Background

I am assuming that you are reading this document because you own a 7200/A and want a little background on it or are thinking about purchasing one now that they are going for such a low cost.

I would like to start by stating that I have not owned or used any of LeCroy's test equipment until I started working on this document. I have a 93xx at work, but tend to use the Teks. I had a need for a higher bandwidth digital scope and ran across the 7200 on Ebay as many people have in the last couple of years. At first I contacted LeCroy where I was told they were getting swamped by all the phone calls on these older scopes. I spoke with a few people and one person warned me that for LeCroy to do any service work was going to cost a minimum of $1600 just to bring it in the door. I decided that it was worth a risk just to play with it if nothing else.

I ended up with my first unit, a 7200 in non-working condition, for $550. After getting the first unit working I was hooked. The 7200 has now turned out to be the best scope I have ever used. I like it better than the 93xx. It's for the most part very simple to use and now that I have been running mine for about a year, I have to say that they have been very trouble free.

Some projects that used the 7200/A:

http://www.unc.edu/depts/massspec/glginstrumentsc.html

http://www.esr.ethz.ch/research/sband/sband.html

http://www.chem.duke.edu/~mwg/labgroup/projects/phototech.html

http://www.people.virginia.edu/~dtq2j/proposal/proposal.html

Basic DSO information from LeCroy:

http://www.lecroy.com/Applications/Intermittents/default.asp

Some background on LeCroy:

LeCroy, Chestnut Ridge, NY, got its start making measurement equipment for high-energy-physics research in 1964 and was founded by Walter LeCroy. In fact, it has a design and manufacturing facility just outside CERN (Centre Europeen pour la Recherche Nucl[illegible]ire) near Geneva, Switzerland. This high-end equipment acquires data from an event where one subatomic particle interacts with another subatomic particle at the speed of light.

"The job was to track the multiple electronically charged particles that were created by such an event," says Mike Lauterbach, LeCroy's director of product management and a former high-energy physicist. "So the job of LeCroy from its infancy was to measure the smallest, fastest electronic signals as precisely as possible in time and voltage."

Today, LeCroy is the leader in high-energy-physics electronics, and has leveraged that technology to design high-performance digital storage oscilloscopes (DSOs). DSOs capture electronic signals, convert them to digital form, display them, and perform sophisticated measurements and analyses.

The amount of memory an engineer needs depends on the length of the waveforms to be processed. For example, performing a simple function--such as a log--on a 1 million-point waveform requires 4 Mbytes; doing an FFT (Fast Fourier Transform) on the same signal takes 8 Mbytes. Other calculations the extended-memory option enables include: integration, differentation, square root, and six selectable digital filters.

Another feature unique to LeCroy scopes is the exclusion trigger. The toughest electronic problem to debug is one that's intermittent--especially if the shape of the failing signal changes characteristics each time the failure occurs. You don't know when to trigger the scope because the failure is irregularly spaced in time, and you don't know what shape of signal to trigger on because the failure doesn't always have the same characteristics.

What you do know is the shape or period of the normal pulses. Using the exclusion trigger, users specify that information so the scope can ignore normal-shaped signals and trigger only on abnormal events. By avoiding triggering on normally shaped signals, the 9374L actively looks for circuit failure nearly 100% of the time.