then be solved.

Jagdeep Virdi
(Tech QnA Expert)

Flash drive showing wrong free space

Q My 8 GB pendrive just shows 2 GB of space and 5.85 GB of the space shows up as unallocated. What should I do?

A Right-click on My Computer and go to Computer Management. Now go to Disk Management. First backup the data. Then, select the 2 GB partition and delete it. Now recreate a new partition that uses the entire space on the flash drive. Format it with the file system of your choice. ■

Jagdeep Virdi
(Tech QnA Expert)

DIY

DIY: Build Your Own
HTPC

Kumar Jhuremalani

Ever felt cluttered with the tons of DVDs and VCDs lying around your home or on your TV? What about the interface of your home theatre system, is it too slow or not that friendly? That's where an HTPC comes into the picture.

HTPC stands for home theatre personal computer or home theatre PC. Simply put, all this means, is building a PC for entertainment purposes that combines the benefits of a computer and a television integrated into one system. It's a good option, as it saves space with the capabilities of a computer. Another good thing about having your computer connected to your TV is being able to record shows on the TV directly onto your computer, especially when you are unable to watch the program while it's being broadcast. With HTPC software, all this is possible for free. Having an HTPC allows you to make slideshows, presentations, surf the web, and any other general computer task, all from the comfort of your couch — if you plan to set it up in the living room, that is. Combine this with a wireless keyboard and mouse and you're all set to enjoy an HTPC to the full.

Basic computers are normally set up for tasks such as checking mail, editing office documents, etc. An HTPC, however, does require specific hardware for home entertainment. While planning an HTPC, its cabinet needs to be specifically selected, as it needs to match the environment of your TV and living room and not look out of place. Also, remember you need something small and compact. Choosing the correct motherboard is also important as space saving is quite essential and should also have sufficient expansion slots to connect the remaining hardware. Next, you need a TV tuner card in order to watch TV on your PC. A processor with adequate speed as well as enough system RAM is a must. The prices of hard drives have also dropped, and unless you have all your movies on DVDs, you're going to need all the storage space you can get. A graphics card and a sound card are optional.

Noise is an important factor when building an HTPC. If you plan to keep the HTPC in your living room, you wouldn't want it to be noisy, lest it interfere with your work, or play. You can easily counter noise by selecting the right cabinet, choosing the right components and managing fan placement. You should have one intake and one exhaust fan, preferably silent ones. Usually, processors that generate more heat have their fans running at full clip to keep them cool, thus, processor selection is also critical.

The parts we used for building our HTPC are as follows:
• **The case**: the HTPC case is important as this determines the ultimate look of the HTPC itself, and it will also have to fit the rest of the hardware. The case we selected is the Zebronics Tambi designed as a cube. We chose this particular case because it is compact, and has a 3.5-inch optical drive bay. The only limitation that you might face when opting for such a small cabinet is having only a single hard drive bay. However, with 1.5 TB hard drives now more affordable, this shouldn't stop you from choosing such a cabinet. Further, it should also have front USB and audio connectors for attaching headphones, or to plug a flash
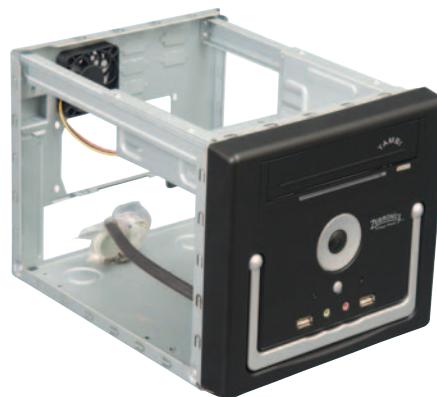
The Zebronics Tambi mini-ITX cabinet

drive for quick access. Some cabinets available in the market are very sleek and resemble DVD players. Nevertheless, be warned - such cabinets will not have much room for expansion cards or even a 3.5-inch optical drive bay. For these cabinets, you will also need to purchase a slim drive. The reason we did not opt for this is the absence of slim Blu-ray drives.

• **The motherboard**: we've used a mini-ITX motherboard from Zotac. You can clearly make out the size differences between an ATX, mini-ATX and mini-ITX motherboards.

The Zotac GeForce 8200 ITX-WiFi has been designed for the AMD platform and is really compact and well laid out. It has six USB ports, a VGA port and a DVI port. Zotac also supplies a DVI-to-HDMI converter with the motherboard. Since space is limited due to its size, this board has four SATA ports and two DIMMs for
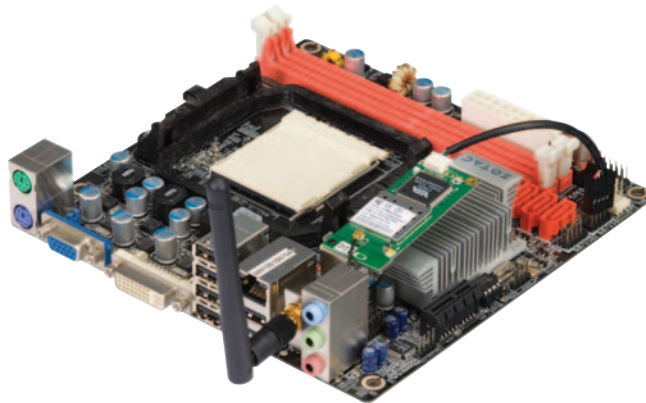
Zotac GeForce 8200 ITX board with WiFi

TOOLBOX

RAM. It can hold up to 8 GB of DDR2-1066 RAM. A good addition for this board is a Wi-Fi kit that is really a bonus and helps you do away with the network cable. This motherboard also comes integrated with the NVIDIA 8200 graphics solution, which can easily play HD video.

• **The processor:** the CPU we used is the AMD 5600X2. We selected this processor to go along with the Zotac 8200 motherboard because of its capability to handle HD playback. Even a low-end processor such as the 5600X2 is sufficient for this purpose.
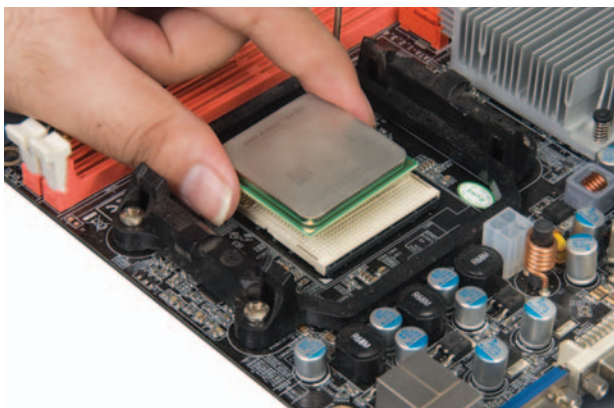
Installing the AMD Athlon 5600 X2

• **RAM:** since the motherboard has 2 DIMMs, we have used 2 GB of DDR2 - 800 MHz RAM. This is enough for running your operating system and efficiently supporting the processor.
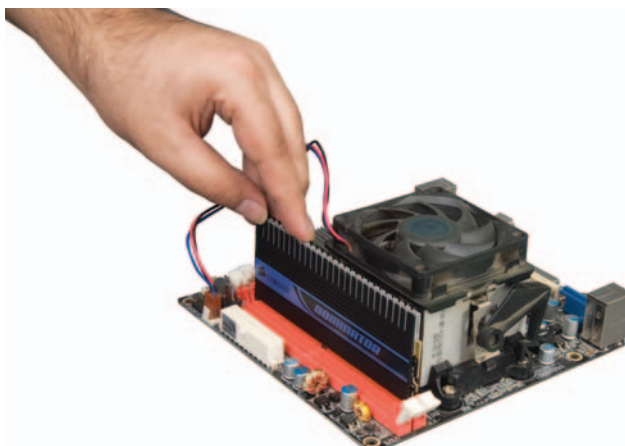
The motherboard with only 2 DIMM Slots

• **The hard drive:** for this HTPC, we used a Seagate Barracuda 7200.11 1.5-TB hard drive. As the cabinet we have selected only has one hard drive bay, and we wanted to get the most out of it. Another plus point to having so much space is you can store huge amounts of data, be it music, movies, TV serials, etc. If you have properly utilised all the space on this drive, the media should last you for months.

Securing the Hard Drive to the cage and then attaching it to the cabinet

• **Optical drive:** we have used an ASUS BC-1205PT Blu-ray drive for our HTPC. This drive comes with 5x BD-ROM, 12x DVD-R, 6x DVD-RW, 4x DVD-R(DL) and 5x DVD-RAM. We used an all-in-one combo drive for our build. Alternatively, you could opt for a DVD writer if you do not wish to purchase Blu-ray discs.

Carefully installing the Asus Blu-ray drive

• **TV tuner card:** unfortunately, the motherboard we have used comes with only one PCIe X1 expansion slot. Therefore, we have opted for an external TV tuner card. We used the Leadtek WinFast PalmTop TV which is a USB external TV-tuner. This looks good and should blend well with the whole setup. If you have a PCI or PCIe TV tuner card with an expansion slot, then it all boils down to the cabinet — whether there is enough space or not.
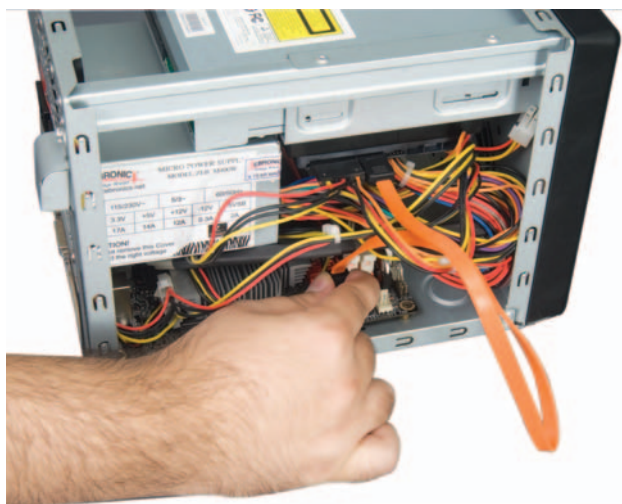
Assembly of the entire HTPC

The final outcome – you could also try modding the cabinet, but that's a completely different article...

All said and done, you are set to enjoy your HTPC. The system we built is purely for entertainment and other essential functions. Switching between the TV and PC is simple as the TV tuner card we opted for comes with a remote control. You can easily find a wireless keyboard and mouse combo from Logitech that will suit the multimedia needs uses of your HTPC. The finishing touches would consist in just hooking it up to a nice large LCD or Plasma TV, sitting back and enjoying your Blu-ray movie. ■

kumar.j@thinkdigit.com

Entry-level configuration		
Parts	Model	Price (Rs.)
Motherboard	Zotac GeForce 8200 ITX WiFi	5,900
CPU	AMD 5600 X2	4,120
Cabinet	Zebronics Tambi (with PSU)	2,250
HDD	Seagate Barracuda 500 GB	3,220
ODD	LG DVD RW	1,200
RAM	2 GB Corsair value RAM	1,880
TV Tuner Card	Leadtek Winfast Palm Top	3,750
	Total	22,320

Intel Solution		
Parts	Model	Price (Rs.)
Motherboard	Zotac GeForce 9300 ITX WiFi	6,999
CPU	Intel Core 2 Duo E4600	5,887
Cabinet	Zebronics Tambi (with PSU)	2,250
HDD	Seagate Barracuda 500GB	3,220
ODD	LG DVD RW	1,200
RAM	2 GB Corsair value RAM	1,880
TV Tuner Card	Leadtek Winfast Palm Top	3,750
	Total	25,186

The parts we used		
Parts	Model	Price (Rs.)
Motherboard	Zotac GeForce 8200 ITX WiFi	5,900
CPU	AMD 5600 X2	4,120
Cabinet	Zebronics Tambi (with PSU)	2,250
HDD	Seagate Barracuda 1.5TB	8,750
ODD	Asus BC-1205PT BR Drive	5,990
RAM	2 GB Corsair value RAM	1,880
TV Tuner Card	Leadtek Winfast Palm Top	3,750
	Total	3,2640

High-end gaming solution		
Parts	Model	Price (Rs.)
Motherboard	Asus P5Q	9,610
CPU	Intel Core 2 Quad 6600	9,150
Cabinet	Antec P180 Lifestyle Cabinet	6,950
Graphics Card	Palit HD 4870 Sonic 1GB	18,750
HDD	Seagate Barracuda 1.5TB	8,750
ODD	LG DVD RW	1,200
RAM	4 GB Corsair XMS2	5,493
TV Tuner Card	Leadtek Winfast Palm Top	3,750
	Total	63,653

When Size matters

Agent 001 goes shopping for the largest hard drive possible

STREET SMART

Agent001

Just as hard drives have become ever cheaper, the demand for unlimited broadband connections has also risen. Users now tend to maintain their movie collections on hard drives. After all, one 500-GB HDD costs less than Rs. 3,000 now, and will store the contents of some 667 DVDs and an even larger number of CDs. Moreover, HD content is becoming the norm and each movie can be as much as 22 GB in size. That's about three dual-layer DVDs at a price of Rs. 100 each! I'm not saying the optical disk is dead. Blu-ray is one of its champions, and a worthy one at that. But for most people in India, Blu-ray is still a buzzword and purchasing Blu-ray movies is a costly affair. Additionally, there are those who wish to have the convenience of having their entire movie collection on a hard drive or two. And that's just movies; I haven't considered collectors of game ISO files. Before people cry *pirate*, let me assure you, I'm talking about legal content. When I purchase a DVD movie or a game, I always make sure to extract an ISO of the same and back it up on my local HDD — insurance against mishaps of any sort. I have lost a lot of movies that I legally bought over the years to damaged media and I can tell you its no laughing matter. It's also easier (infinitely so) to just mount an ISO or play a movie from my local hard drive than having to rummage in any of my six 100-disc CD pouches.

My quest for a large storage solution began courtesy of a friend, who asked me (as a favour) to find him a humongous external and internal solution for his new PC (he's a movie buff too). He is also into a lot of downloading of movies and these are carted around with him wherever he goes. Unfortunately, moving around with a 100 GB collection of FLAC files doesn't help either. I started doing a bit of Googling and called up a few of my favourite dealers at Lamington Road. My preliminary research taught me two things. First, internal hard drives are ridiculously cheap at the moment and anyone needing more storage should stop waiting and take the plunge. Second, external solutions have not really become cheaper over the past six months or so. However, larger solu-tions have become available in the 2.5-inch HDD capacity due to increases in the areal density of platters. Earlier 250 GB notebook drives used to be the goliaths of the 2.5-inch HDD world. These days, 500-GB drives are available and besides double the storage over a 250-GB drive, they are also a bit faster. In fact, as hard drive platters get denser, the hard drive gets faster. Obviously, this is assuming that other things remain the same. This is because with the higher areal densities the read / write head can access more data with minimal mechanics.

If you're looking for an external solution via USB, a 2.5-inch form factor is the only way to go, in my opinion. Not only is this form factor much more compact, but also requires no external AC power connect, unlike 3.5-inch external solutions. For me, this is the main reason I avoid 3.5-inch hard drives. Since you're likely to be carrying your hard drive with you in your bag or backpack, the smaller form factor is also a great help. Speed junkies, do not be fooled by the fact that 2.5-inch solutions are slower than your 3.5-inch solutions. When looking at an external solution, it's the speed of the USB / FireWire interface, that is, by far, the main bottleneck. And there are 7,200-rpm, 2.5-inch drives around as well. Therefore, you don't have to be stuck with a slower performing 5,400-rpm solution. Obviously, people who copy 100 GB of data a day would still prefer a 3.5-inch external solution, but there are very few people with such colossal storage requirements. While storage size is a criterion for portable solu-tions, I personally don't mind a smaller portable HDD, because I make it a point to back up data and copy everything to my larger hard drive on my home PC. For such (non-lazy) users, depending on their data requirements, anything between 80 GB and 160 GB is enough. Data hogs with very huge amounts of data to back up should shop for a drive in the region of 320 GB. Also, larger drives are available but these aren't value for money, as their "cost-per-GB" is higher. However, prices are expected to fall over the next six months so watch out and monitor prices yourself too.
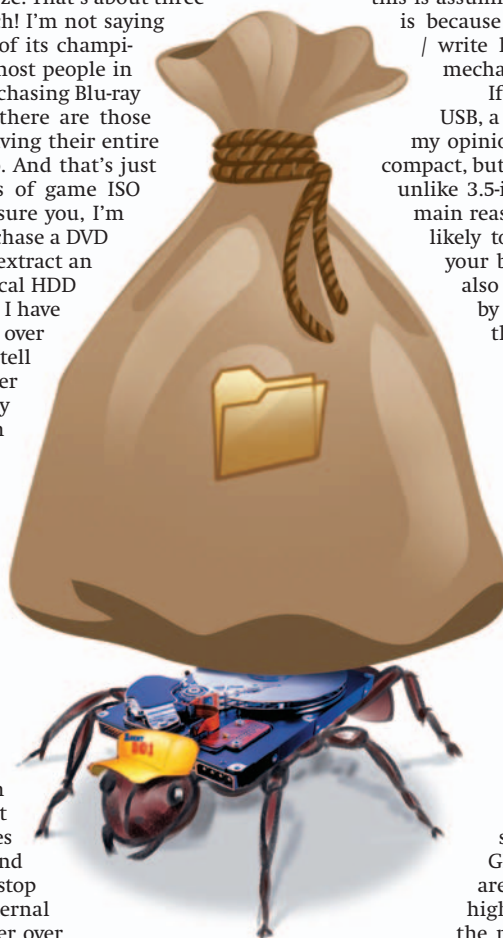
Another dilemma faced by most buyers is whether to buy an external case and a hard drive and combine the two to make your own solution or simply buy a ready-made external drive solution. Both methods have their relative merits, but I tend to prefer the former. For me, a warranty of three to five years on a finished product is worth the premium any day. Also, many vendors sell very cheap drive enclosures, as they are called, and quite frankly, they aren't very long lasting. A couple of users have reported damage to their hard drives by using these cheap cages and while I do not know how exactly the damage occured, there's no point taking a risk, especially when loads of valuable data are involved. In my opinion, Western Digital is the most popular brand in the market as of now in terms of external 2.5-inch solutions. Seagate has just entered the Indian market with some very interesting options. Of course they've been in the 3.5-inch HDD market far longer. These brands use their own hard drives in such enclosures. You can buy just the hard drive (meant for notebooks as they are 2.5-inch drives) and buy an enclosure. Transcend, Lacey and Zippy are the three brands that sell a lot of enclosures. Mind you, these brands do not manufacture hard drives so you will need to buy a hard drive from one of the above mentioned brands. There are also several manufacturers who sell external solutions. WD, Seagate, Iomega, Freecom and Transcend are the big players and you will find quite a few offerings from them in the market, with WD and Seagate being the biggest sellers and also the most popular. Iomega and Freecom are slightly costlier. The reason for this, I assume, is because they don't manufacture HDDs of their own. Seagate and WD also have the best warranty policies and the highest number of service centres — something that should also be taken into account.

For those looking at sheer speed, Seagate offers its *FreeAgent XTreme* drives. Unfortunately, these are based on the bulkier 3.5-inch desktop HDDs, but they offer the blazingly-fast SATA 2.0 interface. At Rs. 9,500 for the 500-GB version, and Rs. 10,000 for the 640-GB version, these are worth the speed, especially for those wanting really snappy transfers and are willing to shell out accordingly. Obviously the Serial-ATA interface also helps overcome the bottlenecks associated with USB and even FireWire.

For the data hog, I recommend WD's 320 GB Passport. At Rs. 6,300, this is one of the best options around. I own a 160 GB WD external solution and am happy to report it has given me trouble-free service for the past two years, in spite of the rough handling it has borne. For someone looking at a smaller capacity solution, I recommend 160-GB solutions from WD. 80-GB solutions are barely 600 bucks cheaper and not worth it, according to me, unless you really cannot afford to spend more. WD Passport 160 GB for Rs. 3,100 is sweet. If you really are a behemoth to back up and store data, look at Seagate's Free Agent 500 GB or WD's Passport Elite 500 GB. This is the largest 2.5-inch solution money can buy. Unfortunately, these solutions are highly priced – Rs. 12,000 for Seagate and Rs. 14,100 for WD. I bought the 320-GB WD for Rs. 6,000 after bargaining for a bit. And in my opinion, this offers the best of both worlds — it performs well and has oodles of storage. Best of all, it doesn't break the bank.

In the desktop internal HDD space, it seems that the prices of the 500 GB-and-above segment have fallen, and fallen drastically. Everybody is going for 500-GB hard drives these days and even 250-GB and 320-GB hard drives are being overlooked. I was looking at buying two very large capacity hard drives — one for my friend's voracious appetite for movies and another for me to replace the two 250 GB drives in my PC. And this is another reason to upgrade. Two hard drives consume twice as much power as one, not to mention they take up twice the space as

well. With a single 1-TB hard drive, I would get a cool 500 GB more than both my older 250-GB hard drives would give me. WD's new *Black Series* are fast, but expensive. In fact, they are more expensive than Seagate's options. The 750-GB WD Black Edition is priced at Rs. 6,400, while the 1-TB version costs around Rs. 8,200. I say not cheap, because in comparison, the new Seagate 1 TB 7200.11 series hard drive is priced at a lowly Rs. 6,500! For the price, this drive is an absolute steal — it's fast, runs cool and is in no way inferior to WD's Black Series offering. In fact, we recently tested this drive and found it to be quite a performer. Seagate has also launched a 1.5-TB hard drive and is retailing for as low as Rs. 8,300, which is nearly the same price as the 1-TB WD Black Edition. I find the thought of a 1.5-TB hard drive as a backup drive giving me shivers up my spine. What I do is keep a large internal hard drive as a spare. I connect this to my PC once a month and backup all my downloads, movies and games; for longevity purposes, I disconnect this hard drive and store it carefully. So at any one time, I have at least two backups of all my data. My external drive is used solely for copying data to and fro my office, home PC and my notebook.

We also came across Seagate's latest 7200.12 series hard drives which are very new in our markets. Sadly there's no 1.5 TB offering yet and the maximum size is one terabyte. I really liked this drive as the acclaimed read speed was 160 MBps. This drive is priced at Rs. 6,800 and is still pretty affordable. I ended up buying one, and paid Rs. 6,750 for it and got a cool five year warranty. My friend wanted something bigger (gasp!) and we eventually settled on the massive 1.5 TB Seagate Barracuda 7200.11 for Rs. 8,200. This hard drive is the largest in the world in terms of storage space as of now, and makes a very suitable purchase for someone looking at buying the largest capacity drive available. Obviously, when WD's two terabyte offering releases this drive will relinquish its lofty perch. But that's another story. It's fast too and after testing it, I can tell you that it runs fairly cool. I can tell you the store owner was rubbing his hands in glee and he told us he had never sold so many gigabytes worth of hard drives to a single party. For those of you who cannot count, we made off with some 2.82 terabytes of total storage, or a little more than two thousand, eight hundred and twenty gigabytes. ∎

agent001@thinkdigit.com

Toshiba acquires more space

It's a well-known fact that Fujitsu had been struggling for quite some time now. This financial year alone, it had forcasted its losses to be around $500 million. With such tremendous losses, it has decided to shelve off its hard drive division to Toshiba. On the other hand, Toshiba hopes to gain a strong position in the enterprise-class solid-state disk (SSD) drive market. It will also be able to leverage Fujitsu's expertise in the 2.5-inch HDD space, in which it is currently the leader. The deal will also fasttrack Toshiba to enter the HDD market for enterprise servers and data storage system applications. It now expects this deal to raise its overall share in the HDD market to over 20 per cent in the coming years. The deal is to take place in two stages with Fujitsu retaining 20 per cent of its stake for some time. However, this is not the first time someone had their eye on ailing Fujitsu. Western Digital had made an estimated offer of $950 million some time back, but the deal fell through because of cultural differences. The value of the current deal is not known. Fortunately, layoffs don't seem to be on the card as a result of the buyout.

Ask Agent001

Q My PC configuration is as follows: Intel Core 2 Duo E4400 processor, Simmtronics 2 GB @667 MHz, Mercury 945G Express Chipset, Samsung 19-inch LCD TFT monitor. Please comment on the configuration and suggest a good / powerful DX10.0 graphics card below Rs. 10,000.

Harish Verma

Do away with the Simmtronics memory. Although it was good in the days of SD RAM, it is not any more. Besides, service will be an issue. Opt for 800 MHz DDR2 memory instead of 667 MHz memory; the price difference is negligible. For Rs. 10,000, I'd recommend either a GeForce 9800 GTX+ or a Radeon HD 4850-based graphics card.

Q I'm planning to buy a laptop in the next six months with a budget of Rs. 60,000. I'm looking for something that's suitable for audio, video, gaming and office use. Please suggest a good configuration with good build quality, battery, features, support and services.

Rupak Nirola

If you want a multimedia notebook for that price, I recommend the Dell XPS 1530. It's a solid performer for its price and comes with a very good processor. Dell also allows customisation of the components, so you can end up with exactly what you like.

Q I want to buy a digital camera in the price range of Rs. 7,000 to 10,000. I want it primarily for capturing photos indoors (with less bright light than sunlight).
I have decided on a Samsung i8. Have I made the right choice? Please tell me about the best cameras in the range.

Amit Singh

Indoor shooting is indeed a problem for most point-and-shoot cameras. Instead of the Samsung i8, I'd look at either the Canon SX100 IS or the A720 IS. Both these models feature 8-MP sensors and work well with higher ISO settings.

Q My friend has the following configuration – an Abit IP35-E motherboard, 2 GB of Corsair memory, an XFX GeForce 9400GT, WD 250 GB hard drive. He is in a dilemma as to which processor to buy. He also needs suggestions for the power supply. Please help.

Chirag S

Here, he needs to figure out his budget and also his usage patterns. Does he game or do video editing? On a budget of Rs. 10,000 or so, I'd recommend the Core 2 Duo E8500 (3.16 GHz) for gaming. For a budget of Rs. 8,000, I recommend the E8400 (3.0 GHz). For multi-tasking and rendering, I recommend a quad core. His options are the Core 2 Duo Q6600 (2.4 GHz) at Rs. 10,000. If he is willing to spend a little more, he can go for the Q9450 (2.66 GHz) at Rs. 12,500, which is a superb all-round performer. For the power supply, look at Corsair's VX 450 for Rs. 4,000. It's a superb PSU.

Q I am a huge gaming fan, but I feel that my graphics card is out-dated. I have a dual-core processor with 2GB of RAM. I'm currently using the NVIDIA GeForce 6200 LE. I've heard great things about the 9800 GTX+. I want a card dedicated to gaming only if it is powerful and allows me to play games like *Crysis* and *Crysis Warhead* at maximum settings and will also be future proof.

Vinayak Goyal

First, you have not mentioned the rest of your system configuration and your exact CPU. Second, you have not mentioned a specific budget. The 9800GTX+ is indeed a good card and can be had for as little as Rs. 11,000 these days. But this card will only be future proof for the next six months or so, since games like *Crysis* will spawn better-looking, resource-heavy variants. I recommend the GTX 260, which you can have for Rs. 19,000. Also, look for the ATI Radeon HD 4870 1 GB. At Rs. 18,500 or so, this card is great value for money. For NVIDIA GPUs, look at brands such as XFX, ASUS, ZOTAC, EVGA and Gigabyte. For ATI GPUs, look at Sapphire and Palit.

Q I want to buy an LCD TV and a 5.1 music system, both under Rs. 1,00,000. I want at least a 32-inch screen size with good viewing angles and good contrast ratio for the TV. The speakers should be powerful and suitable for a large sized room.

Kshitij Rawat

For the television, I recommend Samsung's Bordeaux 32-inch range of flat panels. LG's Scarlet series is also good. Both should be priced at around the Rs. 45,000 mark. In fact, we've done a comparison test each for large screen panels and home theatre systems in this very issue, so check that out as well.

Q I want to buy a laptop. The main requirements are that it should have at least a 14-inch screen, 15 inches is preferable and should be future proof. I plan to use it for moderate gaming and would prefer that it runs the latest games, but have no qualms about running the games at low settings. Therefore, I would prefer a dedicated GPU from ATI or NVIDIA. I don't really care for things like fingerprint readers and web cams, but would love to have good-quality speakers, at least a 250GB HDD and options like TV out and HDMI.

Amlan Mathur

There is a difference between 14.1-inch and 15.4-inch notebooks in terms of portability and pricing. From your query, I gather you do not want something compact. You have also not mentioned a budget for the same. For gaming, you will need a discrete graphics solution. Dell's Studio XPS 16 is a good option for you. It is available with a GeForce 9500 LE graphics solution and priced at Rs. 68,000 makes a sensible buy for the discerning gamer. It also has TV-out and HDMI connects. If you really want to go crazy and get a really powerful solution, opt for the new Macbook Pro. At 15.4-inches and with the option of a mighty GeForce 9600 GT video solution, this notebook is definitely for the hardcore gamer. You can install Windows XP using Bootcamp and have it co-exist peacefully with Mac OS-X. This notebook is a beauty, but is priced accordingly too! Expect to pay Rs. 1,30,000 for the upgraded version, which has 4 GB of DDR3 memory, 2.53 GHz processor and GeForce 9600GT graphics solution with a 250 GB hard drive.

STREET SMART

CONSUMER PROTECTION

Wake up

Know your rights as a consumer

Edward Henning

In the last issue we described the efforts being made by the Indian government to improve consumer service in this country, and, in particular the availability of the National Consumer Helpline (1800-11-4000). This helpline is run out of Delhi, and is intended to give help and advice to consumers who feel they have been let down after purchasing some product or service. The most interesting point about this helpline is the growing list of companies that have signed up agreeing to give fast responses to any complaints coming into the helpline, typically within 24 hours.

Despite the significant promotional campaign that has been run by the Department of Consumer Affairs, it appears that not everybody has understood the message. By coincidence, a colleague here in our publishing company had an apparently genuine complaint with a company that we knew to be on the Helpline list. So, he was informed of this, and it was suggested that he call the Helpline. But, he clearly did not believe it and seemed to think we were simply palming him off instead of genuinely trying to help! It needs to be pointed out that the Helpline is not a black hole into which any complaint will disappear never to be seen again. Much attention has been paid to trying to give a prompt response, particularly when it concerns the companies on the list mentioned before.

This service is in the process of being extended. *Digit* spoke recently to Mr. Sanjay Singh, Joint Secretary for the Department of Consumer Affairs. He informed us that having established the national Helpline, the next steps are to set up regional helplines. There are several reasons for this. One is to help cater to people speaking the large number of regional languages in India. Also, the problems people encounter will often vary considerably from region to region, and a local service will be better able to address issues raised by consumers. Local helplines will also be better able to help consumers in rural areas; reaching and helping the people in those areas is considered a critical priority.

Funding for these regional lines has been arranged, and some are already operating — Gujarat was mentioned, for example. Later on, perhaps in a couple of years time, all these regional

Service Problems?
Write in to servicewatch@thinkdigit.com and we'll do our best to help to resolve them

helplines will have been established and will be integrated with the national system; they will be able to share data and interact with each other. In the meantime, they will have to act as stand-alone operations.

Here at *Digit*, we would like to know of your experiences in using the Helpline if you have had cause to do so. Please let us know (at **servicewatch@thinkdigit.com**) how prompt was the response and if your complaint was satisfactorily dealt with. All constructive feedback will be shared with the Department of Consumer Affairs. ■

Naming and Shaming

One tactic that is being used by the government in order to attempt to force companies to improve their level of customer service is to name and shame them on one of its web sites. The CORE Centre (Consumer Online Resource & Empowerment Centre, **www.corecentre.co.in**) carries a list of companies that it feels have not responded properly to complaints that have been received. This list is given a pretty direct title: "Brands not Friendly and not Caring for Consumers". It lists the names of the most offending brands, gives the number of complaints, and the responses. For example, the TV manufacturer Videocon is listed as having had 35 complaints made against, it has replied to none of the complaint communications passed to it by the CORE Centre, and has consequently resolved none of these complaints!

The CORE Centre states that it has taken this course of action in order to enable consumers to "Beware" of these organisations — in other words, perhaps you would be better off not buying from them. The more consumers who check this, and any other similar lists and do form their purchasing decision accordingly, the better the service will be that companies in general will provide. As one image on the CORE web site states: "Demand Your Rights!!" Informed by lists such as on the CORE web site, from reviews and so forth in magazines, also the experience of friends and colleagues — all of this is best put to use as consumer pressure. Letting the companies concerned know of your needs, and insisting on better quality of goods and services, not only helps all consumers, but the companies themselves. By forcing them to do a better job, makes you more likely to be a happily returning customer. Is that not what they want?

Getting them to respond

We received a complaint from a reader, Abhijit Banik, with a sorry tale regarding an MSP 345 Champion XL printer from TVS Electronics. This came with a two year onsite warranty. After about a year, problems started, which led to the device "basically not printing". TVS made five service visits to the printer and each time the same problems would occur again after just a few days. Crucially, with his later complaints going unanswered, this dragged on beyond the point when the warranty had expired. In frustration, he contacted *Digit*.

We wrote to TVS, and to the company's credit Mr. Banik's printer was promptly replaced. He tells us "the new printer seems to be working fine and I have their people calling on me personally and over the phone to find out if I am happy and if everything is fine very often."

Clearly the original service engineer did not properly diagnose the problem — it should not take five service visits before an engineer realises that a fault is so serious that a device needs replacement rather than repair.

TVS contacted *Digit* with the shortest of replies: "customer did have a problem with the printer and we replaced the printer with a new one". No explanation was forthcoming for this unfortunate episode.

The lesson from this story is certainly to be more proactive in demanding proper attention well before the warranty runs out on a

product. If a problem starts to drag on in this way, escalate up to the senior management in the relevant company. Don't be shy; go to the top and demand attention. Other readers have told us of problems dragging on in this way — perhaps deliberately, perhaps not — beyond the expiry of the warranty. It then becomes much more difficult to find redress.

For example, reader K. Jagdish had trouble with a PC purchased from Rex Infosys (P) Ltd., Pala, which included an ASUS K8X-MX-UAYKZ series mother board and AMD Athlon 64 1.80 MHz. It started to break down very early and the motherboard was changed four times. Finally, the dealer stated that the processor was at fault, but that AMD refused to replace it as the warranty had expired.

After the reader contacted us, we got onto AMD. We were told that by the time that AMD was informed of this, the warranty had indeed expired. The company decided to make an exception in this case, and has replaced the faulty part, but was concerned that it had taken so long for the dealer to pass this onto AMD. With the motherboard being exchanged four times, this case is very similar to that of the faulty TVS printer. It seems most likely that a mis-diagnosis also occurred here, with the service people thinking repeatedly that the motherboard was at fault and not the processor.

Best Buys + Killer Rigs

Doom invented rigs
The original driving force for gaming centric computers was Doom in the early '90s.

Basic Setup

Components	Our Choice	Price
Processor	Intel Core 2 Duo E5300	Rs. 4,200
Motherboard	Zotac GeForce 9300	Rs. 7,500
RAM	2 GB DDR2 800 MHz (Kingston)	Rs. 1,750
Hard Drive	Seagate 500 GB 7200.11	Rs. 3,050
Monitor	Acer 1916W	Rs. 8,100
Sound Card	None	-
Cabinet	Zebronics Antibiotic	Rs. 2,400
Power Supply	VIP 350 Watts	Rs. 850
Keyboard	Logitech Multimedia	Rs. 350
Mouse	Logitech 3 button scroll	Rs. 350
	Total	Rs. 28,550

Multimedia Cum Gaming Rig

Components	Our Choice	Price
Processor	Core 2 Duo E8400	Rs. 8,200
Motherboard	MSI P45 Platinum	Rs. 9,000
RAM	2 GB x 2 DDR2 800 MHz (Corsair)	Rs. 3,600
Graphics Card	Palit Radeon HD 4870 1 GB SONIC	Rs. 18,100
Hard Drive	Seagate 1 TB 7200.11	Rs. 6,500
Monitor	Dell SP 2208 WFP	Rs. 15,000
Sound Card	ASUS Xonar DX	Rs. 3,700
Cabinet	CoolerMaster 690	Rs. 4,400
Power Supply	Corsair TX 650	Rs. 6,500
Speakers	Altec Lansing MX 5021	Rs. 6,500
Keyboard	Logitech G15	Rs. 4,000
Mouse	Logitech MX518	Rs. 1,300
	Total	Rs. 86,800

Ultra High-End PC / Gaming Rig

| Components	Our Choice	Price
Processor	Core i7 940	Rs. 26,000
Motherboard	Intel DX58SO	Rs. 16,000
RAM	2 GB x 3 DDR3 1600 MHz OCZ	Rs. 18,000
Graphics Card	ZOTAC GeForce GTX 295	Rs. 35,000
Hard Drive	Western Digital Velociraptor 300	Rs. 11,000
Hard Drive 2	Seagate 1 TB 7200.11	Rs. 6,500
Monitor	LG 246 Wp	Rs. 23,000
Sound Card	Creative X-Fi Titanium	Rs. 12,000
Cabinet	CoolerMaster STACKER RC 832	Rs. 14,500
Power Supply	Corsair HX 1000	Rs. 13,500
Speakers	Logitech Z5500	Rs. 14,000
Keyboard	Logitech G15	Rs. 4,000
Mouse	Razer DeathAdder	Rs. 2,500
	Total	Rs. 1,96,000

Moore's Law
The Moore's Law indicates that hardware costs reduce by 33% every year.

Stuff we would buy...

STREET SMART

Motherboards
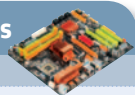
Model	Market Price	Tested in	Socket	PCI-e x8/x16 slots	SATA Ports	No of rear USB Ports
Zotac 780i Supreme	Rs. 14,500		AM2+	3	6	6
ASUS P5Q Deluxe	Rs. 12,600	June 2008	LGA775	2	6	6
ASUS P5Q-E	Rs. 10,800		LGA775	2	6	8
ASUS P6T Deluxe	Rs. 20,800		LGA1366	3	6	8
Gigabyte GA-EP45-DS3R	Rs. 8,500		LGA775	2	6	8
Gigabyte GA-EX58-UD5	Rs. 17,000		LGA775	3	6	8
MSI X58 Eclipse	Rs. 23,900		LGA775	3	10	8
ASUS M3N78-EH (Geforce 8200, AMD)	Rs. 5,450	November 2008	AM2+	1	6	4
ASUS M3A	Rs. 4,950		AM2+	1	4	4

Processors

Model	Market Price	Tested in	Socket	Speed	FSB	L2 Cache
AMD X2 6000+	Rs. 4,175	November 2008	AM2+	3.1 GHz	2,000 MHz HyperTransport	2 MB
AMD Athlon X2 5600+	Rs. 3,700	November 2008	AM2+	2.9 GHz	2,000 MHz HyperTransport	1 MB
AMD Athlon X2 5200+	Rs. 3,100	November 2008	AM2+	2.7 GHz	2,000 MHz HyperTransport	1 MB
AMD Phenom X4 9550	Rs. 6,850	November 2008	AM2+	2.2 GHz	3,600 MHz HyperTransport	2 MB
AMD Phenom X4 9650	Rs. 6,725	November 2008	AM2+	2.3 GHz	3,600 MHz HyperTransport	2 MB
AMD Phenom X4 9850 Black	Rs. 8,400	November 2008	AM2+	2.5 GHz	4,000 MHz HyperTransport	2 MB
AMD Phenom 2 X4 920	Rs. 10,975		AM2+	2.8 GHz	3,600 MHz HyperTransport	2 MB
Intel Core 2 Duo E8500	Rs. 9,600	March 2008	LGA775	3.16 GHz	1,333 MHz	6 MB
Intel Core 2 Duo E7300	Rs. 5,750		LGA775	2.66 GHz	1,066 MHz	3 MB
Intel Core 2 Duo E8400	Rs. 9,400		LGA775	3 GHz	1,333 MHz	6 MB
Intel Core 2 Duo Q8200	Rs. 9,100	November 2008	LGA775	2.33 GHz	1,333 MHz	4 MB
Intel Core 2 Duo Q9550	Rs. 14,975		LGA775	2.83 GHz	1,333 MHz	12 MB
Intel Core 2 Duo Q6600	Rs. 9,750	November 2007	LGA775	2.4 GHz	1,066 MHz	8 MB
Intel Core 2 Duo E5200	Rs. 3,525	November 2008	LGA775	2.5 GHz	800MHz	2 MB
Intel i7 920	Rs. 15,200		LGA1366	2.66 GHz	4.8GT/s QPI	NA

Graphic Cards

Model	Market Price	Tested in	Core Speed	Type of memory	Memory
Zotac 9800 GTX+ AMP! Edition	Rs. 11,150		738 MHz	GDDR3	512 MB
Zotac GTX 260	Rs. 20,200		650 MHz	GDDR3	896 MB
EVGA 9800GT (Super Clocked)	Rs. 9,600		650 MHz	GDDR3	512 MB
EVGA 9600GT Knock-out	Rs. 7,550	November 2008	700 MHz	GDDR3	512 MB
ZOTAC GeForce GTX 285	Rs. 27,000	Febrauary 2009	648 MHz	GDDR3	1024 MB
Palit Radeon HD 4870 1 GB SONIC	Rs. 17,950		750 MHz	GDDR5	1024 MB
Palit Radeon HD 4870 SONIC	Rs. 15,650	October 2008	750 MHz	GDDR5	512 MB
Palit Radeon HD 4850 SONIC	Rs. 9,750		685 MHz	GDDR5	512 MB
Palit GeForce 9400 GT	Rs. 2,800		550 MHz	GDDR2	512 MB
XFX GeForce 8600 GT	Rs. 3,700		540 MHz	GDDR2	256 MB

Monitors

Model	Market Price	Tested in	Size	Resolution	Contrast Ratio	Response time
Acer AL1916	Rs. 6,550		19-inch	1280 x 1024	700 : 1	8 ms
Acer AL2216	Rs. 9,800		22-inch	1680 x 1050	700 : 1	5 ms
Samsung 2033SW	Rs. 7,850		20-inch	1600 x 900	15000 : 1	5 ms
Samsung 740NW	Rs. 6,700		17-inch	1280 x 720	500 : 1	8 ms
Samsung 743NX	Rs. 7,450		17-inch	1280 x 1024	500 : 1	5 ms
Samsung 943NWX	Rs. 7,600		19-inch	1280 x 1024	1000 : 1	5 ms
Dell S1709W	Rs. 6,750		17-inch	1440 x 900	600 : 1	8 ms
Dell 1909W	Rs. 7,400		19-inch	1440 x 900	1000 : 1	5 ms
ViewSonic VX2255WMB	Rs. 12,500	May 2008	22-inch	1680 x 1050	1000 : 1	5 ms
ViewSonic VX2835WM	Rs. 28,000		28-inch	1920 x 1200	1000 : 1	3 ms
ViewSonic VA1918WM	Rs. 6,750		19-inch	1440 x 900	1000 : 1	5 ms
LG W1942S	Rs. 7,900		19-inch	1440 x 900	700 : 1	5 ms
LG W192W	Rs. 7,550		19-inch	1440 x 900	700 : 1	5 ms
LG 177WSB	Rs. 6,600	May 2008	17-inch	1440 x 900	700 : 1	8 ms

Cabinets

Model	Market Price	Tested in	Dimensions	Weight	No of 5.25" bays	Number of fans
Antec Nine Hundred	Rs. 6,950		19.4 x 8.6 x 18.6 "	8.4 kg	3	4
Antec Twelve Hundred	Rs. 11,650		22.9 x 8.4 x 20.2 "	14.5 kg	3	6
Antec NSK4400	Rs. 2,200	May 2008	16.6 x 7.8 x 16.5 "	8 kg	3	3
Antec P180	Rs. 6,450		21.3 x 8.1 x 19.9 "	14 kg	4	5
Antec P182	Rs. 8,075		21.3 x 8.1 x 19.9 "	14 kg	4	3
Cooler Master CM Stacker 832	Rs. 14,500		21.1 x 25.11 x 9.84 "	14.5 kg	9	2
Cooler Master CM 690	Rs. 4,200		20.64 x 8.38 x 18.97 "	9.8 kg	4	2
Cooler Master Cosmos-1000	Rs. 12,975		24.72 x 10.47 x 23.54 "	16.9 kg	5	3
Cooler Master Elite 330	Rs. 1,950	September 2008	19.09 x 7.44 x 16.73 "	6 kg	4	1
NZXT GUARDIAN 921	Rs. 4,675		20.55 x 18.07 x 8.11 "	8.2 kg	3	3
Thermaltake Armor+	Rs. 12,500		23.6 x 9.6 x 24.6 "	10.2 kg	7	4
Thermaltake Xaser VI	Rs. 13,700	January 2009	23.8 x 9.8 x 26.0 "	18.0 kg	7	4

Hard Drives

Model	Market Price	Tested in	Speed	Cache	Interface
Western Digital Caviar Blue 1 TB	Rs. 5,350		7200 RPM	16	SATA 2
Western Digital Caviar Blue 750 GB	Rs. 4,700		7200 RPM	16	SATA 2
Western Digital Caviar Blue 640 GB	Rs. 3,700		7200 RPM	16	SATA 2
Seagate Barracuda 1 TB	Rs. 5,500		7200 RPM	32	SATA 2
Seagate Barracuda 500 GB	Rs. 3,075		7200 RPM	32	SATA 2
Seagate Barracuda 750 GB	Rs. 4,900		7200 RPM	32	SATA 2

Internet Connectivity Solutions

Siddharth Parwatay

Internet connectivity is among the basic necessities today. You will scarcely find a business in globalised India that does not depend on an internet connection in some way or the other. In fact, for most businesses, email, VoIP, and other web services are a lifeline. Ever since India became an off-shoring hub, many companies service clients abroad. Irrespective of usage, choosing the right internet connection is important – both from the functionality as well as cost saving viewpoint. Let's look at some of the factors involved while zeroing in on a suitable connection.

The options available

In the earlier days, life was restricted to painfully slow dial-up connections. For corporates that could afford it, there was ISDN which was a bit faster and was considered state-of-the art for quite some time. However, today the internet is more accessible.

DSL / ADSL works through existing two-wire copper telephone lines and is an always-on connection. MTNL's broadband service, based on ADSL 2+ technology, is known as Tri-Band. Tri-band offers speeds of up to 2 Mbps with an assured minimum speed of 256 kbps to individual telephone subscribers.

A leased line is another option. Such a leased line connects two locations for a private voice and data telecommunication service. Rather than a dedicated cable, a leased line is a reserved open circuit between two points, used to connect to the internet. When you go in for a leased line, there are no data limits.

Unlike normal dial-up connections, a leased line is always active, always on. The connection fee is a fixed monthly rate. The primary factors affecting the monthly fee are distance between end points and the speed of the circuit.

Wired cable connections are common in semi-urban office setups. Typically, local cable operators purchase bandwidth in bulk from large ISPs and channel them to individual subscribers. They have their own brand names for their service. There are also players like You Telecom that operates on last mile co-axial and fibre optic lines with cable modems. They have solutions for SMEs with unlimited plans such as the 'Business Platinum', 1 Mbps line for Rs. 9,500 per month.

Several players such as Airtel and Reliance Communications provide WiMax solutions for enterprises. WiMax stands for Worldwide Interoperability for Microwave Access, and is a standard wireless technology that allows broadband connections over long distances. However, the service is only available in certain major cities. A typical Broadband Wireless Access (BWA) system is composed of two key elements – base station and subscriber equipment. The base station connects to the subscriber equipment using an outdoor antenna to send and receive high-speed data to the subscriber equipment; thereby, eliminating the need of wire line infrastructure and provides a flexible and cost-effective last-mile solution. However, according to its web site, the bandwidth of the last mile wireless connectivity offered by Airtel is only up to 512 Kbps.

The choice now lies with what works best for you. The service provider plays a major role in this regard because inherently all transmission modes are almost equally susceptible to breakdowns. Your up-time will depend largely on the dedication of your ISP.

Shrikrishna Patkar

The right plan and connection

The nature of your business will play a major role in deciding your ideal internet connection. If you are using the internet for simple tasks such as emailing with less browsing, you will require a different plan compared to a graphics processing outfit working for an offshore client.
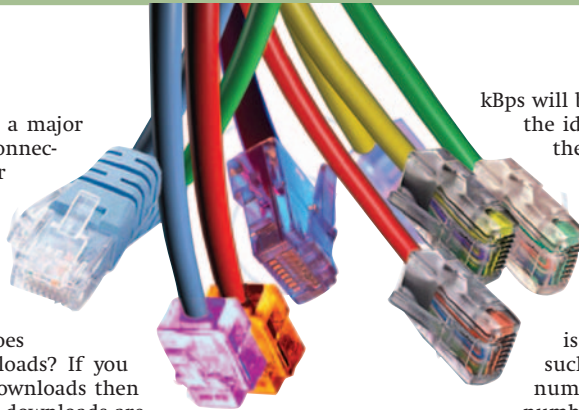
You should also look at the kind of traffic you are likely to produce. Does it consist more of uploads or downloads? If you find that your uploads are equal to downloads then you should go in for a 1:1 line. If your downloads are high and sending large files via FTP doesn't form part of your daily function then go in for a line that offers, for example, upstream rates of 256 kbps while the downstream rate is 1 Mbps.

When considering the type of connection, whether to prefer cable, DSL or WiMax, depends largely on the data plans and rates. ISPs have several data plans designed for businesses, which essentially offer combinations between speed, download limits and price. Typically, ISPs might charge users a flat fee per month or apply charges based on usage. Usage may be calculated by time spent browsing (per hour) or downloaded data. There are also plans where you find a combination of both. For example, the MTNL Tri-Band "Trib Business 7199" plan that offers 45 GB downloads for Rs. 7,199 and an additional 70 paise per MB for downloads beyond the 45 GB limit. There may be other plans where usage during the day is calculated by hours spent online while during the night, it shifts to a per-MB basis.

Broadly, plans are categorised into limited usage and unlimited plans. If the volume of your internet usage is high, then an unlimited plan is a good idea. Limited plans usually have a fixed component of charges that cover a certain allowable download limit, say 500 MB. Beyond that limit, you will be charged a certain amount per MB or GB of downloaded data.

Whether limited or unlimited, the connection speed of a plan is defined by the bandwidth. Bandwidth is almost synonymous with data transfer rate, and therefore, synonymous with speed. Choosing the bandwidth depends on the criticality of speed to your business. If your internet usage is not part of your core business function, it doesn't matter much if email takes a little longer to open. If you run a graphics solutions or media company, it's likely you will need to send heavy files and browse rich content, so speed is important.

So how do you calculate your bandwidth requirement? Say your company is into wholesale exports, and much of your employees' time is spent sending mails and viewing prices of commodities. High speed is not very critical, and you have about 30 machines that need access to the internet. To be able to browse at decent speed, you need to have an effective speed of 15 kBps for each computer. So, at any given point of time, your connection's bandwidth should be able to support 450 kBps (450 x 8 = 3,600 kbps). Also, this does not mean that a constant stream of 450 kBps will be consumed at all times, considering the idle time and intermittent requests on the connection. Therefore, a bandwidth of 2 Mbps should suffice for this scenario.

You may also be able to find online resources such as You Telecom's plan calculator. It generates an estimate of your bandwidth and data transfer requirement. This is done by entering estimates of usage such as number of hours spent online, number of programs downloaded, and number of emails likely to be sent.
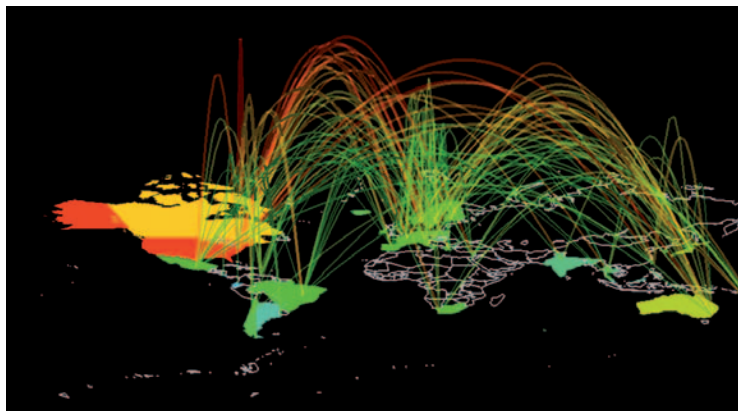
Factors while choosing an ISP

You have several players such as Bharti Airtel, MTNL, BSNL, Reliance Communications, Tata Indicom and even local cable operators that offer internet services. Where there is a level playing field and all tariffs / plan details are the same, look at the fine print. Most ISPs try to hide complicated clauses within their service agreements which basically help them go back on their promised services.

Look at things such as sharing ratio. Sharing ratio signifies how many users are going to be serviced by the same line to which you are subscribing. A sharing ratio of 1:1 means that you are the only subscriber on that line. Up time is also another important factor while choosing an ISP and is a measure of reliability that is indicative of the total time the service is functional. Scalability is also something to look at. If you're likely to expand operations, your current ISP should support scalability.

Customer service is another factor to consider. Is the ISP quick to respond to complaints? Most of this information can be gathered by consulting your friends and other users around. Since quality of service is also different in different geographies, it's advisable to find out through other offices in your area, about their subscribed ISP.

Value added services can also be a differentiator. Most ISPs bundle benefits such as SMTP servers, web space, and email ids. It's important to figure out if any of these services are relevant to your organisation and whether to choose a particular ISP for them. ∎

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First Hiss

Your first quick-and-dirty crash course in Python

Nimish Chandiramani

Disclaimer: *This tutorial covers the very basics of Python programming. You'll need some basic programming knowledge for this. If you're already familiar with the language, you could consider soaking in the other wonderful articles in this issue.*

If you're a programmer, or want to learn programming, you're going to love Python. It's one of the easiest languages you'll ever learn, it's powerful, and best of all, you can use it to build cross-platform applications.

Get Python
If you're a Linux or Mac user, you've already got Python installed. However, you should still download the latest version — we're using Python 3, which has made a few changes to the syntax. You can get Python for your platform from **www.python.org**. The installation process is pretty straightforward.

The First Time
There are two ways you can work with Python — you could either write your programs in a regular text editor and run them in the Python environment, or type your commands directly into the interpreter. If you're old enough to remember BASIC, you're already familiar with this. For now, let's work with the interpreter. You have two options: if you want to see your code in pretty colours, start IDLE — the *integrated development environment* (IDE) that installs with Python; or if you prefer the geeky goodness of the command line, fire up your terminal (Start > Run > type "cmd" in Windows) and type "python".

Both environments are rather uneventful-looking, and all you'll see is is a prompt that looks like this: ">>>".

And now, you're ready to start with the world's simplest program. In the prompt, type "print('Hello, world!')" (you can use single or double quotes — the interpreter isn't fussy). And that's it! Your first program: no messy surrounding code — just a command. You'll notice that Python is consistently like this — it's practically like having a conversation with your PC.

```
***code****
>>> print('Hello, world!')
Hello, world!
***code****
Caption: Your first Python command in action
```

Know the rules
Before you move to the more complex world of two-line programs, you must first familiarise yourself with Python's basic syntax. If you've had some experience with any other programming language, this can be a little disconcerting. Firstly, there's no end-of-line character. If you hit enter, you've ended a line — simple. Second, there are no beginning-and-end braces, brackets or anything — a program's blocks are denoted only by indentation.

Other programming languages want you to declare variables before you use them in your program. Python is very forgiving in this matter. To start using a new variable in your program, all you need to do is give it a value — the Python interpreter will automatically decide what type of variable it is, and give it its own special place in your system's memory. Let's look at a program that calculates the area of a circle, and how you'll see it in the interpreter:

```
***code****
>>>pi=3.14159            # <- this hash means
```

you're starting a comment
```
    >>>r=4                  # the radius of the
circle
    >>>area=pi*(r**2)       # remember that even
Python follows the BODMAS rule — brackets are always
solved first
    >>>print(area)
    50.25644
***code**
```

Getting Modular
Once you're ready to start writing multiple-line programs, you're better off doing so in a Python file — called a *module*. Once you've written a module, you can execute it from the command line whenever you feel like it. There's also a more significant use for modules, but we'll come to that in just a bit.

You can create modules in any text editor (see *Kit Bag* for our favourites). If you're using IDLE, all you need to do is hit [Ctrl] + [N] to open a new window. When you're ready, start typing. Let's use the same example — calculating the area of a circle:

```
    ***code****
    # Calculate the area of the circle
    pi = 3.14159
    r = 4
    area = pi*(r**2)         # '**' is the python
equivalent of 'to the power of'
    print('The area is ',area)
    ***code****
```

Save this file as a .py file on your hard disk. If you're using IDLE, you just need to hit [F5] to run the module. If you've used a text editor, open your terminal (command prompt in Windows), navigate to where you stored your file, and type "python filename.py".

But a program that calculates the area of just one circle isn't really fun, is it?

Getting Interactive
To make this program slightly more useful, let's have it ask the user for a radius. We do this by using the input() function, which will (as the name suggests), accept an input from the user.

```
    ***code****
    # Calculating the area of a circle, v2

    pi = 3.14159
    r = input('What is the radius? ')        # the
question is optional
    area = pi*(r**2)
    print('The area is ',area)
    ***code****
```

When you run this file, you'll see this:

```
    ***code****
    $ python area.py
    What is the radius? 5
    The area is 78.53975
    ***code****
```

Now we're getting somewhere. This would be a good time to fiddle with some conditional statements.

```
    ***code****
```

PyCon 2009
The world's largest Python community conference will take place between 25th March to 2nd April in Chicago, USA.

TECH@WORK

```
# Calculating the area of a circle, v3

pi = 3.14159
r = input('What is the radius? ')        # the
question is optional
area = pi*(r**2)

if        area        >        100:
              # a simple condition.
```
Remember the colon at the end of the statement
```
      print("That's one big circle! Its area is:",area)        # notice
```
that we use double quotes here, because we've got a single quote in the sentence — don't want to trip up the interpreter!
```
      else:
        print("Bah. That's tiny. Just",area)
***code****
```

Row, if you enter a radius that's 6 or more, you'll be complimented on your choice. As you can see, Python's "if.." statement is pretty simple. Every statement that you indent after the "if" will be executed if the condition you specify is true. The same goes for "else" — every indented statement after it will be executed if the condition is false.

When you're done mucking about with conditional statements, you can take a ride on one of Python's loops.

Round And Round
Writing loops in Python is as easy as conditional statements. One function that's going to come to your aid here is "range", which lets you specify a starting number, an end, and a step that's added to every number. For example, range(1,100,2) starts at 1, and goes up to 100 in steps of 2. Let's look at a simple loop:

```
***code****
# Counting to 50 in steps of 4
for i in range(0,50,4):          #again, remember
the colon
      print(i)
***code****
```

That's really all there is to it — pretty straightforward, yes? Python even has a "while" loop that's just as easy:
```
***code****
# Counting with a while loop
i=0                # you have to assign variables
first
while i<=50:
      print(i)
      i=i+4        # or i+=4, if you prefer
***code****
```
Unlike other languages, Python doesn't have a "do-while" loop, so if you want your block of code to run at least once, you'll have to figure out a smart way to do a while loop.

All right, enough with the trivial stuff.

Getting Functional
When you're programming in the real world, you're not going to write new programs every time you need to calculate the area of a circle, or want to count to 100 — you're going to write *functions*, which are like little bottles of code that you can keep handy, and use them when you need to. Here's how you define a function in Python:
```
***code****
# A function to calculate the area of a rect-
angle
def area_rect(length,breadth):        # accepting
~arguments~ from your main code
      a = length*breadth
      return a                          # sending
back the result of the calculation
```

```
# Now, you can use this function anywhere in the
main code
   l = input('What is the length? ')
   b = input('What is the breadth? ')
   area = area_rect(l,b)
   print('The area is', area)
***code****
```
Here's where Python's modular nature comes through. If you want to write a bunch of functions that you can use in any program that you write, you just need to write one module, and import it into the other modules you write. First, let's write a module that defines the area functions we need:
```
***code****
# module with functions for area

def area_rect(l,b):
      a=l*b
      return a

def area_circ(r):
      pi=3.14159
      a=pi*(r**2)
***code****
```
Save this as areas.py. Now, start a new module, in which we'll calculate the area of a circle:
```
***code****
# calculate the area of a circle

import areas                         # gives this
module access to the functions in areas.py

   radius = input('Enter a radius: ')
   area = areas.area_circ(r)        # to access func-
tions, you need to type modulename.function
   print(area)
***code****
```
Save this file — call it circle.py — in the same directory as areas.py. Now, when you run circles.py, Python will first compile areas.py into Python *bytecode* (you'll see a new file called areas.pyc), and then run the code in circles.py.

If you're going to use just a few functions of a module, however, it doesn't make sense to import the whole module. In the example above, we aren't using the area_rect function at all, so why import it? In this particular case, we have nothing to lose — but for more complex modules, you don't want a bunch of unnecessary code taking up your system memory. Thankfully, Python lets you import specific items from modules. Instead of the "import" statement, you just need to use "from ... import ...":

```
***code****
   from areas import area_circ        # import just
this function
   area = area_circ(5)                # you don't need
to use module.function() here
***code****
```

Welcome To The Jungle
Now that you've had a dose of the basics, you can move on to more advanced stuff, like object-oriented programming (OOP). If you haven't OOP-ed before, check out our *Fast Track to C++* for an introduction. You can also use Python in combination with a GUI framework — wxWidgets, Qt and the like — to build graphical applications that will run on Windows, Mac and Linux. If you want a change from PHP, you can even use Python to power your web site as well. If you use Blender for 3D graphics, you can have all sorts of fun with it using Python scripts. To cut a long story short, if you want to do it, chances are that you can do it with Python. ∎

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Is Gaming Good or Bad

Aditya Madanapalle

With the invention of the telephone, the way people interacted and behaved with each other changed forever. The radio has also been one such invention that has changed our lives as humans. It became an addictive evening time activity, similar to the family spending their nights in front of the television in the '90s.

Entertainment grew to progressively invade more and more sensations, but gaming was when entertainment truly arrived. Audio-visual interaction is too good to resist. Games are the most immersive entertainment available to people today. Even a casual gamer can end up spending a significant amount of time playing the same game rather than watching the same TV channel or listening to the same radio station, or reading a book.

Every time there is some technological progress, there is a flurry of discussion and debates over the social effects of these technologies. As technologies mature, a deeper understanding of their potential harm emerges. There's no doubt many spend a lot of time gaming, and this has raised one question from doctors, psychologists, concerned parents and educationalists – are games good or bad for you? We spoke to psychologists, surveyed children who are into gaming, interacted with the parents of these children, and looked at some international studies, to demystify what is generally a misunderstood activity.

Wake up, Mr Freeman...

Interestingly, several gamers are in a dilemma of sorts themselves. Most gamers are well aware of the problems that gaming can pose. In fact, serious gamers take adequate steps to shield themselves from harm. Even within a game, the older and more experienced players groom the newer players into playing responsibly.

Most parents are not aware of the game contents, or even understand what their children are up to. There are several questions that concern parents. How many hours a day of gaming is normal? Where should they draw the limit? Is it OK to play late night? How adversely does gaming affect children? To what will the child be exposed?

These are all valid questions, but the concerns are based on myths. Since games are a fairly recent phenomenon here in India it is natural that such questions should arise. Some clearing of the air is required. On one side of the coin, games, like any other repeated activity, make you really good at some things. Think of it as mental exercise. Games do not ruin eyesight, neither does watching television for a long time, or reading a book in the dark.

In fact, gaming is said to improve visual perception. For example, those who play first person shooters resolve closely packed objects better and learn to process information very quickly. Games train players to understand threatening situations and respond to them by dealing with panic. If a child is nervous or restless, then it is recommended to let the child play games to build focus. In fact, gaming is used as a therapy in some western countries for children with attention deficit disorders. Gaming also improves reflex and boosts hand-to-eye coordination.

Another myth is that exposure to games make children more violent. Children don't play games to *be* violent, they play it for

Using a gun meant to kill for climbing walls as a demonstration of skill

accomplishment – completing a task or a mission. They play a game to beat the game, not the fictitious beings in the game. A good example of this is the defrag mod for the popular combat shooter game *Quake3*. When several parents were complaining how violent the game was, where the objective was to shoot players with an arsenal of weapons, a group of people began to use the same weapons for performing stunts within the game. Videos were shared over the internet, and the community became a movement, a violent game was turned into an activity of skill and precision.

Games are typically very short, and single player games hardly ever last for more than eight hours at the highest level of difficulty. It's also very easy to get bored with games, so the resourceful gaming community comes up with innovative ways to play the game. An illustration of this is the speed-running community where gamers play to cross the game as quickly as possible, often using alternate routes and exploiting bugs in the game. There are plenty of secondary skills that are enhanced by gaming, including logical reasoning and memory retention.

Somebody set up us the bomb

On the other side, there's a lot that can go wrong. There have been instances of children going into coma, or even dying after prolonged gaming sessions. These intense sessions could last more than two days at a stretch, and are referred to as bingeing. There are cases where parents with young children were so addicted to games that their children were made to starve. An intense obsession for a game, or gaming in general, can develop to a point where playing a game is not a matter of choice, but a matter of compulsion. These, however, are isolated cases, and the majority of the gamers around the world are well-balanced people whose lives are not adversely affected by gaming.

Most of these problems cannot be blamed on the game itself. It's a result of faulty lifestyle choices, and an indicator of unhealthy behaviour. These include parents not spending enough time with their children, children not being encouraged to play outdoors and developing a psychological distance from reality. If the game were not the focus of the problem, something else almost certainly would be.

According to Shekhar Kunte, psychology trainer, "indulging in games makes the child mentally cut off from the real world.

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It's not just games that affect children in this manner though, chatting and text messaging cause the same problems". Any system that a child interacts with can be confusing and misleading, as real-life skills are left out. Such a delusion can be very strong, with total mental dedication to something that is not true at all.

The problem arises when children confuse the real with the virtual, as Brazelina Almeida, Vice Principal of Christ Church School points out, "As was the case with WWF a while ago, children trying to emulate the fantasy world into reality can have disastrous effects. Rather they should read or go out and play". This is a problem even for adults. The sense of reward after playing a game can be so fulfilling that gamers can be misled into preferring the virtual world to the real.

Meetah Shah, another clinical psychologist and a counsellor, suggests a slightly more liberal approach. She believes that in moderation a dose of gaming can be healthy on some terms (she cites the example of hand-to-eye co-ordination), but concentrating on physical activities is equally important. She suggests a timetable that allows for liberal gaming and physical activities that a parent can make a child follow. This includes not just gaming, but all kinds of entertainment-related activities such as watching movies, listening to music or spending time with friends.

We spoke to a few parents of children who were really into gaming. Two things we noticed were parents scheduled timings for studies, gaming and physical activities. Academic performance of their children was not affected because of gaming. Moreover, the children themselves preferred to engage in physical activities. The console of choice for the children was the Wii, which involves more body movement than playing with just a joystick, keyboard or gamepad.

Clearly, gaming itself is not the problem. Rather, it is the overall approach to development that needs to be highlighted. As with most gamers globally, children in India need to balance their real world activities with virtual feats.

Almeida is of the opinion that the kind of games, their content, and the time spent on them must be regulated by the parents. "I'm most concerned about latch-key kids who are left unsupervised for long periods of time. Since games are obviously entertaining, self regulation by children themselves is unlikely." Children these days are exposed to a lot of things, and there are undesirable messages everywhere.

When asked specifically about how violence in gaming affects children, Shah pointed out, "violence is everywhere, including Tom and Jerry cartoons. What is of importance is the

parents' attitude towards their children, and how well they are able to guide their children through the formative years".

Experts agree that boys are exposed to more harm from gaming than girls. This is for several reasons. Most games are designed to be played by boys. Gaming consoles are more likely to be purchased for boys rather than girls. Boys also receive more encouragement and support for using and abusing technology than girls. Most importantly, peer pressure from boys over gaming, or a particular game is much more than the necessity to be good at gaming than in girls.

But our princess is in another castle!

Since the dawn of the century, games have taken a new path. Most games released in the last five years have been centred around multiplayer gaming online. Counter Strike, one such phenomenon in India, is played across the country in schools, colleges and even offices. The dedication to developing the skills necessary to play at par with other players in the circle can be demanding and leech resources, energy and time away from other activities. Mythology, fantasy and technology have combined erratically to form massive multiplayer online role-playing games (MMORPG). These are highly intensive games, requiring endless hours of gameplay, where a virtual character develops over time depending on the choices and activities of the person who is playing. One of the most popular role playing games in India is *Ragnarok*.

Internationally, games such as *World of Warcraft* have many dedicated players. Children are more susceptible to MMORPGs because of the number of hours of gameplay required. Also, the danger of confusing the real world for the virtual world is increased because of the role playing nature of the game. These games are gender-neutral, and allow either gender to play with characters of any gender. Adults and children alike are exposed to problems with such games.

Experts, psychologists and educators agree that these games are not good for children. Left unsupervised, they can cause considerable harm to children. Specifically, the harm that is associated with gaming is a confusion of reality, exposure to violence and lethargy.

Such accusations are not new to entertainment, and have been around for a long time. All forms of entertainment have the same side effects. Movies, music and even books have all been accused with the same negative repercussions during their time. Experts agree that the key is to ensure a balance between time spent in entertainment vis-à-vis studying or development. It's always healthy to be passionate, but how far is far enough? In India, massive online multiplayer games have not spread as well as they have in other countries. Therefore, we don't experience heavy fallout from it.

The truth is that most of today's debates about gaming being *good or bad for you* are centred around massive online multiplayer games, the community, and how obsessed they are with playing. Is there anything wrong with a child who plays six hours at a stretch during vacations? Although we have no answer to that question, many feel that's way too far. Communities develop their own codes, in-jokes, temperaments and attitudes. Nevertheless, as it is said, anything in excess is bad.

Many gamers cannot distinguish between the real and virtual world, and often events in each affect the other. Fortunately, India is not facing such problems yet, but it's happening all over the globe. Divorces in real life due to affairs in virtual worlds or large amounts of money being paid in the real world for hard-to-find gadgets in a virtual world are almost everyday occurrences. With a picture of a virtual funeral in World of Warcraft for a girl who died playing it in the real world, we leave you to decide – whether there is anything horribly wrong here. *(with inputs from Kumar Jhuremalani and Siddharth Parwatay)* ■

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A virtual funeral in World of Warcraft for a real world death

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Make your own games

Aditya Madanapalle

Here, we discuss methods to create your own simple game. Before you start, you need to invest a lot of time and effort. Even a simple game has to be tweaked many times over to gain perfection. You don't necessarily need have any prior knowledge of programming. This is a guide to get started, your imagination can take you much further.

## Part I: Make a game using FPS Creator

FPS Creator is a simple and fun game creator with a quick approach. You can download it at **www.fpscreator.com**. The web site also sells model packs that can be used with the creator, and they have a range of interesting items, backgrounds and characters. FPS creator allows you to create an environment for playing, set points for picking up health and ammunition, and locate enemies around the map. You can also waypoint enemies to give them movement, which is a very basic form of artificial intelligence.

The opening screen of FPS Creator has a library toolbar to the right and a grid in the main window. We will be "painting" objects, entities, and segments of the map on this grid. To move
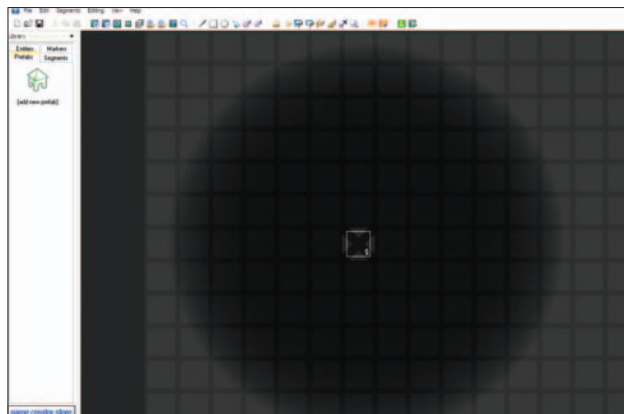

Opening screen

around the grid, use the arrow keys. To go up or down a layer, or level, use the plus [+] and minus [-] keys. You can use this method to create multiple levels in the same map. To zoom in or out, use the mouse wheel. Zooming and changing the levels is not the same operation. You start at a neutral level, and can either dig deeper, or build up.
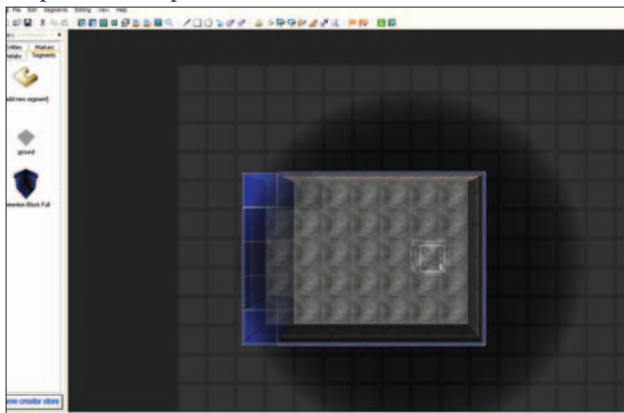
Simple room

By default, the 'prefrab' tab is selected. This is a library of pre-fabricated structures that can be added directly to the map. To create your own structures from scratch, go to the segments tab, and click on 'add new segment'. There are two sets of segments, one with a sci-fi theme, the other with a WWII theme. A typical brush will paint a floor, the walls, and the ceiling. Adjoining blocks will be automatically joined. There are also floor only, and ceiling-only brushes available. Ignore the ramps, steps and platform brushes for now. Choose a room brush, and start painting.

This creates a simple room. To create some kind of an exit from the room, go to `Segments > Sci-fi > Scenery` and select one of the doors. The 'automatic' doors will open when the character approaches. The 'use' doors will open when the
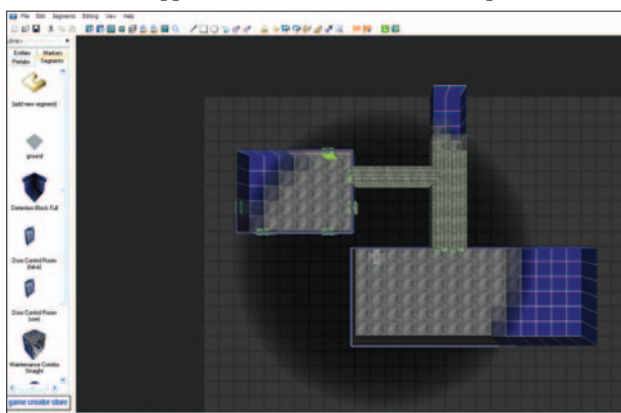
Corridors and faked rooms

user presses the action key for opening the door. The fake doors will not open, and as such don't lead to anything. First, select the door; to rotate the door while placing it, use the `[R]` key. We will create a corridor leading out from the door. Go to `Segment > Sci-Fi > corridors`. Select a corridor and paint them, along with a turn segment or two if you want. Lead the corridor into another room, and place doors on that room too.

Moving to advanced game building; after selecting a room brush, go to the Segments menu and select one of the options. For example, `Segments > Paint Only Walls` adds walls without the floor or ceiling. This allows you to create openings into upper levels, or create rooms that have high ceilings. Go to `Segments > Sci-fi > Platforms` for selecting staircases that lead to the upper levels. Use all the imagination you have got at this stage.
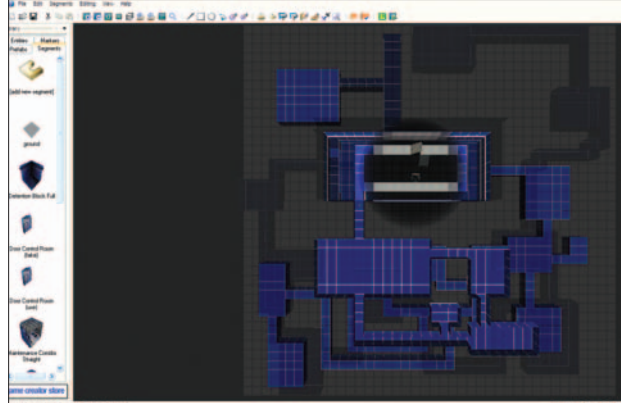
Complicated levels

**3 years**
The average development
cycle of a game

Profits?
Only the top 5% leading games
manage to rake in money

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From our levels, notice that there are rooms and corridors on different levels. The laws of physics don't apply, so you don't have to consider objects such as pillars. Just make sure nothing is disconnected from the rest of the segments. While you're creating the map itself, make plenty of nooks and corners to hide enemies, areas where you can pick up ammo and health.

Now it's time to decorate the map and add touches. There are lights available, switches for lights, windows, furniture and and other items. There are a range of these like pipes, corpses and crates, so strew them liberally around the map. This adds colour and character to the game.
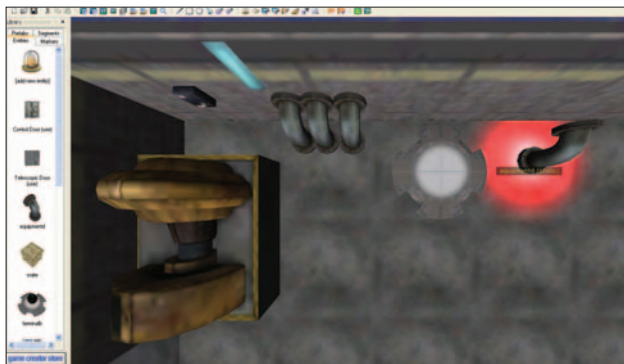

Placing stuff

It is a good idea to zoom in while placing things around the map. Some of these objects are really small, and placing them correctly takes a lot of time. Skip this if you don't have the time. Create the environments, which makes the experience much better when you actually play the game.

Next, go to `Entities > Sci-Fi > characters`, and select enemies. Place them around the map too. Use armed environments for better results. Place them around corners or behind doors to make the game interesting.

Once you have placed an enemy, you can waypoint it so that it patrols an area. By default, the waypoint mode is enabled. Press `[W]` and click Near the enemy. A star would now appear. All enemies will catch on to and follow the nearest waypoint. So you can make a particular enemy follow complicated routes through the map, and even across levels if you want. Hold `[Shift]` and click on the star again, and you should get a stretchable bar that you can drag around. Place the second star at a point where you want the enemy to go to. Repeat the process till you have set paths for your enemies.
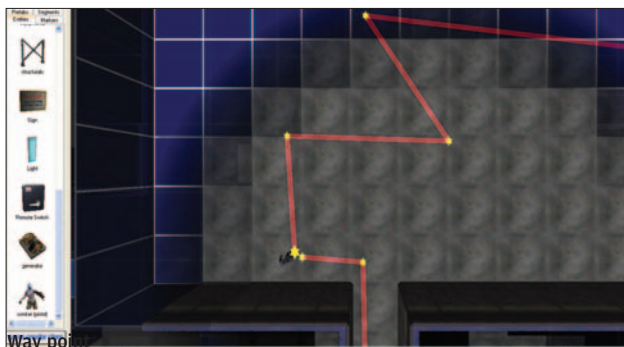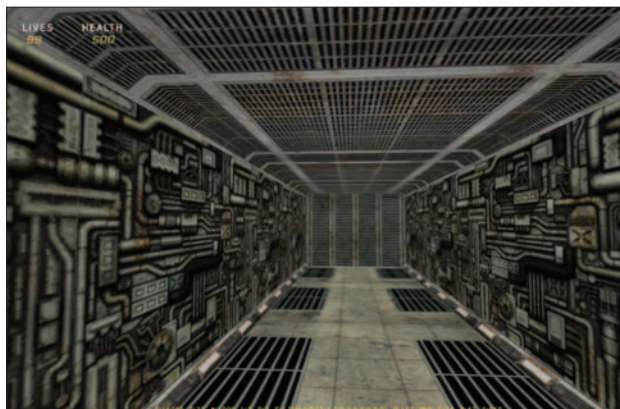

Way point

Now, go to `Entities > Sci-Fi > Items` and select Weapons and ammunition. Liberally scatter these around the map. Markers are a way of telling the software what you want the game to do at particular points and at particular times. You can create "hurt" and "heal" zones, set the start and end points of the game, as well as program complex triggers that take particular actions when the player comes there. For now, just

create a simple starting point for the character. Go to `Marker > Player Start`, and place the start marker at a point on the map where you want the player to start.

That is it, the game is now ready. Click on the test level button to run the game. You can alternatively build the game. There several advanced options available. The more time you spend with a game, the better it gets. Once you test the level, you are bound to run into some bugs.

This is a dead end that was not intended to be there. There will also be gaps in walls, staircases that don't go anywhere, a mismatch in the levels, and a number of other problems. The

Dead end

real part in making the game comes now, where you have to make the gameplay and level designs better over repeated tests. The positioning of the ammunition, whether the items supplied are enough, are the waypoints laid out well. These are just some of the considerations. If you upgrade to the full version, you can build stand alone games, and even sell them.

Kill people

Part II: Using Game Maker 7

Game Maker 7 is the game creator of choice for many hobbyists. You can make old school games similiar to Pacman, Mario or Galacta. The software is very versatile, and can easily handle platformers and top-down shooters. The latest version also allows you to create simple 3D games such as *Doom*. While the games made in Game Maker don't look all that great, it's a great starting point for serious enthusiasts or those who want to get into the profession. This is because the logic of games, and the gameplay itself is focused on more than the look and feel.

It is possible to create pretty versatile games in Game Maker, even a game that switches from being a platformer to

$15 million
The development cost
of an average game

a racer in different levels. Game Maker uses two basic components for making games. The first type is static, and the second type is dynamic. Static components are sprites, sounds and backgrounds. A sprite can be any element in the game, the ground, the trees, the enemies and the player are all defined using sprites. Dynamic components include objects and rooms. Objects are sprites with attributes and behaviour.

An orange orb used as a bullet is a sprite, but an orange orb programmed to come into existence when the [Space] key is pressed, produces a sound for that action and kills enemies, is an object. A room is the game environment using the background and any object that the user puts in.

Discussed below is a method to create a simple top-down shooter. The logic and approach to handling Game Maker can be used for creating any type of game.

The first step is to create and load all the static objects. This means creating sprites, backgrounds and sounds. Sprites can be created in paint or any image creation program of your choice. Use very small images, and zoom in and work. Simple lines are enough to create sprites. We used paint to create this space ship.

Think of all the elements you'll need in the game. We created enemy ships, and bullets. We also used a stock explosion animation.

Creating a sprite

Animated GIF files can be used in Game Maker, and they will be animated in-game as well. We also used sounds downloaded from the internet, and a space wallpaper for the background. Reduce the quality of large backgrounds. There are a wealth of sprites, sounds and backgrounds available for free, for any kind of game that you may want to create. Sprites are often drawn with different views in the same file, so you will have to break them down into individual images if you are not using your own.

Fire up Game Maker 7 now. You will see a number of folders on the left hand side. We start by loading our sprites. Right-click on Sprite, and then click on Create Sprite. A window should appear. Click on load, navigate to the image file of your sprite and click on Open. This window also has the sprite editor, which lets you change colours, and resize the sprite. Typically, make a sprite smaller than 100 pixels.


Edit sprites
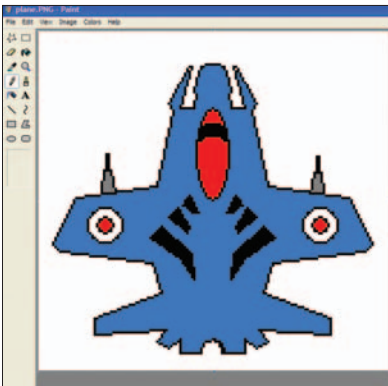
Your sprites will be named sprite, sprite1, sprite2, and so on. Change these to more recognisable names that are simpler to handle if you have a lot of sprites. Load all the sounds you want to use too. You can have sounds for every bullet fired, explosions, and also have a background score too. You can also have sounds for the movement of your space-ship towards the left or right. All this will be programmed later on. Next, load the background.

The right programming makes all the difference in the game. Game Maker can ascribe behaviour to the object based on the actions of the user. To create a new object, right-click on the Objects folder. Then, load a sprite in the Sprite window by clicking on an option from the drop-down box. Once you have made an object, changes to the sprite will change the object automatically. Now create a new event.

On the right-hand side view, in a tabbed view are a number of options. Drag and drop these actions as per your requirements. You can play a sound, make the object move, jump to a particular position, change into another image and even make actions based on probability. Explore these actions - you don't need all of them. Add events for all the movement keys, and move the object to the appropriate directions. Now you will have to program the fire key. For this, you will have to create another object, which is the firing object. Make the object move towards the top of the screen on creation. Go back to the plane object, and add an event for the [Space] or the [Ctrl] key. In the main tab is a create instance button (a lightbulb). Click on this and select the instance of the fire object. Now, every time you press [Space], your space ship will spew fire.
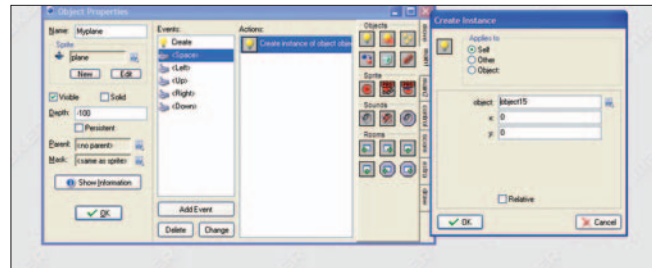
Create instances

Create enemy objects, and configure them to vanish when they get hit by the bullets that are fired. You also have to make sure that your own plane gets destroyed when it is hit.

Now create a new room. Load the background for the room in the backgrounds tab. The drop down box will show all the loaded backgrounds. Check the horizontal and vertical tile options. Click on Views, and check Enable view. Now, select the dimensions of the game. This can be 400 x 300. You can make exotic scrollers here, such as a 200 x 200 square scroller. In the View in Room box, set the Y value to a large

Finally the game

number (more than 2000). This lets you place enemies to appear when playing the game. Place a few enemies, and you're good to start playing. However, you need a lot of tweaking before you can perfect a game. The real building starts from here.
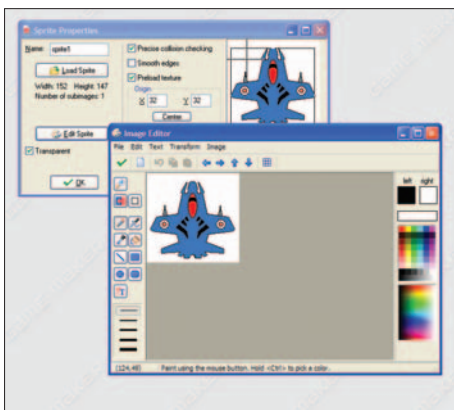
Be dedicated, and have fun for fruitful results. Game Maker has some scripting capabilities too. Once you've understood the basics of how gameplay works, you can move on to better things. 3DRad, is another software that lets you create 3D games in the same spirit as Game Maker.■

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KILLZONE™ 2

Being a military shooter, you wouldn't expect much of a story from *Killzone 2*, and there really isn't one to speak of. It's only in the latter stages that some semblance of a story comes together to make things more interesting. The single-player campaign does seem on the short side though, and on normal (trooper) difficulty, completing it in under 10 hours shouldn't be much of a problem.

Visually, *Killzone 2* is stunning and the attention to detail is quite baffling. Everything from the weapon modelling and explosions to the texture detail and shadows will make you sit back in awe. A limited colour palette and a few instances of unimaginative level design are the only downers in what is otherwise a visually top-notch game and one that PS3 fans and Sony will use as a poster child for what can be achieved with the power of the PS3.

Although the game is set on an alien planet, lending it a bit of a sci-fi feel, everything from the movement physics to the weapon selection is very realistic. The levels and environments too, vary quite a bit. What starts out in the streets of a Helghan city, later moves through stone structures, vast open barren lands, and industrial complexes, to name a few. But while overall the levels are varied enough not to feel monotonous, you can't help but feel that *Killzone 2* doesn't deviate enough from the industrial wasteland-look that has been done so many times before in first-person shooters.

While few console games can compete with *Killzone 2* in the graphics department, it is the enthralling gameplay that is the most enjoyable aspect of the game. The thrilling gun battles, an intuitive cover system, clever enemy AI, and explosive set pieces all combine to deliver an intense gameplay experience that you won't soon forget. The clever enemy AI will make the use of cover all the more necessary. The enemies, who are spread out across various classes, will use different tactics to get to you. Many levels offer you multiple routes to the next checkpoint, but the enemy will also use these multiple routes to flank you every chance they get. Every now and then, you will also be faced with bossfights that provide a great way to mix up the gameplay.

One key gameplay aspect that some may appreciate

ESC

Genre: First person shooter
Platforms: PlayStation 3
Studio: Guerrilla Games
Publisher: Sony Computer Entertainment
Number of players: 1 offline, 32 online
 Score: 8/10

while others may dislike is that you can only carry one of the above weapons with you at any given time, while you have a secondary firearm — a pistol with unlimited ammo, and a knife with you at all times. What this means is you will play most of the game with your preferred weapon, usually an assault rifle, while the other powerful weapons are used when needed, then discarded in favour of the rifle.

Once the credits roll on the single player campaign, you can jump right into the highly praised class-based multiplayer mode. You start out as a regular soldier and as you pick up points, you level up, which unlocks more weapons and soldier classes. You can also mix and match abilities from various classes, ensuring that your multi-player experience never gets stale.

The main Warzone multi-player mode is a mix of various match types, including variations of assassination, search-and-destroy, team deathmatch, and capture the flag. You can also try the offline Skirmish mode, where you can take to one of the multiplayer maps along with 15 bots. Bots can also be used online in case you don't have sufficient players. One of the biggest complaints in the lead up to the game's release has been the lack of a co-op mode. But both the campaign and the multi-player mode more than make up for the lack of co-op.

Killzone 2 is a thoroughly enjoyable game not only for shooting fans, but for gamers in general. You will be hard pressed to find a console game that looks better than this, but Guerrilla didn't stop there. It gave us one of the most thrilling gun combat experiences that also transfers into the game's highly addictive multi-player mode. As hard as it may have seemed considering all the pre-release hype, *Killzone 2* has delivered the goods. If you buy it, you won't be disappointed. ■
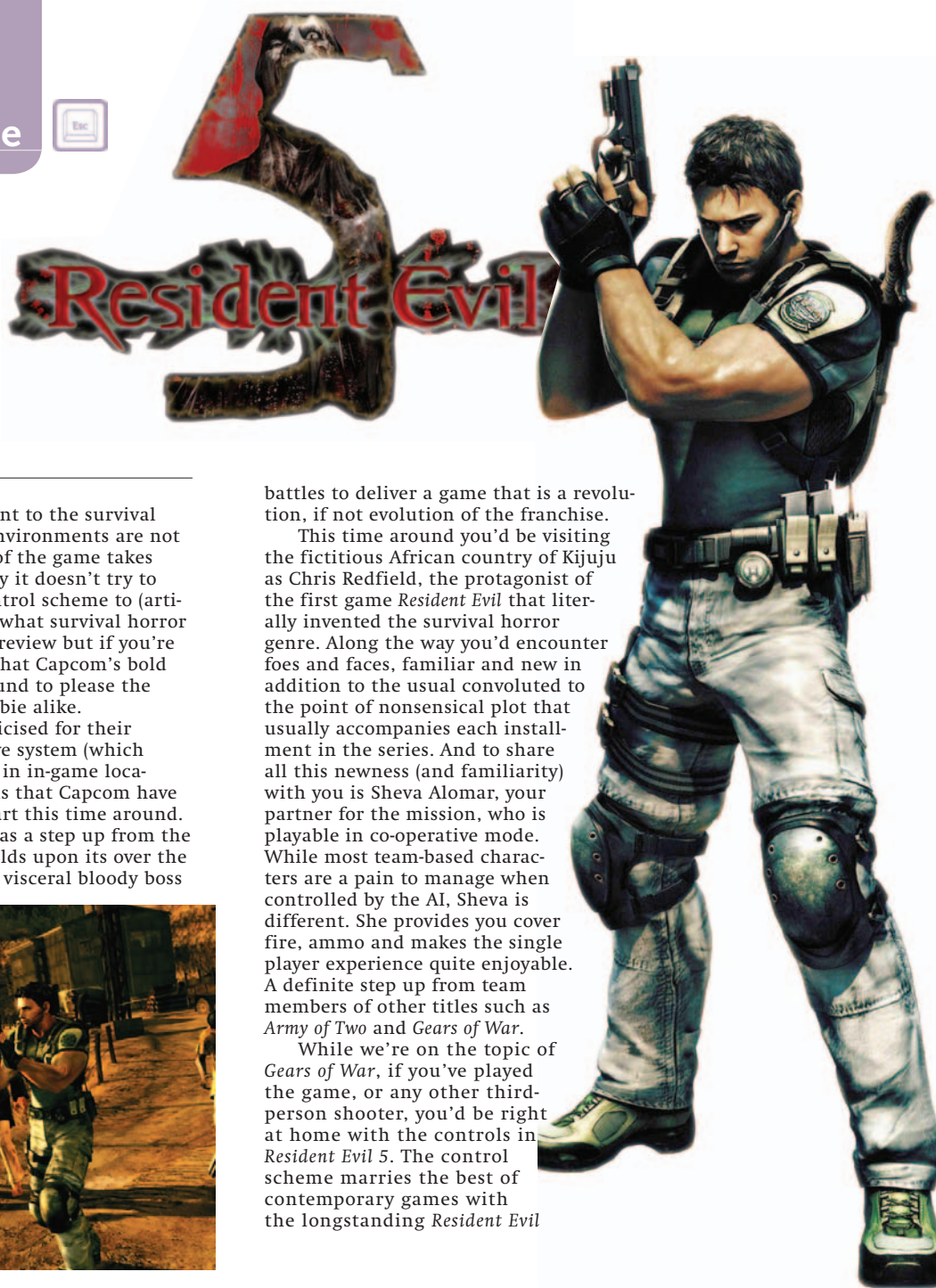
Agent001

Resident Evil 5 is an embarrassment to the survival horror genre. First of all, the environments are not cramped, secondly, a majority of the game takes place during the day and finally it doesn't try to force you to memorise a brand new control scheme to (artificially) heighten the tension. If this is what survival horror meant to you, kindly stop reading this review but if you're willing to accept change you'd realise that Capcom's bold decisions have led to a game that is bound to please the survival horror enthusiast and the newbie alike.

Earlier *Resident Evil* games were criticised for their clunky control scheme, unforgiving save system (which required you to hunt down typewriters in in-game locations) and steep learning curve. It seems that Capcom have taken their community feedback to heart this time around. While last generation's *Resident Evil 4* was a step up from the series' usual offering, *Resident Evil 5* builds upon its over the shoulder action, quick time events and visceral bloody boss battles to deliver a game that is a revolution, if not evolution of the franchise.

This time around you'd be visiting the fictitious African country of Kijuju as Chris Redfield, the protagonist of the first game *Resident Evil* that literally invented the survival horror genre. Along the way you'd encounter foes and faces, familiar and new in addition to the usual convoluted to the point of nonsensical plot that usually accompanies each installment in the series. And to share all this newness (and familiarity) with you is Sheva Alomar, your partner for the mission, who is playable in co-operative mode. While most team-based characters are a pain to manage when controlled by the AI, Sheva is different. She provides you cover fire, ammo and makes the single player experience quite enjoyable. A definite step up from team members of other titles such as *Army of Two* and *Gears of War*.

While we're on the topic of *Gears of War*, if you've played the game, or any other third-person shooter, you'd be right at home with the controls in *Resident Evil 5*. The control scheme marries the best of contemporary games with the longstanding *Resident Evil*

tradition of stopping and shooting compared to the usual run and gun mechanic, ensuring that you'd be blowing heads off zombies with laser-like precision. Carnage at its best.

And what carnage it is. Shoot an attacking dog and a zombie parasite splits it into half, giving you a new foe to get rid of. The game looks brutally gorgeous and packs a visceral punch with moments like these. Everything from lighting effects to zombie pixels have been painstakingly rendered to make the most use of next-gen hardware. If this weren't enough, the music is well paced, with tracks selected according to the state of panic your character is in, it mixes in some percussion and operatic beats along with the usual electronic fare to great effect. When it comes to production values *Resident Evil 5* is as high as they come making the improbable zombies in broad daylight situation a tense, heart stopping affair that's multiplied several times over when you've got a friend playing along as well.

The cooperative mode is seamlessly built into the game. In fact there are sections where you'd feel that the game was made for coop and coop alone. However it's an undertaking that's best done via PSN or XBL as offline coop features screens that significantly shrinked down (unless you fancy playing at 480p).

Other grouses include a cover system that's quite useless and an inventory system that's tougher to manage than a pair of Bollywood starlets.

These minor flaws aside, *Resident Evil 5* is an epic game that is worth playing for anyone even remotely interested in the survival horror franchise. Even if you're not, it's still worth a try regardless. ■

Developer: Capcom
Publisher: Capcom
Platforms: Xbox 360, PlayStation 3
Score: 8/10

GHAJINI

The widely-publicised *Ghajini* is supposed to be an Indian 3D game for the PC. Although there are a few titles that claim the same honour, we'll give this one the benefit of doubt for what the developers have done. The game follows up on the popularity of the movie. The game has pretty high graphic requirements, and we received word from the developers about some toning down in the graphics department they had done, so that the game would run on more computers. The game puts you in the shoes of the protagonist in the film — Sanjay — and lets you play the game as his character. It is supposed to be a third-person adventure game, but it plays more like a puzzle game.

We were really impressed with the way the game begins. There are no cut scenes. Instead, you have a series of comic book-style panels that explain the background with a voice over by Aamir Khan himself, and a great background track. The game goes overboard with terms such as *darkness* and *haunting* which reads like juvenile poetry, but successfully lays down a dark and haunting aura for the game. The artwork used is amazing, and is done with style and panache. When the game loads, you are stunned by the level of detail. The environments are richly created (although with very low quality textures), and the in-game character is a very good likeness of Aamir Khan.

The game starts going downhill from the second you start playing. You get an objective in the first level — go to the lift. Sanjay, despite his amnesia (we've heard it's retrograde, but it is more highly selective than anything else), tells you that it is out of the door to his right. However, he forgets that you need keys to open the door (keys, from the inside?) so you go around the apartment looking for keys, a map of Mumbai, a camera and other oddities. You do this by opening every drawer in the map, and going over every inch of the house. You expect some action, some passion, which is why anybody would want to get in Sanjay's shoes. What you get is an escape room puzzle with zero ingenuity. The game uses some pretty good devices, which would have worked in a better game. For example, you have to hide from policemen by scanning their "cones of vision" which are shown like sweeping spotlights. Avoid the yellow areas, and they won't see you. Sanjay walks, never runs, and is even slower when crouching, which he has to do, all too often. The pace of the game is an anti-climax following the intros at every level.

The combat does not kick in until the third level of the game. You have to beat up a construction site full of illegal drug labs. You also have to blow up the labs. The fourth level has you beating up some people in the streets of the city. Some of them have guns, but the rest use cricket bats, hockey sticks and baseball bats. Why baseball bats we wonder? There are sufficient Indian weapons around to use, a good weapon would have been the pipe with a tap still attached to it, as shown in a gory panel during the opening of the level. Navigating around the game can be a tedious and difficult process. Jumps that look impossible do no damage. Falling

from a pipe just because the control of the character is difficult kills you. Getting into doors, ramps, ledges — all of which happen pretty frequently — is made difficult by a lack of smooth programming. You are not given enough control in the game to meet the demands of the game, which is not a lack of skill on the gamer's part, but a lack of skill on the part of the devlopers.

The AI for the combat gets horribly boring very quickly. All the people around behave in the exact same way. There are a whole gamut of moves possible, by using a combination of the [Q] and [E] keys on the keyboard. These let you throw spectacular punches and kicks, and hardly receive any damage in the process. What is impossible to counter are the petrol bombs thrown at you every now and then. You just have to find a way to avoid them. Most of the game forces you to think of a counter-intuitive approach to a problem. If a man with a gun is shooting at you, you don't run directly at him, but approach using alternative methods out of his line of fire, so that he runs away. There are some hilarious times when you get to fight two people at a time, and they are reacting in the same way together. It feels like fighting Siamese twins who share a common brain.

There are a few moments when the meticulous attention-to-detail shines through. It is really great to see some (although boxy) autorickshaws in a game. There are a whole bunch of bugs and glitches such as disappearing floors, your head going into the surroundings, unclear areas where you cannot navigate to — all of these are forgivable. What is not forgivable, is the way the character gets stuck for no fault of yours. Jump on a tinned roof in the wrong angle, your legs disappear into the floor, and you cannot move. Try climbing a pipe when you are too close to it, you are made immobile because your body becomes embedded into the pipe. These things can happen at unpredictable points in the game, and your only option is to restart. The sound is excellent, we have no complaints about it. It gives a sense of pace to what would have otherwise been a long and boring game. The graphics are better than you would have expected, and we would have accepted a lot less. The game hardly manages to tax the machine, and we have no idea why the requirements are so high. The characters look much better than the surroundings, some of which look positively alien.

What absolutely cannot be overlooked, is how unplayable the game is. This is not a game you can enjoy playing. This is not a game where your actions give you any sense of achievement. The character moves too slowly, the action is at a snail's pace, you are not allowed to run, and all of this makes the game very difficult. The game defeats you, but through no shortcomings of your own. The gameplay is simply not mature enough by international standards — prevalent a decade and a half ago. All in all, this is a very forgettable game. ■

Feels like bullet time, but isn't

Basic Instinct II rubbing sholders with DON and Bheja Fry

Help me officer, my head is stuck in a wall

Democracy or accuracy?

Many years ago I was often accused of in some sense opposing the internet. Clearly, I had not done a good job in expressing myself, and so I had better be more careful now.

My objections had always been directed at the nonsense that would come from so many of the self-styled internet evangelists; one of the funniest that caught my attention a few years ago was a prediction by no less a person than MIT's Nicholas Negraponte that within a couple of years there would be more Barbie dolls attached to the internet than Americans. I have no idea what they put in the water at MIT, but if criticising such nonsense makes me an internet opponent, then so be it.

A century and a half ago, people made similarly exaggerated claims for the telegraph. (Yes, I mean the morse code electric telegraph.) According to one author on the subject, because the invention of the telegraph had such a profound effect, "experts" extrapolated and decided that the telegraph would "eliminate the drudgery of manual work and create a world of abundance and peace." The book from which I am quoting is "The Victorian Internet" by Tom Standage — I often suggest that people read this in order to help put into perspective some of the wild expectations about the internet.

The silliest notion is also one of the most attractive to many people, and that is the general idea of the democratic internet. Now, the word "democratic" is a political term, and there are many aspects of the internet — uses to which it can be out — where politics has no place at all. I am mainly thinking of the internet as an information resource. A democratic internet implies that anybody can put up anything they like, regardless of accuracy.

One example: I travel to Kathmandu quite often, and know the city well. A few years ago I wanted to use Google Earth to explain to a friend how to find a rather obscure bookshop. Useless. Most of the landmarks — hotels, restaurants, shops, etc. — had been wrongly marked. In particular, one chap had marked dozens of places, all of them a few hundred metres away from their actual locations — he had clearly not set his GPS device properly. As an information resource, this made it totally useless.

I have written before here of the unreliability of some of the information on Wikipedia, in particular controversial subjects where zealots have taken over and allow no opposing views to their own — these are clear examples of politics interfering in information; the modern equivalent of book burning.

Well, things are starting to change, but not far or fast enough, in my opinion. These changes have been prompted by malicious edits to Wiki pages that implied that US senators Robert Byrd and Edward Kennedy had died. The suggestion is that any changes to a page will be checked before actually being added to the site. However, in a recent interview, the founder of Wikipedia, Jimmy Wales, made it clear that this rule — already applied on the German site — would only apply to pages concerning living people.

How about the rest of the information that is up there? A golden rule in editorial offices is that several pairs of eyes need to check every single item that is to be published. That rule is intended to eliminate factual errors, but it also helps prevent malicious mis-information of the sort that occurs on Wikipedia.

In the interview, Wales stated that "what we are looking for right now is the exact parameters of how we would implement in a way that would get very strong support... instead of a complicated hierarchical system... somebody who has been around the community for a while will check it."

He seemed very defensive — meeting much oppostion from "the community", no doubt.

This is one very small step in the right direction, but it might end up giving more strength to the zealots — who by definition have dug themselves deeply into "the community" in order to press their own agendas forward.

The information aspects of the internet such as Wikipedia and Google Earth need much stronger and more careful management. It is a form of publishing, after all, and the editorial checks and balances that have been developed over many decades in the print industry have not become redundant simply because of the addition of a new medium. The accessibility of this new medium actually makes them all the more important and necessary today.

Edward Henning, Editor-in-Chief

"I am mainly thinking of the internet as an information resource. A democratic internet implies that anybody can put up anything they like, regardless of accuracy"

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