

**Describe the various technologies used to implement flat panel displays. What are their relative advantages and disadvantages? Is this the same for TVs? Any differences/similarities? Can one be used for the other?**

Liquid Crystal Displays are a light modulator that require a light source to be viewed, either backlit or lit from an external source. For twisted-neumatic LCDs, a glass plate is coated with a film, which is brushed into a single alignment. Molecular chains in this film are twisted, which changes the flow of light through the medium to produce on or off pixels.

Plasma display panels come in AC and DC versions, both of which use ultraviolet light generated by plasma discharge, which is then converted to visible light by a florescent material, which is treated with a compound to give the light color.

The most important advantage of FPDs over CRTs is the display dimensions to depth ratio. CRTs must have a depth equivalent to their display ratio, so that a very large display must be supported with an equally deep vacuum tube, which increases the amount of room the device must take up in an office, living room or on a desk. In contrast, FPDs do not grow deeper as they grow larger, so a 52-inch plasma TV can hang on a wall as if it were a framed picture. The other advantage to this lack of depth is the portability of FPDs to other devices. Laptops and cell phones would be impossible without FPDs.

You can watch television on a computer monitor, but most traditional TVs have inadequate resolution for interfacing with a computer. In order to read text on a traditional cathode ray television, the computer's screen resolution must be set to 640 by 480 pixels. Many modern FPD TVs can serve as computer monitors, but it is important to verify the screen resolution will support it.

Light-emitting diodes (LEDs), which are small semiconductor devices, Vacuum fluorescent displays (VFDs), which use phosphors lit up by electrons in a vacuum, Electroluminescent displays, which convert electricity to light with electrodes an phosphor material, Field emission displays (FEDs), which use streams of electrons shot at a phosphor-coated faceplate, and Microdisplays, which are very tiny displays that project a virtual image that appears much larger than it actually is, are technologies on the horizon that may offer better alternatives. Microdisplays are being used in some VR glasses, which emulated sitting in front of a very large movie screen, when, in fact, the screen is merely inches, just set right in front of the eyes.

OECD, *OECD Information Technology Outlook*, OECD Publishing 2000.

Cool Buzz, *Top 10 Video Glasses!*, coolbuzz.org. Retrieved Feb 6, 2008 from the Cool Buzz website at: <http://www.coolbuzz.org/entry/top-10-video-glasses/>