

**Never Too Thin; Never Too Rich...
Flat Panel Monitors Are Better -
If You Can Get Past Sticker Shock**

CRT technology is better and cheaper than ever. So, is there a case for these very expensive LCD display panels. Maybe.

Most flat-panel displays use LCD technology. LCD limitations have encouraged research into other technologies. So far, these technologies have not made it to the mass-market for desktop computer displays. LCD makers such as Samsung (about 60 percent of the market) and Mitsubishi supply enhanced-capability LCD panels, improving detail by increasing image-element density, or offering wider angled viewing.

Displays using these new panels are remarkably sharp, and the color fidelity is stunning. That fidelity is more than sufficient for most kinds of design and for working even with photo-editing. Power consumption is low; size is easily constrained.

So, why aren't these being sold in large numbers, with attendant drops in cost?

According to the OEMs, high cost is tied directly to relatively low manufacturing yields. Especially in the preferred, "active matrix" designs, the number of panels discarded on QA grounds is large enough - the number given out is around 20 percent - that the unit cost is seriously affected. The larger the panel, the greater the problem.

An alternative explanation: Monitor-makers are delighted to keep prices - and margins - high, avoiding the low-margin problems of other electronics makers.

So, LCD flat-panel monitors are not cheap. A 15" monitor costs between \$850 and \$1,000 (or more...). A 17" monitor will cost over \$2,000; 20" models can be had at prices rivaling New York rents in

fashionable parts of town. Should you consider spending this kind of premium for a display?

Maybe. Consider the cost of real estate: A flat-panel display - inherently more ergonomically acceptable - fits nicely in a standard 36-40 square foot cubicle. A large-screen flat-panel is not particularly more demanding of desktop real estate than a smaller model. This is not true of large-screen CRT-based monitors, where even "slim" models require depth equivalent to the screen size - the bigger the monitor, the deeper the desk, among other things. On brokerage and exchange trading floors, this is common wisdom; flat-panels are the display of choice in these crowded spaces. Save six square feet, at \$25 or more a foot per month, and a flat-panel monitor easily pays for itself.

Add, *apparent* resolution is better on flat-panel displays. A 15-inch flat-panel display *appears* to yield the same ease of viewing as a 17-inch CRT-based monitor. [The downside: 15" flat panels are generally limited to 1024x768 pixel resolution - one needs more screen space than that, increasingly.] An 18-inch flat-panel is almost as good as having a 20-inch CRT (if 1280x1024 pixel resolution will suffice). And so on. This can translate into happier, more productive designers and draughtspersons.

These devices look better, especially if the back is going to be seen. The best of the breed include a USB hub; couple that with a new-style system with new-style keyboard and mouse (or tablet), and a sealed, no-add-ins box, and the system is simply going to be easier to deal with - both aesthetically and technically.

Finally, the newest designs accommodate both analogue – legacy – input and digital input – the latest and greatest. Use the monitor with your system today and expect it to survive the next system-unit upgrade.

So, what can you buy, today?

15-inch LCD flat-panel models with an effective display area of about 14 to 14.5 inches, supporting 1024x768 pixel resolution are becoming commonplace. Though these displays are smaller than the 17-inch to 19-inch displays commonplace for graphics users, type is crisp. Run the system with “small fonts” at maximum resolution and the results are still entirely readable. Part of the proof of this: Notebook computers with somewhat smaller screens are being deployed as desktop-replacements. Even bifocal-wearers like me can use these panels without much trouble. Most of the major brands have offerings in this size range. They tend to be older models, using less advanced technology, and handle analogue output only.

Design professionals really need larger screens, both for long stints working on details and for collaborative sessions.

Pride of place in this class goes to Silicon Graphics. The company's digital-direct 1600SW display delivers a wide-screen 1600x1024 pixel resolution on a surface 17.3 inches on the diagonal. This digital-only monitor is supplied with display hardware from 3DLabs. [SGI offers an added-cost analogue/digital converter.] In short, this is a complete display system, carrying a price tag of \$2,895. It couples with both PC-family machines under Windows 95/98/2000 and Macintosh systems.

Viewsonic's VG180 is typical of more conventionally designed analogue LCD monitors. With a diagonal measurement of 18 inches, this monitor delivers up to 1280x1024 pixel resolution, and works equally well with PCs and Macs. Other firms offering panels in this category include NEC/Mitsubishi (still honeymooning in their joint marketing operation), Samsung and Sceptre. IBM, not short on the innovation front, offers a 16.1-inch diagonal display in the "SXGA" format (another name for 1280x1024 pixel resolution...). All these companies are now introducing analogue/digital dual-capability models.

A new player on the scene, Altizen merits special attention. This is a new brand coming from Korea, where the company claims close relations with panel-maker Samsung. The company's lineup consists of an older-tech 15" monitor, and new-tech 17" and 18" models - the latter two analogue/digital dual-capability models. Sporting an 80-degree viewing angle, the large Altizen monitors deliver a very crisp 1280x1024 image. Altizen makes its middle model really very attractive - same pixel resolution and not a great deal smaller, for \$575 less than the big one. All the monitors are well designed, with attention to details like cable management (what a concept!); the new-tech larger models include a four-port USB hub for desktop peripherals - keyboard, mouse or tablet, a video camera.

The name of the game is space on the desk, as much as on the screen desktop. LCD monitors are not cheap, but are cost-effective in lots of places.