Your Hi-Def PC
By Bill Howard

Are you planning to buy an HDTV to watch high-definition cable and satellite and to play DVDs? You won't lack for buying advice. But if you also want to be able to view video content from a multimedia PC on your TV, some of the rules change.

PCs are capable of delivering higher-resolution video than cable, satellite, or DVD can offer. So you should think about the just-arriving HDTVs that can display a 1080p signal. (1080p denotes 1,920 by 1,080 pixels with progressive scan—meaning that all 1,080 lines are displayed in order, as opposed to being interlaced.)

DVD video provides a higher-quality image than VHS tape or most over-the-air broadcasts do, but that doesn't make it high-def. It's a 480-line image, and most current DVD players are progressive-scan, producing a 480p image. With video, the horizontal pixel count (720 for DVD) usually isn't cited—only the vertical number is given, and it's expressed as lines.

TV sets that use 480p signals instead of 480i (interlaced) are enhanced-definition—ED—but they aren't high-def. Nor is digital TV necessarily high-def. Some smaller sets (19 inches) can digitally enhance analog signals; their ability to clean up a shabby cable or broadcast signal is dazzling.

But that isn't high-def, either, although at such a small screen size, you wouldn't be able to tell. High-definition cable TV, satellite, and over-the-air (so-called ATSC) content is 720p or 1080i. Cable and satellite could go to 1080p, but not immediately; over-the-air broadcasts won't, because the bandwidth required won't fit in the bandwidth allocated by the FCC for each channel.

PCs, the upcoming Sony PlayStation 3, and Blu-ray and HD DVD (the still-warring next-generation DVD formats) all are capable of outputting 1080p signals. When playing content authored for 1080p, you'll get the full effect. Any native PC app also could take full advantage.

Most likely, the content you'll be watching for the next couple years will be less than 1080p, so image quality will be affected by the ability of either the player device or the display device to upconvert or downconvert signals. Convert unnecessarily, though—for instance, upconvert a 480p DVD image to 1080i for a set that renders at 720p—and you may wind up with artifacts in the picture.—Continue Reading

For interlaced images, deinterlacing quality is important as well. If deinterlacing is done by a PC, the quality is a factor of the video adapter, not of the PC's raw horsepower. nVidia has made big advances in this area with its PureVideo technology.

Other practical matters will affect image quality: Does the PC have a DVI or HDMI connector in addition to the traditional DB15 connector? Often you'll get the best signal, even from a PC, if it has a DVI or HDMI jack. HDMI is a superset of DVI and can be made compatible with DVI by an adapter plug.
To make matters trickier, there are subtly different PC-versus-consumer-electronics interpretations of the video connectors. So even if you're a wizard at connecting cables, paying an A/V technician to tune your TV makes sense.

Most every TV on the market is better, cheaper, and higher-res than what you're now watching. Purists still love glass-tube TVs, but they're beasts, and top out at about 36 inches. LCD is the choice for smaller hang-on-the-wall displays, and plasma for larger screens. They cross over at about 40 inches. LCD works better in bright rooms; plasma has vivid colors and seems brighter. When the first plasma sets reach 1080p later this year, they'll be ultracostly.

Among rear-projection TVs, CRT-based sets are the dimmest, heaviest, deepest front-to-back, and cheapest. DLP, LCD, and the reemerging LCOS (liquid crystal on silicon) displays are preferable; they can be as small as 10 inches deep. Expect to pay $1,000 to $2,000 more than you would for a 720p set.

If you do spring for a 1080p set this year, know the drawbacks. Programming will be limited. The improvement may not be apparent on sets below 50 inches. Also, the desirable version of the CableCard, the cable set-top box replacement that slides into your TV, is two-way, and that won't be here until next year at the earliest. On the other hand, HD images let you sit closer without seeing individual pixels, and the thinness of the sets may let you move them up to an extra foot away.

Finally, many of us want to be first on the block. This is a terrific opportunity to be just that.

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