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Will Your Next Computer Be an HDTV?

A Presentation for the 31st
Trenton Computer Festival
April 22, 2006

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Note: This paper may bear little or no resemblance to the content that was actually delivered during the presentation. As they say, "You had to be there." But it is my hope that you will still find some content of value in this article.

15 years ago, the computer you wanted to buy cost \$3,000. When you went shopping, you were confronted with a bewildering stew of acronyms and jargon and technical terms. It was difficult to get straight answers to your questions, and sales staff at the stores seemed particularly adept at providing conflicting answers. Some brand names were familiar, others were not, and it was difficult to know which made a quality product. The temptation to get the latest and greatest technology was tempered by the desire to buy a reliable and cost-effective model. This was a major purchase that would have to last you at least five years, and most important of all, you wanted to avoid making an expensive mistake.

Fast-forward to today. Computers cost \$300, and there's little performance difference between models from different brands at the same price point. But everything that was true about buying a computer 15 years ago now describes trying to buy an HDTV.

A Technology Purchase

Just walk into any major electronics retail store and it's obvious that technology is at the heart of an HDTV buying decision. As you look at the mountains of screens towering over the aisles, you'll see a wide variety of technologies: direct view LCD, rear-projection, and plasma. You'll find a wide range of resolutions available, some of which can provide a high-definition image and some that can't.

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But a quick look to the back or side will tell you that there's more at stake than just how they make an image. Consider this: a typical computer has connectors for speakers, a display, keyboard, mouse, and a USB port or two for peripherals.

Now look at the back of a high-end HDTV. There are connectors for different signal inputs: composite, S-video, component, DVI, HDMI, and often even a D-sub 15 connector for a PC. There is at least one infrared communication link, and possibly more, which communicate with the remote control (which is a complex piece of equipment in its own right). You'll find multiple analog audio inputs (not counting the one built-into the HDMI connection), and digital S/PDIF that may even rely on a fiber-optic connection. You can find USB and FireWire connectors to hook to up to outside data sources, including digital video camcorders. Do you want to view still photos? Many displays now include memory card slots that will let you view your photos on your big screen without requiring a separate computer. And a few HDTVs now have hard drives for personal video recorders, or a built-in DVD player.

Do you think perhaps that there's a computer lurking inside that sexy flat panel somewhere?

Now think about what controller has to do. It has to accept image signals in a range of resolutions, ranging from an interlaced 480 lines to a progressive 1080 lines. It has to scale that data — 30 times per second at least — to distribute it over more than 2 million pixels, and not create motion or scaling artifacts in the process.

Then you have all the configuration settings, the management of two or more tuners if they're present, handling on-screen content programming guides, and even making slide shows with the images on a memory card. Some of the newest models include Ethernet connectivity, and at least one company will be building DirecTV satellite service set top box circuitry right into their televisions. I don't know about you, but this sounds like a pretty impressive computer!

The 2009 Deadline

Will you be buying an HDTV soon? Maybe. But there's a major bit of confusion out there that has some people thinking that they will have to buy one sooner than they might want to. The US Congress has passed a law that halts analog television broadcasts in February 2009. This does not really involve HDTV at all.

What this law means is that we'll only have **digital** terrestrial TV broadcasts after that date. These broadcasts are already happening in almost all TV markets, in parallel with the existing analog broadcasts. A given range of radio frequencies has much greater bandwidth for digital content than analog. The government gave the television broadcasters a bunch of frequencies for digital signals, and will take back the analog frequencies after the 2009 shutdown. Some will be used to beef up emergency communications, and the rest will be auctioned off to put many billions of dollars back in the federal coffers.

Here's the first of two important points; digital television is not HDTV. Yes, you have to have a digital signal to get HDTV content, but much of the broadcast digital television is in "standard

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definition.” the same resolution as the current analog broadcasts. So the 2009 deadline does not mean that all the content will be HDTV after that date.

The second point is that the vast majority of Americans won't notice when the deadline comes and goes. More than half the US households have cable connections, another quarter have digital satellite service. Fewer than one in four homes rely solely on existing terrestrial broadcast of analog television signals for their home entertainment programming. I expect that this percentage will continue to shrink over the next three years, so relatively few people will be affected.

Even if you do use over-the-air broadcasts for your television, your existing analog TV will continue to work fine. For less than \$50, you'll be able to buy a box that you attach between your antenna and your TV. It will receive the digital signals, downscale the high-definition images if necessary, and then send it to your TV as an analog signal.

Eight Keys to Buying HDTV

As with computers 15 years ago, misinformation and myths abound in the current HDTV market. The HDTV market continues to change rapidly, and the accepted “facts” don't always survive the changes.

For example, conventional wisdom says that plasma panels will “burn out” in a few years; the fact is that they simply get dim over time — just as standard CRT televisions do — and current models are rated for 60,000 hours of use. Conventional wisdom states that LCD panels are now fast enough for fast-moving images, but placing them side-by-side with a CRT will show that they still have a way to go. People worry that rear-projection displays require that expensive lamps be replaced every few years — even though the total cost is often well below LCD or plasma prices for the same size and resolution — but now some models are available with solid-state light sources that will never need to be replaced.

What can you do to make a confident buying decision about HDTV? Learn the basic factors that could affect your choice. Here are eight key points about buying HDTV:

1. Product specifications are not a good way to compare HDTVs that use different technologies.
2. Rear-projection models are only slightly deeper than “flat panel” models that use a table stand, and often weigh less.
3. You can not accurately determine the right size screen for a room without considering the resolution.
4. An “HD Ready” model is often as good a choice — or even better — than one that has “HD Built-In,” even though it needs a separate digital tuner to get terrestrial HDTV broadcasts.
5. The picture on an HDTV can often look worse than on the old standard-definition TV that it is meant to replace.
6. Plasma panels often have a lower resolution than other displays of similar size.
7. You don't need expensive equipment, technical training, or time to make a thorough evaluation of an HDTV.

8. Most reviews published in magazines or on the Web are a waste of time for comparison shopping purposes.

Some of these may sound counterintuitive, and some may be points that you won't see mentioned anywhere else. I could elaborate on these eight points, but this paper would soon approach book length. Instead, I'll just take the last one and explain how I reached this conclusion.

Why Published Reviews Don't Help

One of the big trends of the Internet is that it gives everyone a voice. Just consider that the fact that there are more than 5 million blogs published on the Web. One slightly disturbing and related trend is the use of user "reviews" on many Web sites. I don't know if Amazon started this or not, but they are a prime example. Anyone who wants to can chime in with a thumbs up or down on a product. You have no idea what their background is. People often have a psychological need to validate their major purchases, so people often tend to write glowing reviews of products that they have been wise enough to purchase. Or if something went wrong with the choice, their anger gets vented in the review. Neither approach is balanced and impartial.

But what about the reviews that appear in the major outlets in print and on the Web? I made a good living for many years writing technical product reviews, so I know a bit about this. One major difference between the HDTV market and the computer product market is the scale. At PC Magazine, we used to publish an annual issue that reviewed printers. We reviewed **every** personal printer that was new that year, even though that meant more than 100 reviews some years. Fortunately, we had a fat magazine to work with, and a crew of skilled and experienced reviewers.

According to some sources, there were 850 new models of LCD, plasma, and rear-projection televisions released. This includes anything with a tuner and a 10-inch diagonal screen or larger, and all screens 30-inches or larger. This does not include front projectors, or CRTs. You would have to write more than 3 reviews every working day to cover that many products. That's impossible for any individual, and a serious challenge for any single organization. If you don't have all the products reviewed, however, you can't compare all the products. And if the reviews aren't done with the same procedures and equipment, you can't compare the results.

The fact is that most publishers are finding it hard to maintain their review programs, let alone expand them to cover this exploding market. The fees paid to writers for reviews at some outlets have not increased in more than 15 years, and in some cases have declined. As a result, it is difficult to get a consistent level of expertise. A few years ago, a major magazine did a "round-up" of LCD computer monitors, and almost all the reviews praised the "excellent focus" of the panels. And this is curious because there is nothing to focus on an LCD panel.

So if you can't get consistent reviews, created by skilled writers who have the technology chops to know what they're looking at, and that cover all the models you want to compare, then you don't have information that will do you much good when shopping. It's better that you should

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learn for yourself what's important, and how to evaluate these differences for yourself. You're much more likely to end up with the best HDTV for your needs, and avoid relying on someone else's advice that could lead you to an expensive mistake.

The Big Payoff

We are on the cusp of major transformation in home entertainment. The whole concept of "broadcasting" is likely to change dramatically over the next five years. The melding of the Internet and video content will blur the lines between movies and "television" and streaming entertainment content. You'll be able to watch what you want, when you want, and you'll be able to watch much of it in stunning high-definition detail. Networks will distribute content — audio and video — throughout your home so you can watch and listen wherever you want. Perhaps we'll even get the video phones that we have always known will be here soon.

HDTV is just one portion of this great technology puzzle, but it's one of the most exciting ones. If you've been drawn to computers over the years for the magic that they can perform, you ain't seen nothing until you've seen the future in high-definition.

About Alfred Poor:

Alfred Poor is editor and publisher of "Alfred Poor's HDTV Resource Center" at <http://hdtvprofessor.com> where he writes a daily "HDTV Almanac" which provides news and commentary about HDTV and related consumer electronics. He is also author of the self-published "Professor Poor's Guide to Buying HDTV," which explains and compares HDTV display technologies. This electronic book is available exclusively at <http://HDTVBuyGuide.com>. He is also Senior Research Associate with Pacific Media Associates, specializing in HDTV market research, and is Chairman of the Delaware Valley Chapter of the Society for Information Display. Alfred is co-host of the Personal Computer Show, heard Wednesday evenings on WBAI in New York, and online and via podcast at www.pcradioshow.org. He is also author of "Alfred Poor's Computer Cures", a question and answer column that has run in Computer Shopper for more than 12 years. He is a former Contributing Editor and Lead Analyst for Business Displays for PC Magazine, where he was a freelance writer for more than 20 years.