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YOUR TECHNOLOGY NAVIGATOR | WWW.THINKDIGIT.COM | VOL. 11 ISSUE 06



## HOW EVERYTHING WORKS

LEARN HOW  
THE TECHNOLOGY  
AROUND YOU  
FUNCTIONS



FLIPTOP MAGAZINE



# Open your eyes to the MegaView



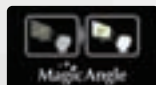
## Presenting the New Range of Samsung LED Monitors with Mega Dynamic Contrast Ratio

Welcome to a viewing experience that delivers the sharpest picture in stunning colours and crystal clarity. Complementing the brilliance of the 5,000,000:1 Mega Dynamic Contrast Ratio is Samsung's Magic Angle that lets you view from every direction. Plus, the Samsung LED Monitors Eco-Sensitivity ensures lower power consumption and saves energy too.



### Magic Bright<sup>3</sup>

Brightness & contrast to  
match your environment



### Magic Angle

View distortion free  
image from any Angle



### Magic Eco

Power Saving  
now in your control



### HDMI

Enjoy High Definition  
content on your monitor



### Samsung India Electronics Pvt. Ltd.

2nd, 3rd & 4th Floor, Tower-C, Vipul Tech Square, Sector-43, Golf Course Road,  
Gurgaon-122002, Haryana (India)

# 10 years of tech... ...a lifetime of memories

I still remember the very first issue of Digit, when it was launched back in June 2001, after the renaming. I was a reader back then, and like many others, remember hating the change in name. I couldn't understand why someone would want to give up an international brand name to start something (ugh!) Indian. Very quickly, though, I realised that nothing had really changed. The team was the same, the content was as good as ever, if not better, and I soon had no complaints. In fact, all I could think of was how I could join Team Digit myself.

I did, of course, a few years later, and over the past eight-plus years have had the privilege of working with some of the most talented people in the technology industry. Digit has always been blessed with an extremely passionate and dedicated team, and I think it has a lot to do with the fact that a lot of us at Team Digit were readers of the magazine. This love, or obsession with technology is what has kept Digit at the number one spot over the past decade.

As you've probably noticed from the issue already, to celebrate our 10-year anniversary we've covered two major aspects of what Digit is all about – demystifying the present, and preparing you for the future.

On the other side of this magazine, you will find columns from some of the smartest people alive, coupled with our own articles to give you an idea of the future technologies that Digit will demystify and write about in the years to come.


As Your Technology Navigator, we've specialised in simplifying and explaining technology in a multitude of ways over the past decade. We review the latest products and services, write in-depth features about new technologies, and bring you interviews from industry experts. What's been missing is some back to basics stuff to help explain some of the aspects of technology that we just take for granted. Many of you who have been reading this magazine for a long time will remember that we used to do a few stories in a visual style, until a few years ago.

This issue contains quite a few varied styles of these visual explanations, and I'd like your feedback. Tell us which stories you liked, and which ones you didn't. The How Everything Works theme of articles will continue as a section of the magazine from now on, and we're going to try and carry at least one such story every month.

On a personal note: this issue was a little extra special for me. It was the hundredth issue of Digit that I have worked on, and I'm truly grateful to all of you who have written in to me over the years, everyone on the Digit forum who has interacted with me to give me feedback, and to every reader who has loved reading this magazine as much as I have. I've also met quite a few of you in person, at reader meets and Planet Digit exhibitions, and spoken to even more of you on the phone and on Facebook.

A special thanks to all of Team Digit, for being the most dedicated team anyone could ever ask for. As I write this out, our little team is strewn about on bean bags and chairs, fast asleep after working 20-hour shifts for the past week to try and get this issue out to you on time. They've managed to pull off the impossible, and they make it a habit of doing so. Don't miss their pictures as part of the How Digit Works story on page 84 of this magazine.

Last, and most certainly not least, all of us at Team Digit thank each and every one of you, from the bottom of our hearts for supporting our cause of spreading technology awareness across the length and breadth of India by buying this magazine and suggesting it to other technology enthusiasts.

It's been the most wonderful decade for Digit, and we look forward to navigating you through the maze of technology for a long, long time to come. 



**Robert Sovereign-Smith**  
Executive Editor  
[editor@thinkdigit.com](mailto:editor@thinkdigit.com)

**“... all of us  
at Team Digit  
thank each  
and every one  
of you, from  
the bottom of  
our hearts for  
supporting  
our cause of  
spreading  
technology  
awareness  
across the  
length and  
breadth of  
India.”**

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Write in to [editor@thinkdigit.com](mailto:editor@thinkdigit.com)  
and express yourself.





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#### PRODUCTS REVIEWED

##### Bazaar

Amkette Flash TV HD  
Canon 1D Mark 4  
Corsair Vengeance 4GB  
Dlink 2750U  
Gigabyte Z68X UD7 B3  
HTC Incredible S  
MSI Z68A-GD80  
Samsung Galaxy Ace  
Sennheiser HD 598  
Sony Ericsson Xperia Play

##### LCD Monitor Test

Acer G195HQ  
Acer S191HQL  
Acer S201HL  
Acer S231HL  
AlienWare OptX AW2210  
AOC e2043Fsk  
AOC e2237Fw  
AOC e2243Fwk  
AOC e2440Va  
BenQ E2200HD  
BenQ E2420HD  
BenQ EW2430V (Features)  
BenQ M2700HD  
BenQ VW2420H  
Intex 1810W  
Intex 1811W  
Intex 2011W  
Mercury1950TWG  
NEC EA191M  
Samsung PX2370  
TechCom SSD LCD 1805  
ViewSonic VA2431wm

##### Disclaimer

For every Digit contest, there will be only one winner, unless specified otherwise. In the event of a dispute, the Editor's decision shall be final.



# GOD of Monitors



## GODLY FEATURES OF EW2430V



**Superlative video performance:** With enhanced VA LED Panel it is designed for demanding eyes.



Smart Focus On

**Smart focus and super resolution:** Sharpens the blurry image from low resolution videos & highlights the main video content while smartly reducing other distractions.



PIP On

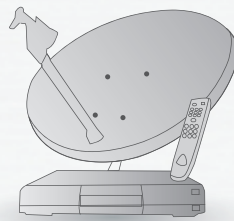


PBP On

**Picture by Picture (PBP) & Picture in Picture (PIP):** Be a real multi-tasker with PBP & PIP features which will mix work with pleasure perfectly.



**Rich Finish:** Refined metallic beauty with brush finished aluminum body & comes with hidden speakers.



**Free HD DTH connection:** On purchase of every EW2430V monitor, one HD DTH connection is free\*.

\*offer pertains without subscription or with subscription charges as actual



**Multiple connectivity:** Allows Full HD connectivity with HDMI to all kind of devices like HD DTH, Blu-ray discs & DVD Players etc. bringing in supreme entertainment.

With EW2430V you can enjoy whatever your heart desires; from watching sports to movies and from online games to online networking, BenQ EW2430V has tailored a personalized audio - visual entertainment center just for you.



JUNE 2011

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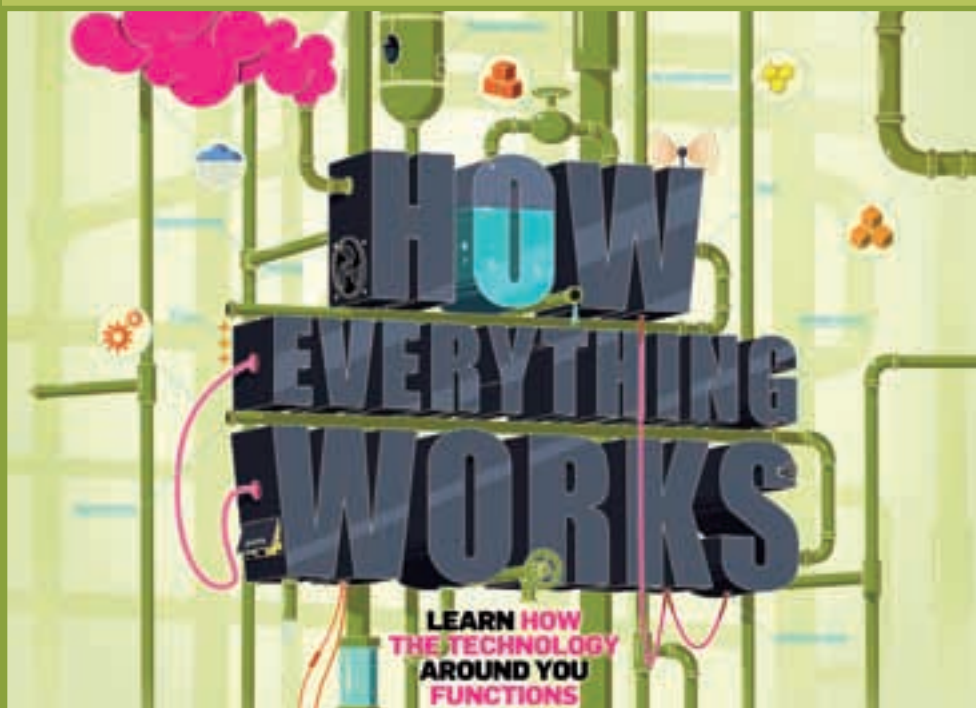
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**TRIED & TESTED**



**018 CANON 1D MARK 4**  
Who needs a full frame?



**020 HTC INCREDIBLE S**  
One of our favourites so far



**027 MSI Z68A-GD80**  
Switchable graphics, finally



## ON THE DVD

### ENTERTAINMENT

- Indie Rock special - Music and videos from Indie Rock bands
- HD game and movie trailers

### DIGIT

- Exclusive Panda Antivirus subscription for Digit readers
- Meego apps, tutorials and videos

### APPS

- 4 Linux distros
- 100+ Windows and Linux tools





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resonance RI15311



## 26 Tbps

German scientists have used laser beams to transfer data at the rate of 26 terabits per second equivalent to 700 DVDs a second

Enter

## Google mobile payment update

According to WSJ, Google has announced launch of its Near Field Communication based mobile payment system in New York and San Francisco in a pilot program

✉ This is my second letter to Digit magazine. You said that piracy in India is diminishing. But piracy can't be put to a halt so easily. It's really difficult to stop piracy. Even I can't resist buying pirated DVDs of movies and games. Normally, I buy originals just for good and trusted quality. Pirated DVDs are normally bought due to the high price of originals. Can you tell me which gamer can resist downloading torrents of games like Crysis 2 and FIFA 11 for free from sites like Piratebay? I have a PS3 but I have only two games, God of War III and FIFA 11 since I can't afford other games.

Your 'I always wondered what is a ?' section was really good. And I request you to publish something about Chrome OS and Windows 8 as I'm willing to learn about it.

Shankha Surva Das

📧 The point I was trying to make was that the Desktop PC is fast becoming something we use mainly at work. And with companies growing larger, piracy in companies is falling. Of the total "tech users" in India, the percentage of people pirating software and games is going down. More people are buying laptops, and the tablet and mobile revolution means small cheap apps that we pay for, or freeware stuff. Open Source is also more popular than ever before. Pretty soon, maybe in a decade or so, there will be no need to pirate. The most popular form of piracy today is movies and music, but the popularity of that is dwindling too.

Robert

✉ I started reading Digit magazine about six months ago and am now become an avid reader of your magazine. The content richness and knowledge you're sharing is simply brilliant. The 'World View' and 'Crossword' puzzle sections are especially addictive. I'm a techie now pursuing my B.tech second year in Electrical and Electronics Engineering. Thanks to your magazine, I now get in-depth knowledge on every corner of the tech world. Now that I'd like to be a part of Digit's family, I request you to add a small section revealing the previous edition's crossword puzzle answers. Also, publish a small Fast Track edition on 'small

### LETTER OF THE MONTH

✉ Greetings!

I would be giving away BRINK Review Copies for The PS3 and X360 platform. Kindly take some time out and read below the IMP NOTES carefully.

IMP NOTE:

- Copies would be given only if you can guarantee good scores otherwise do not request for the review copy.
- Kindly check the international sites for review scores and then let me know if you want to review the game.
- I would require the score before the you publish the review.
- Also make sure that you have the coverage published by the mentioned coverage date.
- I would require your confirmation with the Details dully filled in by

tomorrow EOD.

- Since I have limited Copies, Copies would be booked on first come first serve basis.

If you can follow the above points only then fill in the below details and send it across.

Territory

Journalist Name

Publication Name

Platform

Coverage Date (Expected date for the review to appear)

Do Let me know in case of any queries.

Sushil S. Vengurlekar

📧 Congratulations! You have won the letter of the month. You will soon receive a copy of Brink from us. The review is free of charge!

Michael

hacking tricks' and protecting our PCs.

Surya Teja

📧 We always try to upgrade our readers' knowledge in every technological aspect. This month we have gone behind the scenes of some everyday things, which we take for granted and tried to visually explain how they work. Your suggestion for the answers for previous edition cross-words sounds great. We will consider your Fast Track suggestion in one of our future issues.

Nash

✉ First of all, I'd like to congratulate your publication which brings out an excellent magazine in the computers and software industry, providing education to all. However, to get your magazine I have to travel 100 km from my town to Haldwani. I've been crazy about your magazines since 2007, when I was doing my studies. Now, though, it looks more repetitive every two months, if you see the software inside the DVDs. But your content is very useful and I suggest including more sections rather than have advertisements in it. It seems like your magazine is a money portal, and ads are adapted keeping in mind the industry. Why

don't you increase the pages of the magazine? You'll be able to include some more sections and cover ads too. Your Agent 001 section is very good for new users, who are building new desktops and laptops. Why don't you include matching configuration sections to your Agent 001 section on the website that describes which processor supports which motherboard and which type of RAM, etc.?

Another request is to please include Visual Basic 2010 IDE and Programming tutorial in Fast Track in this June 2011 edition, so that I can purchase it. I'm planning to subscribe for one year using my internet banking account.

Sunil Kumar

📧 Thanks for taking the trouble to write in. Both your encouraging words and feedback for improvement are duly noted. As for the idea for including a section for Agent 001 on thinkdigit, it has been a plan that has been in the works for a while. Perhaps, it was waiting for this very mail to spur us on – thank you! Your request for a Visual Basic tutorial is noted and it's a good one, we'll take it into consideration for upcoming Fast Tracks.

Michael

Meticulously Crafted. Sleek. Advanced. Designer Models.  
Choose yours...



Designer PC Cabinets

## New Fusion from AMD?

AMD is expected to launch a new quad-core Fusion processor named A8-3530MX, designed for full-fledged laptops, in June.

## Google buys Modu

Google has bought Israeli phone maker Modu, a company known for the lightest phone and lightest touchscreen phones in the world. Maybe, we'll soon have a Android Modu T?

# Google announces the Chromebook

Google had announced the Chrome OS long back and we've also seen the prototype Chrome OS netbook Cr-48 being sent out for beta testing. At its I/O developer event, Google finally announced the Chromebook. Starting June 15<sup>th</sup>, Chromebooks will be available for purchase in the US, the UK, France, Germany, Netherlands, Italy and Spain, with more countries to follow after that. Devices by Samsung and Acer are available on Amazon and BestBuy. What's so special about the Chromebook?

- The Chromebook is a computer designed to work with Chrome OS.
- It has a special boot process that makes Chrome OS start quickly – in eight seconds.
- The boot process verifies your Chrome OS install ensuring that it isn't tampered with and thus free of viruses and other malware. If there's any tampering, the

system is repaired automatically.

- The Chromebook supports Wi-Fi and 3G.
- The Chromebook runs Chrome OS.
- Chrome OS is a Linux-based OS that is optimised to run only the Google Chrome browser.
- Chrome OS doesn't have any applications installed on it, other than the Chrome browser.
- One can't install traditional Windows, Mac OS X or even Linux apps on Chrome OS.
- All your work needs to be done online using tools such as Google Docs (office applications), Piknik (Image editing), Gmail (email).
- One can install web apps from the Google Chrome Web Store (now including the popular Angry Birds).
- Chrome OS is stateless. i.e. since all your operations are performed on the cloud your netbook itself stores

nothing. You can discard it, log in from another device and have the same experience.

- Chrome OS updates automatically.
- Chrome OS encrypts your data, so even if your device is lost, your data is safe.

Google will also offer these devices on a subscription-based model for Chromebooks, at a price of ₹1,271 per user per month for businesses and ₹900

per user per month for educational institutions. "Enterprise-level support, device warranties and replacements as well as regular hardware refreshes" will be included in this subscription model, and so will a web-based management console that will "include inventory management, software application management, printer management, network configuration, status monitoring and reporting." ■

## Apple iPad 2 launched in India



## Acer brings Iconia tablets and notebooks to India

Acer has been very nice, and launched three great new devices in India, at pretty much the same time as the rest of the world. These are the Iconia Tab A500 – a 10-inch Android Honeycomb tablet with a Tegra 2 dual-core processor for ₹27,990; the Iconia Tab W500 – a 10-inch Windows 7 tablet with a 1GHz AMD Fusion dual-core processor and 32GB SSD for

₹32,499; and the Iconia laptop – a 14-inch Windows 7 based dual-screen notebook with full featured specs for ₹69,999.

Acer also introduced the Iconia Smart A300 smart-phone-tablet hybrid, which runs on Android 2.3 Gingerbread, and a 7-inch Honeycomb tablet – the Iconia Tab A100. Both devices are expected to arrive in July, and so far, no pricing has been fixed for them. ■

Apple finally launched the new iPad 2 in India on April 29<sup>th</sup>. The news took much of India by surprise as it had taken Apple a little over a month after iPad 2's US launch for it to bring its latest tablet to India. This was surprising as the first generation iPad took over nine months to make it to the Indian market. All this is more than a small blow for the new Indian iPad owners, who never suspected the iPad 2 to launch so soon.

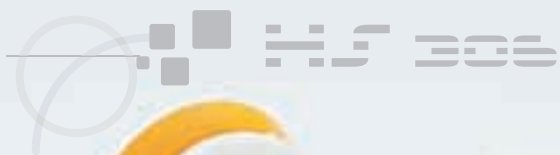
Unlike its US twin, iPad 2 in India is slightly more expensive than the model it replaces.

The first generation of iPad was launched at ₹27,900, which later dropped to ₹24,500. The iPad 2 starts at ₹29,500 and goes all the way up to ₹46,900, which is quite a hefty sum to pay for a tablet. But then it's an Apple product and the software giant is known for its premium pricing.

The following are the maximum retail prices of all the models including VAT.

- 16GB Wi-Fi: ₹29,500
- 32GB Wi-Fi: ₹34,500
- 64GB Wi-Fi: ₹39,500
- 16GB 3G + Wi-Fi: ₹36,900
- 32GB 3G + Wi-Fi: ₹41,900
- 64GB 3G + Wi-Fi: ₹46,900





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**HS 306**



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**Mango on Nokia WP7**

Nokia has announced that its Windows Phone 7 devices will sport the latest update - Mango

**CRACK THE CODE**

Here's a **tip** - where's the last password you'll have to remember?  
Add 27 to your answer which is the page for your next clue  
**Hint:** the hint is in the clue.

# Google Music and Google Storage announced

The Google I/O developer event created headlines right from the start, with the launch of Google Music, the opening of Google Storage for all and Android Market movie rentals. Android 3.1, with minor interface changes and improved USB controller support, was also introduced for tablets, while Ice Cream Sandwich, was teased.

Much of this showed the increasing foot-stepping that Google and Amazon are taking part in; with Google striking the first blow with Google Storage last year and Amazon striking the next with an Appstore for

Android that competes with Android Market. The battle continues.

## Google Storage

At last year's Google I/O, a new service called Google Storage was announced. This



was in direct competition with Amazon's S3 (Simple Storage Service) since it used similar access mechanisms and conventions. Now, a year later, Google has made the service available for all without needing an invite. A number of

new features and changes have been made to Google Storage as well.

Among the new features that have been introduced are:

- A new free usage tier: Up to a certain quota, Google Storage is free of cost to those wanting to try out the service. This trial plan is only valid till the end of this year. The free usage quotas are as follows:
  - 5 GB of free storage,
  - 25 GB of free data transfer into Google Storage,
  - 25 GB of free data transfer out of Google Storage,
  - 2,500 free PUT, POST and

- 25,000 free GET, HEAD and other requests.
- A new storage region in Europe
- A new API: To make more improvements, a version 2 of the API has been released, although the old API is still available.
- OAuth 2.0: Google Storage now supports this new simpler authentication mechanism.
- Support for larger data sizes: Now objects of up to 5 TB can be uploaded.

## Google Music

Google is launching a music storage and streaming service that seems all too familiar after the recent launch of Amazon's Cloud Player. Both of these services enable users to upload their music and store it online. Both enable one to stream their music collection to their PCs or Android devices. Amazon, of course, gets to add its bit of sweetness to the pot since it already offers digital music downloads.

Google Music promises to eradicate issues with managing music across multiple devices by storing it all online and keeping it in sync.

Google's Music service does boast of offline functionality, by making recently played tracks available offline. It also boasts of a more innovative mechanism for generating playlists than that used by "other smart playlist creation tools" (read: iTunes Genius). As of now the service is only open to US residents. **d**

## Microsoft buys Skype for \$8.5bn, details "real-time communications" plans

Recent talks had both, Facebook and Google in a bidding war for Skype. A little later, news was floating around that Microsoft might be close to cracking a deal with the Luxembourg-based VoIP experts. On May 10<sup>th</sup> however, Microsoft officially announced in a press release that it will be acquiring Skype - a deal that is valued at roughly \$8.5 billion (₹3,85,000 crores), making it Microsoft's biggest ever buyout.

In the words of Steve Ballmer, the companies will work together to create a "future of real-time communications so people can easily stay connected to family, friends, cli-

ents and colleagues anywhere in the world."

The press release further details the roles Skype will play: "Skype will support Microsoft devices like Xbox and Kinect, Windows Phone and a wide array of Windows devices, and



Microsoft will connect Skype users with Lync, Outlook, Xbox Live and other communities. Microsoft will continue to invest in and support Skype clients on non-Microsoft platforms."

As for just how the merger will work, Skype will become

a new business division within Microsoft, with current Skype CEO, Tony Bates, taking the role of the President of the Microsoft Skype division. Skype has been around in the acquisitions world for a while. It was recently written off by eBay in 2009, after the internet company failed to effectively integrate itself into its ecosystems ever since it acquired the company in 2005. Perhaps the successful VoIP service is really meant to stand alone? Microsoft has a much better chance of pulling something off, with the WP7-Xbox-Windows ecosystem ripe for VoIP even on the consumer side, aside from the possibilities on the enterprise side. **d**





# MIX IT UP



M102

M202



Are there multiple iPhone or iPod players in your house? Now everyone can get a charge. Introducing the dual-dock [Activ™ 202] for iPhone & iPod. It does everything a docking speaker does multiplied by two! Charge up and Rock out to your choice of music. With the free Music Mix app you can now shuffle songs from both players and seamlessly share each other's music without skipping a beat. Plus, its wedge design fits neatly on your desk, kitchen counter, and other tight spaces. Best of all, the Altec Lansing name means a crisp, clear sound to put your groove.

- Fits neatly in tight spaces like corners and kitchen counters
- Full-feature remote
- Built-in USB port lets you charge a third device
- Listen without interference, shielded for mobile phones

## hear what's next™



MP450  
(For Pad & Pad 2)



IMT320



IMT620  
(Built-in Lithium Battery)



IMT702  
(Built-in Lithium Battery)



IMT800

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## 64GB microSD card

If you thought 32GB memory on a microSD card was overkill, you'll be impressed to hear that Kingmax has showcased the world's first 64 GB microSDXC card

## Global Peace Index mapped

India ranks 135th on the Global Peace Index, which has been visualised on a global map. Find out more here: <http://bit.ly/j5Uk13>



At the time of going to print our Facebook community had already crossed the 40,000 mark and was literally growing by the minute. At this landmark moment, we wish to thank all our devoted fans for helping us reach this milestone. Here we feature some of the top contributors on our fan page. Whether it's answering questions posted by fellow fans or simply giving buying advice and recommendations, these are the guys who keep the buzz alive.



### Kunal Dharamsi

Hi, I am Kunal Dharamsi, a 16 year old reader, from Indore. I have a keen interest in coding, gaming, photography and blogging. I have been reading digit for a year or so now. All these months, Digit has not only kept me updated but also has encouraged me to try something new.

👍 You, Robert Sovereign-Smith, Nash David, and 45 people like this.

💬 View all 18 comments



### Tanmay S. Patange

Hello, this is Tanmay S. Patange from Mumbai. I am studying IT Engineering from Mumbai University. Frankly, I'm newbie to the Digit world but I've been a regular reader of Digit since December 2010. I like solving tech queries on the Digit fan page.

👍 You, Siddharth Parwatay, Vinod Shinde, and 39 people like this.

💬 View all 18 comments



### Sai Srinivas K

Hi ! I am Sai Srinivas K from Hyderabad. A Student, Tech Geek, Software Programmer, Website Designer. I've been an avid reader of Digit since two years. Being a gadget enthusiast I like the bazaar section a lot. It's Digit's 10th Anniversary! Congrats to Digit!

👍 You, Sambhav Daffu, Jayesh Shinde, Nimish Sawant, and 27 people like this.

💬 View all 35 comments



### Evewin Christon Lakra

Yo! I'm Evewin Christon Lakra and I'm from Jamshedpur. The first issue of Digit which I bought was February 2005 issue and still remains my favourite :-). Digit taught me everything about Technology. I learnt so much from you guys. Every section is informative including the snippets on every page.

👍 You, Vinod Shinde, Shweta Mali, and 18 people like this.

💬 View all 45 comments



### Tejas Gupta

I am Tejas Gupta from Indore. I'm a gadget freak and total technology enthusiast. I've been reading Digit since a year and it's my favourite magazine. Since I've started reading Digit people come to me for getting their gadgets and PC Problems solved. That's what I do on the FB page as well.

👍 You, Kanchan Heera, Chander Dange, and 9 people like this.

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### Ardhya Bhatt

Hey there, my name is Ardhya Bhatt (Age 17) and I'm from Mumbai. I'm a commerce student. It's been 7 long years since I got my first Digit. Music and reading were always dominant interests. One thing that made me Digit's fan was it's superb language that no other competitor has.

👍 You, Jayan Narayanan, Soham Raninga, and 36 people like this.

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## North Korea making PCs

North Korea is reportedly making three new PC models according to a TV report which showed workers assembling machines by hand

## <http://lifehac.kr/jwcM6c>

Try out these 8 great experimental features in your Google Calendar's Labs

Community

### Subscriber special – We celebrate the diversity of our subscriber base

Digit readers are from all walks of life. We have subscribers who are CEOs, Doctors, in the armed forces. Here is a small sample. But we wish to thank not just these but all our subscribers. You are not just a subscriber number. You mean the world to us. Thank you.



#### Dr. K.R. Dey

Kirti Dey is a practicing Doctor. He finds Digit attractive because it keeps him updated with the most

happening gadgets in the market. He eagerly awaits every issue especially the special and anniversary issues which have extra DVDs and content.



#### Mun Mohan Kale

At 81 years Mun Mohan Kale is one of our oldest subscriber. Whenever he wants to buy anything related to

computers or mobiles, he goes through the magazine before purchasing it. He likes the Q&A section the most. He also like the review section.



#### Prathmesh Parikh

Prathmesh, 11 is one of our youngest subscribers. He likes Digit because it gives him information about latest products. His

favourite issue was the security special. He likes the Android platform and we will soon be seeing some great things on it from this young lad.



#### Sadaf Mohammad Shabir

He is a CFO and reads Digit to keep himself updated about latest mobile phones, TVs and

other technologies. Before purchasing anything he checks reviews on Digit. His favourite sections are Tried & Tested Tool Box.



#### Sanchi Vaishnavi

At 16 yrs, Sanchi is our youngest female subscriber. She loves coding and loves Dev Corner section of the

magazine. Another rather peculiar reason why she loves Digit is that it keeps her ahead of her cousins! Nothing like a bit of friendly competition



#### Tanmaya Behera

Mr. Behera is from the Central Bureau of Investigation. Through Digit he has more knowledge than the

people who have taken IT courses. Also being from the CBI, he likes the security and forensic science related articles in the magazine.



## Security behind every keystroke



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## Street view now in India

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For years geeks have been having the best discussions in the Tech World on the thinkdigit forum. Here are some of our most respected and active forum members. Join them on [www.thinkdigit.com/forum](http://www.thinkdigit.com/forum)

 <p>thetechfreak Post Human Warrior</p>	<p><b>Karan Raj Baruah</b></p> <p>I am 16 years old student from Guwahati, Assam . My first encounter with Digit was in 2008. Before reading Digit, I had no knowledge about computers, I just knew the basics. Now after three years I have gained a lot of knowledge. I'm a member of the Digit forum and I have to say it, its the best forum. All the members here are very good and friendly. I have a very good time here.</p>	
 <p>ico Hera naha phor hai</p>	<p><b>Gagandeep Panwar</b></p> <p>I Recently passed out of school with 86% aggregate (Science stream). I have deep interest in computer hardware and open source software. I'm a moderator at the thinkdigit forum, I help the new members getting around. I'm also an Arsenal supporter and a keen table tennis player.</p>	
 <p>desilbond Bond, Desi Bondi</p>	<p><b>Amarendra Bandla</b></p> <p>I'm 28 years old and currently working as SCM Administrator at Wipro Technologies. Digit turned me from a n00b to a gadget guy (among my friends and in office). I still remember the first issue I read in the year 2000 (if I'm right, it was Chip back then). Thinkdigit forum is one site I visit most in a day and I love interacting with fellow geeks.</p>	
 <p>topgear Fast 'N' Furious</p>	<p><b>Sudip</b></p> <p>Hi, I'm from Kolkata, I'm BA student. I've been a loyal reader of Digit since Nov 2005. I kept on learning more and more from Digit and became a regular member of Digit Forum. Thanks to Digit I'm a Freeware fanatic and I've convinced most of my friends to use Freeware and open source software. I test every freeware and Distro given on the DVDs possible. Digit also inspired me to plant trees and do my bit for the planet.</p>	

## Wise guys!

Those of you who have been following the magazine closely for the past year have probably heard of Crack The Code. Or as we like to call it CTC. This treasure hunt of sorts lets readers pit wits against Team Digit. It can get gruelling, it can get nerve wracking, it definitely leads to several sleepless nights; at the end of the day very few survive, but those that do get the ultimate bragging rights. They are the elite few, the smartest of our readers. There have been many so far to have joined these haloed ranks. We called up a few of them and asked us to tell us in their own words about the experience so far.



### Kishan Bagaria

Although, I was good at studies, I was more interested in computers. I started my tech journey playing games computer, however, my interest in computers kept on increasing and finally I thought of developing few Windows applications and making my own website ([www.door2windows.com](http://www.door2windows.com)). The only computer magazine which used to come home was Digit. Initially, the free software provided in the CD were my favourites. The information provided by Digit acted like a compass in my tech journey. The most fascinating thing about Digit is its Crack the Code contest which I have always enjoyed thoroughly. The interesting part is that both times I won the CTC not because I was interested in the prize but because of the pleasure in cracking the code with some sleepless nights. This contest helped me in learning a lot of new things. I like the double digit milestone you guys achieved this year, I'm sure the mag will touch three digits



### Devrath N D

I'm a loyal reader of Digit right from its 1st issue. Digit has been my gateway to technology and computers all these years. I have constantly evolved and improved my skills in computing along with Digit in these 10 years. Back then I liked digit mostly for its CDs packed with game demos and software. But now I love the magazine and FastTrack too!



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## Boeing's new unmanned stealth aircraft

Boeing has developed the Phantom Ray, a 36 foot long unmanned stealth aircraft. It gives off minimal heat and is being developed with surveillance and attack in mind

## Elastic MapReduce

There are also specialized cloud solutions for specific needs. MapReduce can process large amounts of data

## Pioneer digital sound projector

A novel way to have surround sound from a single source is Pioneer digital sound projector. It houses a 500 watt panel and has 254 speaker drivers. You can fill your entire living room with crystal clear sound for just \$40,000.



## Sony HDR-FX1 HDV

This HD camcorder has a Sony developed real time HD codec engine which offers HD images of highest quality. It features a 3.5-inch LCD screen, a 12X optical zoom lens and a three-chip CCD imaging which provides crisp, clear HD images. Get yours for \$5,899.

## Philips DCM 713

If you thought that hi-fi speakers are a thing of the past, then the Philips DCM 713 will be a breath of fresh air. This device is a blend of both old and new technologies – it's an iPod dock which also plays your CDs and MP3s. Other features include USB connect and dome tweeters.



## Message on the wall

Cellular Wall Printer is a collection of felt markers that receives messages via Facebook, Twitter, and SMS, and then transcribes them across any flat surface

## HTC Puccini

HTC Flyer will have a 10-inch successor codenamed HTC Puccini housing a dual-core MSM 8660 SoC

Drool maal



## Bang Olufsen BeoSound 5

Can you forget your favourite music genre or your valuable playlists? Well if Bang and Olufsen have their way, it would be a thing of the past. Based on the MOTS technology which intelligently 'listens' to your song and recommends the next track based on your play history. The tracks can be scrolled using the aluminium dial placed at the side which synchronises with the display. Shell out \$5900 for a 500GB model.

## KEF Blade Speakers

Manufacturers of the KEF blade technology pride themselves in calling their new concept design radical and evolutionary. They might have achieved what they set out for with the KEF blade speakers. The base drivers are placed in a side firing position and are symmetrical pairs so as to generate an individual sound field. Force cancelling technology is used to produce an undistorted sound even when the speakers are blasted at full volume. KEF speakers are so exclusive that they are not available for sale.



## Harman Kardon HK 990

The HK 990 is a stereo integrated amplifier which delivers a clean and powerful sound thanks to the HCC (high current capability). This technology provides a seamless and precise drive from any loudspeaker system. It houses XLR inputs which offer minimum signal disruption. Real time linear smoothing RSL IV technology helps in room optimization which delivers the best sound experience.

Pump up your music by spending \$2,399.



**Lexar SD/CF card USB 3.0 reader**

Lexar has come out with a dual-slot SD / CF card reader that uses USB 3.0 technology for transferring image and videos, priced around \$50

**NEC's dual screen tablet**

Life Touch W, the tablet announced by NEC at CES will start shipping in Japan this June onwards. It houses a Cortex A8 CPU, 384 MB RAM and two 800x600 resistive touchscreens

# Canon 1D Mark 4

## Who needs a full frame?

On one side we have an indisputably superb crop professional body; on the other, the fact that it is priced at nearly double the price of full frame body. The Mark 4 is an interesting option on account of this, and despite its performance, a camera that can only be recommended to a select niche of professionals. The Mark 4 is a full-size, integrated vertical grip body designed for the professional, and the magnesium alloy body, solid grip, moisture and dust sealing are all givens at this level. The Mark 4 is a tank, built for desert and Antarctic alike, although it's lighter than the Nikon D3s, and has a less luxurious, slightly harder rubber grip. All flaps and buttons are moisture sealed too, and this sealing is a cut above the

sealing on the impressive (in this regard) EOS 7D. The sensor is an APS-H, larger than the APS-C variant, with a crop factor of 1.3x compared to a full frame. Some rationalise its existence to Canon's inability to manage more than 6 fps from a full frame sensor, meaning sports and wildlife photographers would go the Nikon route, not out of choice, but necessity.

As is common for vertical grip DSLRs, the body has two status LCDs. The rear one is pretty useless unless you intend to look at it while spinning dials. The top one however, has all the necessary visual cues needed when changing settings. The layout of buttons on the rear is radically different from other Canon bodies like the EOS 7D and 5Dmk2. The most glaring difference is the lack of the vertical strip of buttons on the left side of the main LCD. These buttons are now clustered on the top of the body, above the LCD and even beneath it. This is not bad, but it takes getting used to, and we don't like the fact that it involves more movement of the left hand to reach various buttons. We miss the lack of a dedicated one touch RAW button. The memory card bay supports dual cards, one CF and one SD.

The 45-point, autofocus system with 39 cross type points and 6 assist points is a serious step up from the EOS 5Dmk2, but the 7D with its

sparser points remains equally versatile in terms of selection of focus clusters. The Mark 4 focuses instantly in good light and mediocre light, and a bit slower in dim light, where it needs to rely on contrast, the speed is lens depending, and with a 50mm f1.2, we found the Mark 4 quite fast at night shooting even silhouettes and statues with little contrast although it



on Canon with their stronger noise reduction, noise shows up as artifacts more than grain. At ISO12800, the D3s takes the lead and maintains this, obviously on account of its huge sensor, but the fact that the Mark 4 holds up till ISO 6400 itself is quite commendable. In bright daylight and low ISO shooting, the Mark 4 produces a more detailed output than the D3s, noticeable if both images are viewed are viewed at the

same size. What is really heartening is that JPEGs have a great deal of highlighting, and lots of detail – most pro bodies are notorious for giving greatly improved output by shooting in space hungry RAW mode, and the Mark 4 bucks this most unwelcome trend.

If the benefits of a crop sensor like greater corner sharpness, less vignette and of course a longer zoom with any lens appeals to you as a pro shooter, then the Mark 4 will satisfy. If you're a sports photographer or shooting wildlife, the high fps coupled with the low light ability of the Mark 4 should be right up your alley. It is more versatile than the D3s for shooting in good light and at base ISOs will produce a larger image and hence larger usable prints. However, if you want absolutely the best low light performance, it is still the Nikon D3s. For ₹2,59,995 for the body, the Mark 4 is not cheap, and you could easily pick up a Nikon D700 or Canon 5Dmk2 for half the price and of course with less than half the speed.

*Michael Browne*

### Specifications

APS-H; resolution: 16.1-megapixels; sensor size: 27.9 mm x 18.6 mm; Video resolution: 1920 x 1080p; battery: 2,300 mAh; weight: 1230 grams

### Contact

**Canon India Private Limited**

**Phone:** 1800-345 3366

**Email:** info@canon.co.in

**Web site:** www.canon.co.in

**Price:** ₹2,59,995

8.5  
10

Features.....8.0  
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## Dual Core Nokia Windows Phone

According to reports, some of Nokia's Windows based phones will sport a dual-core ST-Ericsson U8500 SoC to come out in 2012

## Sony unveils flexible colour epaper

Sony showcased its flexible colour epaper at SID which weighed just 20 grams and was only 150 microns thick and uses plastic substrate

# HTC Incredible S

## Almost aptly named

If you were busy scanning the dual core phone horizon, you'd be missing something. And it's been awhile since an Android device performed better than we expected! The Incredible S is quite suave looking – nothing fancy, just a rubberised finish on a solid yet plastic battery cover, and an aluminium bezel encompassing slab of glass that hides four capacitive touch controls and a 4-inch display. The battery cover has a pronounced bulge that some love and others do not, but it feels comfortable to hold. The Incredible S feels pretty sturdy and all the buttons on the body are quite intuitively laid out and usable, with the capacitive controls on the front bezel featuring an auto-orienting backlight depending on portrait or landscape mode. The 1.3MP front facing camera is a welcome plus for future proofing as and when 3G video conferencing becomes a possibility here.

With a 4-inch display, the onscreen keypad is very well laid out and the display is very sensitive. HTC's autocorrect and keypad is very intuitive to use, making typing longer emails easy. While the Desire HD is larger and we loved it for this, some people found it too large, while we find 3.7-inch displays too small. This makes the Incredible S a good middleman. With a smaller pixel pitch than the Desire HD, the display seems sharper. And it doesn't have the slight pixellation we noticed on the Desire Z with moving wallpapers.

The Incredible S runs

Android 2.2 and feels snappy, the 2.3 update wasn't available at the time of writing this. A 1 GHz CPU with 768 MB of RAM



makes this a potent package and one temporary quirk with a stuck screen aside, the Incredible S performed flawlessly. An 8 GB card has been provided for media storage, since the 1.1 GB of internal ROM is only system usable and for phone based stuff like SMS', emails and such.

Performance in the call tests was good, as good as any HTC phone we've seen, but still a little inferior to some Nokia and Blackberry handsets. In zone three, we could hear the other person coherently, with only the volume level dipping, twice it was low enough that we had to ask for a repeat, but voice tone never changed. The earpiece picks

up any object rubbing near the bottom of the phone, where the microphone vent is provided – this is an annoyance, though a tiny one. The Incredible S has a very loud ringer at maximum volume level, ditto the vibration, and it is unlikely you will miss a call.

we got through a day of heavy usage on a single charge, which is quite good given HTC's penchant for weak batteries. In fact, the battery on the Incredible S lasts the same time as the one on the Samsung Nexus S – a unit running Android sans frills and add-ons.

The Incredible S is priced at ₹28,900, although it's selling for a good 2,000 bucks less on the street. Three months back this would be excellent value for money. It's not bad today either, and we're talking about a really sweet touchscreen phone. If it weren't for the likes of HTC's own Sensation, and the Samsung Galaxy S, not to mention the Apple iPhone 4.0, we'd probably be flocking retail outlets after we've written this. However, if you need to buy an Android phone today, this is pretty much one of the most rounded performers we've tested.

*Michael Browne*

## Specifications

Display: 4-inch, 480 x 800 pixels, S-LCD; OS: Android 2.2; SoC: Qualcomm MSM8255; RAM: 768 MB; Camera: 8 MP; battery: 1,450 mAh; weight: 135.5 grams

## Contact

**Bright Point India**

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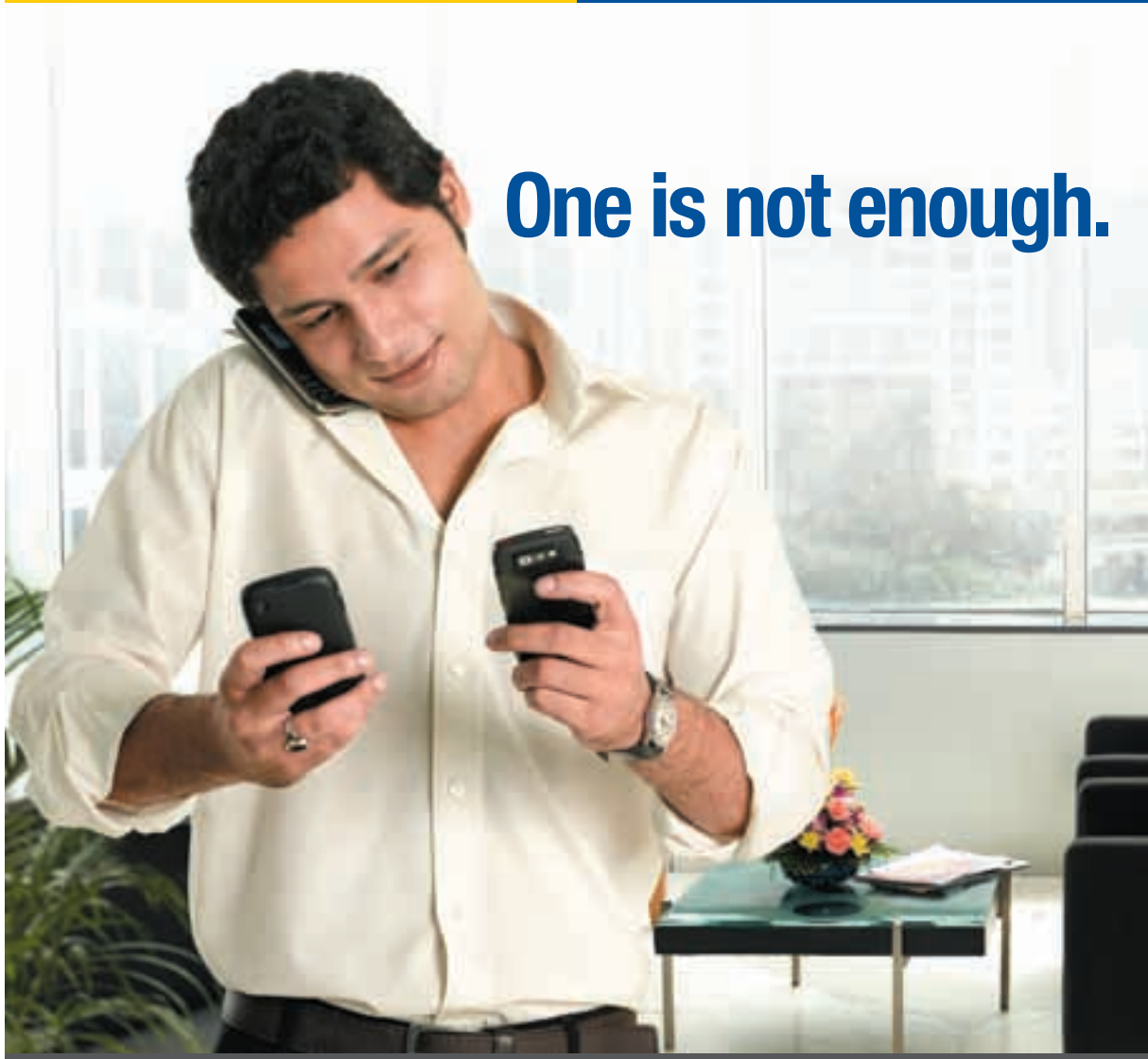
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## Super Hi-Vision LCD

Sharp, in collaboration with NHK Japan, has unveiled the world's first 85-inch 8K ultra-high definition display with a resolution of 7680x4320 pixels

## Tagging digital media

Facebook has been granted the patent for its photo-tagging technology, among other digital media tagging, after four and a half years by the US Patent and Trademark Office

# Samsung Galaxy Ace smartphone

## Just an Apple iPhone 4 look-alike?

**L**ook, there's no other way of putting it - Galaxy Ace looks a lot like iPhone 4. Sides of the Ace have a chrome strip running throughout. The Ace is strictly a mid-range Android smartphone. The 800 MHz processor limits the Ace's power game to a large extent. If you open 4-5 apps simultaneously, the load is visible. Having said that, the Ace behaves well in normal usage scenarios.

The 3.5-inch display is disappointing. The TFT display, with a resolution of 320x480 pixels takes the sheen off an otherwise competent hardware package. The display isn't rich, in terms of colours. The sharpness is distinctly lacking, bordering on minor blurred at times.

The display isn't very handy in sunlight since the auto-brightness feature is missing.

The Samsung Galaxy Ace comes with Android 2.2 preloaded, with Samsung saying that there will be an Android 2.3 update. And true to tradition, the OS has been wrapped with the TouchWiz 3.0 UI. The phone comes preinstalled with ThinkFree office- and you have a word/spreadsheet editor available. The Social Hub app



allows access to Twitter, Facebook and MySpace updates, in one place.

The 5MP camera with LED flash does a pretty decent job of clicking pictures. In low light scenarios, though, the images disappoint. The battery life of the Ace lasts about 2 days, from full charge to full discharge.

And this when Facebook and Twitter were syncing in the background. The 1350 mAh battery pretty much does the job.

*Visbal Mathur*

## Specifications

CPU: 800MHz processor; OS: Android 2.2 with TouchWiz 3.0 UI; Display: 3.5-inch, 320x480 pixels; Storage expansion: microSD card slot (up to 32GB); Battery: 1350 mAh battery; Connectivity: Wi-Fi and Bluetooth

## Contact

**Samsung India**

**Phone:** 1800 300 8282

**Web site:** [www.in.samsung.com](http://www.in.samsung.com)

**Price:** ₹18,290

6.0  
10

Features .....	6.5
Performance .....	5.5
Build Quality .....	7.5
Value for money .....	6.0

## Specifications

HD Media player, HDMI 1.3, Composite and component video, Full HD (1920x1080) upscale for videos, coaxial audio, 1 USB port, memory card reader

## Contact

**Amkette India**

**Phone:** 1800 119 090

**Email:** [techsupport@amkette.com](mailto:techsupport@amkette.com)

**Price:** ₹4,295

6.0  
10

Features .....	5.0
Performance .....	7.0
Build Quality .....	6.0
Value for money .....	6.0

# Amkette Flash TV HD

## Good performance at an economical price

**S**traight out of the box, the Flash TV HD catches the eye with a completely unique look. This one offers something different a rounded design, along with an extremely slim form factor.

Can handle almost all video formats, including RMVB and FLV. Audio formats are handled with ease. However, the lack of LAN capability means any network-based media can't be accessed. The fact that there is only one USB port on the media player limits you to connecting one hard drive to it at any point of time. This will have serious ramifications

for someone who wants to connect a couple of storage devices to it,

What-ever this media player lacks in terms of connectivity options, it more than makes up for with good performance. Video upscaling to HD resolutions is good. No extra noise or artifacts were visible on SD files after the upscale treatment, except one.

The remote is pretty slim. However, button placement

isn't optimal. Audio can be channelled either via HDMI directly to the TV, or via coaxial audio. If you're connecting this media player to a setup that has a home theatre involved, we suggest using the Coax audio option.

The Amkette Flash TV HD media player offers good performance, for a price that isn't very high.

*Visbal Mathur*



## LinkedIn listed on NYSE

LinkedIn is now listed on the New York Stock Exchange and its IPO price soared by over twice on its opening day

# Sony Ericsson Xperia Play

## Get charged

**A**greed, the Play attempts to add a gaming console control panel to the smartphone, but the end result is disappointingly bulky. However, the solid build quality is impressive. The phone has a 4-inch screen. The Play's power comes from a 1GHz Qualcomm Scorpion processor and Adreno 205 GPU. Android 2.3, Gingerbread avatar comes pre-loaded. The 4-inch display is the LED backlit LCD type with excellent display quality, vivid colours, hardly any gradation and good visibility in bright sunlight.

The 5MP camera is run-of-the-mill, at par with most



5MP camera phones out there. The lack of 720p HD video recording is a glaring absence.

The gaming pad comes with complete capabilities, just like a portable gaming console like the PSP. Slide out the controller, and the phone automatically shifts to the gaming mode. The transition isn't very smooth, and there's a momentary black screen before the changeover. Graphics are great, and very smooth to boot. If you've not used gaming consoles before, getting used to the button layout will take some time. The gaming pad fits nicely in the hand.

Battery life is a disappointment though. It went barely one day from full charge to full discharge, with a mix of voice calls, messages, constant social network updates syncing and a bit of gaming. If you are going to game quite a bit, we suggest keeping a charger with you at all times.

*Visbal Mathur*

### Specifications

Network: Quad band GSM + 3G capable; Display: 4.0-inches with 480x854 resolution, LED backlit LCD type; OS: Android 2.3 (Gingerbread); SoC: Qualcomm MSM8522; RAM: 512MB; Memory Expansion: microSD (up to 32GB); Battery: 1500 mAh; Weight: 175g

### Contact

**Sony Ericsson India**  
Phone: 1800 111 800  
Price: ₹32,000

7.0  
10

Features.....	7.5
Performance.....	6.5
Build Quality.....	7.0
Value for money.....	6.5

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Learn how to encrypt all your internet usage on your Android phones with this article

## MeeGo 1.2 is here

MeeGo mobile operating system has been upgraded to version 1.2 and features SIM Application toolkit, more Bluetooth profiles, and wireless authentication methods

# Sennheiser HD 598

## The bassier German

The successor to the best-selling HD 595 has been due for a while. The HD 598 is the cheapest among circumaural consumer headphones. The HD 598 is attractive looking with a cream-coloured headband and earcups. Build quality is strictly so-so. They're quite comfortable with a luxurious headband and despite the strong clamping force the soft ear padding cushions your head.

The HD 598 sounds best amped with a solid state amp, since they tend to be a little lush, but they'll sound fine out of an audio out port, unlike the much tougher to drive HD 800 that we reviewed recently. They also don't scale up with progressively

better equipment like the HD 800. However, they're a lot more source forgiving. There is a slight hump in the mid bass, and on account of this, the bass notes tend to have more emphasis. Bass is reasonably tight, but not taut and springy, and fast bass notes have noticeable overhang. There is a bit of sibilance to some vocals, particularly noticeable on quieter tracks like Led Zeppelin's Stairway To Heaven. If you're a music enthusiast, you'll enjoy the HD 598, if you have a good system and a ₹9,000 headphone amp, you will enjoy them a bit more, as long as the amp's neutral. The soundstage is pretty compressed, and you really need to concentrate before you can imagine



instruments around you. If you're really discerning about nitty-gritty details, the HD 598 will not satisfy, but neither will anything else at that price.

For a price of ₹12,990, the HD 598 is already beyond the shopping range of most headphone buyers. If they're in your budget, they're a good buy as they aren't very fussy with equipment and sources, and will give you a true peep into the world of mid-to-high fidelity sound.

Michael Browne

## Specifications

Freq. response: 12-38500 Hz; Sound pressure: 112 dB; Impedance: 50 ohms; Weight 270 grams; Cable length: 3 meters

## Contact

**Sennheiser Electronics India Private Ltd.**

**Email:** saahil.kumar@sennheiserindia.com

**Web site:** www.sennheiserindia.com

**Price:** ₹12,990

7.0  
10

Features ..... 7.0  
Performance ..... 7.5  
Build Quality ..... 6.5  
Value for money ..... 6.0

## Specifications

Socket: LGA 1155; Expansion slots: 4xPCIe x16, 2xPCI, 1xPCIe x1; RAM: 4 DIMM slots supporting upto 32GB; Audio: Realtek ALC889 codec

## Contact

**GIGABYTE India**

**Phone:** 91 22 4063 3222

**Email:** anilkumarr@gigabyte.in

**Web site:** www.gigabyte.in

**Price:** ₹20,000

7.0  
10

Features ..... 7.0  
Performance ..... 7.0  
Build Quality ..... 8.0  
Value for money ..... 5.0

# Gigabyte Z68X UD7 B3

## Enthusiast board with SSD caching

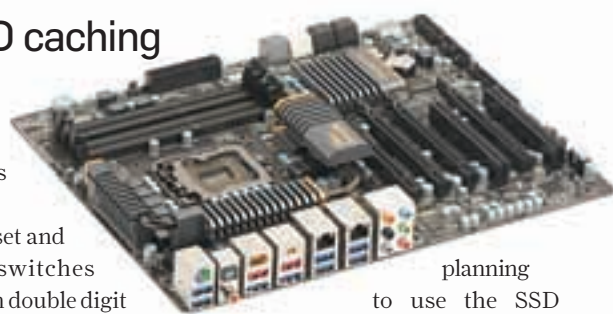
The unanimous gripe most users had with the P67 chipset, was that it wouldn't allow you to use the integrated Intel HD graphics of the Sandy Bridge processors. With the Z68 chipset Intel allows just that. But strangely, this Gigabyte board doesn't have any display ports. So in essence, it's just like a P67 board, but with added features such as the Smart Response Technology (SRT) which allows you to use upto 64GB from your SSD for read/write caching for your HDD or RAID array.

Build quality of the board is absolutely stunning with solid state capacitors, sturdy heat-

sinks, etc. It also has dedicated power, reset and CMOS switches along with double digit debugging LEDs.

As far as performance goes, we didn't find it to be drastically different from the Gigabyte P67-UD7 board that we'd tested. PC Mark Vantage gave an overall score of 18504 (19471 for P67-UD7), and Cinebench R10 gave a multi-CPU rendering score of 18976 (19200 for the P67-UD7).

So who is this board meant for? Existing P67 board users should upgrade only if they're



planning to use the SSD caching feature. For someone looking to build an enthusiast Sandy Bridge system, this board makes sense assuming that this user won't be bothering with the internal graphics. For ₹20,000 we would suggest you wait for a board which, at least, has the Lucid Virtu license. It will enable you to use the internal graphics, despite the display port being connected to the discrete GPU.

Nimish Sawant



## New player in ebook lending

3M has announced a new Cloud Library ebook lending service to allow users to borrow digital books from their iPads, Nooks and Android-based tablets

## Nook Colour partitioning woes

Barnes and Noble's new Nook Colour will have a partition which leaves only 1 GB space for music or movies and upto 4GB for stuff that is purchased on the book and app store

**Bazaar**

# MSI Z68A-GD80

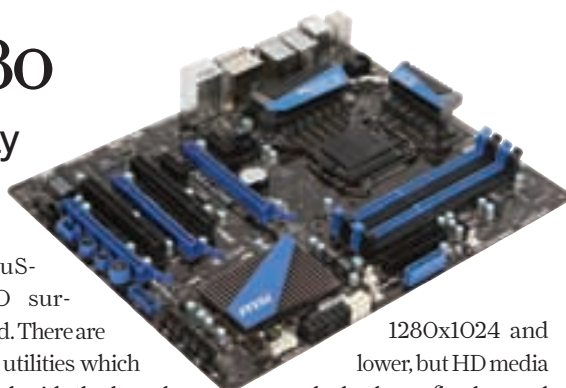
## Switchable graphics, finally

Intel's Z68 chipset overcomes the shortcoming of the P67 chipset – which did not allow users to make use of the integrated graphics on Sandy Bridge processors.

On first glance it looks very similar to the P67A-GD65 board except for the display ports. It comes with MSI's standard military class components such as solid state caps, high power chokes, driver MOSFETs among others. The three PCIe x16 slots have enough spacing to be used for a 3-way multi-GPU configuration. A feature which overclockers will love is the dedicated OC II Genie button beside dedicated power and reset switches. It allows you to overclock your processor, integrated graphics and memory on

the fly. It supports THX TruStudio PRO surround sound. There are a bundle of utilities which are provided with the board. Speaking of bundle, MSI offers components such as a USB 3.0 bracket, a range of M connectors, among other regulars. There is a slot for voltage measurement just behind the motherboard's 24-pin ATX power connector.

PC Mark Vantage: 10045 was lower in comparison to P67A-GD65 whereas Cinebench multi-core rendering scores higher than GD65. Real life tests gave similar scores. Switching to integrated graphics gave barely playable frame rates on resolutions of



1280x1024 and lower, but HD media playback was flawless and 100 MB VOB to DIVX encoding took a mere 19 secs. It supports the Lucid Virtu software for switching between discrete and integrated graphics.

It all boils down to features offered, as performance wise is not much different from a P67 board. This board is ideal for those looking to setup a new Sandy Bridge rig or those specifically wanting switchable graphics. At ₹18,500, it is meant for enthusiasts.

*Nimish Sawant*

## Specifications

Socket: LGA1155; RAM: 4 DIMM slots supporting upto 32GB; Back I/O ports: 2xUSB 3.0, 4x USB 2.0, 1x eSATA

## Contact

**MSI India**

**Phone:** 1800 200 0004

**Email:** technicalindia@msi.in.com

**Web site:** www.msi.com

**Price:** ₹18,500

7.0/10

Features ..... 7.0  
Performance ..... 7.0  
Build Quality ..... 8.0  
Value for money ..... 6.0

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# Bazaar

mini <sup>QUICK</sup> INSIGHTS FROM INDEPTH TESTS

The Digit Test Centre receives hundreds of products every month. Each of these products is put through a series of tests, and are finally given a verdict. The final score is arrived at after considering a number of factors and evaluating them in terms of features, performance, value for money, build quality, and in the case of software even ease of use.

For better understanding of our ratings, here's a quick guide to our overall score

1.0 - 3.0 - Extremely poor product. Keep away!

3.5 - 5.0 - Strictly OK. Not recommended

5.5 - 6.5 - Decent product. Go for it, but there may be better products.

7.0 - 8.5 - Very good product. Highly recommended.

9.0-10.0 - Ground-breaking product. We've never seen anything like it before. A definite must buy!



## Ebook sales surpass printed books

According to Amazon, for every 100 print books sold, it moved 105 Kindle ebooks, excluding downloads of free titles

### MEMORY



#### Corsair Vengeance 4GB

Price: ₹2,500

### ROUTER



#### Dlink 2750U

Price: ₹2,000

### SPECIFICATIONS

Capacity..... 4 GB  
Timing ..... 9-9-9-24  
Frequency ..... 1600 MHz  
Voltage..... 1.5V

Standard ..... 802.11 b/g/n  
Encryption ..... WEP, WPA, WPA2  
Ports ..... 4xLAN, 1xRJ-45, 1xUSB  
Dimensions (LxWxHmm) ..... 162x116.8x33

### TEST CENTRE RATINGS (All scores out of 10)

#### Features..... 7.0

It is a dense memory kit with a base speed of 1600MHz and base latency timings of 9-9-9-24.

#### Performance..... 7.0

At base settings: Everest Ultimate (Memory Read in MB/s): 12462; SuperPI (1M calculations): 12 secs; Cinebench R10: 11035.

#### Build quality..... 7.5

Covered by a tall black aluminium heatsink, built sturdy, but lighter than the one found on XMS3.

#### Value for money..... 7.5

At ₹2,500 the pricing is great when compared to a 4GB 1333MHz kit.

#### Features..... 6.0

Is a Wireless N300 ADSL+router modem with a USB port. Dedicated wireless on/off switch.

#### Performance..... 6.0

Gives sequential file transfer speeds of 6 MB/s in Zone 1 and 2. Wireless HD video streaming was jerky in Zone 2.

#### Build quality..... 5.5

Has an all-plastic body which is decently sturdy. The buttons on the rear side have good tactility.

#### Value for money..... 8.5

The 2750U is priced quite economically at ₹2,000 and comes recommended.

### WE SAY

7.0

Considering the affordable pricing, using a dual channel Vengeance kit will be more than enough for performance seekers. It can be comfortably over-clocked and the tall aluminium heat spreaders help in keeping the temperatures under check. The RAM also supports Intel's Extreme Memory Profile (XMP) which allows amateur overclockers to overclock memory without having to individually tweak frequency, multiplier or voltage settings. All-in-all a complete value-for-money product.

6.5

The D-Link 2750U is an economical 802.11n router. It comes with all the necessary encryption standards, USB storage option, etc. The 2750U is ideal for home usage where you have more than one laptop or wireless device using the home network. At ₹2,000, it is about ₹1,200 cheaper than Linksys E1000 which gave similar performance.

#### ALSO SEE:

1) ASUS RT-N56U

February 2011

2) Linksys E1000

April 2011

3) Edimax WP-S1100

January 2011

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### First LCD television

In 1988, Sharp Corporation introduced the first commercial 14-inch LCD TV

### First OLED Television

Sony Corporation unveiled the first 11-inch OLED TV 'XEL-1' back in 2007 which was only 3-mm thick

By Nimish Sawant  
[nimish.sawant@thinkdigit.com](mailto:nimish.sawant@thinkdigit.com)

**L**iquid Crystal Display (LCD) has become the de-facto standard for desktop monitors. You rarely see Cathode Ray Tubes (CRTs) in the new system configurations. Not only have the prices of LCD monitors dropped from the stratospheric levels they were touching just a couple of years ago, the market is also flooded with them. Jargon and specifications are thrown around to further confuse the buyer. Are LED monitors better than

LCD ones? What panel should I look for? Does higher specified dynamic contrast ratio equate to a great monitor? These are just some of the queries that bother a buyer before making the decision.

We decided to pit 21 monitors from as many as 10 companies against each other to help you decide your next monitor purchase.

Let's jump right in. There's no such thing as an LED TV. Period. If you replace the CCFL (cold cathode fluorescent lamps) backlight in an LCD monitor with LED, you get an LED backlit LCD monitor.

The immediate advantage of replacing CCFL with LED is a slimmer profile of the monitor and also the power circuitry can be kept in the power brick which can be attached separately to the monitor unlike in CCFL-backlit LCD monitors where the power circuitry is within the monitor.

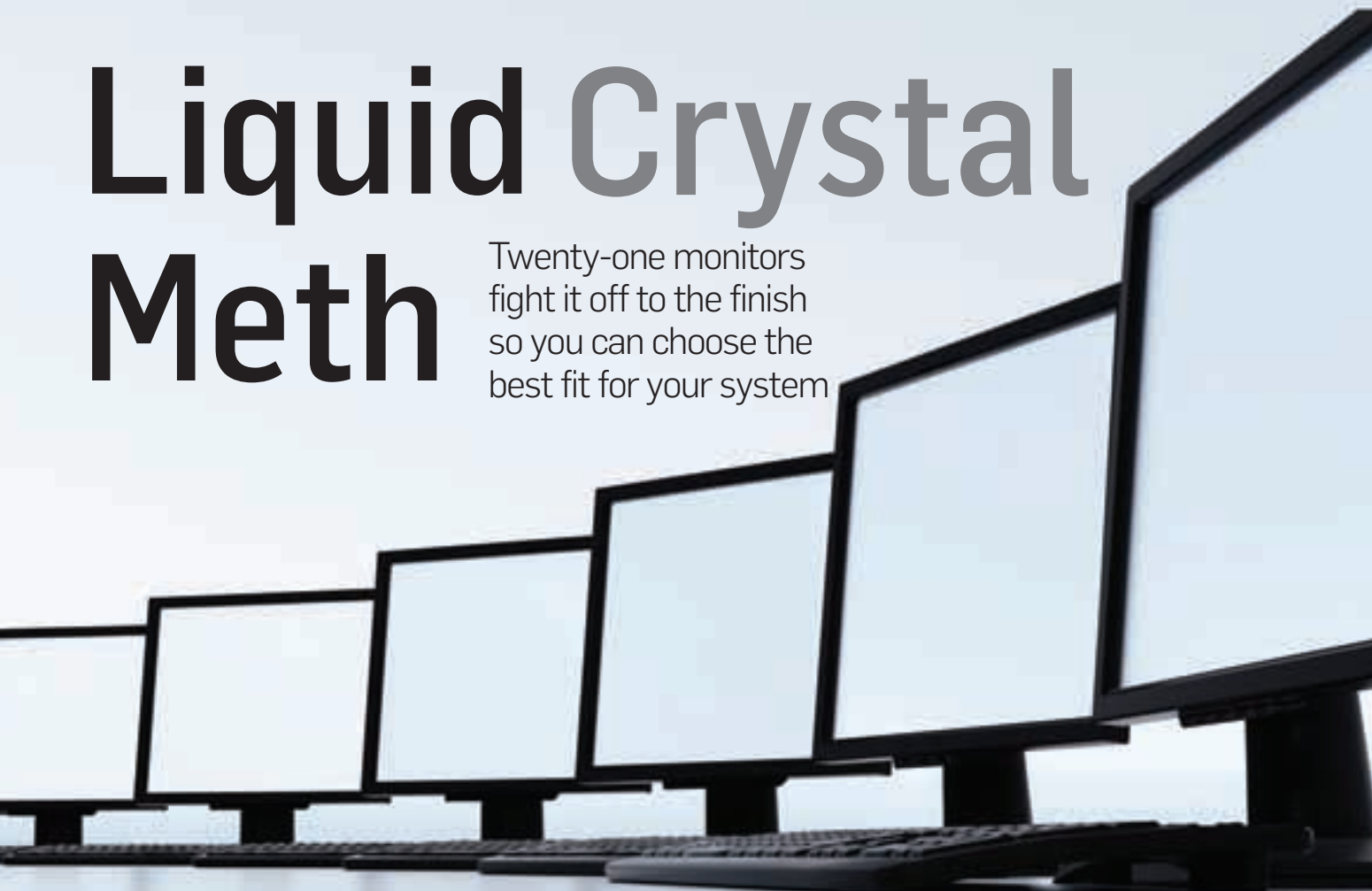
Most of the LCD panels in the market are Twisted Nematic (TN) panels; they're affordable and easy to manufacture, have good response time and ideal for gamers and regular users. But TN panels offer poor viewing angles as compared to the other two.

Next is the Vertical Alignment (VA) panel technology, that is better than TN in terms of viewing angles, a wider colour gamut and better black levels giving higher contrast ratios. VA panels' response time is slower than TN panels.

In-Plane Switching (IPS) panel technology is the most superior amongst the three as it offers close to 178 degrees viewing angles, better colour reproduction but poor response times. IPS panels are best suited for photographers or designers who are looking for accurate colours and not meant for gamers.

# Liquid Crystal Meth

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There are monitors and then there's the E-60 series. The new range of 12.9mm thin Full HD monitors that come packed with newage features like LED backlight display, mega contrast ratio, response time of just 5ms and a lot more. All of which come mounted on a stunning clear and moderated transparent neck with cool lights. Get one to get noticed.



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## Rentals blocked on rooted phones

If your phone is rooted, you will not be able to rent movies from the Android Market place due to copy protection

## Real-time browsing on E ink screen

Bookeen showed off a demo of real time web browsing and scrolling on a standard E-ink screen using custom software



Acer G195HQ won the Best Buy in the 19-inches and under category. It had a good contrast ratio but DisplayMate performance was a bit lacking

### 19-INCHES AND UNDER

There were plenty of LCD monitors in this segment. These are ideal for entry level users, who don't want to spend a bomb on monitors. Intex, TechCom, Acer, Mercury and NEC monitors were present in this category.

In terms of aesthetics there wasn't much on offer except for the NEC monitor. The NEC MultiSync EA191M is a 19-inch monitor based on the PVA panel and has the sturdiest build among all the other monitors. It has a circular base, a very thick bezel and an adjustable vertical stand. The monitor can swivel across the vertical and horizontal planes by 90 degrees. It's quite heavy though. The on-screen display (OSD) controls were particularly impressive with dedicated buttons and a navigational pad located on the right-hand corner. The function of the controller buttons just above the button on the screen allows you to operate the OSD controls even in the dark. There are many options to play around

with, including various tools for adjusting volume, adjusting black levels, off timer and upto five preset colour settings. It's also the only monitor with a 5:4 screen aspect ratio and a resolution of 1280x1024 whereas all the other monitors in this segment have a 16:9 aspect ratio with a widescreen resolution of 1366x768 pixels.

TechCom SSD-LCD 1805 is an ordinary looking LCD. The round OSD buttons located on the sides, don't have an on-screen indicator. This requires some getting used to, while navigating the OSD. It tends to wobble a lot when nudged slightly, which is not good.

Acer G195HQ is an attractive looking monitor thanks to its X-shaped base stand which has a sharp glossy finish. The design looks very reminiscent of the Alienware monitors. The Digital Visual Interface (DVI) and D-Sub ports are recessed as has been seen in most monitors in this range. The other Acer monitor – the S191HQL is an LED backlit LCD monitor. It's the only monitor with

a reflective screen which is not desirable as it tends to reflect brightly lit objects in the background, which can be distracting for users who have windows bang opposite their monitors.

Mercury 1950TWG is another simple looking monitor with probably the worst looking OSD menu amongst all the monitors that we tested.

Intex has two models in this category, namely the 1810W and 1811W. The latter is an LED backlit LCD monitor whereas the former is a CCFL-backlit LCD monitor. Looks-wise, the 1811W looks more attractive with its piano black glossy finish on the bezel and the rear side. There is a transparent projection running around the bezel as compared to the ordinary bezel of the 1810W. We noticed that the bezel around the 1810W was of poor quality and tends to bend outwards exposing a minute gap under pressure. The stand appears sturdier than that on the 1811W.

### PERFORMANCE

Acer S191HQL gave a good contrast ratio and this showed in the HD movie viewing where colour rendition was quite good and there was hardly any noise. We did notice some backlight bleeding in some dark scenes. The reflective screen is the biggest handicap of this otherwise good display. In Display Mate tests, the grey transition was strictly OK but we didn't notice any colour casts, which a good sign. Even at 16-ramp intensity levels, no colour tinge was observed. Reverse text readability test was quite poor as we couldn't read green on cyan, magenta on red, yellow on white and yellow on green. Viewing angles for movies was not that great. Text readability in the Pix-perAn scored the maximum.

NEC EA191M had the best contrast ratio on all three brightness settings with excellent black levels at 0 brightness, which was not the case with



NEC MultiSync EA191M won the Best Performer for its consistently good performance across all the benchmarks and a great contrast ratio



## Subscriptions on Galaxy Tab

Close on the heels of Conde Nast announcing magazine subscription on Apple iPad, Next Issue Media has similar plans for Samsung Galaxy Tab owners

## Glasses-free 3D display

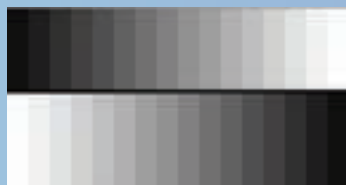
Toshiba unveiled an 8-inch glasses-free 3D display at SID 2011 in Los Angeles

**LCD Monitor test**

## HOW WE TESTED

We divided the monitors received into categories based on their screen sizes. As far as features went, we logged all the physical specifications on the monitors including details of the panel, connectivity options, swivelling options, USB ports, etc. Build Quality was evaluated and scored accordingly. We also evaluated the on-screen display options and their ease of use.

Our test bed comprised an Intel Core i5-2500K processor at 3.3 GHz, with 2 GB of DDR3 RAM at 1333MHz and an AMD HD6850 graphics card. We used Spyder3Elite (seen alongside) to calibrate each display and also to give us the real contrast ratio and luminance value. Manufacturer's specified contrast ratios are determined under certain conditions and at specific brightness and contrast levels. While the luminance is calculated at 100 per cent brightness, we noticed that it was not the correct level for calculating contrast ratio, as some monitors showed heavy backlight bleeding on maximum brightness. Thus, to calculate contrast ratio with the Spyder3Elite colorimeter, we calculated contrast ratios with brightness levels at 100 per cent, 50 per cent and 0 per cent. An average of the three was taken to come up with the actual contrast ratio.



The calibrated monitors (at 50 per cent brightness level) were then subjected to a battery of



DisplayMate tests. This basically involves checking the grey scale intensity and visibility of grey squares of varying intensity on a black background.

DisplayMate's colour test suite allowed us to check for colour gamut and shade intensity rendition for each display. In the colour spectrum test (seen below), we look for the wideness of the gamut where the primary colours are separated by secondary colours and the entire spectrum is shown on-screen. Ideally, colours should smoothly merge into others without any vertical lines called banding. The 16-shade ramp test (bottom left) is used to calculate the transition from black to white, and any tinging of colours in this results in a lower score for the particular display. We check for uniformity of change in intensity and adequate separation between each band – this

tells us that the monitor is able to display variable intensities of a particular shade well.

Our movie test comprised a set of three 1080p clips which encompassed a mix of natural scenery, fast moving action scenes and scenes involving humans. We looked for the colour rendition, skin tones, noise and contrast levels. We used Resident Evil 5 and FarCry 2 to check detail, contrast and brightness in games.

Viewing angles were also evaluated for text, movie and game display.





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the others. Overall gaming experience was not so great, thanks to the limited resolution and the 5:4 aspect ratio, but then this is not a monitor for gamers anyway. Viewing angles across movies, games and text were quite good. In DisplayMate test, the 16 ramp test had a slight greenish tinge in the black-to-white transition. Reverse text readability was also quite good with only green on cyan and white on yellow being illegible. HD movie viewing experience was good with deep blacks, great skin tone and hardly any backlight bleed.

Acer G195HQ had the second-best contrast ratio, but the DisplayMate performance was a bit lacking. Reverse text test gave poor results and there was a green cast in the grey transition test. HD movie viewing experience was good but there was a fair amount of noise in some scenes like in the clip 'Caves', where a scene inside caves is shown.

Mercury 1950TWG performed quite poorly in the DisplayMate tests with red

and yellow casts in the 16-ramp test, poor colour gamut in the 256-ramp test with prominent banding. Even HD movie clips showed prominent banding in dark scenes.

Intex 1810W and 1811W gave poor contrast ratios. DisplayMate test performance was also not so good. The 1811W gave mediocre grey transitions whereas the 1810W had a strong green cast in this test. Reverse text test was poor in both the monitors. HD movie viewing experience was satisfactory. Noise was very prominent in the dark scenes. FarCry 2 and Resident Evil 5 appeared too flat and the overall experience was bad.

TechCom 1805 had some issues with calculating the contrast ratio. At 100 per cent brightness there was a heavy backlight bleed and the calibrated output had a strong blue cast. We had to reduce the brightness to get legible calibration. Thus its overall contrast ratio score was the lowest. DisplayMate tests such as the reverse text and grey transition tests gave

AOC e2043Fsk is a really slim LED-backlit LCD monitor and it has the VESA mount screw points on the underside of the base stand

mediocre scores. HD movie viewing experience lacked punch and we noticed prominent banding and grains in many scenes.

## 20-INCHES

This segment had some variety in terms of design, aspect ratios and native resolutions. The AOC e2043Fsk has a native resolution of 1600x1200, while the two other monitors (Acer S201HL and Intex 2011W) have a widescreen resolution of 1600x900.

The AOC e2043Fsk is a really slim LED-backlit LCD monitor and it has the VESA screw mount points on the underside of the base stand, giving you the option of wall mounting it using the base stand. The stem connecting the base to the screen panel is a bit thin and the monitor tends to wobble a lot when slightly nudged. Also we noticed that it's a bit hard to rotate the swivel. The e2043Fsk has a touch-enabled control panel on the

front portion of the base stand having a proximity sensor. On the rear side, the stand has the D-Sub port. OSD usability is just about OK. One thing that we found irritating about the OSD is that it highlights the Exit menu option by default, so you have to constantly go back and forth if you accidentally came out of the OSD.

Acer S201HL is an LED-backlit LCD monitor with a very stiff stand which allows limited swivelling. The plastic quality of the bezel is quite poor though the stand is sturdy. A translucent projection acts as the power switch and glows blue when the monitor is on. OSD buttons are laid out under the base of the bezel, but you'll not need to memorise their functions as you get virtual tags on the screen when the OSD is active.

Intex 2011W is a decent looking monitor with a transparent stem (which is characteristic of Samsung monitors) and a thin bezel. The



Alienware OptX AW2210 still has no competition in terms of looks, across all the categories





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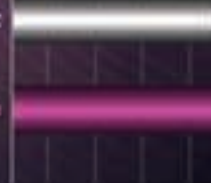
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	19-inches and below							20-inches		
BRAND	TechCom	Intex	Intex	Acer	Acer	Mercury	NEC	AOC	Intex	Acer
Model	SSD-LCD 1805	1810W	1811W	G195HQ	S191HQL	1950TWG	EA191M	e2043Fsk	2011W	S201HL
Price (in ₹)	4,850	5,000	5,500	6,250	7,000	5,700	30,000	6,200	5,700	7,500
Grand Total (Out of 100)	57.71	50.84	56	62.28	60.43	53.34	72	60.69	56.28	61.02
Features (Out of 40)	19.87	13.46	18.6	18.28	17.38	16.42	22.88	17.05	16.87	19.42
Performance (Out of 60)	37.84	37.38	37.4	44	43.05	36.91	49.12	43.63	39.41	41.6
Features										
Display Size (inches)	18.5	18.5	18.5	18.5	18.5	19	19	20	20	20
Panel Technology (TN / IPS / MVA etc)	TN	TN	TN	TN	TN	TN	VA	TN	TN	TN
Native Resolution (HxV pixels)	1366x768	1366x768	1366x768	1368x768	1368x768	1366x768	1280x1024	1600x1200	1600x900	1600x900
Screen Aspect Ratio	16 : 9	16 : 9	16 : 9	16 : 9	16 : 9	16 : 9	5 : 4	16 : 10	16 : 9	16 : 9
Type of Panel (Matte / Glossy)	Matte	Matte	Matte	Matte	Glossy	Matte	Matte	Matte	Matte	Matte
No. of USB Ports	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VESA Wall Mount	Y	N	N	Y	Y	Y	N	Y	Y	Y
Swivel Base (Vertical Axis)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Height Adjustment (Y/N)	N	N	N	N	N	N	Y	N	N	N
Portrait Mode (Y/N)	N	N	N	N	N	N	Y	N	N	N
Input Interfaces (D-Sub / DVI / HDMI)	D-Sub	D-Sub	DVI, D-Sub	DVI, D-Sub	D-Sub, DVI	D-Sub	D-Sub, DVI	D-Sub	D-Sub, DVI	D-Sub, DVI
Miscellaneous (So 10)										
Bezel Quality	6	4	6	6.5	4.5	5	7.5	7	6	7.5
Quality of moving parts	5	5	5	6	5.5	5.5	8	4.5	5	6
OSD Usability and Layout	5	5.5	6	7	7	4.5	7	5.5	4.5	7
Performance										
Spyder3Elite Tests										
Contrast Ratio (Overall)	389 : 1	402.14 : 1	387.08 : 1	723.45 : 1	510.32 : 1	449.03 : 1	908.7 : 1	601.31 : 1	406.82 : 1	452.74 : 1
Luminance (White at 50% calib)	305.7	64.1	89.8	130	144.5	150.3	136.6	150.2	174	178.8
Luminance (Black at 50% calib)	0.45	0.14	0.16	0.17	0.28	0.31	0.17	0.26	0.27	0.39
DisplayMate Colour Test (So 10)										
Reverse Text Test	4	6	4	4	4	6	8	4	6	4
16-Intensity Levels	6	4	4.5	4.5	6	3.5	6.5	5.5	6.5	5.5
256-Ramp Colour Test	6	5.5	6.5	6	6.5	5.5	6	6.5	5.5	6.5
Greyscale Intensity	5	4	4	6	5.5	6	6	4	5.5	4
HD Movies (So 10)										
Contrast	5.5	6	5.5	6.5	7	5	6	7	5.5	6
Noise	5.5	4.5	4	6	6.5	4	6	6.5	5.5	6
Colour Rendition	5	5	6	6.5	7	4	7	6.5	6	6.5
Skin Tones	5	5	6	6.5	6.5	5	6.5	6	6	6.5
Gaming (So 10)										
Input Lag	6.5	6.5	7	6.5	6.5	6.5	6.5	7	7	6.5
Experience	5.5	5	5	6	7	6	6	7	5	7
Viewing angles (So 10)										
Text	6	6	6	6	6	6.5	7	7	6	7
Movies	5	5	5	6	5.5	5.5	6.5	6.5	5	7
Games	5	5	5	6	5.5	5.5	6.5	6.5	5	6.5
Readability Test (So 10)										
PixperAn	5.33	5.33	6	6	6.66	5.33	6	6	6	6.66

base stand is quite sturdy, but the monitor tends to vibrate a lot on minor nudging. The OSD usability on it was quite poor as compared to the other monitors in this category.

## Performance

AOC e2043Fsk came up with the maximum contrast ratio.

Intex 2011W had issues with backlight bleeding giving a colour cast on calibration at 100 brightness, which made it lose out on the overall contrast ratio which was calculated on three brightness levels.

The grey transition test was poor in AOC e2043Fsk and Acer S201HL as there


was an overall green cast in the output. None of the monitors gave a clean flowing output in the colour gamut test, but the Intex 2011W showed prominent banding on the yellow-to -orange-to-red transition.

HD movie-viewing experience was quite good in the

AOC monitor with decent skin tones and limited noise. Intex 2011 showed minor banding in some scenes and the noise was prominent in dark scenes. Colour rendition was good in AOC and Acer.

Viewing angles were good across all monitors except the Intex 2011W.

	22-inches				23-inches and above						
	AlienWare	BenQ	AOC	AOC	AOC	BenQ	BenQ	Viewsonic	Acer	Samsung	BenQ
	OptX AW2210	E2200HD	e2237 Fw	e2243 Fwk	e2440Va	E2420HD	VW2420H	VA2431wm	S231HL	PX2370	M2700HD
	17,500	9,400	9,000	7,200	11,000	13,500	17,000	10,500	11,500	15,300	23,500
	69.17	65.11	60.96	58.71	56.45	71.38	63.2	69.84	61.51	57.77	70.49
	26	23.06	17.61	17.33	14.7	26.83	16.1	22.55	18.11	15.73	27.56
	43.17	42.05	43.35	41.37	41.74	44.55	47.1	47.29	43.4	42.05	42.93
	21.5	21.5	21.5	21.5	24	24	24	23.6	23	23	27
	TN	TN	TN	TN	TN	TN	VA	TN	TN	TN	TN
	1920x1080	1920x1080	1920x1080	1920x1080	1920x1080	1920x1080	1920x1080	1920x1080	1920x1080	1920x1080	1920x1080
	16 : 9	16 : 9	16 : 9	16 : 9	16 : 9	16 : 9	16 : 9	16 : 9	16 : 9	16 : 9	16 : 9
	Matte	Matte	Matte	Matte	Matte	Matte	Matte	Matte	Matte	Matte	Matte
	4	NA	NA	NA	NA	4	NA	NA	NA	NA	4
	N	Y	N	Y	N	Y	N	Y	Y	N	Y
	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y
	Y	N	N	N	N	N	N	N	N	N	N
	N	N	N	N	N	N	N	N	N	N	N
	DVI, 2x HDMI	DVI, HDMI, D-Sun	DVI, D-Sub	DVI, D-Sub	DVI, D-Sub	DVI, D-Sub, 2xHDMI	DVI, D-Sub, HDMI	DVI, D-Sub	DVI, D-Sub, HDMI	DVI, HDMI	D-sub, DVI, 2x HDMI
	7.5	7	7	7	6	7	7	7.5	6	7	7.5
	7	7	7	4.5	4.5	7	5	6	5.5	6	7
	7	6.5	5.5	5.5	5.5	6.5	6.5	6.5	6.5	6	6.5
	538.32 : 1	439.42 : 1	761.27	426.57	379.88	531.4	933.03	642.63	666.76	499.47	456.71
	105.8	134.5	168.5	130.8	91.5	156.5	156.6	147.5	145.2	145.4	198.9
	0.20	0.30	0.22	0.31	0.24	0.29	0.17	0.22	0.21	0.28	0.42
	6	6	4	6	6	8	6	8	4	8	6
	6	6	4.5	5	5.5	6.5	5	6	5	4.5	6.5
	4	5.5	5.5	5.5	5.5	6	5.5	5.5	5.5	5.5	6
	6.5	6.5	5	5.5	5	6	4	6	5.5	7	6
	5.5	5.5	7	6.5	7	6	6.5	7	7	6	6.5
	6	7	4	6	6	5.5	6	6	6.5	6.5	6
	6	7	6.5	7	7	7	6.5	6.5	6.5	6	7
	6	7	6	6.5	7	7	6	7	5.5	4.5	6.5
	7	7	7	7	7	6.5	6.5	7	6.5	6.5	7
	7.5	6.5	6	6.5	6.5	6.5	5.5	7.5	5.5	6	5.5
	6.5	6.5	6.5	7	7	7	7.5	6	7	7	6.5
	7.5	5	6.5	5.5	6	5.5	7	7	6.5	6	6
	6.5	5.5	6	6	6	5.5	7	6.5	6	6	6
	6	7.33	6	6	5.33	6.66	6.66	6.66	6.66	6	7.33




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E Ink and Epson have announced the co-development of a 9.7-inch high res 300ppi epaper display

**22-INCHES**

This is the sweet spot where you get the full HD resolution as well as good-looking monitors. The pricing of these monitors is unlikely to burn a hole in your pocket unless you go for speciality monitors like the Alienware Opt X AW2210.

AOC has beautifully designed monitors. Let's start off with AOC e2237Fw. It has a slim profile with the circuitry located in the lower half of the rear side; this is painted in glossy white plastic finish. The e2237Fw has a transparent bezel which extended all the way to the base. The monitor is kept in place with the help of a supporting thin stand on the rear side which allows minimal vertical swivel. A blue glow under the bezel helps in viewing the keyboard in the dark. The OSD functionality is activated by the touch sensor. The other AOC monitor, i.e. e2243Fwk is very similar to the e2043Fsk with a similar bulky base stand having VESA screws underneath.

BenQ 2200HD has a different form factor from the other monitors. For starters, the base stand is rectangular in shape and the base of the bezel diverges out from the panel. Buttons for the OSD menu are located on the right-hand side which are very comfortable to use.

Alienware OptX AW2210, although an old monitor, still had no competition in terms of looks, across all the categories. The sharp cuts, a mix of glossy and matte finishes, touch sensitive OSD controls, height adjustment are just some of the exciting features. We did notice the backlit touch controls not responding for a few seconds at times, but overall operation of the

**BENQ M2700HD**

This monitor was the largest one that we received. The M2700HD has a native resolution of 1080p which was somewhat disappointing as we were expecting something over and above it. This isn't your run-of-the-mill LCD monitor, but something much more. The M2700HD also complies with the BenQ tradition of well designed monitors. It has a glossy bezel with a textured finish on the rear side. There is a thin fibre-glass plate running through the panel which embeds the speaker section on the base of the bezel. It comes with a separate remote control for operating the monitor. There is a plethora of ports on this monitor. You have the standard DVI, two

HDMI, composite, component ports and two USB ports. The side panel also has two USB ports and an audio jack.

The contrast ratio on this monitor was not the best and we found the black level to be bad thanks to some prominent backlight bleeding. Movie viewing experience on the big screen is quite good if you excuse the not-so-good contrast in darker scenes. Skin tones and overall colour rendition did not have any issues. The sound emanating from the speaker section lacks a punch that is offered by a good set of 2.1's. It is great for casual listening or watching streaming videos, but for a great sound whilst watching movies, you will need external speakers. The remote control is quite responsive and is of great help as you no longer have to use the on monitor OSD buttons. Viewing angle for text was good, but not so much for movies and games. Text readability was quite good.

OSD menu is quite simple. There is a plethora of ports on the rear side comprising two HDMI ports, a DVI port, four USB ports and an audio jack. The stand is quite sturdy and has a great mechanism for height adjustment with good tilt mechanism.

**Performance**

AOC e2237Fw was impressive with its contrast ratio but faltered in the DisplayMate tests. The 16-ramp intensity test had a prominent greenish tinge on the blackest bands. Even the grey intensity tests had a green cast. In the 256-colour ramp test, banding was prominent in the cyan-to-blue transition. While viewing HD movies the greens looked a bit saturated but skin tones were quite good. There was some noise in the darker scenes and slight banding in solid scenes. Overall gaming



In BenQ E2200HD, the HD movie viewing was quite good in terms of colour rendition and skin tones, but it suffers from prominent backlight bleeding

experience was satisfactory with Resident Evil 5 and FarCry.

AOC e2243Fsk had the lowest contrast ratio among



## Quantum Dot Enhancement Film

Nanosys has unveiled its Quantum Dot Enhancement Film (QDEF) for LCDs, claiming to deliver 60 per cent of all colours visible to the human eye

<http://bit.ly/jNeMiY>

Identify the movies, the stills of which are embedded on the monitor screens in this test

**LCD Monitor test**

other monitors in this category but unlike e2237Fw, it performed better in the DisplayMate tests. The 16-ramp intensity test showed distinct bands with barely any colour cast as was seen in the e2237Fw. The grey intensity test showed a gradual transition from black to grey without any colour tinging. HD movie viewing experience was as good as the e2237Fw. We didn't notice any banding or noise in any scene, but the blacks lacked depth in darker scenes due to a minor backlight bleed.

Alienware OptX AW2210 has the maximum luminance at 100 brightness level among all other monitors in this category, which is expected of a gaming monitor. DisplayMate test performance was good except for the 256-colour ramp test where there was prominent banding in the yellow-to-red, cyan-to-blue and blue-to-violet transition. Grey transition was quite good with barely any colour cast. HD movie-viewing experience

could've been better, as contrast was lacking in certain scenes. Colour rendition and skin tones were good. Gaming is where the strength of this monitor lies with vibrant colours and minimal ghosting of images on speedy mouse movements.

BenQ E2200HD gave a decent performance in the DisplayMate tests except for the colour gamut testing. We noticed prominent banding in the red-to-yellow transition. HD movie viewing was quite good in terms of colour rendition and skin tones, but it suffers from prominent backlight bleeding. Gaming experience was decent without any ghosting on fast movements. The PixperAn score was highest on this monitor.

### 23-INCHES AND ABOVE

AOC continues with its good looks in this bracket as well with e2440Va having a glossy design engraved on the matte finished rear side. The bezel



ViewSonic VA2431wm bagged the Best Buy in the 23-inches and above category for its decent performance at a very affordable pricing

is glossy black and quite thin. The monitor takes around 5 secs to start up. The OSD buttons are located under the bezel making it progressively easy to operate.

Acer's S231HL is a thin LED backlit LCD monitor. It looks elegant and has an HDMI, a DVI and a D-Sub port on the rear

side. It comes with a shiny glossy circular stand and has dedicated buttons for operating the OSD functions.

Viewsonic and Samsung sent us one monitor each. The Viewsonic VA2431 is a 23.6-inch monitor with a maximum resolution of 1080p. There is a black glossy finish on the bezel and the oval base stand. OSD usability is quite good with push buttons on the front for control. These buttons have a sharp edge. The stand is quite sturdy and the monitor does not wobble as much as the Samsung PX2370. The PX2370 is a 23-inch LED backlit LCD monitor which looks aesthetically pleasing thanks to the transparent stalk that connects the monitor to the round

### Contact sheet

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## Philip's hybrid TV Unveiled

Philip's latest LCD monitor, the Philips 221TE2L, comes with a built-in TV tuner. It is a 22-inch monitor with 1920x1080 pixel resolution

## HP showcases ultra-thin LED monitor

HP Elite L2201x is a brand new LED display from HP - it's only 0.4-inch thin. It has an MVA panel, claims 72 per cent color gamut and a 5000:1 contrast ratio



BenQ E2420HD was awarded the Editor's Pick as it scored the second highest overall and came at a much economical price when compared to the Best Performer

base stand. OSD navigation is simple but the small round buttons tend to be annoying after prolonged use.

BenQ had two 24-inch monitors namely the TN panel based E2420HD and an MVA panel based LED backlit LCD VW2420H. The E2420HD looks beautiful and has an oval stand with the stalk at the edge supporting the monitor. The power button is hidden in a silver cylindrical section just beneath the bezel. There is a textured pleather coating on the rear side with recessed ports. The OSD buttons are located on the right-hand edge and require hard pressing.

The VW2420H is the only other monitor with a vertical alignment (VA) panel. It has a clean design, matte-finished screen surface and glossy exteriors. The stand is circular and fixed, hardly

providing any tilt. There are around six preset modes: Games, Photos, Movie, Text, sRGB and Eco modes.

### Performance

BenQ E2420HD had a very good luminance value among other monitors over 23-inches. It gave a decent performance in the DisplayMate tests with clean outputs without any colour casts. There was a noticeable backlight bleeding on the

top and bottom edges which lead to HD movies without a punchy contrast. Colour rendition did not have any issue. Banding was absent but we did notice prominent noise in certain scenes like the interiors of a cave in our test clip.

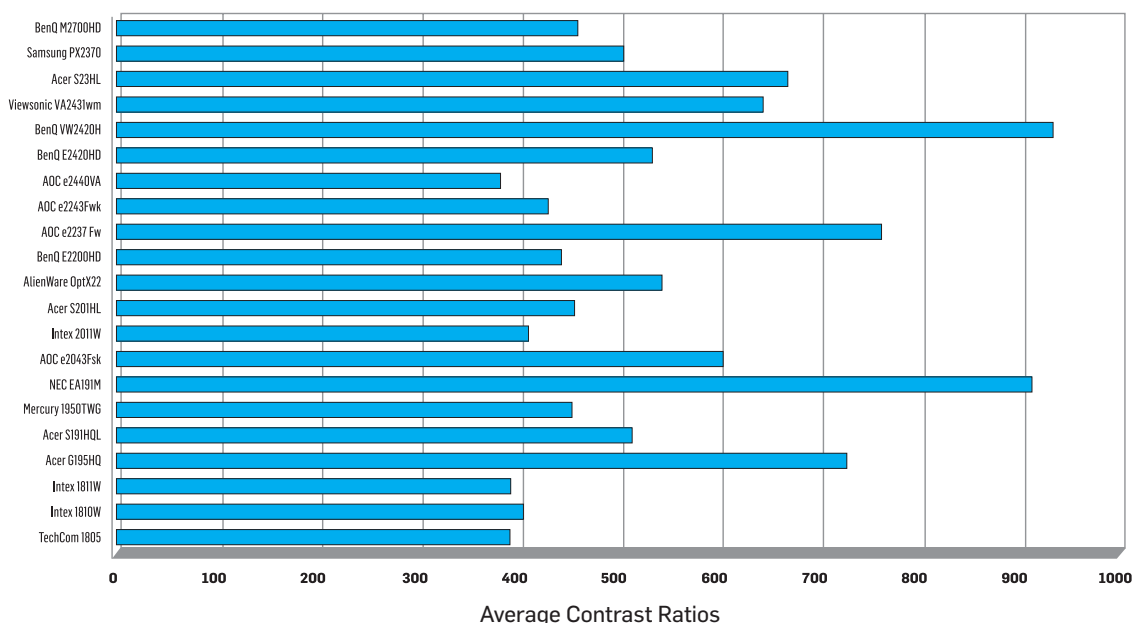
BenQ VW2420H gave the maximum contrast ratio thanks to the MVA panel and had great viewing angles. The grey intensity test was mediocre as there was barely any gradual transition visible, and the brighter grey portions were marred by a green tinge. While viewing HD content, contrasts were good in dark scenes and skin tones and colours were rendered beautifully. Gaming experience was not all that great thanks to some banding observed around certain bright spots.

Samsung PX2370 gave a contrast ratio which wasn't as good when compared to the competitors though the white levels were good. In DisplayMate testing, it faltered on the 16 intensity ramp test where though the demarcation between the bands was great, a reddish and greenish cast is noticed in certain bands. The 256 colour ramp gave promi-

nent bands in the red and yellow region. HD movie viewing was good but there was some backlight bleeding on the corners, but not as bad as the BenQ E2420HD. Skin tones looked a bit flat and lacked the warmth that was noticed in E2420HD and VW2420HD.

Viewsonic VA2431wm had great luminance and scored decently on the DisplayMate tests. Colour purity tests were flawless without any noticeable colour tinging in either the 16 ramp intensity test of the grey transition intensity test. HD movie viewing experience was great with warm colours, good contrast in dark scenes and minor backlight bleeding on the lower corners. Viewing angles were better for movies than for text.

AOC e2440VA had the lowest contrast ratio thanks to poor luminance at 100 brightness levels. In DisplayMate tests there was heavy green tinge in the 16 ramp intensity test and banding was observed in the 256 ramp colour gamut test, where red to yellow, cyan to blue and blur to violet transition happened in distinct bands.



## Samsung, RealD will license 3D tech

The two companies are to license their 3D technology for active-shutter displays with better and brighter image quality

## Toshiba's 720p mobile displays

Toshiba's scheduled to unveil the 1st ever 720p HD displays for mobile phones. They will feature on sizes ranging from 3.3-inch to 4.0-inch

LCD Monitor test

Acer's S231HL scored poorly on the DisplayMate tests specially the reverse text test, prominent banding in the 256 ramp colour gamut test and colour cast in the 16 ramp intensity test was another stab at S231HL. Contrast in darker scenes in HD movies was decent and although there was a minor backlight bleeding, it did not affect the depth of blacks much. Skin tones were good. Gaming experience on this monitor was probably the poorest among others, thanks to prominent banding.

### Verdict

Of all the monitors tested, the NEC EA191M was the Best Performer thanks to its consistent contrast ratio of over 900 plus on all three brightness settings and great performance in all our

## BENQ EW2430V



**B**enQ EW2430V reached our test centre after the testing was complete, as a result of which we could not include in our comparison test. On first glance, it looks like a polished version of BenQ E2200HD, with a similar rectangular stand and the portion beneath the bezel jutting out. It has four USB ports on the left hand side and a range of connectivity ports such as two HDMI ports, one DVI port, one D-Sub port, Composite and Component ports along with audio jacks on the rear side. The EW2430V is based in a VA panel and is LED backlit LCD. It gave a contrast ratio of 616 : 1 which was considerably lower than its other VA panel based cousin, the VW2420H. Pixel response is slow. At times when an image changes, a clump of pixels will retain the colour of the previous scene.

Probably due to backlight response. In fact, backlight response is quite poor.

Colours are sufficient but not standout, look slightly soft and washed out in some scenes stronger in others. Basically colours appear washed out in brighter scenes and stronger in darker scenes. Bad viewing angles. From the sides colours appear washed out, and similar shades blend - there is not only loss of vividness, but colour shifting appears as well. Vertical angles are even poorer and the display becomes dimmer also.

tests. The only other monitor that had over 900:1 contrast ratio was BenQ VW2420H as both these monitors use the VA panel.


BenQ's performance took a hit in the DisplayMate tests. Viewsonic VA2431wm was another monitor which gave some competition to BenQ and just edged past it in the performance score. But when it came to overall scores, the NEC monitor was way ahead of both the BenQ and Viewsonic.

However, in the 23-inches and above category, owing to the maximum performance score and affordable pricing, ViewSonic VA2431wm won the Best Buy.

In the 22-inches category BenQ 2200HD secured the Best Buy title for its economical pricing which helped it win over Alienware OptX AW2210 which had a better overall score but almost double the price.


Not only did AOC e2043Fsk look great among the other competitors within the 20-inches category; it also bagged the Best Buy title for its superior performance at a price lower than the Acer S201HL, but a comparatively lower performance score.

Coming to the 19-inches and under category, there was fierce competition between TechCom and Acer for the Best Buy title. But even though TechCom SSD LCD 1805 was priced lower, the Best Buy title went to Acer G195HQ as its performance and overall score was the highest after NEC EA191M in this category.

BenQ E2200HD bagged the Editor's Pick for its performance and overall tally which was second only to NEC EA191M. 



AOC e2237Fw impressed us with its unique design and a white body. It has a blue glow under the bezel helps in viewing the keyboard in the dark




**GOD of Monitors**

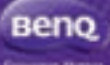
**BenQ EW2430V** [www.BenQ.co.in](http://www.BenQ.co.in)

**VA LED Panel**

It is equipped with True 8-bit VA LED Panel which reproduces 16.7 M colours & give viewing angle of 178° for saturated vividness with perfect balance. VA Panel minimizes bright spots with reduced light leakage presenting colours in truest form.



VA LED Panel



**VA LED**

E-mail: [Sales.Enquiryin@BenQ.com](mailto:Sales.Enquiryin@BenQ.com) Call: 1800-419-9979 (Toll Free)



**Gmail, AIM add single sign-in**

Chat users won't have to sign in separately into both chat applications anymore.


**Microsoft gives away free Xbox 360s**

Microsoft is offering free Xbox 360s with its "back-to-school" laptop range in the US


# Dual booting issues, tethering woes, slow phone performance...

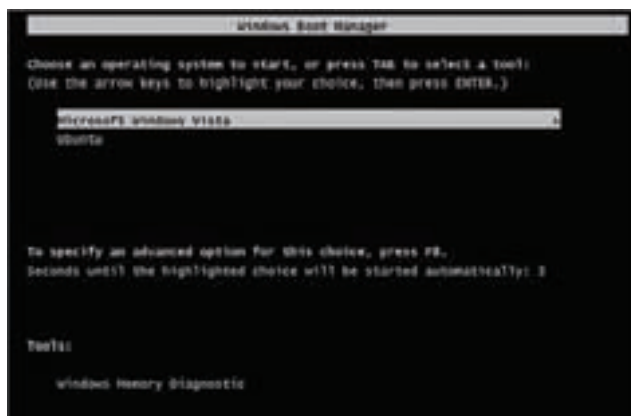
Digit answers these issues and more...

## Dual booting issues

 I have a laptop with Windows 7 installed on it. Will installing Ubuntu affect any data on my drive? I just want it installed for learning purposes and also want Windows to work alongside. As in I want to dual boot.

Rawat

 For each Linux install, you'll need to create at minimum one partition, and a recommended two or more partitions. It is quite possible to do so, but changing the partition structure of the disk so often is not something to be taken lightly, since a




mistake can destroy your data.

If you want to just install different Linux distros to learn from and play with, I recommend using a virtualization software such as VMWare Player or VirtualBox. Both of these are free.


Such software allow you to create a virtual computer inside Windows in which your Linux OS will run. So Linux will run in a window just like any other software, but you'll be able to use it normally.

You can install multiple OS's at the same time and keep installing more without worry since it will install entirely in a few files, rather than by changing partitions on your hard disk.

## Uninstalling Avast AV

 I have installed avast! Antivirus (one month trial version) in Windows Vista home premium. I want to uninstall it as I've bought a Kaspersky AV, but am unable to uninstall it. I tried using 'Uninstall Program' from control panel and also used 'CCleaner', but Avast doesn't show in the list. Please help.


Rebati Singh

 You need to use the Avast Uninstall Utility to completely uninstall Avast from your system. You can find that here: <http://www.avast.com/uninstall-utility> Follow the steps:


- 1) Download aswclear.exe on your desktop.
- 2) Start Windows in Safe Mode.
- 3) Open (execute) the uninstall utility.
- 4) If you installed avast! in a different folder than the default, browse for it. (Note: Be careful! The content of any folder you choose will be deleted!)
- 5) Click REMOVE

- 6) Restart your computer

## Slow phone performance


 I recently bought a Samsung Galaxy GT-I55, Android 2.2 phone. For the first 2 weeks it worked seamlessly, but after that it slowed down and started behaving sluggishly. It also hangs a lot and stops working completely, leaving me with no option but to remove the battery and switch it on. Is there any way this problem can be solved?

Garvit Bhardwaj

 The problem seems to be with multiple apps which are open in the background. Download and install 'Advanced Task Manager' app from the Android

Market. It's free to download. Set it to kill background apps after a set amount of time, automatically, or you can keep doing it manually. Add 'phone', 'messages' and 'clock' tasks on the ignore list, to be able to use your phone without any problems. If this doesn't help, restore the phone to factory settings, delete everything on the memory card and start afresh.

## Tethering woes


 I recently bought Apple iPad 2 Wi-Fi model. I chose this for the tethering functionality. I already own Sony Xperia X10 mini (Android 2.1) and had



downloaded software for tethering, but it always says that "Your device is not rooted". I tried hard to make my device capable of tethering but it didn't work. I need your help accessing the

Internet on my iPad 2, using my mobile 3G services, when free Wi-Fi hotspot is unavailable. If there's is no way out, please suggest any other device capable of tethering. I will buy it. Operating system doesn't matter. Please suggest the best method to do tethering.

Shubham Gupta

 The Wi-Fi hotspot capability is available only on Android 2.2 version and beyond, not on Android 2.1. The idea here is to get that capability of rooting on your phone. You have the option of rooting the device with Android 2.2, which will give you these capabilities as a part of

## Hiding URL bars in browsers

Google and Mozilla are testing versions of their Chrome and Firefox browsers respectively, that hide the URL bar

## Xi3 Chromium PC

Xi3 announced that it will come out with the first desktop PC running Chrome OS in July

Q&A

the package. (Rooting an Android phone doesn't amount to piracy!) You can then start using your phone as a Wi-Fi hotspot for the iPad2.

You can read up on how you can install the Android 2.3.4 Cyanogen Mod 7 port on your Xperia X10 Mini: <http://bit.ly/kya74V>. Else, you can buy any phone with Android 2.2 or Android 2.3, depending on your budget, for the Wi-Fi hotspot capabilities.

## From the Thinkdigit Forum The right PSU

I have a VIP 400w EX SMPS. It has two 12 V rails with 15A and 14A of current. Will this PSU be enough to run an HD 6850. I don't plan to overclock the graphic card, although, I have a overclocked CPU E4400 to 2.66 GHz.

Indiandude

No, it's not sufficient. To be safe, you need a good 500W PSU. FSP Saga II 500W or Tagan RockStone 500W will be enough. Even Corsair CX400W would be good.

Sam

## HDD as PageFile

Hi, I have three HDD. Out of which 1 is SATA the other two are IDE, my memory - 1GB. I wanted to know if there would be any improvement in performance if I dedicate say about 5GB on my second HDD as page file? Also since my main HDD is SATA and the other two IDE, will there be any problem?

Lalam

Minimum size of paging file should be 1.5 times the memory, and maximum 3 times. So 1.5 GB to 3 GB is what the range should be. You can set 3 GB paging file on two separate physical HDD's. But it should not be set to two partitions of the same physical drives. There won't be any performance improvement if you increase the size of page file - a little performance improvement can be visible if you move the page file to the non OS HDD. It's better to buy more RAM instead they are currently damn cheap.

Vineet369 and Topgear



## Peak CPU Utilization

I am using Core 2 Duo laptop with 3GB of RAM, a 250GB HDD and a decent ATi card. The CPU utilisation is for some reason always at the 100 percent mark. I rebooted the device but to no avail. What could be the problem? The laptop also tends to heat up quite a lot. Is it due to the above problem?

Sarath

See in Task Manager if there is a process called regsvr.exe. Its one of most common processes that keep utilisation 100 percent. If there is such a process, it means you are infected with a virus. Try running an anti-virus scan.

thetechfreak

3M India  
MCX  
SEBI  
HSBC  
NSE  
Barclays  
Stumpp Scheule  
GE Money  
Religare Realty  
ITC Maurya  
Hyatt Regency  
Taj Lands End  
ICICI Knowledge Park  
Hindustan Aeronautics  
CP Office Mumbai  
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Partial List

## VisiteX<sup>TM</sup> Touch

### A Touch screen based visitor management kiosk.

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Visitor Management

[www.scrum-system.com](http://www.scrum-system.com)

**Text and shoot with same controller**

Hyperkin PS3 Remotext to be unveiled at E3 will combined the functionality of a PS3 controller with a QWERTY keypad

**3DS sales not upto the mark**

Nintendo 3DS may have created a buzz on its launch, but according to GameStop, the sales are slowing down below expectations



Agent 001

[agent001@thinkdigit.com](mailto:agent001@thinkdigit.com)

**M**ost people, including those who game a lot, have a few misconceptions about gaming gear in general. First of all buying gaming gear certainly won't make you a pro overnight but like I've said earlier, switching to good equipment improves your performance by a lot. Let me do a quick 101 session on gaming mice here and tell you what you need to look for when going in for this specialised category of geek weapon.

Which mouse to opt for depends a lot on the type of grip you use. There are a couple of grips that gamers use, namely the palm grip, claw grip, and the fingertip grip. The palm grip is the simplest way most people instinctively hold a mouse – laying your palm in full contact with the curvature of the mouse. For this grip a mouse that's nice and thick works best (like high-end Logitech's). In the Claw grip you hold the mouse pretty much like the palm grip except you tend to arch your fingers like forming a claw - hence the name. As for contact, it's a little lesser than the palm grip, but you still tend to stabilise the mouse with the back of your palm. If you're a claw gamer, you will do well with a mouse that's nice and ground-hugging (like most Razer mice). A mouse that's stable but not too thick works best because arching fingers over a thick mouse as you can imagine, gets a little difficult. The last one is the Fingertip grip. This one



## Point and shoot

Agent 001 takes up the challenge of pointing you in the right direction

involves the least contact. Here the entire mouse is held with just the tips of the fingers.

The funny thing however is that as the intensity of the game changes, players tend to change their grip accordingly. Once you observe your gaming grip style, you can zero in on the style that you use most often and then choose. The other important aspects to look at include customisation. Some mouse models allow this by adding weights and switchable bodies (eg. G9 Gaming mouse from Logitech). There are also buttons that switch DPI sensitivity on the fly. Gamers appreciate this feature. Rounding off other features of note I can speak of programmable macro buttons – good for MMOs and strategy games – internal memory for storing profiles and a good software UI. The bulk of the mouse is also important. The Digit guys tell me that they've recently got a gaming mouse from CoolerMaster called Spawn that has a smaller footprint, which is good for slim and trim people like me, Will try it out the next time I go down to the Digit Test Centre. And now onward to my shopping experience.


I went to a couple of hardware vendors locally to check out what was available. The first vendor that I went to showed me a few local brands. When I asked the person at the counter for something a bit more upmarket, I was told that I could get a Logitech MX 518 or a Razer Deathadder.

This was about the best shop I could find. Some of the other guys just didn't keep Razer stuff, and the higher



end Logitech stuff was not available. I was thinking of upgrading from my MX 518, but I couldn't find anyone who could advise me, or anyone who even had the patience to listen to what I needed.

Call me paranoid, for there is no clinical evidence to support this, but I find Razer mice to be a little flimsy – the left and right click buttons being the culprits. I've used a couple of Razer mice, and have found these keys dying within 18 months of buying them. First the click becomes softer, then the keys work but the "clicking" sound ceases and then boom. Logitech mice on the other hand refuse to die. Even my four-year old MX 518 still works fine, although the left click gets stuck every 3 weeks or so. There is a dearth of good brands in India, but the situation is much better than what it was a year back, with Steelseries and Roccat coming to India. Even with my trepidation over Razers longevity, I couldn't help fall in love with the Razer Emperor.

Maybe it was the name, maybe it was the sexy in-hand fit, but the Emperor fitted my hand well. Of course, the Mamba with its larger side buttons felt even better, but it was selling for over 6000 bucks – no way I was going to spend that much, especially since I didn't want a wireless mouse, and the Mamba can work both wired and wirelessly – no sense paying for a feature I won't use. I really wanted the Emperor, but for 3,500 bucks I could also pick up a Logitech G500. Now the G500 is a good mouse, with the added benefit of free and ratchet scrolling, and of course a tilting mouse-wheel – great for spreadsheets. For me, the dealmaker was the reliability factor, and the G500 it was. 



# worldview

OUR PICK OF THE BEST TECH ARTICLES FROM AROUND THE GLOBE

## (MUST READS)

### 12 SOCIAL NETWORKS YOU SHOULD BE USING

How many times will you invest your time and energy in one network only to abandon it a little later and start all over again with some other one? Read this interesting article to know the social networks you absolutely must join.

<http://bit.ly/digit6111>

### IN CONVERSATION WITH DR. STEPHEN HAWKING



Even when suffering from the deadly disease A.L.S. Dr. Stephen Hawking went on to produce some of the most important cosmological findings of his time. In a rare interview, learn what the great mind thinks about - from the L.H.C to even Aliens.

<http://nyti.ms/digit6112>

### IS MOORE'S LAW STILL RELEVANT?

46 years ago Moore observed that the transistor count on a microprocessor roughly doubles in 2-year intervals and will continue to do so. An analytical article on Tom's Hardware, tries to demystify some of the myths associated with this prediction. Is it relevant? Not really, they say.

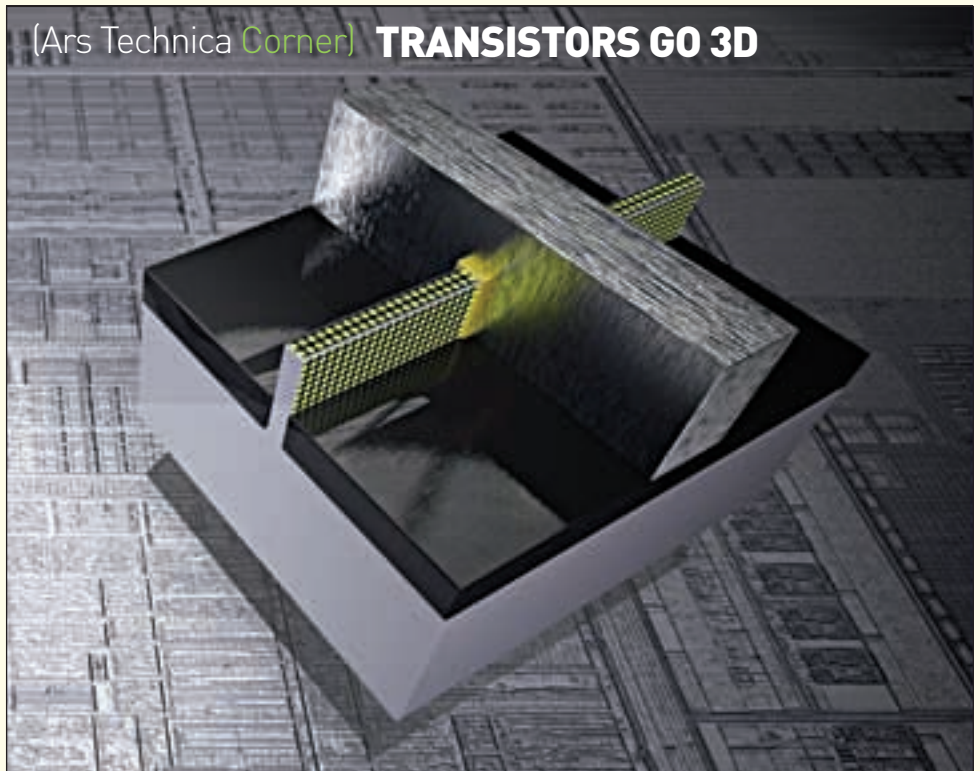
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### SCRATCH THIS!

Scratch is a programming language for kids that makes it easy to create interactive stories, animations, games, music, and art - and share your creations on the web. Try it out:

<http://bit.ly/digit6114>

## (Ars Technica Corner) TRANSISTORS GO 3D



As Intel re-invents the microchip, Ars Technica takes a look at how the company's upcoming 22nm processors will feature a fundamental change to the design of the most basic building block of every computer chip, the transistor.

<http://bit.ly/arst111>



#### Osama bin Fraggled

Did you know that there exist terrorist propaganda games that are put together as recruiting tools for fanatic groups? On the death of numero-uno terrorist Osama Bin Laden, a prolific gamer recounts his experience of digging up and actually playing these evil terrorist games.

<http://bit.ly/arst112>



#### Can you race for real by playing games?

As racing games continue to give us better physics, realistic graphics, better AI and even simulation controllers, gaming enthusiasts often fancy that they can take on the real thing. An Ars technica writer and racing game enthusiasts puts the debate to rest by racing in a professional circuit.

<http://bit.ly/arst113>



#### A tale of DOCSIS

Learn how cable companies manage to provide 100 Mbps bandwidth to their broadband customers using existing unidirectional wires that are not even individually connect to each household, and without affecting the TV service. It's all thanks to Data Over Cable Service Interface Specifications.

<http://bit.ly/arst114>

**DOES QUORA REALLY HAVE ALL THE ANSWERS?**

It's being speculated that someday Quora may grab more pageviews than Wikipedia. Read this fascinating piece which looks into the spawning of a new internet culture to the lives of Quora's founders  
<http://bit.ly/digit6116>

**CALL OF PRIPYAT**

Explore the Chernobyl Exclusion Zone that now encompasses more than 1,600 square miles of northern Ukraine and southern Belarus. It's reported that wolves, lynx, and elk roam the area around the reactor. You might even find a mutated pig or two  
<http://bit.ly/digit6117>

**AMAZING GOOGLE I/O IMAGES**

So what if you couldn't physically attend Google I/O? Here's a whole web album that can put you right in the midst of the action. Immerse yourself in those three buildings at Moscone West Conference Center in San Francisco  
<http://bit.ly/kCbhTA>

**THE 140-CHARACTER ONE-LINER**

An extensive compilation of some of the funniest one liners ever tweeted. As you might've guessed, such pearls can only come from some of the funniest people in the world. If you want some serious "LOLs" in your timeline  
<http://bit.ly/digit6126>

SHORTS

## How to Make Your Own Chrome OS Chromebook

You don't have to wait until June 15 to get your hands on Google's latest in-the-cloud operating system! Almost any old netbook can be made into a Chromebook.

- By Sebastian Anthony



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On June 15, Samsung and Acer will release the first consumer-oriented Chrome OS laptops, or Chromebooks as Google likes to call them. Both hardware- and software-wise, these netbooks are nothing special: You can download Chrome OS's open source brother, Chromium OS, for free -- and at around \$400 for a Chromebook, you would certainly expect some better hardware than what Samsung and Acer are offering.

In fact, for around \$300 you can get a cheaper and more powerful netbook with Windows 7 pre-installed -- and it only



takes about 30 minutes to wipe Windows and install Chrome OS yourself. You'll end up with a better and cheaper Chromebook -- and to top it off, you'll have a spare Windows 7 license that you can give to your mom.

### Finding the Right Netbook and USB Stick

For the most part, any x86-powered laptop or Atom netbook should run Chrome OS without difficulties. Almost every x86 computer will at least boot Chrome OS -- but in some cases, you might need to do a little hacking to get your WiFi adaptor and other peripherals to work.

As far as specific models go, the Samsung NC10 is a good bet, as is the Acer Eee PC, Acer Aspire, Toshiba Mini, and Fujitsu Lifebook. For more info on what does and doesn't work, check the Chromium Developer Hardware list (<http://bit.ly/joWvtp>), and Hexxeh's netbook and laptop compatibility lists (<http://bit.ly/iG5lPO>). There's no reason you can't install (or dual-boot!) Chrome OS on a desktop PC, incidentally.

To perform the Chromium OS install process, you'll need a 2GB USB memory stick. Any plain, not-weirdly-partitioned USB storage device should be fine -- you'll only need it for the install, so don't worry about performance or reliability.

### Download Chromium OS

You now need to grab a copy of Chromium OS. The only real option, unless you want to build Chromium OS yourself, is to



download an image from Hexxeh. Because Hexxeh's nightly builds are automatically generated from the latest Chromium source code, they are not guaranteed to work -- but on the flip side, Hexxeh's builds always represent the latest bleeding edge version of Chrome OS.



UI that is under development

It's not common, but sometimes the latest build will be broken -- but if that's the case, you can simply download yesterday's build instead. You can also download a VirtualBox or VMware image to test it out, before going ahead and burning the USB image.

**LIFE OF AN INTERNET TROLL**

An internet troll is indeed a special type of creature. Being right all the time,

coming up with innovative insults, firing off inflammatory comments and countless sleepless nights are bound to take a troll... er we mean toll right?

<http://bit.ly/digit6115>

**INTEL PROMISES X86-BASED PHONES IN 2012**

An announcement like this can result in many sleepless nights for the founders of ARM; currently owners of the IP behind the only other processor mobile architecture. Currently the x86 architecture is too power intensive and can't compare. Read more <http://bit.ly/digit6118>

**HTML 5 TO TRANSFORM ONLINE VIDEO**

HTML 5 promises to serve and playback hardware-accelerated video all in a browser irrespective of where its running; whether on a tablet, on an embedded device, and all without loads of intricate coding. Learn how HTML5 Will Transform the Online Video Landscape <http://on.mash.to/digit6119>

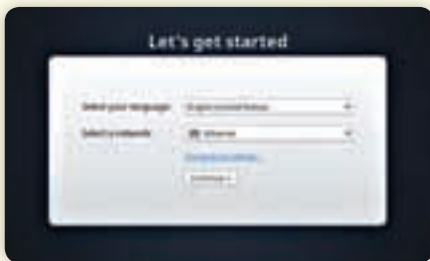
**SONY 'WELCOMES BACK'**

Sony wants to apologise for the recent PSN outage through its "welcome back" campaign that aims to tempt distraught PSN users with free games and good vibes. The gesture may well prove too little, too late for many disgruntled users. Read the comments in this Engadget update <http://engt.co/digit6120>

The other option, if you've built Linux before, is to build Chromium OS from source (<http://bit.ly/ltEmwj>). It's fairly easy; it requires an Ubuntu install, and about an hour to download and build. You can do it from inside VirtualBox, too, if you don't have a Linux build environment set up.

**Write to Memory Stick and Boot Up Chrome OS**

The next step is to burn Hexxeh's Chrome OS image onto your USB memory stick. Windows users should use Image Writer



(<http://bit.ly/Dchrome1>); Mac users should use dd; and Linux users should use the usb-imagewriter package (<http://bit.ly/Dchrome2>).

Once you've completed the imaging process, plug your USB memory stick into your soon-to-be-Chromebook, power on, and hopefully the Chrome OS boot sequence will begin! If it doesn't, you may have to enter BIOS and make sure your computer is set to boot from USB. If the boot process fails entirely, try another one of Hexxeh's builds.

After about 8 seconds, you should be greeted with a login screen that looks like the image above.

If a network connection has been detected – WiFi or Ethernet – you'll be able to continue to the login screen. Enter

your normal Google account credentials and press Enter. If Chrome OS has detected a built-in webcam, you'll have the option of taking a photo of your ugly mug for the login carousel; you can click Skip if you'd rather have a faceless avatar, though.

Once you're through the photo-taking, you'll be presented with a very plain-looking Chrome browser window. You've made it – you're now using Chrome OS!

**Installing to Hard Drive or SSD**

Your Chromebook will very happily boot from your USB memory stick – but let's face it, you don't really want an ugly dongle sticking out of your netbook, just waiting to be pulled out by an angry girlfriend or clipped on a doorway. Fortunately, installing Chrome OS to a hard disk drive or solid-state drive is easy.

Warning: this will completely wipe the contents of your HDD or SSD, so proceed with caution.

First, hit Ctrl+Alt+T, which will bring up a diagnostic-type terminal screen.

Then, type shell and press Enter

Type /usr/sbin/chromeos-install and press Enter. If prompted for a password, use facepunch

When the install process finishes, reboot your computer, pull out your memory stick,



wait 8 seconds, and voila: Chrome OS running from your hard drive. It might even boot in under 8 seconds, if you're using an SSD.

**Conclusion and Caveats**

What you have just installed is Chromium OS, not Chrome OS. Like the Chromium and Chrome browsers, the OSes are very similar, but not quite the same. Two of Chrome OS's best features – Verified Boot and Easy Recovery – don't exist in Chromium OS. Likewise, Chrome's built-in PDF reader doesn't exist in Chromium OS, and embedded MP3 playback requires some tweaking (<http://bit.ly/Dchrome3>) – but it does come with a Flash Player plug-in!

More importantly, though, Chromium OS can run every Chrome web app and extension. You'll notice that Hexxeh's Vanilla builds don't come with any bundled apps or extensions, so your first port of call should be the Chrome Web Store. After that, you should set up Google Cloud Print, connect to Google Music (if you have a beta invite!), and then, well... the web's your oyster!

Finally, if you're having any problems – even though Chromium OS isn't officially supported – Google's Chromebook support pages are a great starting point. There are excellent guides on setting up user accounts and tweaking settings and there's a complete list of keyboard shortcuts, too. For more in-depth how-tos and troubleshooting, check out the Chromium OS developer resources (<http://bit.ly/Dchrome4>).







Meet Linus Sebastian, the host of NCIX Tech Tips. He has a passion for computer hardware that's matched by few. You'll

get to know about everything from mainstream parts for grandma to the bleeding edge components for the xtreme gamers and media enthusiasts. Oh and he cuts packaging tapes with a processor!

<http://bit.ly/digit6124>

With our new World View section, we're trying to expose you to more international stories and culture.

Instead of just a list, we hand-pick the stories we think you'd like.

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## (QR Code)



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Code or just enter this link in your browser:

<http://bit.ly/Digit10yrs>

## (PRODUCT LAUNCHES)

### LIFEBOOK T901



Fujitsu's latest Tablet/PC hybrid just launched, featuring a 13.3-inch, 1280 x 768 LCD that supports NVIDIA's Optimus graphics. It even features a swappable bay for adding a battery or additional HDD, amongst other things like capacitive multi-touch and digital pen support. All for a price of \$1,899.

### MOTOROLA DROID X2



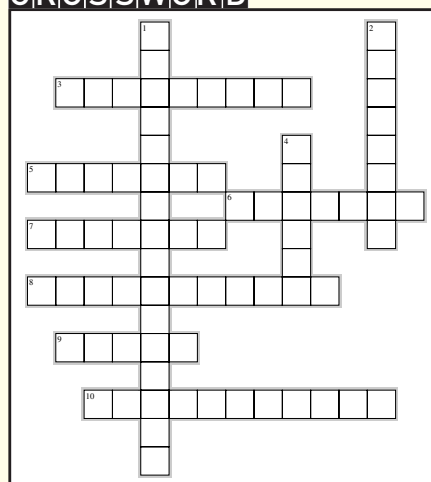
The much fabled phone is now officially launched featuring a 4.3-inch Android 2.2, qHD screen resolution and a dual-core 1 GHz processor. An interesting addition is a speculated dock. The device has an 8 MP camera, and will be available for \$200 on contract from Verizon.

### THINKCENTRE EDGE 91Z



At 2-inches thick, the 91z is being marketed as the thinnest All-in-one PC. It certainly looks good with its glossy 21.5-inch widescreen HD Infinity LED display. Internals mean business too with top models featuring Core i7, Radeon HD6650A 1GB, 8GB of DDR3 RAM. Starts at \$699.

## CROSSWORD



### ACROSS

3. Game to introduce true 3D and space strategy
5. Inside fuel rods
6. Type of chain reaction in nuclear reactor
7. Six dedicated cameras do the postmortem in one popular sport
8. Excitons are confined in all three spatial dimensions
9. The quantum analogue of the classical bit
10. Filtering to enhance obliquely viewed textures

### DOWN

1. Electricity from pressure
2. A durable onboard data-recording device
4. Metal oxide semiconductor field-effect transistor

ABSOLUTE  
TIMEPASS

## Top 3 YouTube Picks

Make sure your boss doesn't catch you goofing off with one of these playing on your screen



<http://bit.ly/digit6125>

Duration: 0 mins 52 secs

Is this the iPhone killer from Nokia? This Nokia N9 preview video shows you the glimpses of the upcoming Meego powered QWERTY slider phone.



<http://bit.ly/digit6122>

Duration: 1 min 46 secs

Upload your personal collection of music so that you can listen to it anywhere, sync it with devices and get rid of cabling hassles.



<http://bit.ly/digit6123>

Duration: 3 min 42 sec

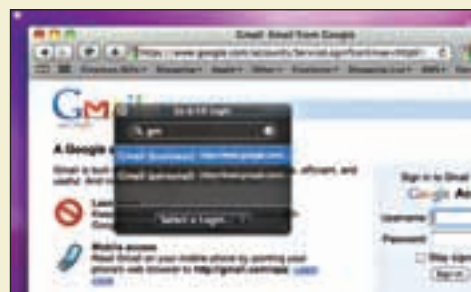
YouTube is not just about playing video. In this video you'll learn about 15 awesome YouTube tricks that you never knew about! Enjoy:)

# Password Managers

With so much of our lives and work going online, we need to maintain privacy and passwords for a multitude of web sites. For better security, it's always advisable to have different passwords for different sites; so even if one account is compromised, the rest are safe. But how many passwords can you keep track of and how many times will you keep typing them in? This is where password managers come in handy. Using such software, you can automatically log into web sites and securely manage all user IDs and passwords and organise your digital life. Mostly, these software save your data in an encrypted file that's stranded on one computer. Again, this is not an ideal solution if you have multiple computers and digital devices. A new generation of password managers after the desktop and browser-based managers now provides secure access to your passwords in the cloud and gives you a synchronised, local copy of your database on every digital device you use.

## 1Password

1Password is a breeze to use and a good option for primarily Mac users. It can synchronise passwords with any Windows computer, iOS device, or Palm & Android phones. Unfortunately, it doesn't provide access to a BlackBerry or Linux computer, and isn't built to be run from a USB drive. 1Password uses a Dropbox account (You can get up to 2GB of storage on Dropbox



1Password on a Mac



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1Password tracks the sites you visit

for free) to store your data online. Then Dropbox creates a folder on each of your devices and keeps them in sync. Just move your 1Password database to your local Dropbox folder and you can view your password data directly on the Dropbox web site using a normal internet browser. The Mac version also includes a standalone application that lets you organise your data and a browser extension that lets you access your passwords through an embedded IP button on the navigation toolbar or controls on a 1Password toolbar. The toolbar has on it a context sensitive shortcut button that tracks the

site you're visiting and puts in the appropriate account credentials when clicked. 1Password integrates perfectly with most popular web browsers.

## Clipperz

Clipperz is a free browser-based password manager software that works with any computer or device

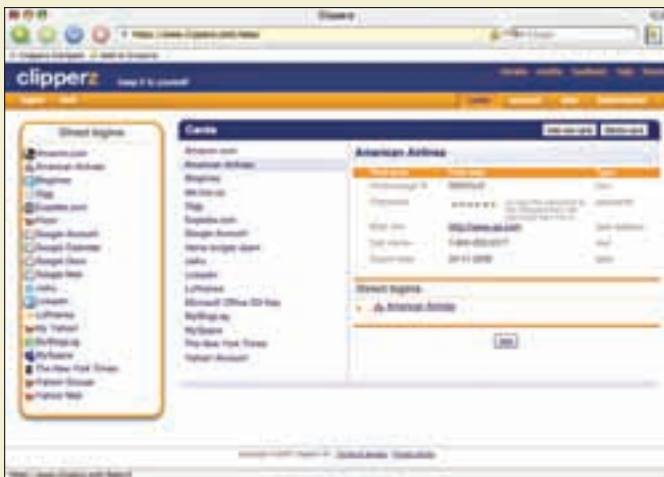


Using 1Password across devices

capable of running Firefox, Chrome or any other JavaScript enabled browsers. Apart from this there's also a simpler version of the Clipperz web site that is specially optimized for mobile phones and other small-screen devices. Clipperz basi-

cally stores an offline copy of all your data in an encrypted HTML file. The problem with this is that the local file doesn't update automatically. To keep your offline copy up to date, you must download a fresh copy each time you update your database. Clipperz has the date written in the filename to avoid any confusion. Once you've registered a new account, you can open the online password vault or the local copy of your data using your user name and master password. You can import data from formats including Excel and CSV or manually enter your account credentials. Setup involves creating password 'cards' that contain the web site address, login user name, password and any other necessary data. web sites can be grouped into categories. You can use the password cards to copy user names or passwords to the clipboard and then paste them into web site login fields. For each site you need to create bookmarklets to have Clipperz automatically log you in. This all takes a little bit of work. To start, drag a link from the Clipperz site on to your bookmarks toolbar,

where it appears as a button. To add a bookmarklet for a card, navigate to the target site and click the 'Add to Clipperz' button. Next, go to the Clipperz web site, log in, edit the card and paste the text into the 'Direct Login' field. It doesn't



Clipperz gives you an organised list of login credentials

take too long once you get the hang of it, but the process could be much easier. Having set up direct logins, you'll be able to automatically log into a site by logging into the Clipperz web site and clicking on it in a list. Clipperz can also work with a portable web browser on a USB memory stick. A faster Compact Edition for Firefox and Opera offers read-only access to your online password data via browser bookmarks. However, to change a web site's login credentials or to add a new card you'll need to visit the Clipperz web site.

## LastPass

The developers of LastPass built this manager from the ground up to provide access to password data on any device. Once installed and configured, LastPass is a breeze to use. The application



LastPass is accessible on a multitude of platforms

maintains a local copy of your data on any Windows, Mac or Linux machine. An icon on your browser navigation bar gives you access to all its features. There are separate downloads for each browser you want to use, and

nine variations of the program are available for the Mac. LastPass runs on the iPad and any Windows, Mac or Linux computer via a browser extension for Chrome, Firefox, Internet Explorer or Safari. Once logged in, you can access your database on the LastPass web site, set up profiles, log in to sites, create and access secure notes and configure some very detailed security settings. When you visit a site that LastPass recognises, you can configure it to automatically fill in the account credentials and log you in without prompting. LastPass offers the most seamless process for automating logins. You can also log into the site directly and view your data from anywhere, without using a browser extension. Because it can't integrate with the Safari browser, on iOS devices, the app includes a simple browser.

A list of your passwords appears in one tab. Click on a site name and LastPass launches a new tab, loads the site and logs you in. Other features include the ability to analyse your existing passwords for weaknesses and an option to automatically delete the passwords stored by your browsers (which are not very secure).

## RoboForm

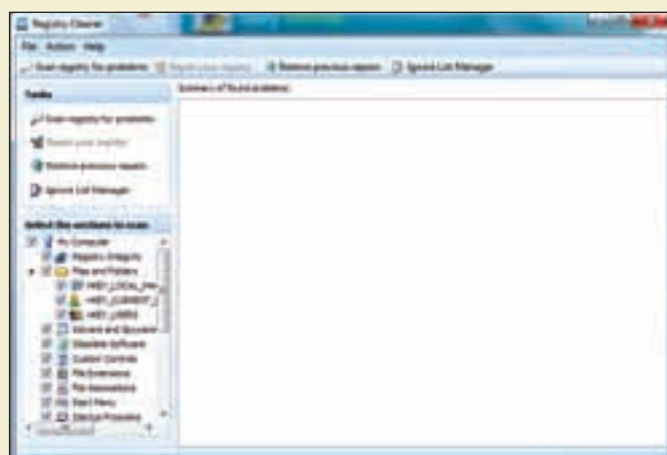
RoboForm has been around for more than a decade and supports a wide range of operating systems, browsers and mobile devices, but only the main Windows version offers the complete range of features. RoboForm2Go, meanwhile, can run from a USB key when inserted into a Windows PC. A beta version is available for Mac that runs in Safari. RoboForm runs from the Windows Taskbar or a browser toolbar extension. This installs automatically in Firefox or Internet Explorer; the Google Chrome extension needs to be manually installed. The Firefox toolbar can also be installed on the Firefox Portable Edition. It can also import data from browsers and other sources. When you

on the toolbar to log in. You can log into the web site and use it without buying any other RoboForm products. You can copy and paste usernames and passwords from RoboForm Online into the web site you're trying to log into, but the process is faster if you install a RoboForm JavaScript bookmarklet into your browser. Mobile phone versions include iOS, Android,



The Glary Utilities Modules

BlackBerry, Windows Mobile, Palm and Symbian. These allow access to the online copy of your password data but don't include local backup copies or off-line access to your data. To use the

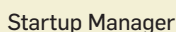


Registry Cleaner

visit a site for the first time there's a prompt to save the login credentials into a new passcard. Thereafter, you can click the Login button and choose the appropriate passcard, or navigate to the site and click a context-sensitive shortcut button

free RoboForm iPhone app enter a four-digit PIN instead of your master password. Apple doesn't allow add-ons to Safari on the iPhone, so the RoboForm app includes its own barebones browser. Select the target web site from RoboForm's site and



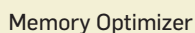


## Glary Utilities

Glary Utilities' objective is to help you optimize, clean and speed up your Windows computer. All the tools in Glary Utilities are split up into five different cat-

## Clean Up and Repair

- The Disk Cleaner is a tool which works better than the Windows Disk Clean-up function and lets you remove all the junk data contained in your disks. It also helps in recovering disk space by getting rid of the useless temporary files which might be clogging your disk space.
- The Registry Cleaner tool cleans up and deletes all unwanted registry entries of malware or uninstalled software which might be slowing



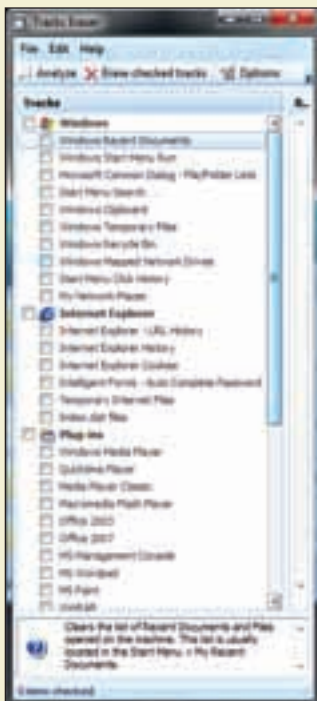
Linux Desktop Support  
Starting at just Rs. 1,000/- \*

## Case Study



Cost of proprietary software licenses was going way beyond 20,00,000/- which has been phenomenally reduced by Enjay and their Linux services. Enjay and its employees have helped us to reach our goal by training our desktop users & desktop administrator. They have been tied up with us for a yearly support which till now seems to be very good and significant.

Call us : 09376607650, 09726300114 | Email us :  
linux@enjayworld.com | web : <http://www.enjayworld.co.in>  
Chat ID : enjaylinux@ Googletalk, yahoo & msn  
facebook : enjaylinux



Track Eraser

down your system. To prevent any unwanted results, it also lets you backup the deleted entries which can be recovered at a later date if required.

- The Shortcuts fixer tool scans through your entire computer for shortcut files which might need to be fixed and point to a different location. It also detects shortcuts which no longer are valid and lets you delete them from your system.
- The Uninstall Manager works like the Windows Add and Remove Programs but it has better features, including the ability to let you uninstall Windows program one by one or in a batch.

## Optimize and Improve

The tools present in the Optimize and Improve module can be used to improve the speed and performance levels of the machine.

The Startup Manager gives you a list of all the programs which are scheduled to launch and start immediately after



File Splitter and Joiner

you switch on your computer and your operating system is loaded. You can remove or add Windows startup entries for a more efficient startup.

The Memory Optimizer tool lets you use any free or unused memory quickly, in manual or automatic mode. Simply indicate the amount of memory you want to free up and then click 'Optimize' to free up that much memory which we made available for immediate usage. It also shows you a graph of the physical memory usage.

The Context Menu Manager manages the context menu entries for the files and folders on your computer. It can be used to remove useless or obtrusive right-click menu entries for any particular file type in windows.

The Registry Defrag tool, just like the windows disk defragmenter which defragments files on disk to speed up disk usages, lets you defragment your registry for faster system performance.

## Privacy and Security

This module provides the user with the tools to secure and keep their system privacy intact.

The Track Eraser helps you maintain your privacy and

password to open. Additional features include having a password hint field in case you forgot the decryption password.

## Files and Folders

The files and folders module provides you with tools to analyse and find items from different disks or folders on your system.

The Disk Analysis tool lets you check which files or folders in your system occupy the largest disk spaces, so you can sort through and better organise your disk or simply locate and delete large files in case you run out of disk space.

The Duplicate File Finder finds multiple copies of the same file on your system and lets you delete the extra copies in case you need to reduce redundancy and free up disk space.



File Encrypter and Decrypter

remove any traces and details of your internet usage and surfing history. It cleans all the cookies, history files, temporary internet files, the cache of your browsers and other internet tracks including the Flash Player history.

The File Shredder tool can be used for secure, unrecoverable deletion of files and folders. With normal deletion of files, even after the removal of files from the Recycle Bin it's possible to recover them using other software but with this tool you can completely delete files and make them non-recoverable. Apart from this, you can also wipe free disk space for extra privacy.

The File Undelete lets you recover any files that you might have accidentally deleted in the recent past and if there's no record of it on your file index. You can do this in a more organised way using the different available filters like drive, date, state of recovery and more.

The File Encrypter and Decrypter tool can be used to protect files or folders from prying eyes by encrypting the files which would require a

The Empty Folders Finder finds folders on your system which don't contain any files in them so that you can delete them if required.

Finally, the File Splitter and Joiner is a tool that lets you make a big file portable. This is very useful for sharing large files over the internet; you can upload or email smaller parts as attachments which can again be joined by the other user who you had intended to share the file with.

## System Tools

The system tools module has the monitoring and testing tools for

measuring and improving the efficiency of your system.

The Process Manager gives you a list of all the currently running processes and monitors their rating and CPU usage to let you stop them if required.

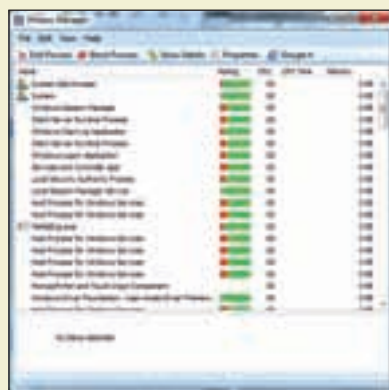
The Internet Explorer Assistant lets you manage all the Internet Explorer add-ons that have been installed and also let you revert settings in case your Explorer is hijacked after a third-party install

The System Information tool collects all the information about the hardware and software installed on your computer

The Windows Standard Tools provides you direct access to the default standard windows system maintenance tools.

## 1-Click Maintenance and Restoration Centre

Apart from the above mentioned features, Glary Utilities also has some extra features that are even more appealing.



The Process Manager

1-Click Maintenance is a tab at the top of the Glary Utilities menu screen. If you're confused about all the different tools mentioned above and you want to optimize your system in just one quick process without having to run all the tools and diagnostics independently, you can press a single button to clean up and optimize your computer. Also note that the spyware scanning and cleaning feature is only available from here.

Recovery Center - Each time you perform an optimization using any of the tools listed above, Glary Utilities will automatically create a restoration backup for you in case one of these operations mess up the functioning of your system. In the highly improbable situation of your system going haywire

after a system maintenance activity, you can restore to any of the previous settings immediately with the click of a simple 'restore' button.


## Glary Utilities Portable Edition

Instead of installing the software on one computer, with the portable build of Glary Utilities you can now take all the program's tools anywhere with you, and use

them to optimize, repair, tweak and improve any computer without leaving any usage traces on the host computer. Glary Utilities Portable doesn't require installation and can be run directly from any USB device. Also it is noteworthy that Glary Utilities Portable is by no means a stripped down



The Internet Explorer Assistant

version of the desktop program. It includes all the system utilities you need for all sorts of PC maintenance tasks as in the installed application. 

Boot up.



Boot up faster.



## Faster computer boot ups with Strontium Solid State Drives.

When it comes to booting up and loading programs, every second counts. That's why Strontium have developed their ultra reliable, low energy, high speed SSD. It boots up faster, leaving you with more time to focus on what's important.





**Social network no-nos**

The risks posed by uncontrolled sharing of information are immense. Find out what not to tell  
URL: <http://bit.ly/juRa2V>

**99% Android phones vulnerable**

Calendars, contacts and other sensitive data stored on Google's servers are under threat of being leaked.  
URL: <http://bit.ly/mq2DRK>

# Post-sales Service

## Customer services leave a lot to be desired

Kapil Rustagi

[readersletters@thinkdigit.com](mailto:readersletters@thinkdigit.com).

**A**nkur, a Mumbai-based software professional was excited about his acquisition of a brand new HDTV during the recent World Cup series. But his joy was short-lived as the TV malfunctioned in a few days of purchase. To add to the agony of this working professional, the amateur dealer and services centres made his life miserable.

Though post-sales service is a basic consumer right, he is considered a priority only till purchase. The moment the consumer asks for post-sales service or support, it turns into a pain. The retail business in our country has come a long way, but, post-sales support leaves a lot to be desired.


The general perception of an average consumer is that resellers are not liable

for post-sale services. Resellers must recognise that putting up a "guarantee or warranty is by the company not by us" board doesn't absolve them of their duties. Since consumers are unaware of their rights, resellers frequently redirect consumers to service centres. Making consumer run between resellers and service centres is nothing but sheer harassment. If a matter goes to the consumer court, apart from the product company, both reseller/ dealer and service centre can be made parties to a consumer's complaint.


Many companies have a separate customer services division. However, many of these services are provided through call centres. Quite often, executives are unskilled in the particular field and end up offering nothing but apologies. The toll-free

helpline numbers either don't work or change. If they do work, it takes hours to get through. Also, it is almost impossible to converse with the same executive the consumer had shared his grievance with. In no situation will they give you an official company contact number, leaving you at the mercy of executives.

Nothing can replace consumer awareness. Undertake pre-purchase market research. Ascertain the quality of post-sales services rendered by resellers to existing consumers on the internet, especially social networks which are effective tools. In case of complaints, first contact the dealer and then service centre. If this fails, try to approach



**We can help!**  
If you're facing a problem with your purchase, write to us at [help@consumermate.com](mailto:help@consumermate.com)

the top management of the company through their web sites or social media networks. In case of ultimate failure of all approaches, contact consumer forums by filing a complaint against them all. 

## COMPLAINTS RECEIVED

### Mobile Phones

#### Zen phone with service centre for past two months

**Question:** I bought a Z90 mobile in the name of Vinod Pareta. Two months ago, the display of the mobile disappeared. I went to Kota (Raj) service centre to repair it but he didn't give me the mobile even after 2 months. Now I plan to go to consumer court and media, but before this, I request you to kindly look into the matter seriously and respond as soon as possible. I have the invoice and service centre receipt. Kindly do the needful as soon as possible.

**Contacted By: Rakesh Kumar Pareta**

#### Answer By Consumermate:

Dear Rakesh,  
Two months is a really long time. You have a very good case if you have the receipts and other documents. I would strongly

suggest moving to consumer court against the service centre and the company.

#### Sony Ericsson service centre can't repair phone even after a month

**Question:** On 3rd March, 2011, I had given my Sony Ericsson j105i to the service centre 'Accel Frontline Service' at the Drive in Rd Branch due to a display problem. They gave me a job sheet (SE311AAD10156) and said it would take two days maximum. After six days, the service centre told me that it would take 10 more days. Now 1 month has passed.

I'm really frustrated of hearing lame excuses.

**Contacted By: Jigar Acharya**

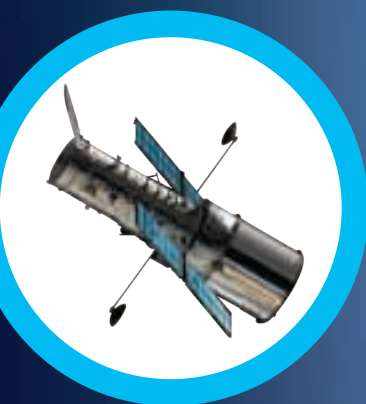
#### Answer By Consumermate:

Dear Jigar,  
This is a defective service and false promise case. Unfortunately, it's not strong

enough to go to consumer court as the relief you'll get from Court can at best be a replaced device. Try calling them up as much as possible and persuade them to repair it sooner. Also call up Sony Ericsson head office/corporate office and complain to them as well. Write down the name of the person whom you talk to, the time and date. This helps in future if things get out of hand. Also it builds a lot of pressure on them if you tell them the names of people whom you spoke to and dates when you talked to them. I hope this will get the matter settled. If, after repeated calls and attempts, it's still not repaired then go to Consumer Court. You can claim relief from Court even after sending a plain notice to the service centre but the relief is worth the case only after there is a delay of 45 days or more. It's not the law, but generally consumer courts consider 30 days as normal delay.

# HOW EVERYTHING WORKS

*Not everything in this world is as simple as sliced bread. We are surrounded by gadgets, gizmos, and technologies that are complex and hard to wrap our heads around. We try to simplify some of those in the pages that follow:*



- |    |                            |    |                     |
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# Heuristic Algorithms

*In computer science, a heuristic is a problem-solving method that uses incomplete information to derive a potentially inaccurate or imprecise solution.*

## HOW DOES HEURISTICS WORK?

In optimized search, heuristic algorithms refine each iterative result until they find the result closest to the solution. In other words, typical heuristic search algorithm uses a search tree, qualitatively selecting branches more likely to produce the result closest to the solution by assessing the given information.

**1** At every decision point in the search tree, the algorithm applies the sum of all that it has learnt from previous decision points, and by eliminating the unlikely, refines the solution to the extent possible with the given information, or most likely result.

In this scenario, the algorithm is trying to find the most likely candidate for Mario from the crowd, who resembles him the closest.

**2** There are hundreds of types of heuristic optimized search, with many variations. It can even move both upstream and downstream to evaluate the candidate solution.

The algorithm, in our example, already has established several points of contact -- or likely Mario candidates, that it traverses up and down its logic tree.

**3** Another major application of heuristics are evolutionary algorithms. An evolutionary algorithm is a type of a heuristic optimization algorithm which mimics organic evolution, by using reproduction, mutation, recombination, and selection as devices to find the optimal configuration for a specific system.

**4** So the way heuristics works finally, is it searches the crowd image for potential Mario-like individuals. It tries to match them by hue, size, distinct characteristics like moustache, cap, etc. Once it has arrived at a likely match, it spots the individual and highlights it. The algorithm also learns from its discovery of the result and saves the methodology.





# THE KINGSTON **EDGE**PERIENCE

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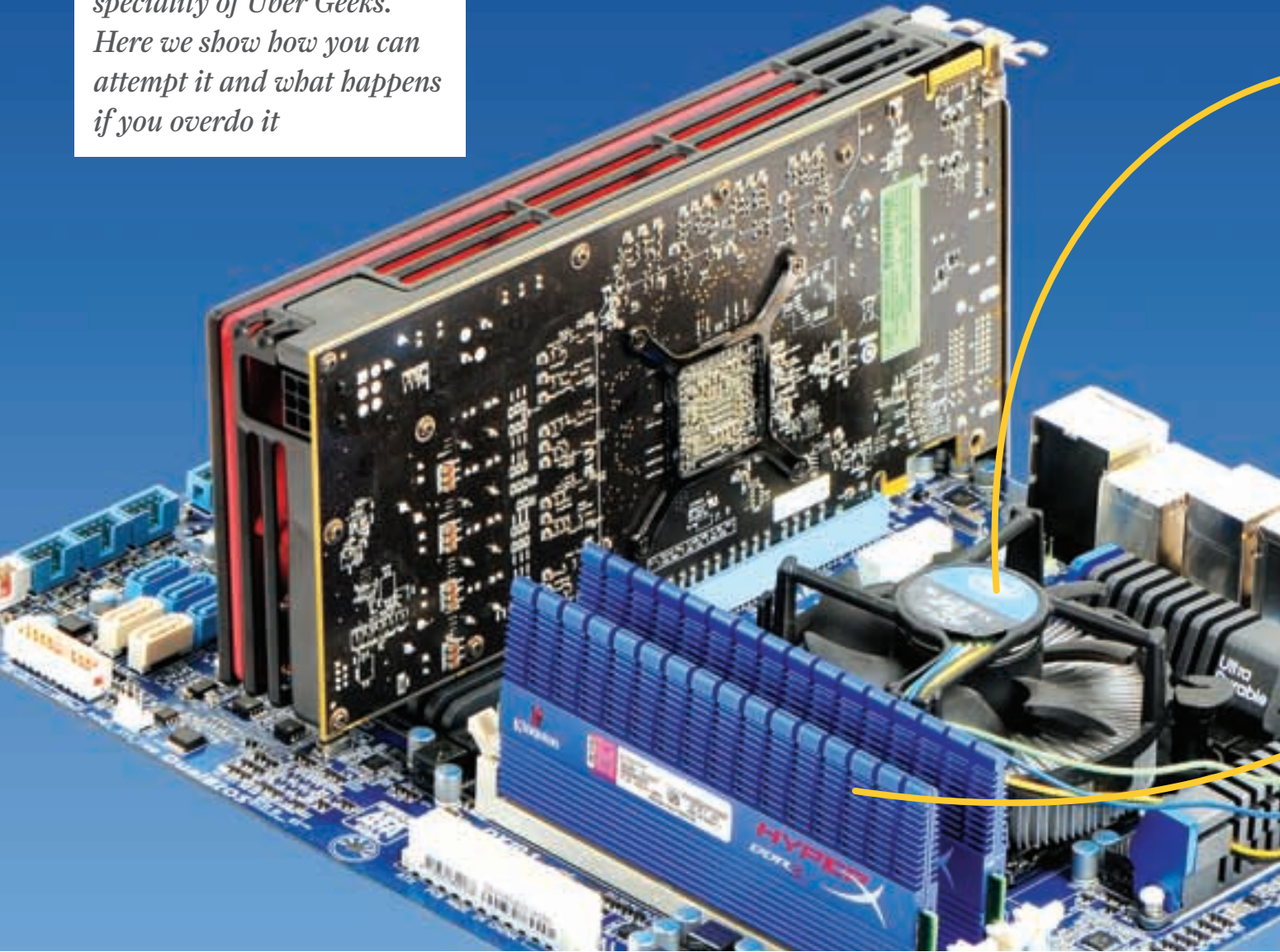
SSD | DRAM | USB DRIVES | MEMORY CARDS



www.sixinches.in

# Overclocking your system

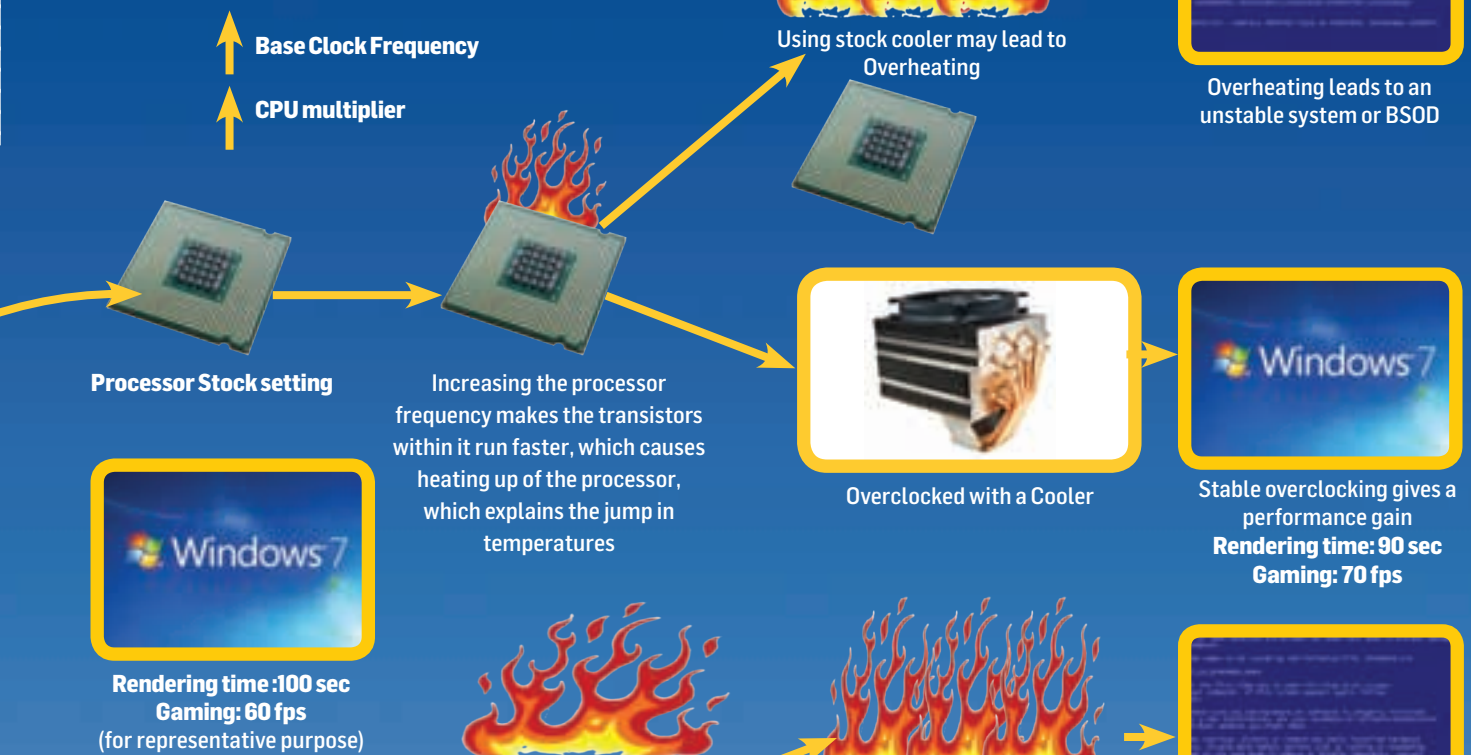
*Overclocking is no more the speciality of Uber Geeks. Here we show how you can attempt it and what happens if you overdo it*



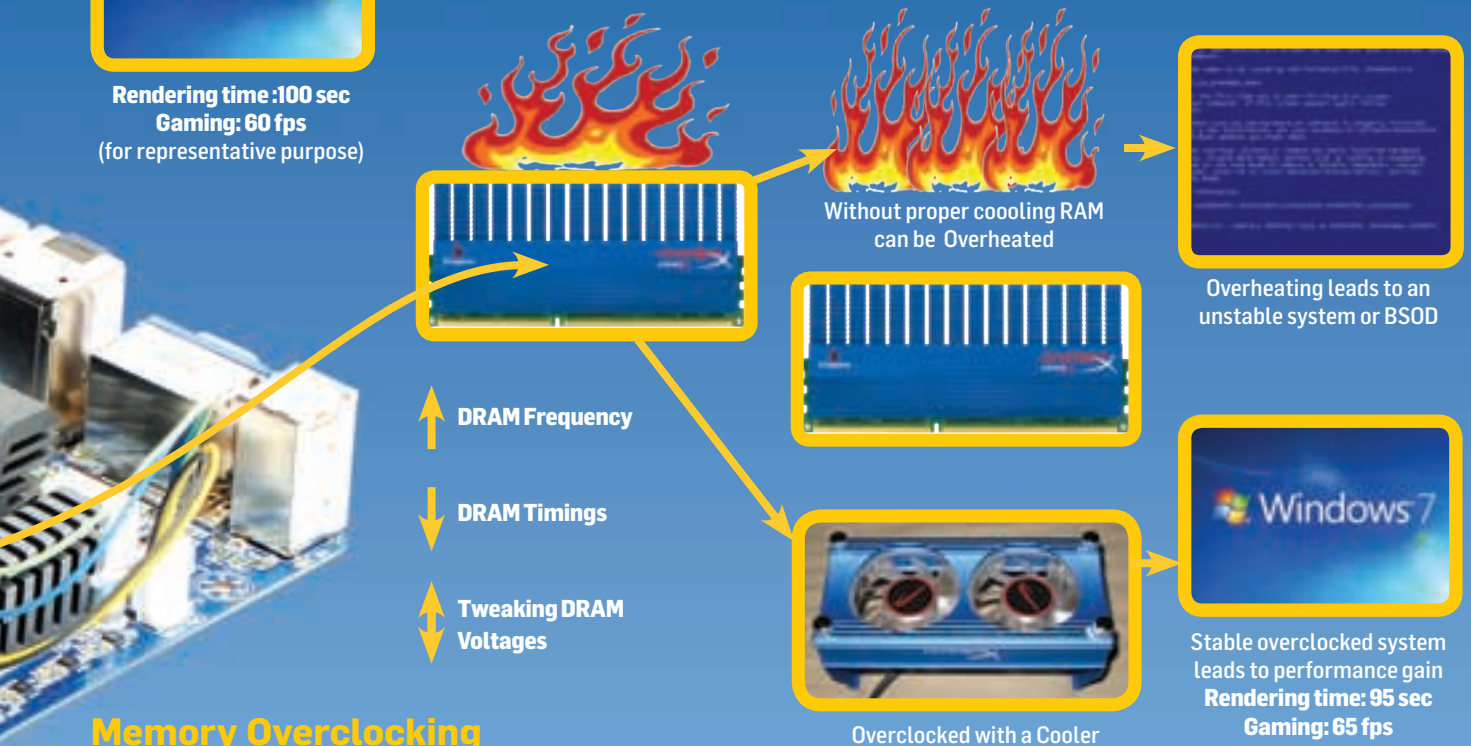
BE A GAME AHEAD OF THE GAME WITH HYPERX  
GET THE KINGSTON **EDGE**PERIENCE



## CPU Overclocking



## Memory Overclocking



OVERCLOCK WITH EASE TO OPTIMISE PERFORMANCE  
GET THE KINGSTON HYPERX **EDGE**PERIENCE



# Formula 1 Car: The Test Bed For Road Car Tech!

*While winning the Grand Prix is one aim, the idea is also to introduce, tweak, implement and improve newer technologies. Here we go behind an F1 car and what makes it tick...*

## DRAG REDUCTION SYSTEM

Moveable aerodynamics isn't a new concept. An aircraft's wing flaps open and close while landing or cruising. The same technology has been introduced into the F1 car, called Drag Reduction System (DRS). The adjustable rear wing is supposed to assist with overtaking. Under the rules implemented for the 2011 season, the driver of a following car can open the flap on the car's rear wing, but only at certain times. If a following car is at less than one second's gap behind the car ahead of it, the DRS system will be activated, indicated by a green light on the steering wheel. The idea is to offer less resistance to the wind, particularly when closely following a car, and allow more grip levels to offer an overtaking opportunity.

## THE COCKPIT

- This is where the driver sits
- Avg. cockpit temp exceeds 50 degree C.

## THE GEARBOX

- 7 forward and 1 reverse gear
- Gear changes in 1/100th of a second
- Semi-automatic sequential gearboxes

## THE FUEL TANK

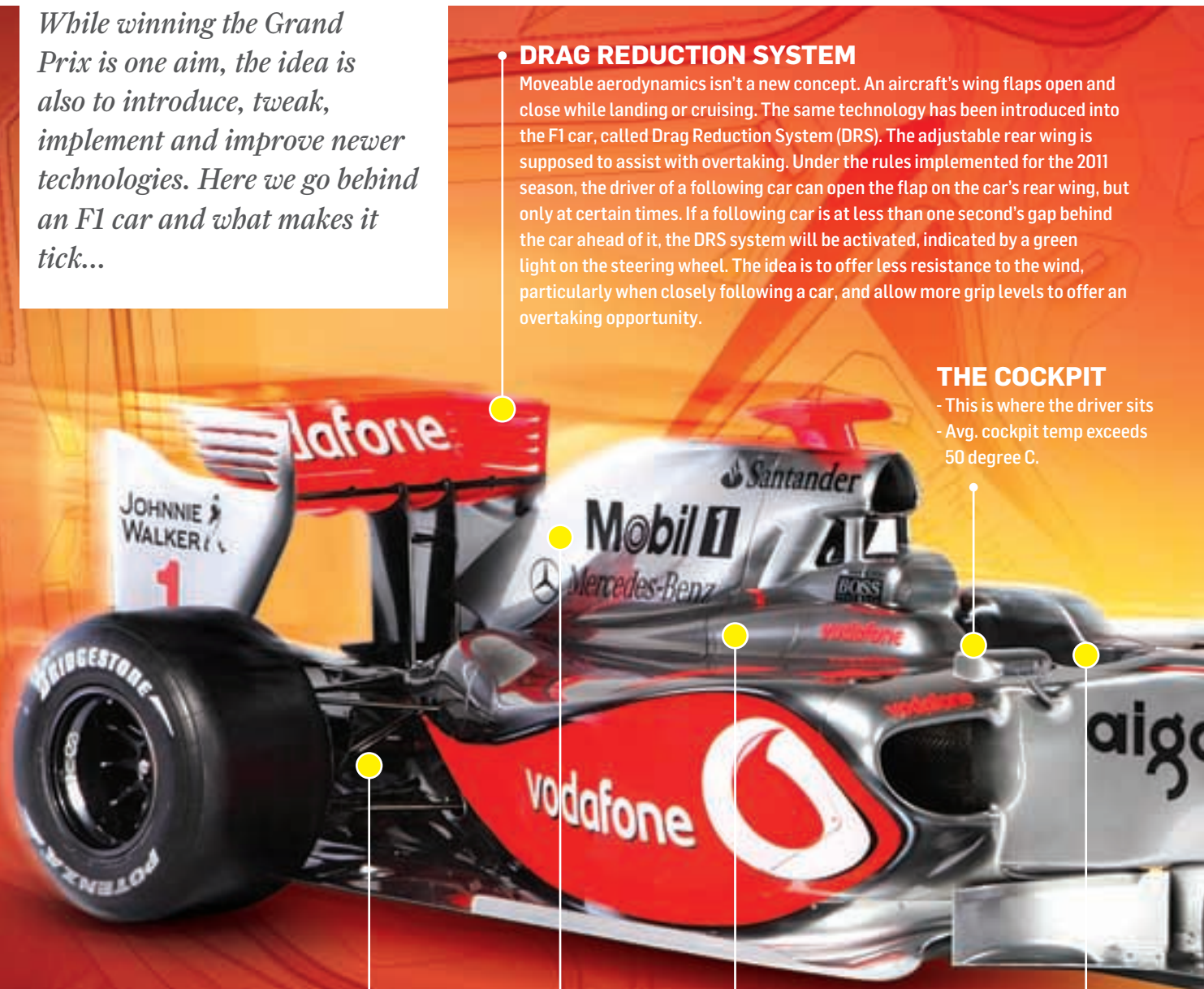
- 12 litres of fuel filled in 1 second

## THE ENGINE

- 2.4 litre V8 engines
- 900bhp of grunt

## THE STEERING WHEEL

- Nerve center of controls of an F1 car
- Weighs about 1.7 kg
- Controls more than 100 settings, configurable while driving
- Costs in excess of ₹15 lakh to make one of these







## AERODYNAMICS

The most critical part of an F1 car, because it defines the shape, the overall design, and how capable the car is of sticking close to the ground at speeds above 200 km/hr. Also, the aerodynamics is important since the direction of the airflow helps improve the speed of the car and the stability around the corners and quick bends.



## KERS

This is the Kinetic Energy Release System that has now been implemented in F1 cars. Developed by Magneti Marelli of Italy, an electric motor converts kinetic energy into electrical energy, which is then stored in a separate battery. This charge comes because of the energy created by the brakes. The charge is used to power the car, for a select duration and on select sectors on every lap, adding 85bhp more power to the engine.



## SAFER STRUCTURES

F1 drivers usually escape unhurt even after the most serious of accidents. This is because of the carbon composite materials used, making the car extremely safe, and lighter at the same time.

## THE BRAKES

Surface temp of brakes immediately after a race- 1000 degrees C

## MECHANICAL

The F1 car is an engineering marvel, and an extremely powerful one at that. The combination of engine, gearbox, tyres, brakes, suspension, steering wheel and even the fuel tank work together make the car work. The extremely powerful engines, V6s at the moment, can rev up to 15000rpm. The gearbox can change gears in milliseconds. The temperature of the brakes can go beyond 1000 degrees C. The tires can be changed in less than 5 seconds, individually. The fuel tank is made of Kevlar that prevents it from getting punched or torn open in case of a crash.



## THE TYRES

- Use nitrogen instead of normal air
- Can withstand speeds over 300 km/hr without burning out

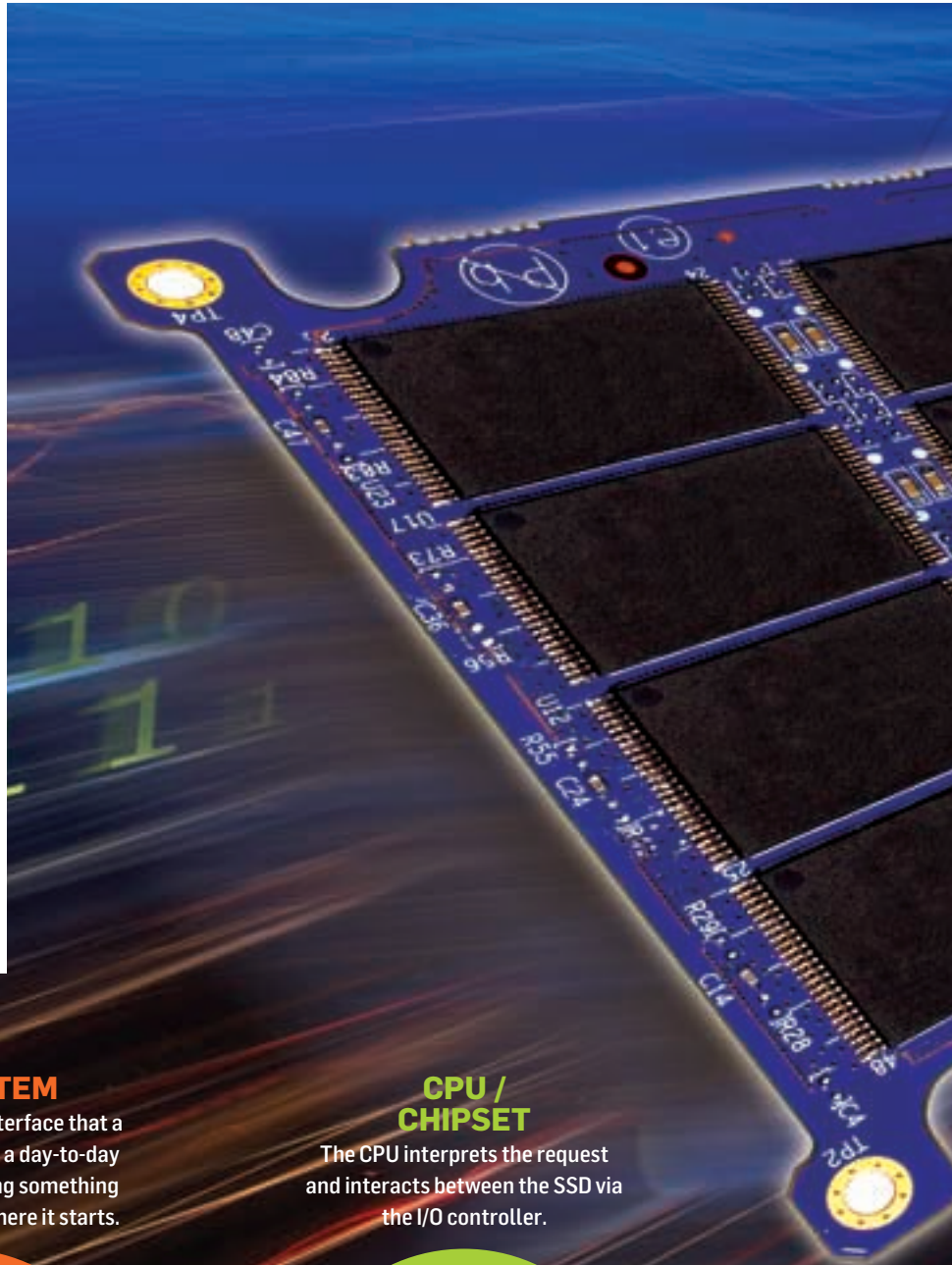


# Solid State Drives

*For many a year, storage languished behind the rest of the components inside a PC as a bottleneck, a very sore bottleneck, akin to the difference between the proverbial hare and tortoise.*

*Larger cache sizes, higher rotational speeds for platters, and even perpendicular recording failed to deliver evolutionary boosts to performance. SSDs came and stole the show from traditional spinning hard drives.*

*The following diagram shows the connection between an SSD and the hardware it interfaces with.*



## FILE SYSTEM

This is the top-level interface that a user interacts with on a day-to-day level. If you are copying something from an SSD, this is where it starts.



## CPU / CHIPSET

The CPU interprets the request and interacts between the SSD via the I/O controller.





## NAND FLASH MEMORY

A stacked array of eight multilevel cell (MLC) flash memory modules make up this drive's storage. For example, if it's a 64GB SSD, each flash memory module will be of 8GB each.

## SATA II / III Ports

Any solid state disk finally connects to the motherboard through a SATA port -- it can either be a SATA II or SATA III port, operating at 3Gbps and 6Gbps, respectively.

## CONTROLLER

An SSD controller passes information between the SATA interface and the NAND chips that store data. It controls the flow of data being sent to and from the flash storage chips.

## INPUT/OUTPUT CONTROLLER

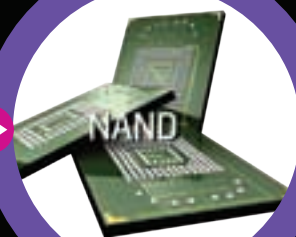
The I/O Controller is the section that interacts with peripherals like SSDs. It tells the SSD about the data transfer request.

## SSD CONTROLLER

This determines the disk's speed, longevity, and reliability. The firmware accesses data from the NAND chips it is stored on.

## NAND FLASH CHIPS

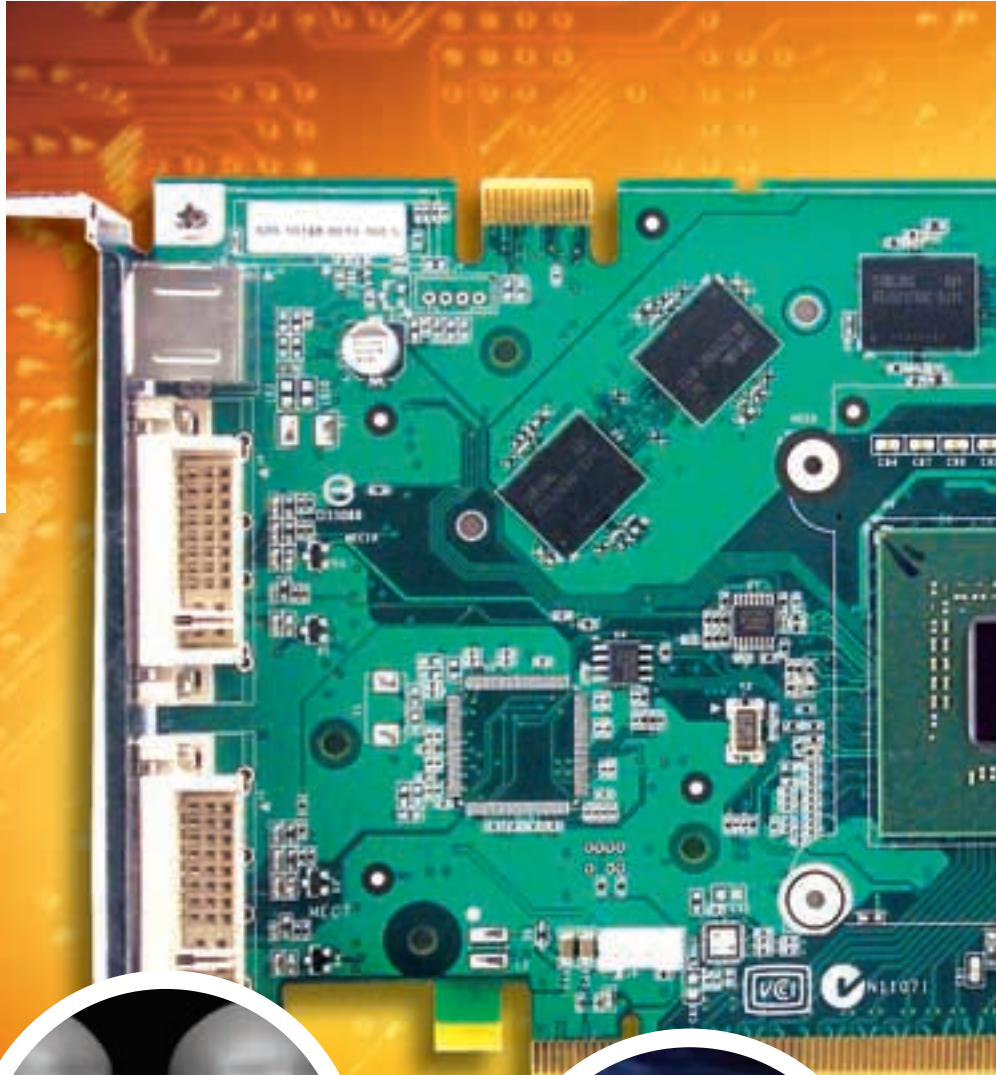
The flash chips are what makes storage possible on an SSD. These flash memory chips are non-volatile





# Graphics Card

*Let's look at what happens inside your GPU when you hit that game exe file sitting on your desktop. Both NVIDIA and AMD have slightly different pipelines, but the processes and stages are roughly the same, with a few unique tweaks to below steps.*



## (1) TRANSFORMATION

This stage involves computing on vertex data, which are points in 3D space and converting these numbers into polygons in a 2D space. Based on the coordinates, these objects are placed relative to each other in what is a 2D space, although the objects remain 3D



## (2) LIGHTING

These polygons are lit correctly, as they will appear based on the positioning and number of light sources and reflective surfaces.



## (3) VIEWPOINT

The viewpoint or orientation of the user is taken into account, closer objects will be larger and vice versa and all objects in the scene are manipulated on the basis of the orientation.





## (8) TEXTURE & SHADING

This involves performing a makeup job on each pixel. A texture is a 2D image that is added to the surface of a 3D object giving it a realistic look, while a pixel shader involves defining properties like colour, texture and depth effects to a pixel to give it a special appearance that mimics reality.



## (7) CULLING

Non-viewable pixels are removed. This is actually the second stage of culling after clipping.



## (6) RASTERIZATION

Objects are assigned to pixels, or in other words the scene is visualised as it would be on your monitor – a bunch of 2D pixels.



## (5) TRIANGLE SETUP

More complex shapes are made from joining the vertex points, and creating multi-sided wireframe models as are seen in 3D scenes.



## (4) CLIPPING

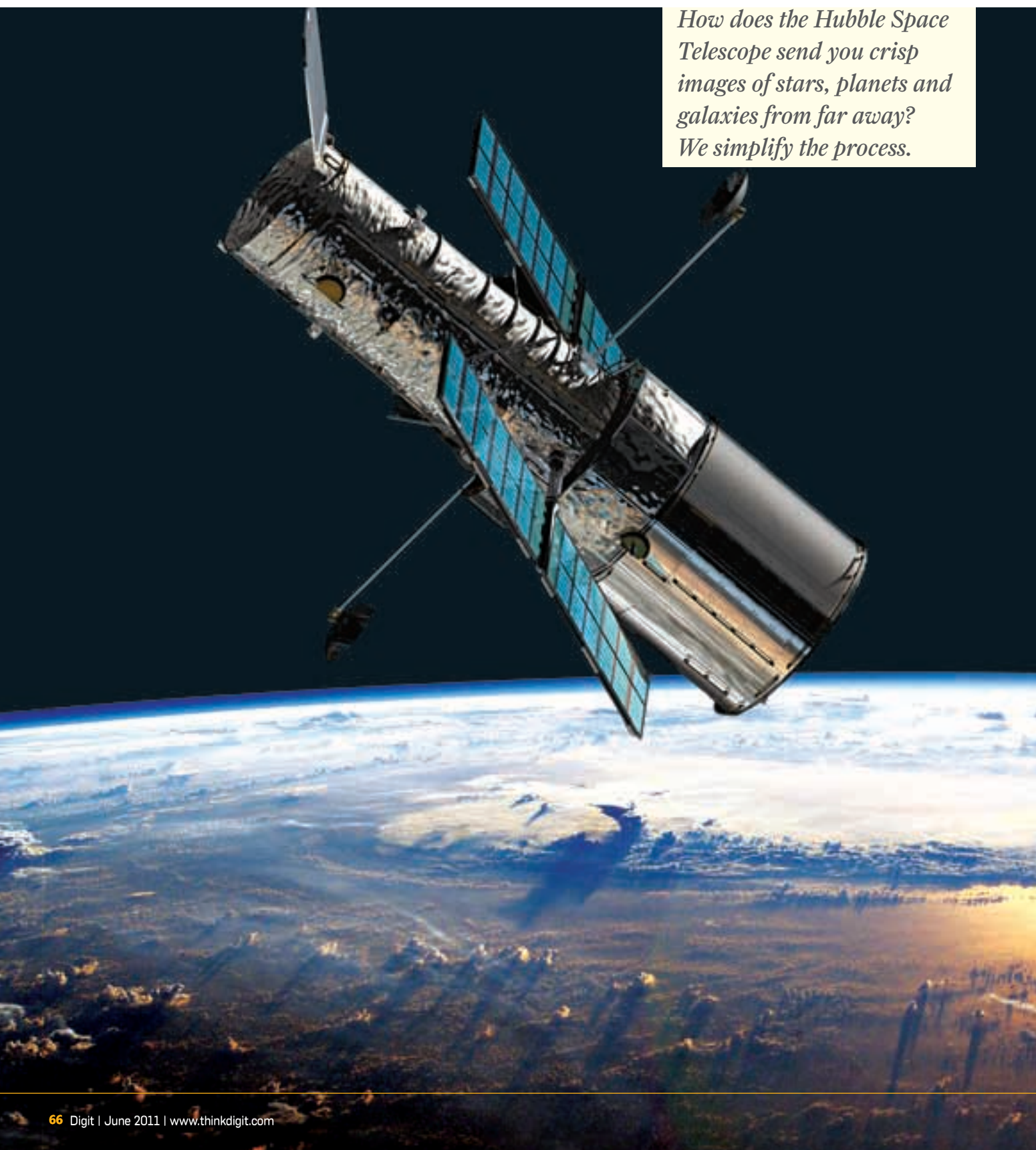
This involves pruning off the objects that will not be visible to the user. This saves the GPU precious computation power as calculations for objects not in the viewable scene need not be done.





# Space Telescope

*How does the Hubble Space Telescope send you crisp images of stars, planets and galaxies from far away? We simplify the process.*



### (1) Object of focus

The Hubble Space Telescope focuses on the object which needs to be shot. The object of focus could be a few million miles or lightyears away in distance.



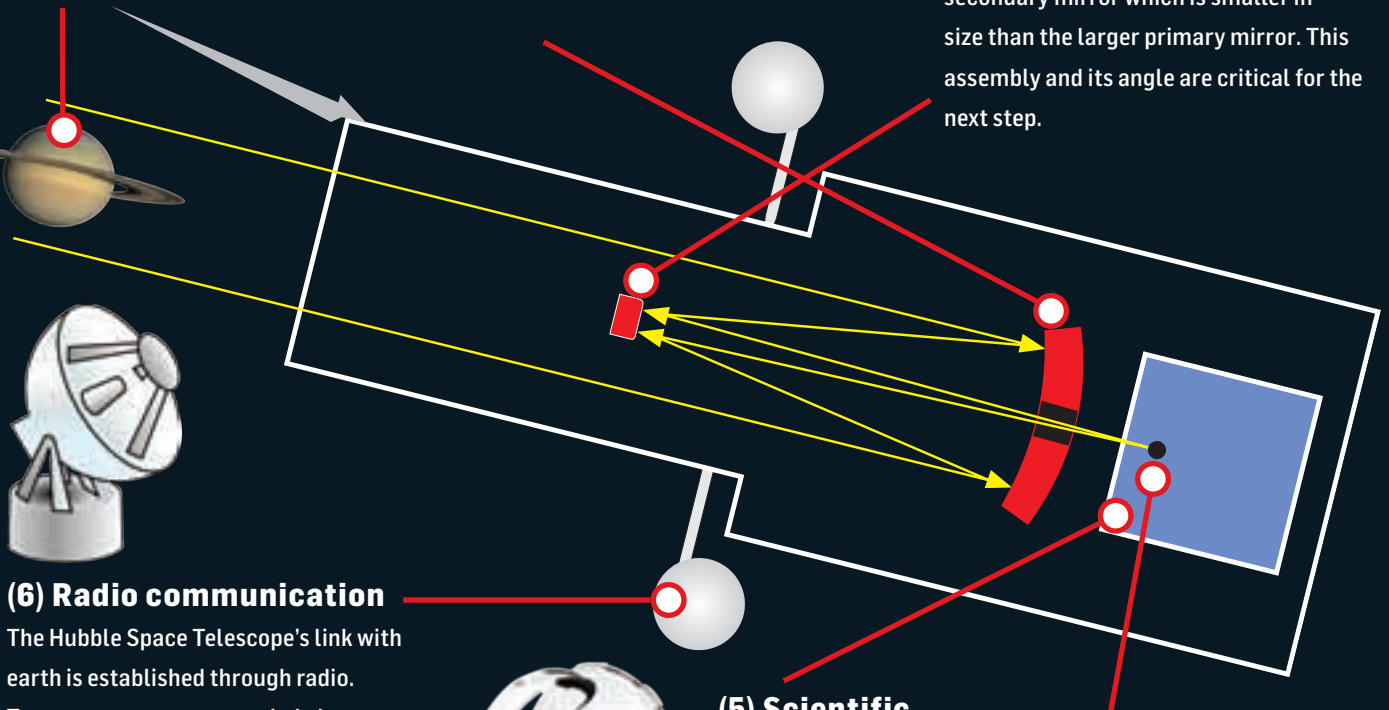
### (2) Primary mirror

Light coming from the subject then hits the primary mirror assembly inside the Hubble Space Telescope. The image formed there is projected onwards.



### (3) Secondary Mirror

From the primary mirror, light hits the secondary mirror which is smaller in size than the larger primary mirror. This assembly and its angle are critical for the next step.



### (6) Radio communication

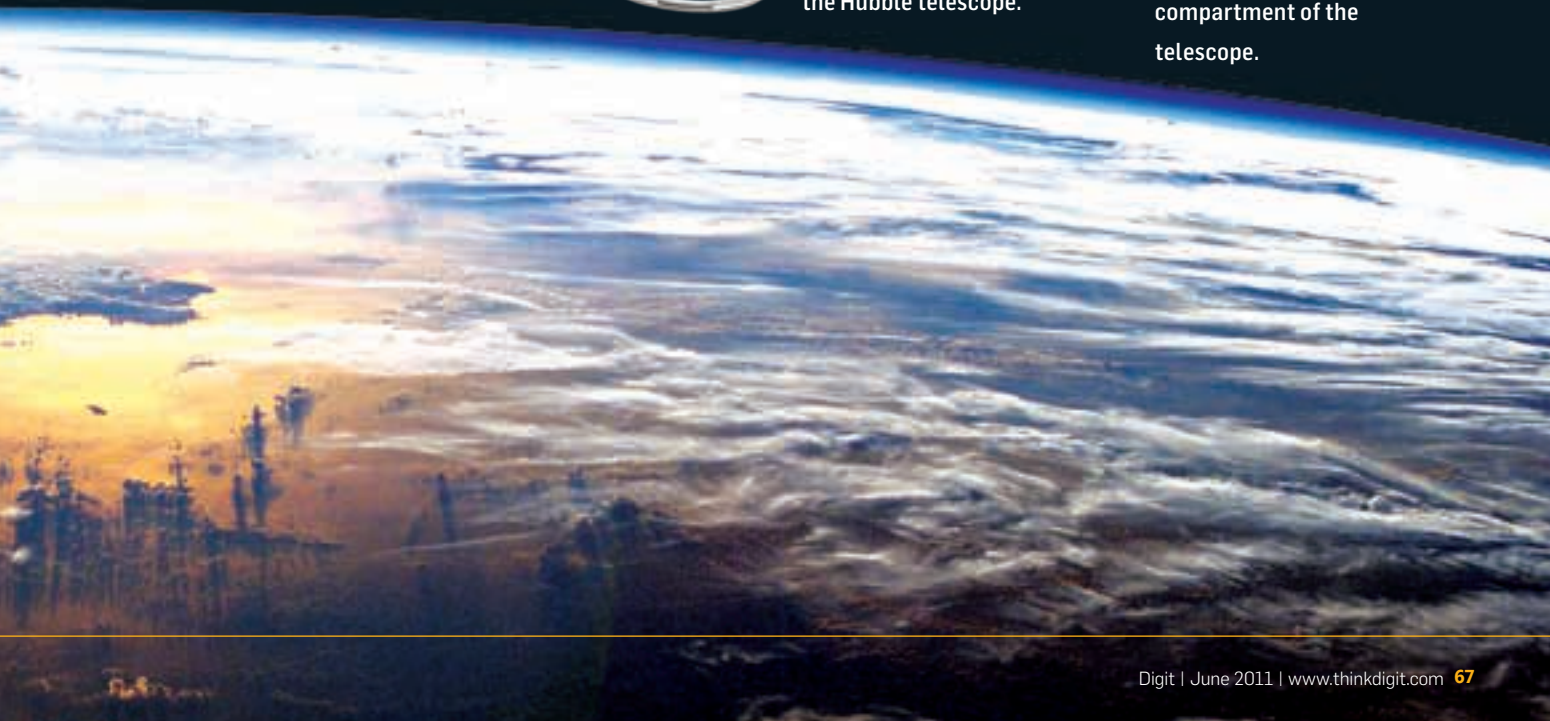
The Hubble Space Telescope's link with earth is established through radio. Two antennae are suspended along the telescope's body. Commands sent to manipulate the telescope are also received here.

### (5) Scientific Instruments

All sorts of experiments and image post-processing happens at this stage of the Hubble telescope.

### (4) Focal point

Finally, the light hits the focal point situated inside the scientific experiments compartment of the telescope.





# Stealth Fighter

*Stealth is the ability to evade detection, and stealth fighters attempt to minimise their heat and radar signatures to do so.*

*We analyse the F-22 Raptor's – a superior stealth plane – methods of avoiding radar and heat detection.*

## **Hoodwinking Radar**

A major component of a stealth fighter's ability to go undetected over a radar field is its unconventional design. The sharp nose, angular edges and slim design has less to do with aerodynamical integrity as compared to stealth. Even the materials used to make a stealth fighter like the F-22 is different from your commercial airliner – the Boeing 747.

Here we see that the commercial 747 jumbo jet's footprint is much larger compared to the F-22. And its exterior body is unlike the F-22's, even the components and material used is different – one that is easily detected off radar.

So as radio waves are emitted from a radar dish, the ones hitting the jumbo jet reflect back to the receiving dish, whereas the same waves hit the F-22 and are either absorbed or dispersed after encountering its exterior.

### No Straight Surfaces

While traditional curved surfaces are good reflectors as well, radar reflects very well off straight surfaces, almost directly back to the source. To minimise that, either many differently arranged straight surfaces are used to break the reflection into several directions like in the B-2, or, specially curved surfaces like F-22s.

### Super-Cruise Engines

Surely you haven't given a thought to how a plane takes off, flies and lands without tripping over things, even while you were jet setting off to some destination! Well, the entire process is controlled by what is known as the air traffic control (ATC) system.

### Angled Jet Exhaust

Minimising the area of exhaust heat from jet engine, the exhausts are designed to direct the low. Stealth bombers, like the B-2, also lower their infrared signature by angling the exhaust over the body of the plane.

### Composite, Super-Strong Materials

Metal is a good reflector of radio waves, whereas carbon, and compounds such as plastic are bad reflectors. Composite material are therefore used to create superstrong materials using metals, carbon, and more in the F-22 Raptor's build design.

### Canted Tail Fins

Tail fins provide an excellent broadside radar cross-section, if mounted conventionally. Canted tail fins will redirect the reflection. The entire process is controlled by the air traffic control (ATC) system.

### Thrust Vectoring

While this is not truly stealth technology, and not a must on a stealth plane, its applications in manoeuvrability and exhaust control are numerous.



# Cloud Hosting

*Cloud Hosting has completely changed the way applications are written for the web, deployed on the web, and distributed to users. Let us take a look at how cloud hosting works as a concept.*

## **SINGLE SERVER HOSTING VS. CLOUD HOSTING. AND THEN SOME...**

Hosting multiple websites on a single server has been done from quite a while. Most web hosts will offer something called shared hosting in which one machine will be serving multiple websites. It is a cheap way to get started with a

website, however it still has the same issues as a dedicated hosting solution, you cannot go beyond the power of a single machine.

This problem is common enough that it has led to changes in the way websites are hosted, and the techniques that have come into use are now called "Cloud Hosting", where instead of having a single

computer serving a single website, you have numerous computers serving numerous websites.

A website with cloud hosting could be running on any number of servers at a given time. To start off, only one "instance" of your webserver is running, and you are charged for a single instance only. However as the load on your

server increases, other instances of your website could be launched to ease the burden. A load balancing system ensures that no server is overloaded and that the end-user can continue accessing the website transparently.

Cloud hosting relies on virtualization of resources.



## **VISITING A WEBSITE**

A Web user types [www.thinkdigit.com](http://www.thinkdigit.com) in his Web browser. At this stage, there's no way to find where the website is hosted -- it could be hosted on any number of servers, and tracing the IP to one dedicated server isn't always possible in a cloud hosting setup. Also, with a single user visiting ThinkDigit.com, there isn't enough load on the cloud hosting setup.





## VIRTUAL SERVERS

When a few thousand users are logged onto ThinkDigit's website or forum, the true advantages of a cloud hosting setup kicks in. During this scenario, the website is hosted and served from various virtual servers. Basically multiple instances of the website are created across multiple servers which are connected through the cloud hosting setup.



## LOAD BALANCING SYSTEM

This is a critical component of the cloud hosting setup. A load balancing system ensures that no server is overloaded and that the end-user can continue accessing the website transparently.

The load balancer is an intermediary between the numerous open connections requesting access to the website that is being served from different servers simultaneously.



## CLOUD HOSTING SETUPS

Unlike conventional dedicated or shared website hosting, where you pay a fixed monthly or yearly subscription fee, cloud hosting operates a little differently. Services such as Amazon Web Services and Google AppEngine, charge based on the instance of a website, amount of storage used, bandwidth used etc, each being billed separately.



# Noise Cancelling Headphones

*When your headphones are on, you want only music, and not your screaming neighbours! That's where noise isolation and cancellation comes in...*

## Passive Noise Cancelling

A typical in-ear headphone has a protruding portion that enters your ear canal and seals it from external noise. This design also helps transfer sound directly from the driver into your ear — that's why the different eartips for different ear sizes. They isolate sound at best, don't really cancel it all that well.



## Active Noise Cancelling

Active noise cancellation at its very basic utilises a physics-based technique called 'destructive interference'; it, that creates a sound wave that is the direct inverse of the external noise, effectively removing it. Hardware noise filters are simple circuits, whereas software runs on a DSP or digital signal processor. A microphone placed externally on the headphone monitors external noise, and this noise is converted to a digital signal that superimposes it over the noise wave, effectively nullifying it.

## Passive Noise Cancelling - Circumaural

The sealed enclosure of passive noise cancelling circumaural headphones coupled with earpads that cover your entire ear acting as a filter to weak external sounds. Some such headphones block external noise well while others are moderately effective. Such headphones are called noise-isolating headphones. This is because they (quite obviously) block out external sound waves rather than neutralise them.

## Interference - Noise Wave

External noise, unwanted sound is received by the headphone via microphone.

## Noise Cancellation - Wave Diagram

The red sound wave is received by the headphone with active noise cancellation. This wave is then nullified by a reverse wave (blue) output generated by the noise cancellation circuit present inside the headphone, both - at the left and the right ear.

## Music - What We Want to Hear

While the external interference is being actively dealt with by the headphone's noise cancellation circuit, music or sound we want to hear is passed "as is" without any tampering, much to the listener's joy.

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\* McAfee is a digital download with 6-month license

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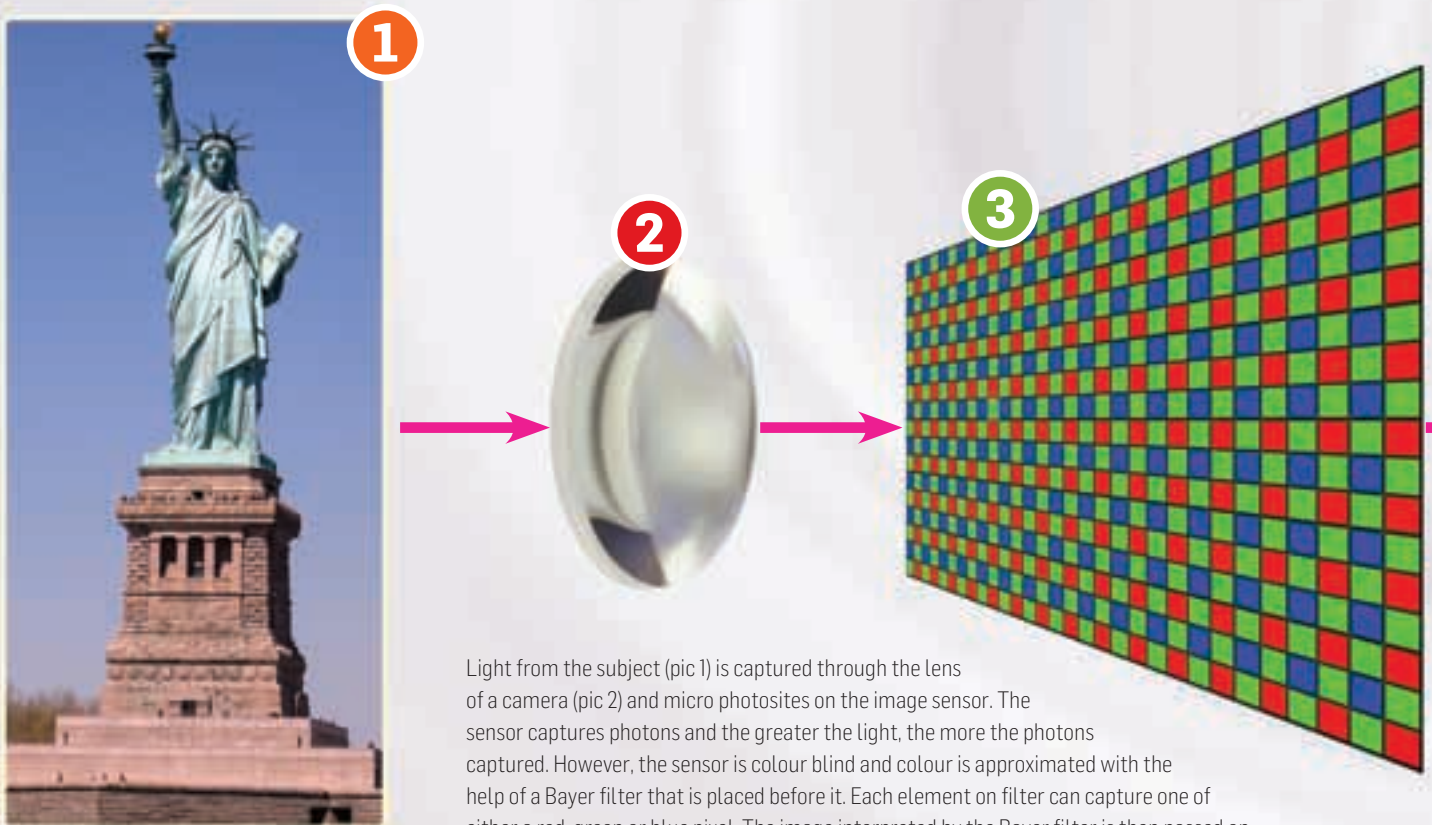
**anytimeretail Login Id:** \_\_\_\_\_

**Email Id:** \_\_\_\_\_



# Digital Camera Sensor

*From the most basic point-n-shoot camera to the largest medium format Phase One or Hasselblad, the core functioning portion of a digital camera remains its sensor. It is the sensor that is responsible for capturing light and converting it into an electrical signal. Or in pure physics terms, converting photons to electrons. To do this, the sensor must be able to record or capture this light in some way.*



Light from the subject (pic 1) is captured through the lens of a camera (pic 2) and micro photosites on the image sensor. The sensor captures photons and the greater the light, the more the photons captured. However, the sensor is colour blind and colour is approximated with the help of a Bayer filter that is placed before it. Each element on filter can capture one of either a red, green or blue pixel. The image interpreted by the Bayer filter is then passed on to the raw image sensor of the camera (pic 4).

A camera sensor, whether CCD or CMOS, is made of silicon, and consists of a huge number of really tiny sites called photosites that are tiny cavities on the surface of the sensor that are sensitive to light.



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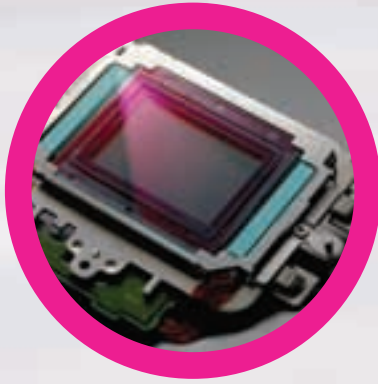
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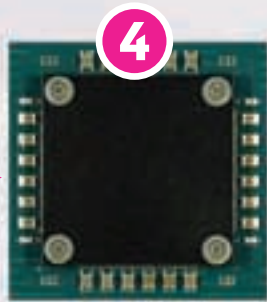
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A typical CMOS sensor  
This one belongs to a  
Canon EOS 1D Mark 4



The photodiodes in these photosites convert this light stored as a charge, and the way they are read depends on the type of sensor – CCD or CMOS. A CCD sensor reads the charge collectively and each pixel's electrical value. In a CMOS sensor, each pixel is read individually at the site, by additional transistors present in the region. This electrical charge is converted into an analogue voltage that is sent to an ADC (analogue to digital converter) where it is converted into a number that represents location and brightness values for each pixel and is readable by all digital devices (pic 5).



Final image JPEG of the Statue of Liberty as can be viewed on your PC's image viewing software.



# Ching's Secret

Instant, Hakka & Pad Thai Noodles,  
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# Air Traffic Control - The eye in the sky

*Surely you haven't given a thought to how a plane takes off, flies and lands without tripping over things, even while you were jet setting off to some destination! Well, the entire process is controlled by what is known as the Air Traffic Control (ATC) system.*



## TRACON - ATC RADAR

Terminal Radar Approach Control or TRACON is a facility that tracks the plane up to about 80km from the airport, guiding it during takeoff and landing. TRACONS are intermediaries of an aircraft's radio contact to and from the Air Route Traffic Control Centers that guides an aircraft between two airports -- these are strategically placed air space monitoring systems. Along with normal radio communication, a TRACON situated in an airport's ATC also utilizes good old human techniques of visually identifying a plane as it approaches an airport. The following are the three stages of an aircraft as it lands at an airport.



### EN-ROUTE

One, or multiple ARTCC (Air Route Traffic Control Center) will monitor and guide the plane till it reaches within 80km of the destination airport, at which point the control is transferred to local ATC tower at the airport.



### APPROACH

TRACON takes charge of monitoring the plane as it approaches the airport at this stage. If required, the plane is asked to circle the airport for a landing slot -- this happens whenever too many aircrafts land or takeoff simultaneously.



### LANDING

Before the plane lands, the ground controller checks visually (with binoculars) and via the ground radars and identifies the perfect window for the aircraft to land. If all's clear, the green signal is lit.



## COMPUTERIZATION

So far, the only major computerization for ATCs have been the enhancement of radars with computers. The complete automation of a computer system taking over the job of routing aircrafts to and from an airport hasn't happened yet. Experts claim it won't ever happen, as a human element will always be required to control exceptional situations.

## WHAT IS THE ATC?

The ATC is a very complex mixture of radars, computers, multiple communication channels and the human factor. To ensure that all aircrafts -- commercial and private -- which are flying in their airspace move safely, the ATC has to co-ordinate their movements, direct them to a unique altitude, keep an eye on their flying speed, and direct them about any altitudinal changes. The ATC also guides pilots during takeoff and landing, and keep an eye on the weather patterns during flights.



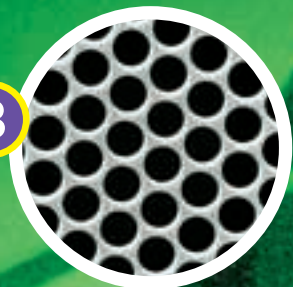
# Night Vision - Shooting in the dark

*How does one see in complete darkness? Night vision cameras and lenses operate in near-zero levels of light, allowing you to glimpse into the night with confidence. But how does this happen? We try to explain how a night vision camera converts a dark image into a decently visible scene (albeit with some noise).*



## Photocathode

It takes light from the lens and helps break it into electrons which are then sent to the Microchannel plate. Light is first converted to electricity as you have electrons coming out of the photocathode



## Microchannel plate

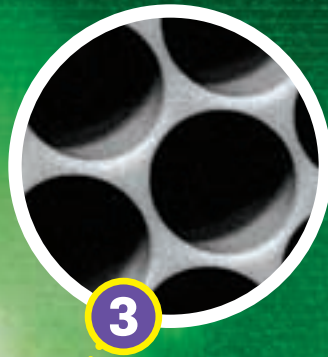
Microchannel plates tunnel electrons that enter it and output a larger number by electrons, thus multiplying their intensity.



**Enter darkness**  
Light through a poorly lit source enters through the front lens of the camera.







A zoomed in view of the plate showcasing the tunnel created. The electrons strike the surface of these tunnels which generates more electrons which are passed on to the phosphor screen.

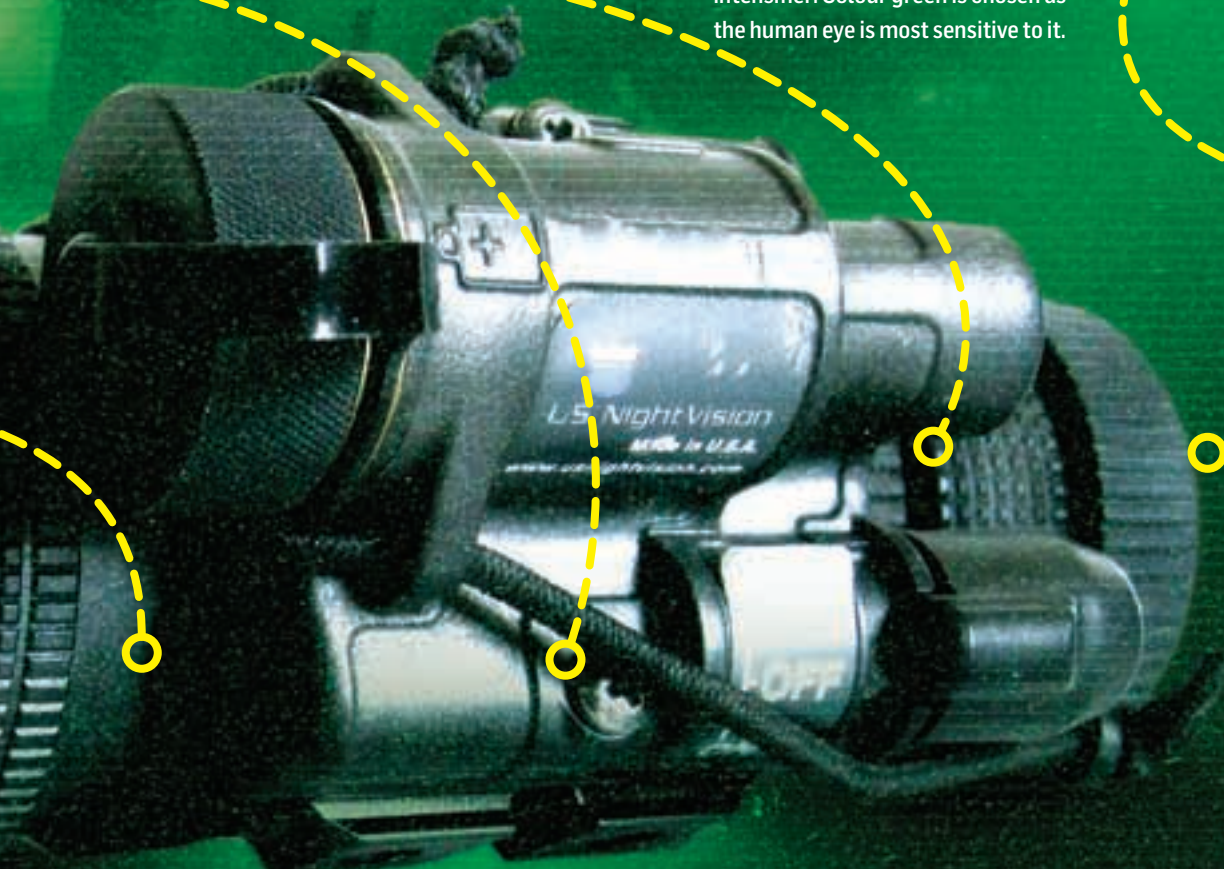


#### Phosphor screen

The phosphor screen converts the striking electrons to photons i.e. back to light, which is transmitted to the image intensifier. Colour green is chosen as the human eye is most sensitive to it.

#### Exit visibility

The image intensifier highlights the green image received from the phosphor screen and adds more detail. The image looks clearer at this stage. The final night vision image is then passed along to the eye-piece.





# Secrets of Google's Search Surprises

*Ever wondered what happens behind the scenes when you search for something on Google.com? It isn't short of rocket science to think how Google delivers search results in a matter of milliseconds.*

## ENTERING QUERY IN GOOGLE'S SEARCH FIELD

This stage is the starting point for an end user. Guy sitting in front of his computer, typing out a search term (keyword or query) on Google.com through his Web browser. This is where the fun begins, an Alice in Wonderland moment for our search query.

1



2

## QUERY PROCESSING STAGE

As you start entering your search term, Google tries to complete your query based on closest matching search terms entered by Google users around the world. This is done by a query processor that tries to predict and serve results (Google Instant) off Google's servers.



### INDEX SERVERS

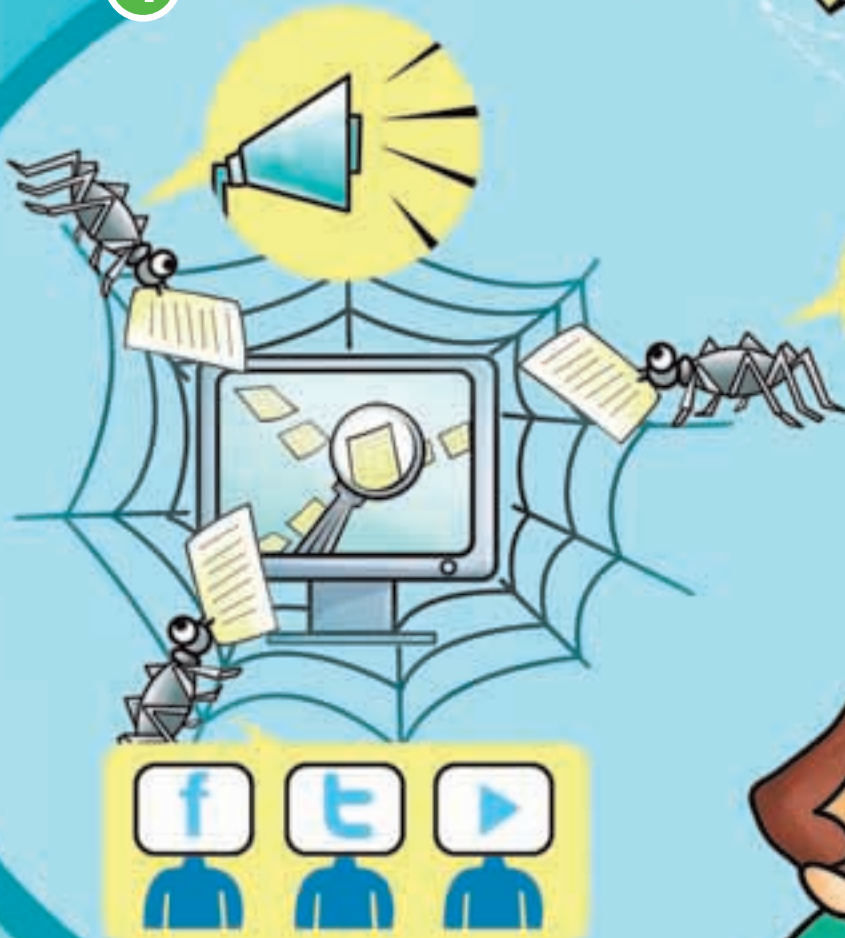
3

After pressing Enter, the query hits Google's Index Servers. Index servers are thousands of server farms housed in datacenters located around the globe that record every single webpage on the internet through "spiders".



### NEXT UP, USING GOOGLE'S PAGE RANK TECHNOLOGY, THE TOP SEARCH RESULTS FOR YOUR QUERY ARE CALCULATED BY DOCUMENT SERVERS

4



### AD SERVER

Google's Ad servers then tries to plug in contextual ads in the search result page.

5

6

### SOCIAL

As Google prepares to display your search result page, it also checks with Facebook and Twitter to see if people are talking socially about your search query. It plugs in these links if necessary.

7

### SEARCH RESULT

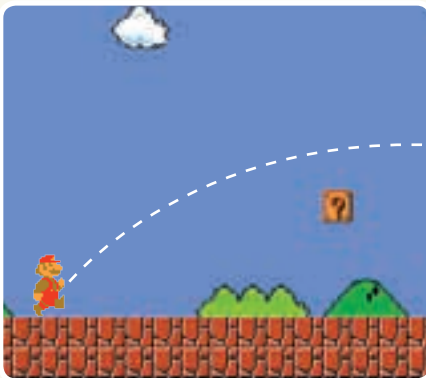
Voila! Within milliseconds, the Document Server's top 10 search results, Ad server links, and social elements come together to form the Google search result page.



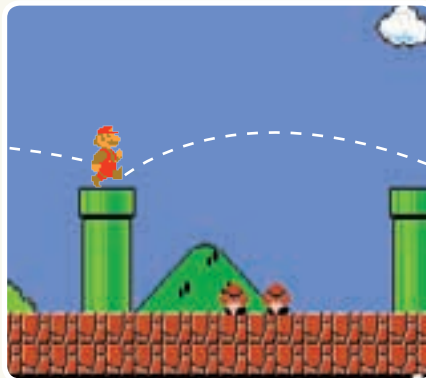


# Hacking: Security threats

*Just as Mario has to navigate the Mushroom Kingdom with caution, you need to be aware of how your security can be compromised with daily activities.*



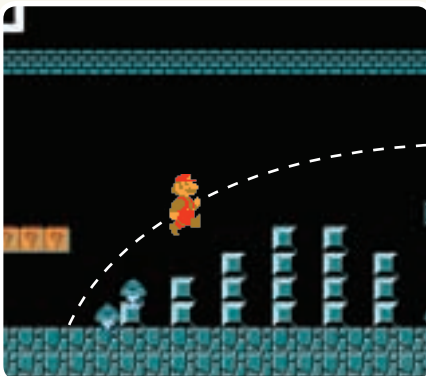
Mario's on his way to a cyber cafe. Not a care in the world, but things are about to change, and quick.



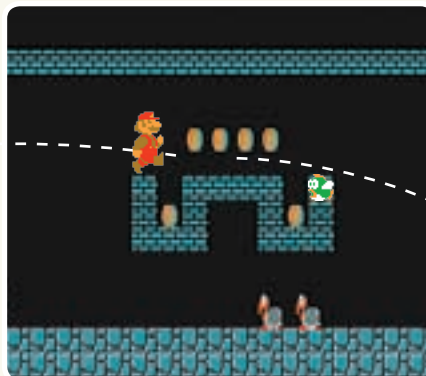
Goomba monsters are patrolling public computers, looking to see if Mario clicked the "remember password" option by mistake.



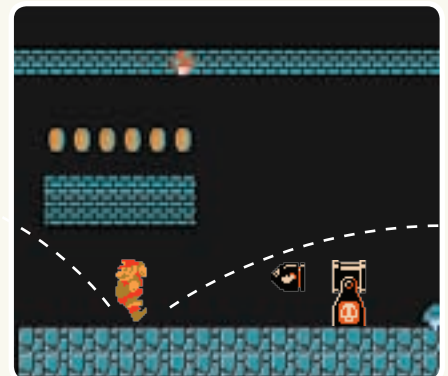
Whoops! Watch out Mario, the Goomba have a hidden key logging software installed on this public PC, monitoring your every move.



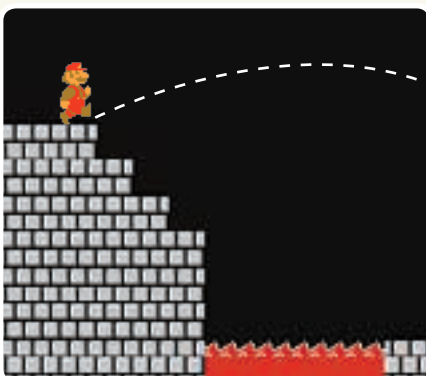
Even on a home PC or an Office PC, try not to click on any remember password options in a browser. The Goomba are ever alert.



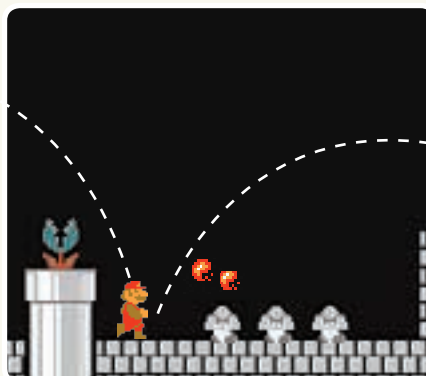
In the underground world, although torrent files may look promising, they could just be a Cheep-Cheep in disguise!



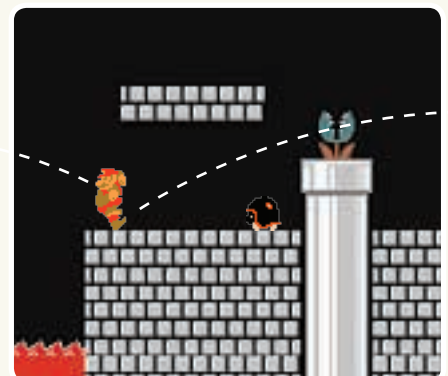
BOOM! A Bill Blaster just fired a Bullet Bill straight at you. Avoid it, it's just a phishing scam.



You've been cautious on your home and office PC, then why ignore your handheld devices? Stay alert, Mario!



Avoid getting sucked into the Goomba's sales pitch. Fake messages equal false hopes, and it's a nightmare in waiting.



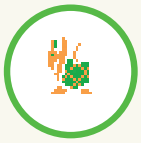
Watch out for the unsuspecting Buzzy Beetles, Mario. Stray too close and photos, videos stored on your phone will be gone.



**Mario**  
aka  
**You**



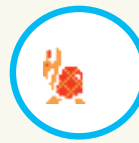
**Goombas aka**  
**Password**  
**Hacks**



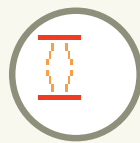
**Koopa Troopa**  
aka  
**Malware**



**Piranha Plant**  
aka  
**USB infection**



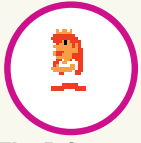
**Red Koopa Troopa**  
aka  
**Keylogger**



**Escape spring**



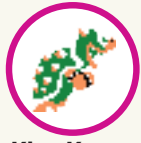
**Bullet Bill**  
aka  
**Phishing bullet**



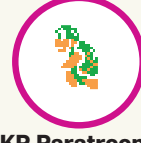
**The Princess**  
aka  
**Your online safety**



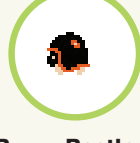
**Cheep-Cheep**  
aka  
**Torrent**



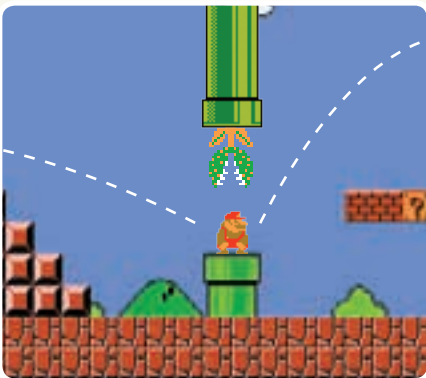
**King Koopa**  
aka  
**Hacker Emeritus**



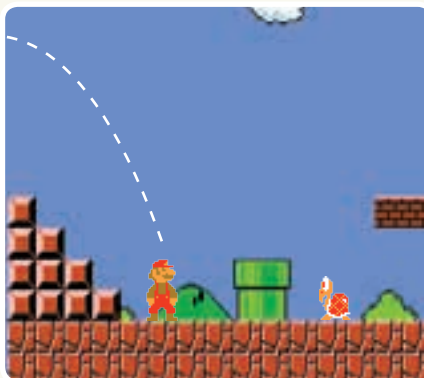
**KP Paratroopa**  
aka  
**Anti-encryption**



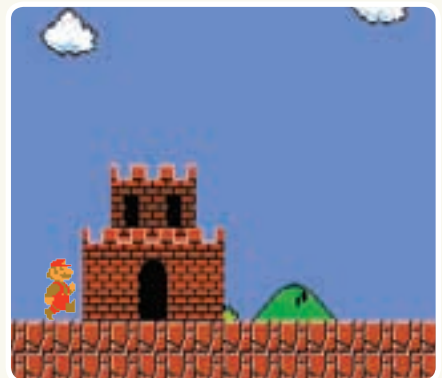
**Buzzy Beetle**  
aka  
**Data Stealers**



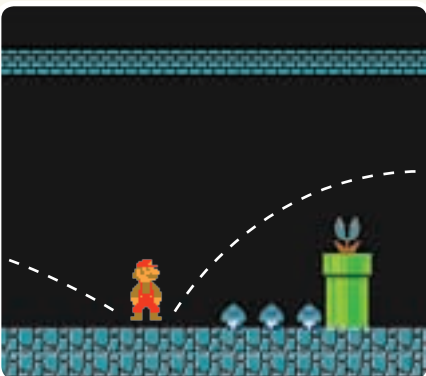
Duck quickly Mario. This PC's USB port is infected with a dangerous Piranha Plant. Don't use your USB stick here.



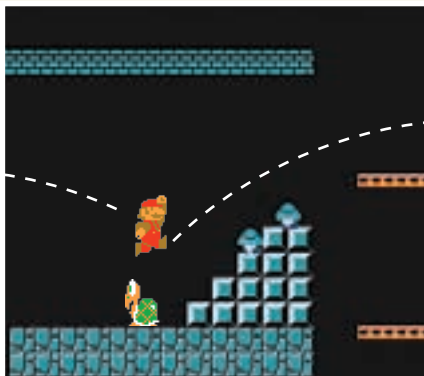
The Red Koopa Troopa is patrolling the cafe looking for files left behind by people. Quick Mario, delete all cookies and files.



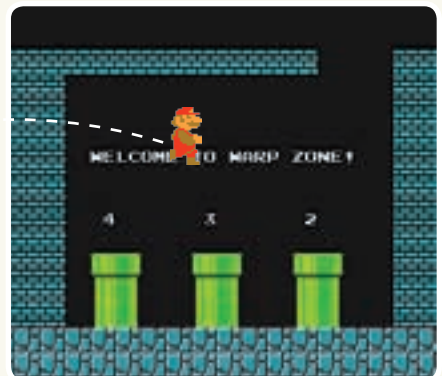
Well done Mario. You made it back home without falling for any tricks. The princess is in another castle.



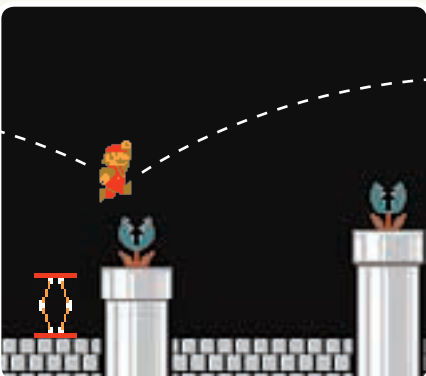
Mario, don't fall for the charm of the latest game downloads, Goomba keygens are waiting to boot you out.



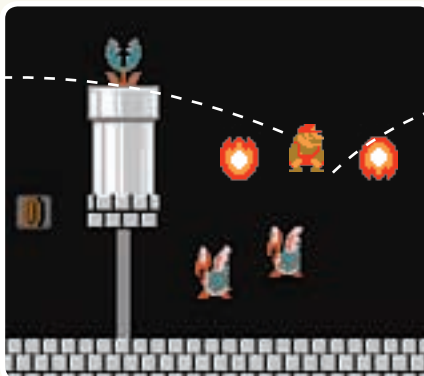
That was close Mario! Now stay away from malware. Don't install suspicious programs or you could compromise the safety of your PC.



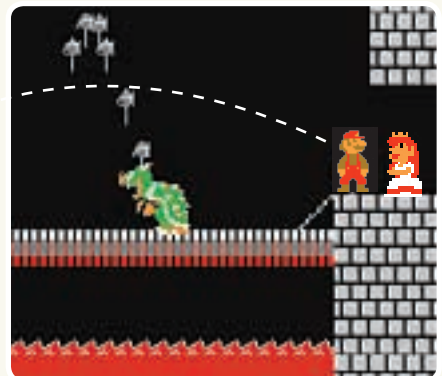
After all the precautions you've taken, don't mess it all with rogue Facebook apps and pretty looking Twitter profiles.



Piranha Plants are waiting to eavesdrop on your conversation, Mario. Speak no secrets or the princess will be lost forever.



Also make sure the secrets you carry are secured from the Hammer Brothers, who are expert "code crackers".



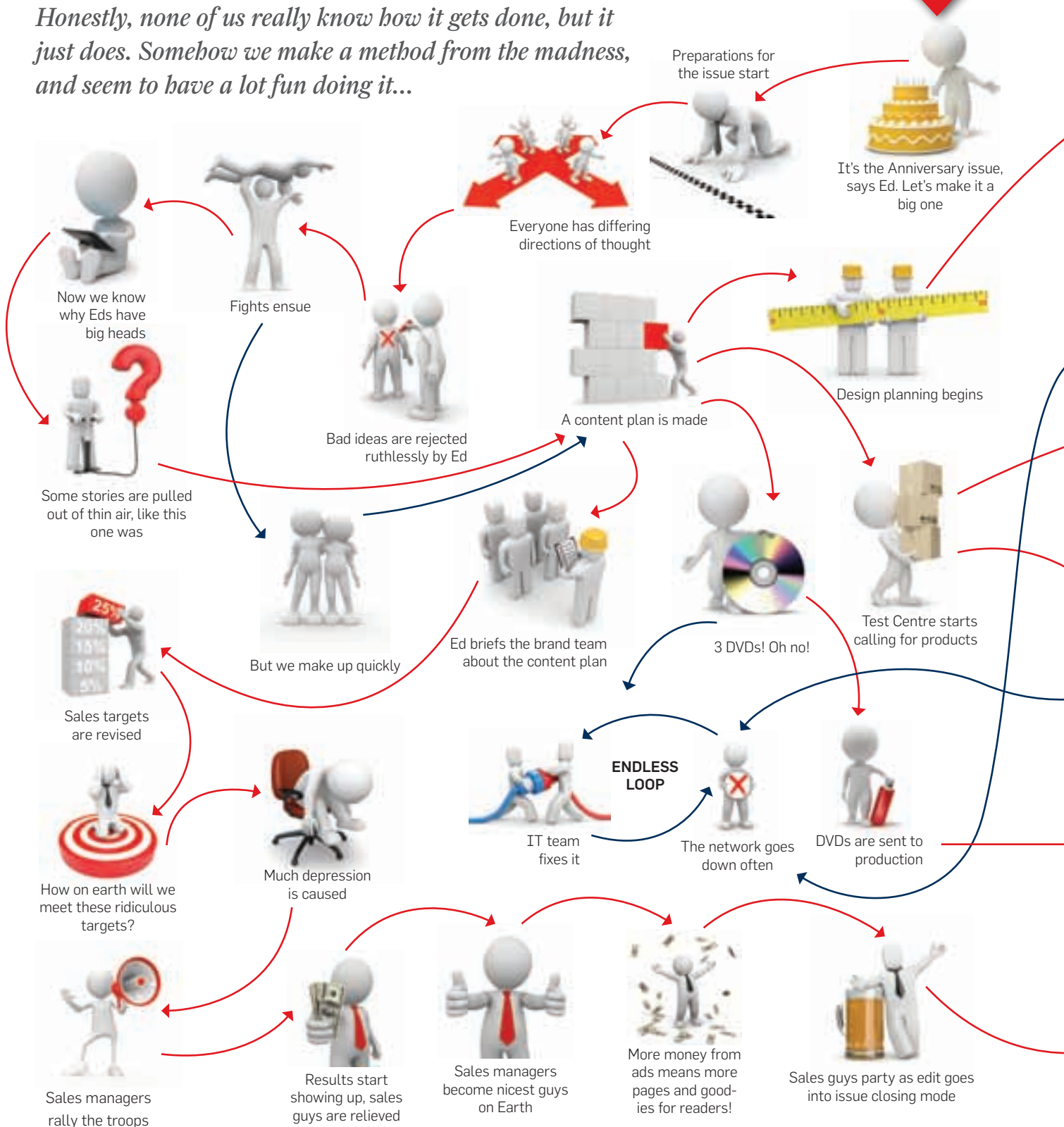
Beating all the privacy and security hazards hasn't been easy, but Mario finally finds the princess. That's reward enough.

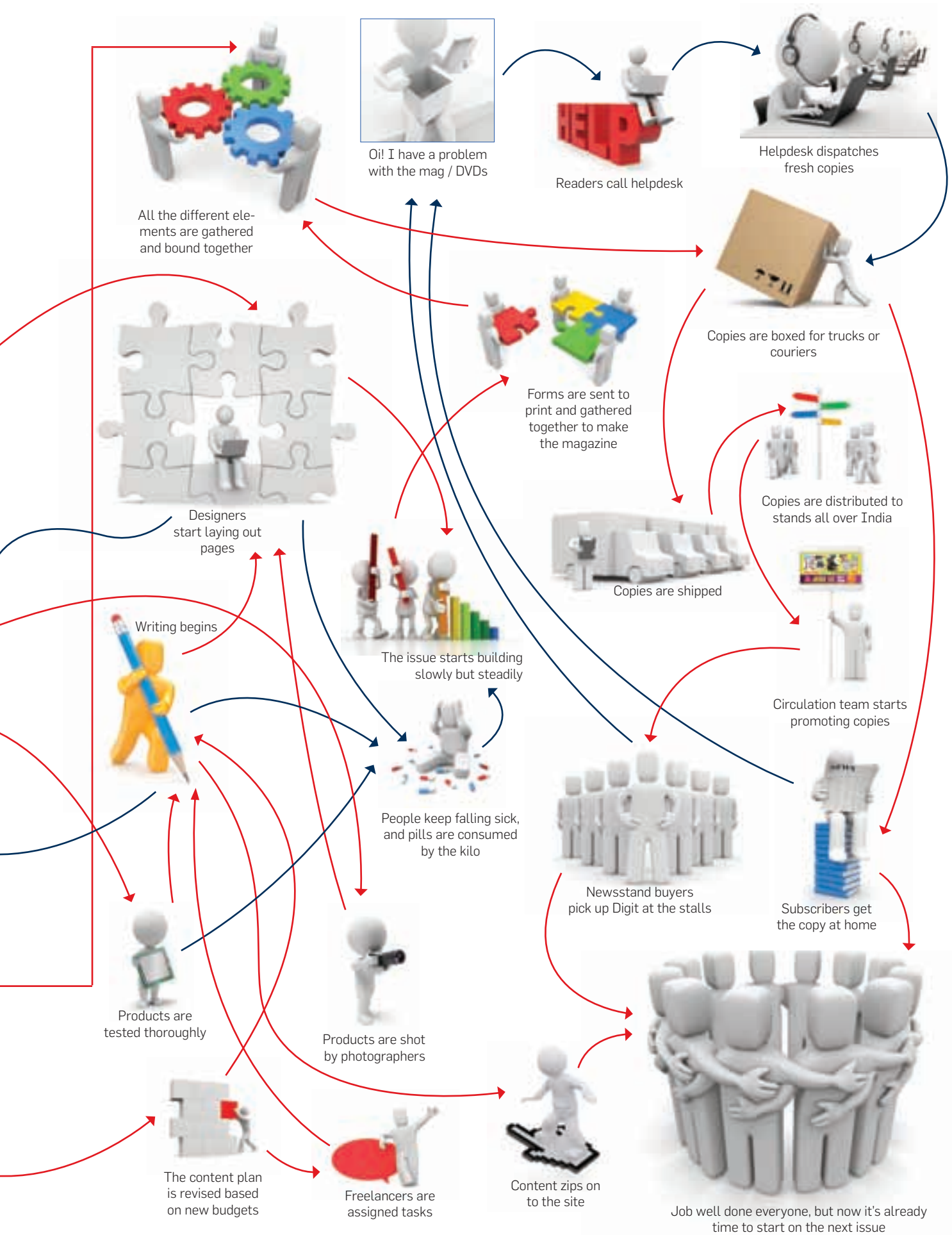


# How diGit Works

START HERE

*Honestly, none of us really know how it gets done, but it just does. Somehow we make a method from the madness, and seem to have a lot fun doing it...*







# Behind the scenes

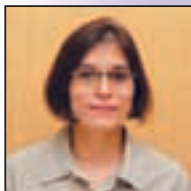


*On the previous spread we've shown you how we work, now meet the people who work tirelessly to bring out your favourite technology magazine every month*

## [ BRAND ]



Pramath Raj Sinha



Anuradha Das Mathur



Kanak Ghosh



Asheesh Gupta



Vikas Gupta



Munish Agrawal



Abhishek Poddar



Navneet Miglani



Prachee B Dongre



Shaunik Kumar



Chandan Kumar



Sourabha

## [ EDITORIAL ]



Robert Sovereign-Smith



Nash David



Siddharth Parwatay



Sambhav Daffu



Infancia Cardozo



Shweta Mali



Michael Browne



Jayesh Shinde



Nimish Sawant



Vishal Mathur



Vinod Yalburgi



Kanchan Hira



Agent 001



Freelancers & Interns



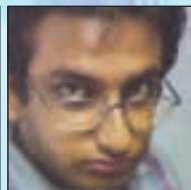
Siddharth Chauhan



Soham Raninga



Abhinav Lal



Kshitij Sobti



## [ DESIGN ]



Jayan Narayanan



Binesh S



Anil VK



Anoop PC



Anil T



Sristi Maurya



Suneesh K



NV Baiju



Chander Dange



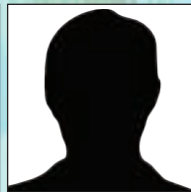
Vinod Shinde



Jiten Gandhi



Subhojit Paul



Shigil N



Prasanth TR

## [ PRODUCTION & LOGISTICS ]



Shivshankar Hiremath



Rakesh Upadhyay



Vilas Mhatre



Nilesh Shirwadekar



Brahmanand Nikalje



Bhosle



Vijayaraman Menon



Omkar H. Tarde



Mahendra K. Singh



Mohammed Ansari



Vinod Maske



Ananta Patil

## [ SUPPORT STAFF ]



Bhaskar Rao



Vikas Patil



Chandrakant Magham

## [ CIRCULATION ]



Ranvir Singh Bisht



Jayanta Bhattacharyya



Vinay Bisht



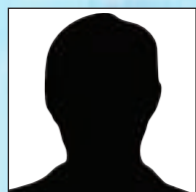
Samir Mehta



Norbert Joseph



Vijay Mhatre



Chandru



Sandeep S. Bhandari



Dharmendra Singh

## [ SALES ]



Lalit Arun



Ram Sarangi



Debleena Majumdar



Kishan Singh



Sameer Gore



Suvarna SShringarpure



Krishnadas Kurpa



Arpita Ganguli

## [ CUSTOMER SERVICE ]



Itishree Mishra



Pinky Tripathy



Sudhir Patel



Sufyan Chimavkar

## [ IT ]



Ajay Kumar



Athar Mustafa



Durgesh Kumar



Vinayak Chavan



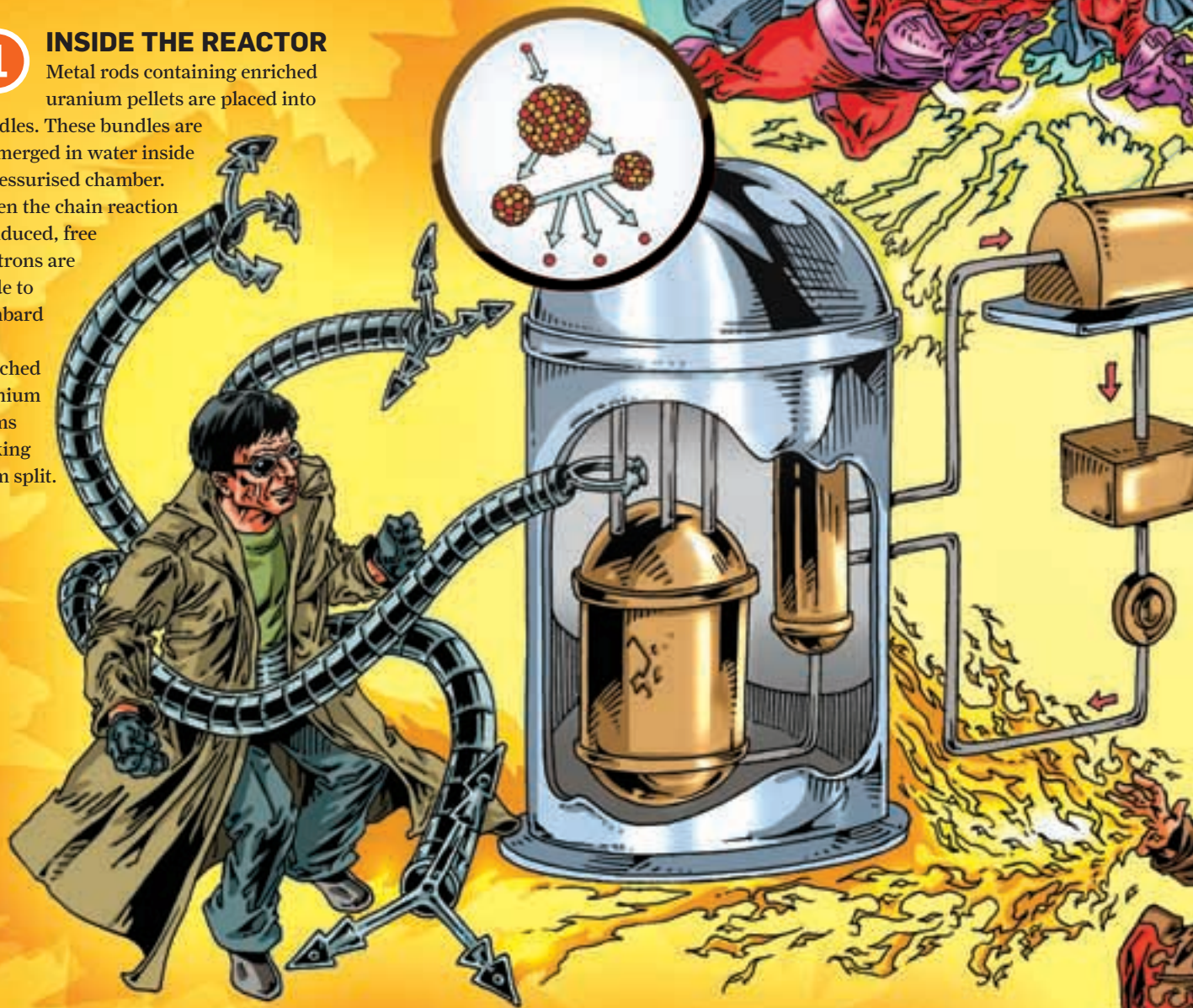
## Nuclear Reactors:

## The Dark side

*Nuclear reactors are considered pretty evil these days. What if they were really run by supervillains?*

**1 INSIDE THE REACTOR**

Metal rods containing enriched uranium pellets are placed into bundles. These bundles are submerged in water inside a pressurised chamber. When the chain reaction is induced, free neutrons are made to bombard the enriched uranium atoms making them split.

**2 THE CHAIN REACTION**

The split atoms produce more free neutrons which in turn make more atoms split known as a chain reaction. The water here works to slow the neutrons (for better fission) and also acts as a coolant.

**3 PYRO BURNS IT UP**

This splitting or fission reaction releases enormous amounts of heat energy. This heat is used to raise the temperature of water to high levels without letting it turn to steam by applying high pressure.



4

**MAKE STEAM PUNK!**

Super-heated water is looped through another reservoir of normal pressure water, which is allowed to turn to steam. The steam in turn drives the turbines that generate electricity.

5

**MR. OCTOPUS!**

Control rods, made of a material such as cadmium that absorbs free neutrons are placed within the reactor core to control the reaction and production of heat. If more heat is required the rods are lowered, if fission needs to be controlled the rods are inserted further into the core. If Mr. Octopus wishes to completely stop the reaction, the rods are inserted completely.

6

**MR. FREEZE!**

The steam is converted back to water in the cooling tower and sent back to the reactor.

**ELECTRO!**

*With help of all his badass buddies, electro powers transmission lines with freshly brewed evil electricity.*





# PC: The Curious Case of Win Start Button

*Ever wondered what goes on behind the scenes, when you press that Win Start button and get the pop up? Within that microsecond's delay, here is what your system undergoes. Read on...*

## PROCESS INITIATION

1

After the Windows key is pressed, a scan code is generated. Scan code is the binary code related to the key pressed on the keyboard.



## GENERAL PASSING THE BUCK TO THE GUNNERS

5

The Explorer calls the OS to display the output on the monitor. OS reads RAM and sends the output to the video memory of the graphics card (The Gunners).





2

## INTERRUPTING THE PROCESSOR

Keyboard microcontroller interprets the scan code and stores it in the special memory till the processor is ready. A hardware interrupt is sent to the CPU for further action.

4

## CALLING GENERAL RAM

The OS invokes the Explorer which determines that the Win+Start key was pressed. Necessary 0s and 1s are generated to be sent to RAM (represented by the Red uniformed general).



3

## THE PROCESSOR GOD

Initially the interrupt from the microcontroller is kept in a queue, till the processor is free. On coming across the scan code, it is routed to the operating system. The OS decides for what task the key was pressed.

## MISSION ACHIEVED

The Gunners shoot out the relevant signals via the display port. This causes the Start menu pop-up to display on your monitor, the next time it refreshes.

6





**10.1 with 3.1**

Samsung Galaxy Tab 10.1 is expected to ship out with Android 3.1 onboard according to speculations

# SPEND SMART

Updated prices of Graphics Cards, Cellphones and Digital Cameras

## NVIDIA GRAPHICS CARD

Brand	Model Number	Price	Direct X	Memory Type	Memory/Bus Width	Stream Processors
ASUS	GeForce GTX 465	13295	DirectX 11	GDDR5	1 GB / 256bit	352
ASUS	GeForce GTX 470	19581	DirectX 11	GDDR5	1 GB / 320bit	448
ASUS	GeForce GTX 480	29719	DirectX 11	GDDR5	1 GB / 384bit	480
ASUS	GeForce GTX 580	32421	Directx 11	GDDR5	1.5 GB / 384bit	512
eVGA	GeForce GTX 465	15729	DirectX 11	GDDR5	1 GB / 256bit	352
eVGA	GeForce GTX 480	30335	DirectX 11	GDDR5	1536 MB / 384bit	480
MSI	GeForce GT 430	4120	DirectX 11	DDR3	1 GB / 128 bit	96
MSI	GeForce GTX 460	10914	DirectX 11	GDDR5	1 GB / 256bit	336
MSI	GeForce GTX 570	22470	DirectX 11	GDDR5	1280 MB / 320bit	512
Palit	GeForce GTX 460	10138	DirectX 11	GDDR5	1 GB / 256bit	288
Palit	GeForce GTX 460	13536	DirectX 11	GDDR5	2 GB / 256bit	336
Palit	GeForce GTX 470	15783	DirectX 11	GDDR5	1280 MB / 320bit	Any
Palit	Geforce GTX 480	26456	DirectX 11	GDDR5	1536 MB / 384bit	Any
Palit	GeForce GTX 580	29853	DirectX 11	GDDR5	1536 MB / 384bit	512
POV	GeForce GT 430	4227	DirectX 11	DDR3	1 GB / 128bit	96
POV	GeForce GTX 460	10727	DirectX 11	GDDR5	768 MB / 192bit	336
POV	GeForce GTX 460	11128	DirectX 11	GDDR5	1 GB / 256bit	336
Sparkle	GeForce GTX 470	19902	DirectX 11	GDDR5	1280 MB / 320bit	448
Sparkle	GeForce GTX 480	33919	DirectX 11	GDDR5	1536 MB / 384bit	480
XFX	GeForce GT 240	5511	DirectX 10.1	DDR5	1 GB / 128bit	96
XFX	GeForce GTS 250	7517	DirectX 10	DDR3	1 GB / 256bit	128
XFX	GeForce GTX 285	21989	DirectX 10	DDR3	1 GB / 512bit	240
Zotac	GeForce GTS 450	8533	DirectX 11	GDDR5	1 GB / 128bit	192
Zotac	GeForce GTX 460	12198	DirectX 11	GDDR5	1 GB / 256bit	336
Zotac	GeForce GTX 460	14713	DirectX 11	GDDR5	2 GB / 256bit	336
Zotac	GeForce GTX 470	14953	DirectX 11	GDDR5	1280 MB / 320bit	448
Zotac	GeForce GTX 570	21748	DirectX 11	DDR5	1280 MB / 320bit	480
Zotac	GeForce GTX 480	27071	DirectX 11	DDR5	1536 MB / 384bit	480
Zotac	GeForce GTX 580	29880	DirectX 11	GDDR5	1.5 GB / 384bit	512

## AMD GRAPHICS CARD

Brand	Model	Price	Direct X	Memory Type	Memory/Bus Width	Stream Processors
ASUS	Radeon HD 6850	12599	DirectX 11	GDDR5	1 GB / 256bit	960
ASUS	Radeon HD 5850	18458	DirectX 11	GDDR5	1 GB / 256bit	1440
ASUS	Radeon HD 5970	41463	DirectX 11	GDDR5	2 GB / 256bit	3200
MSI	Radeon HD 5450	2434	DirectX 11	DDR3	1 GB / 64bit	80
MSI	Radeon HD 5670	5136	DirectX 11	GDDR5	1 GB / 128bit	400
MSI	Radeon HD 5770	7704	DirectX 11	GDDR5	1 GB / 128bit	800
MSI	Radeon HD 6850	10352	DirectX 11	GDDR5	1 GB / 256bit	960
MSI	Radeon HD 6950	17120	DirectX 11	GDDR5	2 GB / 256bit	1408
MSI	Radeon HD 6970	21694	DirectX 11	GDDR5	2 GB / 256bit	1536
Powercolor	Radeon HD 6850	10807	DirectX 11	GDDR5	1 GB / 256bit	960
Powercolor	Radeon HD 5850	14124	DirectX 11	GDDR5	1 GB / 256bit	1440
Powercolor	Radeon HD 6870	14285	DirectX 11	GDDR5	1 GB / 256bit	1120
Powercolor	Radeon HD 5870	24717	DirectX 11	GDDR5	1 GB / 256bit	1600
Sapphire	Radeon HD 5750	6420	DirectX 11	GDDR5	1 GB / 128bit	720
Sapphire	Radeon HD 6850	11636	DirectX 11	GDDR5	1 GB / 256bit	960
Sapphire	Radeon HD 6870	13268	DirectX 11	GDDR5	1 GB / 256bit	1120
Sapphire	Radeon HD 5850	15274	DirectX 11	GDDR5	1 GB / 256bit	1440
Sapphire	Radeon HD 6950	16692	DirectX 11	GDDR5	2 GB / 256bit	1408
Sapphire	Radeon HD 5870	20330	DirectX 11	GDDR5	1 GB / 256bit	1600
Sapphire	Radeon HD 6970	22310	DirectX 11	GDDR5	2 GB / 256bit	1536
Sapphire	Radeon HD 5870	27071	DirectX 11	GDDR5	2 GB / 256bit	1600
XFX	Radeon HD 5450	2729	DirectX 11	DDR3	1 GB / 64bit	80
XFX	Radeon HD 5770	8025	DirectX 11	GDDR5	1 GB / 128bit	720
XFX	Radeon HD 6850	12091	DirectX 11	GDDR5	1 GB / 256bit	960
XFX	Radeon HD 5850	14124	Directx 11	GDDR5	1 GB / 256bit	1440
XFX	Radeon HD 6870	14231	DirectX 11	GDDR5	1 GB / 256bit	1120

## SE store hacked into

After hacking into the PlayStation network, hackers have now targeted Sony Ericsson's Canadian online store compromising 2000 eshop customers' data



Powered by

Price watch

### CELLPHONES

Brand	Model	Price	GPS	Camera (Primary)	SIM Slots
Acer	M900	16261	Yes	5.0 MP	Single
Acer	Liquid E	17675	Yes	5.0 MP	Single
Acer	Liquid e ferrari	24745	Yes	5.0 MP	Single
BlackBerry	Curve 8520	9721	No	2.0 MP	Single
BlackBerry	9100 PEARL	12625	Yes	3.2 MP	Single
BlackBerry	Pearl 3G 9105	13635	Yes	3.2 MP	Single
BlackBerry	9300 CURVE	14165	Yes	2.0 MP	Single
BlackBerry	Bold2 9700	22220	Yes	3.1 MP	Single
BlackBerry	Bold 9780	26184	Yes	5.0 MP	Single
BlackBerry	Torch 9800	28583	Yes	5.0 MP	Single
Dell	XCD28	7826	Yes	3.2 MP	Single
Dell	Venue Pro	32016	Yes	5 MP	Single
Dell	Streak	32824	Yes	5.0 MP	Single
HTC	Wild Fire	12086	Yes	5.0 MP	Single
HTC	Desire Touch	23129	Yes	5.0 MP	Single
HTC	HD7	28583	Yes	5.0 MP	Single
Micromax	X510 Pike	4040	No	2.0 MP	Single
Micromax	Q7	4116	No	2.0 MP	Dual
Micromax	Q6	4343	No	2.0 MP	Dual
Micromax	X550 Qube	4343	No	2.0 MP	Dual
Micromax	Q55 Bling	4823	No	2.0 MP	Dual
Micromax	A60	6742	Yes	3.2 MP	Single
Micromax	Modu T	10100	Yes	5.0 MP	Single
Motorola	MILESTONE	20604	Yes	5.0 MP	Single
Nokia	X2	4855	No	5.0 MP	Single
Nokia	C3	5826	No	2.0 MP	Single
Nokia	X3	6541	No	3.2 MP	Single
Nokia	C5	7309	Yes	3.2 MP	Single
Nokia	E63	7887	No	2.0 MP	Single
Nokia	E5	10196	Yes	5.0 MP	Single
Nokia	E52	10580	Yes	3.2 MP	Single
Nokia	E71	12987	Yes	3.2 MP	Single
Nokia	C6	13130	Yes	5.0 MP	Single
Nokia	X6 8GB	13946	Yes	5.0 MP	Single
Nokia	X6 16GB	15720	Yes	5.0 MP	Single
Nokia	C6-01	16668	Yes	8 MP	Single
Nokia	N8	23821	Yes	12.0 MP	Single
Nokia	N900	24773	Yes	5.0 MP	Single
Nokia	E7-00	28584	Yes	8 MP	Single
Samsung	Guru E2130	2247	No	VGA	Single
Samsung	Metro S3310	3788	No	2.0 MP	Single
Samsung	Chat 322	4343	No	1.3 MP	Dual
Samsung	Metro S5200	4949	No	3.2 MP	Single
Samsung	Galaxy 5	8939	No	2.0 MP	Single
Samsung	Galaxy 3	11715	Yes	3.0 MP	Single
Samsung	Galaxy Ace S5830	15939	Yes	5 MP	Single
Samsung	Galaxy S LCD I9003	20895	Yes	5 MP	Single
Samsung	I9000	24480	Yes	5.0 MP	Single
Samsung	Galaxy Tab P1000	25398	Yes	3 MP	Single
Sony Ericsson	Xperia X10 Mini	11969	Yes	5.0 MP	Single
Sony Ericsson	Xperia X10 Mini Pro	13585	Yes	5.0 MP	Single
Sony Ericsson	Aino Classic	14640	Yes	8.1 MP	Single
Sony Ericsson	Aspen	14645	Yes	3.2 MP	Single
Sony Ericsson	Vivaz	17019	Yes	8.1 MP	Single
Sony Ericsson	Vivaz Pro	20049	Yes	5.1 MP	Single
Sony Ericsson	Satio	21160	Yes	12.1 MP	Single
Sony Ericsson	Xperia X10	23977	Yes	8.1 MP	Single
Videocon	V1305	1111	No	No	Dual
Videocon	V1655	4742	No	2.0 MP	Dual
Videocon	V1665	4871	No	2 MP	Dual
Videocon	V1688	6893	No	2 MP	Dual
Videocon	V6200	8849	Yes	2 MP	Single
Videocon	V7500	11110	Yes	5 MP	Single

### DIGITAL CAMERA

Brand	Model	Price	Optical Zoom	Wide Angle
Canon	A3100 IS	7194	4X	36 mm
Canon	IXUS 105 IS	8223	14x	35 mm
Canon	A3200 IS	8971	5X	28 mm
Canon	IXUS 130 IS	10230	4x	28 mm
Canon	SX210IS	18645	4x	35 mm
Canon	IXUS 300 HS	24530	10x	28 mm
Canon	A495	26378	4x	24 mm
Canon	SX30IS	28380	4x	Any
Canon	G12	31350	16x	35 mm
Casio	EX-Z350	7975	4x	Any
Casio	Z-90	9020	3x	25 mm
Casio	Z-280	10010	4x	25 mm
Casio	EX-Z550	10945	4x	Any
Casio	S -12	13915	3x	35 mm
Casio	EX-z2000	14960	5x	Any
Casio	FS-10	17930	3x	28 mm
Casio	EX-FC100	17930	5x	Any
Casio	EX-H10	17930	10x	Any
Casio	EX-FH20	39875	20x	Any
Casio	EX-F1	59950	12x	Any
Fuji	FinePix JV150	6325	3x	37 mm
Fuji	FinePix JX200	6820	5x	28 mm
Fuji	JX250	7062	5X	28 mm
Fuji	FinePix JZ300	9680	10x	28 mm
Fuji	FinePix S1800	11660	18x	28 mm
Fuji	FinePix S2500HD	13585	18x	35 mm
Fuji	FinePix F80 EXR	17490	10x	27 mm
Fuji	FinePix HS10	24200	30x	126.0 mm
Kodak	M552	6527	5X	28 mm
Kodak	M550	6573	5x	28 mm
Kodak	M577	8025	5X	28 mm
Kodak	M575	8415	5x	28 mm
Kodak	M590	10615	5x	27 mm
Kodak	Slice	15620	5x	27 mm
Nikon	L23	4855	5X	20 mm
Nikon	S2500	6447	4X	27 mm
Nikon	CoolPix S4000	9433	4x	35 mm
Nikon	CoolPix S6000	11303	7x	35 mm
Nikon	CoolPix S8100	12705	10x	30 mm
Nikon	CoolPix S80	14108	5x	28 mm
Nikon	L120	14178	4X	25 mm
Nikon	CoolPix S8000	15043	4x	26 mm
Nikon	CoolPix S1100pj	16913	5x	28 mm
Nikon	CoolPix P100	19250	26x	35 mm
Nikon	P500	21882	36X	144 mm
Nikon	CoolPix P7000	25328	7.1x	28 mm
Olympus	FE-4020	7040	4x	26 mm
Olympus	FE-4030	8030	4x	26 mm
Olympus	SP-800UZ	18920	30x	28 mm
Olympus	E-PL1	29590	3x	Any
Samsung	ES70	8609	4X	35 mm
Samsung	ES73	8812	5x	27 mm
Samsung	PL100	9015	5x	7.79 mm
Samsung	ST70	11395	5x	27 mm
Samsung	WB600	14686	15x	40 mm
Samsung	ST5000	15192	5x	27 mm
Samsung	ST5500	17217	5x	35 mm
Sony	DSC-S2100	6078	3x	24 mm
Sony	DSC-W520/B	7865	5X	25 mm
Sony	DSC-W520/S	7865	5X	25 mm
Sony	DSC-W570/B	10780	5X	25 mm
Sony	DSC H55	13283	10x	24 mm
Sony	DSC-TX9	14953	4X	25 mm
Sony	DSC WX1	15208	5x	24 mm



## Tata is Britain's Top Employer

The CRF institute has certified Tata Consultancy Services as one of Britain's top employers for 2011 based on core HR areas.

## Guard's up for Mac users

Mac's rising popularity has been noticed by malware developers with a group reported to have completed a malware making kit targeted at the OS X.

# Humans or cyborgs?

With chips and micro processors being implanted into our body the day is not far when most of our vital functions would be controlled and via these. Welcome to the future of - The Human Body 2.0

### Energy harvester



The human body has the potential to generate electricity. An energy harvester placed

right under your skin would convert upto 80 percent of your mechanical energy (bending or pressure) into electricity. What they showed in the Matrix wasn't untrue



### LED Arrays

Ever fancied watching a movie on your forearm? That might be quite a possibility in the near future with programmable LED arrays implanted under the skin. Top them up with energy harvesters to enjoy a constant source of entertainment.

### Augmented reality contacts

Haven't we've had enough of 3D TV gaga already? With wearable technology of the future you'd see content right in your eyes. Whether it's augmenting your reality or creating a new reality altogether these lenses would do just about everything.



### Brain remote

Using brain implants to browse the web or flip TV channels is the way of the future. These implants would scan and read brain waves and translate them into commands. Its possibilities are endless.



### Bionic Limbs

Remember Bionic Commando with one robotic arm? Bionic limbs should soon be a reality, these would be ten times stronger and would be identical in every sensation. You can choose to have a super arm to punch a hole through walls.

### Medical sensors

Wouldn't it be great if a chip inside you would alarm you of an impending threat or disease? With medical sensors you'll be able to know about any irregularity in your system before hand and take necessary action in time.



## How we unwind

This time around we crowded near a PC whenever we could afford a break and saw a lot of funny videos on YouTube. Here are the top three from that list:

### Funny Arab guy

We couldn't stop laughing at this one! Jayesh had tears in his eyes looking at this. Watch the video here <http://bit.ly/FlHdH>

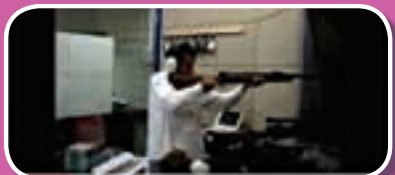


### Charlie bit my finger

You might have seen this one, but it still has great replay value. Nimish likes this the best! Enjoy it here <http://bit.ly/mh272>

### Shooting gun test

It's hilarious how these guys fall off every time they fire a shot. No one can withstand the power of this gun! Check it here: <http://bit.ly/17QSkA>



# Graphics card jargons demystified

Often while dealing with graphics cards you might come across certain terms and jargons which may leave you dumbfounded. You might face the same problem when reading reviews or specification details of these cards. Worry no more, as the comprehensive list below would solve your graphics cards woes forever.

**PCI-E** – expands as Peripheral Component Interconnect Express. PCI -E basically connects a computer's motherboard to a graphics card. It's a high speed channel used to make the graphics card integrate with the PC. PCI-E has replaced AGP, PCI over the years.

**GPU** – a graphics processing unit helps in the building and appearance of images on the screen. The term GPU was made famous by NVIDIA in 1999. A GPU can be present on a graphics card or a motherboard.

**Anti aliasing** – is a technique in which lines are made to be appeared smooth on the screen. Known as jaggies these lines occur because the monitor does not have enough resolution to represent a smooth line.

**Anisotropic filtering** – represented as AF, it helps in enhancing the quality of images which have a large expanse such



Anisotropic filtering compared

as landscapes. This technique basically reduces the blur in the image by not only aliasing the image quality but also preserves details giving a sharper image.

**Core clock** – actual speed at which the graphics processor on a card operates is core clock. This is generally measured in

MHz. When the core clock is increased in order to achieve a performance boost it's called overclocking. This can be done by using third party apps.

**Memory clock** – this helps in knowing the amount of memory bandwidth a graphics card has. In other words it's the clock speed of the onboard memory of the video card. Core clock tells you what the PC bases its decision on and memory clock tells you how fast this information gets to the GPU.

**Shader clock** – is faster than core clock or memory clock. Shader clock helps in boosting the performance of shader heavy games like Crysis. A shader is used to calculate the rendering effects in graphics and enhancing this to achieve better results is known as shader clock.

**Frame buffer** – think of frame buffer as the temporary storage place where a complete image is stored which is displayed on the monitor. This is generally saved on the memory chips on the graphics card.

## Types of display ports on graphics cards

**D-Sub:** D-subminiature or D-sub is a common type of connector class in computers. This connects the monitor to the motherboard. It transmits analog signal.



**HDMI:** High definition multimedia interface is a connector type which is used to transmit uncompressed digital data.

**DVI:** Digital visual interface is used to transfer digital data between a source device and a display device



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