The display industry has been riddled with standards battles many times during the past decade, but the latest one is something that many are not even aware of – digital-video interfaces for PCs. PC vendors have talked about migrating analog-video outputs to digital for a long time, but to date there has been little traction in this initiative. Part of the problem was that since the installed base of monitors and projectors with digital interfaces was somewhat small, there have been extra costs associated with integrating a digital interface. With the complete dominance of flat-panel liquid-crystal-display (LCD) monitors, about 40% of which have a digital interface – typically the digital-video interface (DVI), although the first high-definition multimedia interface (HDMI) equipped monitors were introduced in late 2006 – the movement toward DVI digital video interfaces has gained renewed interest.

The problem now, however, is that there are several competing formats. DVI, the original digital-video-interface standard, currently has the largest share among the digital alternatives, but it still represents a tiny percentage compared to systems that only support a video-graphics-array (VGA) connector. Generally speaking, all systems that support a type of digital interface also support VGA – few if any PCs only have a DVI digital video interface, and the percentage of digital-output-only PCs is expected to remain small through 2010.

The HDMI standard, which has captured an enormous share in the world of consumer electronics, particularly in digital TVs, started to make some inroads into PCs in 2006. HDMI is expected to increase its share of the digital-interface market throughout the remainder of this decade. HDMI offers the benefit of backwards-signal compatibility with DVI, a small, more consumer-friendly connector (particularly important on space-restricted notebook designs), and support for digital audio over the same cable as the digital video. Unfortunately, including an HDMI high-definition multimedia interface in a PC requires a royalty payment, and commercial PC vendors in particular are loathe to pay any royalty for the interface.

As a result, two different interface alternatives were developed: Universal Display Interface (UDI) and DisplayPort. UDI was originally developed to be a somewhat stripped-down but royalty-free version of HDMI. At this moment in time, however, the standard appears to have died before making its appearance onto the market. DisplayPort, on the other hand, which is being strongly pushed by Dell Computer and was originally designed to be a universal display interface for monitors, TVs, internal notebook screens, and more, has been gaining traction in the market. In fact, both Intel and AMD are expected to natively support it into their desktop and notebook chipsets in 2008, which is bound to improve its likelihood of adoption.
At the same time, Intel is supporting HDMI in its 2007 chipsets, although it will require the addition of another transmitter chip in order to enable it. This is similar to how Intel has supported DVI in the past. To date, the minor, but still incremental, cost involved has kept the adoption of that standard somewhat low. However, because of the widespread adoption of HDMI in the consumer-electronics (CE) market and the general desire for convergence between CE and PC products, we believe PC vendors will be more motivated to spend the money to integrate HDMI.

The end result is, in many ways, the worst of all worlds: We expect both HDMI and DisplayPort to separately show up in a large percentage of PCs by 2010, with HDMI dominating the consumer-PC segment with 49.3% market share (compared to 20.5% for DisplayPort), while DisplayPort will lead in the enterprise-PC segment with 43.3% market share (vs. 27.4% for HDMI). In both cases, we expect laptop adoption to slightly exceed that of desktops because of the need for smaller-sized connectors on notebooks. This mixed-interface scenario will result in greater customer confusion, increased costs for monitor vendors (and, therefore, end users) who will end up having to support both standards, and a general lack of consensus.

For more details on the video interface standards issue, see “HDMI Versus DisplayPort: Adoption Predictions for the Next Big Standards Battle,” (IDC Doc# 204827, December 2006).

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