



VESA STANDARD

Volume 1, Issue 2 September 2006

Standards	1
Net2Display™ Will Simplify Life in Offices and Homes.....	1
HDMI 1.3 – Myths and Truths	3
HDMI Licensing Cuts Fee; China to Push HDMI.....	6
Trend Analysis	7
All Model Analysis.....	7
LCD Panel	9
Philips LG to Part in LCD JV	9
LCD-TV	10
Sharp Introduces First LCD-TVs with New Gen 8 Panels.....	10
DTV	12
China Adopts Own DTV Standard	12
About VESA	13
About Insight Media	14

Standards

Chris Chinnock, John DiLoreto

Net2Display™ Will Simplify Life in Offices and Homes

VESA has a working group focused on a developing standard that only industry insiders know about so far. It's called the Net2Display™ standard and the idea is to make the display an IP-addressable device with accessories plugged in using the USB protocol. It is essentially the next generation of the server/thin client architecture, and from what we have seen so far, it is the kind of solution that many will want to embrace.

Take a look at a typical small business today. Employees usually have a PC on their desk, connected to a network with a server that contains much of the company-specific data. But at each desktop, all of the applications, like Word or Acrobat or Internet Explorer, are local applications that may open files on the server or on the local hard drive. Each machine has its own virus protection too.

In the Net2Display™ future, workers can eliminate the PC and instead have a Net2Display™ client. This can be as simple as a monitor with a network jack and several USB ports. The keyboard and mouse can connect directly to the display, as well as any other local peripherals like a printer. The server runs all the applications sending data to the remote display over the network using TCP/IP. The big advantage – the business does not need to buy dozens of PC workstations - only dozens of Net2Display™ displays.

According to Ken Ocheltree, a researcher at the IBM T.J. Watson Research Center and the Chair of VESA Net2Display™ task group, “Studies have shown that the main cost of an

enterprise computing system is the maintenance of it. That is, the cost of upgrading applications and the O/S, keeping revisions at the same level and maintaining virus protection. The Net2Display™ concept centralizes all this and should significantly reduce the costs of computing.”

In fact, Ocheltree sees the Net2Display™ concept enabling new computing services in the future. “Imagine,” says Ocheltree, “if your ISP offered your business or home a service whereby it hosted all of your data, video, music and images on its servers. All the customer would need was a broadband connection and as many Net2Display™ displays as they wanted. With the features we are proposing for this standard, serving up all of this content from a remote location without significant latency should be possible.”

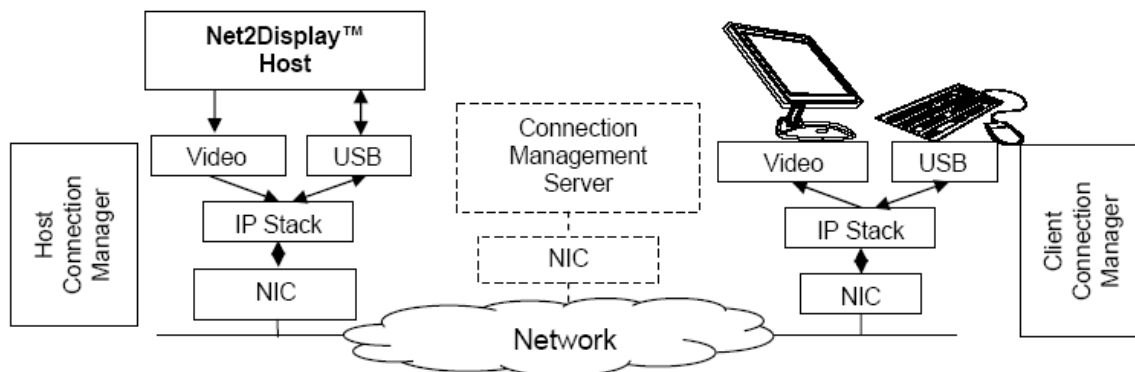
In the commercial space, Net2Display™ remoting could be a big help in digital signage. Today, many local PCs are needed to run the displays or a central PC has to deliver content. With the central PC approach, there are issues with cable lengths and extension protocols. With local PCs, the cost of maintenance can be high. Net2Display™ remoting would eliminate much of these headaches once it is built into the display devices. And in kiosks or ATM machines, adding a keypad or touch screen can be done via the USB ports on the Net2Display™ device.

In medical facilities, it is best to have images and patient data on a central server and available locally so that the security of patient data can be ensured. Net2Display™ would simplify the thin client stations and eliminate the PCs altogether.

On the home front, having returned from CEDIA, the main custom installation show for home theater, we saw a different vision of the future of home entertainment. At CEDIA, a vision was painted of a massive server that sits in the basement of your home. Connected to it are thermostats, refrigerators, TVs, lighting control panels, shade actuators, etc. Each device has a state and they can all talk to each other via a proprietary software system dubbed LifeWare. In addition, nearly every room has a media PC with this proprietary software gluing all the components together.

With Net2Display™, the media PCs can be eliminated and the protocols are open standards running over a conventional network. The other accessories like thermostats or light controllers can plug into the system via USB remoting. With a powerful enough main server, nearly the same functionality can be achieved at lower cost, reduced complexity and with open standards.

To be fair, there are a number of ways to get the functionality of the above scenarios today, but



according to Ocheltree, each have distinct disadvantages. Some of these include Microsoft Remote Desktop Protocol (RDP), Citrix MetaFrame ICA protocol, VNC, Sun Ray and X. Some of the limitations of these protocols include support for full motion video and latencies, especially over WANs. These protocols were developed before the era of pervasive motion video in the computing environment so they have problems supporting it. In addition, they often only run under one O/S and the most frequently used ones are proprietary protocols.

Net2Display™ remoting is being developed to address these shortcomings. Specifically, the standard's goal is to develop a new remoting protocol that is an open standard, minimizes the complexity of the client, and supports long distance transmission of high quality video with low latency. To do this it relies on TCP/IP for networking and USB for I/O.

The figure shows the simplified nature of the client-server architecture. The server or host sends video (data, music, images, etc.) over the network. Typically this will be a gigabit Ethernet or WAN, but it can also be an 802.11 wireless network or any other network as long as it supports IP. On the client side, the display device needs to support networking (a TCP/IP stack), include a frame buffer, decompression and decryption protocols and support for USB (used for I/O devices). This architecture allows for the elimination of the PC, but it also works if a PC is present too. Plus, there are number of options planned for future revisions that add greater functionality.

Currently, the Net2Display™ standard is available in draft form only. The working group, which has been refining the standard for the last year, hopes to have it ready for implementation by the end of the year with the expectation of having it completed by the end of 2007. -CC

To learn more, contact Ken Ocheltree, 914-945-3092, kennetho@us.ibm.com

HDMI 1.3 – Myths and Truths

Having just returned from the CEDIA trade show in Denver, we had a chance to ask a number of people about the newest HDMI spec release, 1.3. What we heard was both misinformation and confusion about what the new 1.3 spec can offer, and the status of its roll out. Therefore, let's try to set the record straight.

HDMI (High-Definition Multimedia Interface) is a connection standard between HD source players (DVD, set top box, etc.) and receivers (HDTVs and monitors). The standard also adds a layer of copy protection (HDCP) so that content cannot be copied and can only play to compliant receivers. It has become the de facto connection standard in the HDTV community with the addition of 2 and sometimes 3 connectors now becoming commonplace on newer HDTVs.

The 1.3 spec upgrade does add some significant new features that will improve the standard, but confusion persists over this latest revision. For example, at the Toshiba booth we were told that the new HD DVD player with 1080p output (model HD-XA2) will feature an HDMI connector with a 1.3 rev (the HD-A2 will only support HDMI 1.2a, however). But the player will be delayed until December while negotiations are concluded between Dolby Labs and the HDMI Licensing organization. That's myth number 1.



At the Sony press conference, the company introduced the STR-DA5200ES receiver that can support reception and playback of 1080p content (plus a second receiver, the STR-DA3200E that looks like it does not support 1080p support).

According to the product manager for this receiver, only the HDMI 1.3 transmitters are available now and Sony is waiting for the receivers so they can ship the product. That's myth number 2.

According to the HDMI Licensing organization, which we met with at CEDIA, both of the above statements are not true. Joe Lee, whose title is HDMI Evangelist at HDMI Licensing, told us that the 1.3 spec was approved last June and includes Dolby TrueHD. "We don't know of any on-going discussions with Dolby," said Lee.

As for the availability of the silicon, Silicon Image says it is currently sampling both transmit and receive IC to customers (SiI 9133 and SiI 9134). Silicon Image says volume production of these chips will begin in October in time to support the launch in November of the Sony PlayStation 3. In addition, port protection ICs, designed by California Micro Devices, have been demonstrated in a reference design by Silicon Image. CMD is scheduled to ship its HDMI 1.3 port protection ICs in the fourth quarter of this year (see related article this issue), but there are alternative ways to create the port protection features, so that won't hold up moving products to market.

Reviewing the Specs

The table below, provided courtesy of Marantz, shows the major features of the HDMI standard, including the various versions. We had the HDMI Licensing group check this over and they agreed it was accurate and a nice summary. Let's review this.

First, HDMI version 1.3 is fully backward compatible with previous revs, including DVI compliant devices.

On the audio front, the 1.3 spec allows for support of DD+ and DTS-HD, but it is unclear at this time if any products will use these options. However, HD DVD and Blu-Ray both want to use Dolby TrueHD and DTS-HD Lossless audio processing codecs.

CEC, or Consumer Electric Control, is a feature that allows source machines to control other accessories in the home theater. For example, loading up a HD DVD disc in a player with CEC can be used to turn on the TV display and receiver, set the output resolution and frequency, provide the best audio output based on the receiver options available, and basically optimize the system. All this can be done by simply pressing the play button on the remote – a goal that all would support. However, each accessory in the home theater must have CEC support and must have an HDMI 1.3 connector with the CEC option included. This may be fine if you configure your new home theater using a single brand of products, but suppose you mix and match? That's liable to lead to trouble.

The single link bandwidth also increases in v1.3 from 165MHz to 225Mhz, or stated another way, the new chips boost bandwidth from 4.95 gigabits per second to 6.75 Gbps, over previous HDMI chips. This enables display of video resolutions of up to 1080p at 60Hz and 36-bits per pixel color depth, matching the output of the PlayStation 3. This Deep Color support (12-bit color depth in the red, green and blue channels is new too allowing the HDTVs to display 1 billion colors to help eliminate some banding issues in subtle color change regions. The availability of drivers to support 12-bit processing on the display side was one area of concern that HDMI Licensing's Lee mentioned that may be causing some

delays in product roll out. The higher speeds can also enable faster refresh rates – up to 120Hz. This is important to support frame-doubling techniques needed to reduce motion blur artifacts in LCD displays.

HDMI 1.3 can also support 16-bit color in RGB or YCbCr color spaces, but needs to use another channel to reach this level. Currently, no products are being planned to support this option.

HDMI Version Comparison						
HDMI Version Spec Release Date	V1.0	v1.1 May 2004	v1.2 Aug. 2005	v1.2a Dec. 2005	v1.3 June 2006	Note
Audio Stream						
SPDIF (2ch PCM & Bit stream)	x	x	x	x	x	
Multi Ch PCM (DVD-Audio, etc.)		x	x	x	x	
Multi-Ch DSD (SACD)			x	x	x	
DD+, dts-HD					(x)	No clear plan on the source products side yet.
Dolby True HD, dts-HD Lossless					(x)	It related to the HD-DVD or BD player specification
CEC (Consumer Electric Control)				x	(x)	option
Single Link Bandwidth	165MHz	165MHz	165MHz	165MHz	225 MHz (340MHz)	225 MHz for 12bit (340MHz for 16bit)
Color Depth (RGB or YCbCr)						
8bit x 3=24bit	x	x	x	x	x	
10bit x 3 =30 bit					x	
12bit x 3=36bit					x	PS3 and Toshiba HD-DVD announced this as their maximum spec.
16bit x 3=48bit					(x)	No plan for any source and display product
Broader Color Space						
RGB	x	x	x	x	x	
YCbCr(444)	x	x	x	x	x	
YCbCr(422)	x	x	x	x	x	
(xvYCC)					(x)	Future spec. but no clear plan on the products
Lip Sync.					x	The Display product informs the delay value to the source product. And then Source product adjusts the audio
HDMI Mini Connector					x	for portable product only
Items written in Red are HDMI Ver1.3 contents. If the product support at least one of them, it is possible to say "HDMI Ver1.3"						
X means MANDATORY item; (X) means OPTIONAL Item						
Table courtesy of Matantz						

The new spec will also support the recently approved xvYCC color space. This color space is larger than the NTSC, HDTV or PAL color spaces, increasing it significantly to cover most of the colors the human eye can actually see. While some display systems are being developed to support this color space, ultimately, camera systems will need to be redesigned to capture the full scope of these colors.

Finally, the 1.3 spec also supports automatic audio/video syncing, which is needed because the video processing can take longer than the audio. Syncing the two eliminates noticeable lags between the two. 1.3 also includes the use of the HDMI mini connector.

The first products to market with HDMI 1.3 will be playback devices such as DVD players and set top boxes. Display devices will lag somewhat, not because of lack of HDMI receiver radios or issue with Dolby Labs (as our myths above postulated), but because the video processing is complex and takes time to perfect and implement. AV receivers must provide both input and output capabilities, so they must contain both transmit and receive modules.

The Compliance Headache

The HDMI Licensing group is also troubled that it is getting a bad rap due to the many interoperability issues that are popping up – especially with the new HD DVD and Blu-Ray players. Part of the problem lies in the optional nature of the 1.3 features. If a product meets the required components, it can be called 1.3. But currently, there is no easy way for vendors to quantify if the product supports the optional components like CEC and xvYCC. The HDMI Licensing group is working on this issue now.

It is also moving to mandatory testing requirements to try to avoid some of the connection hiccups that have occurred recently. According to Lee, they have offered to do free testing of the Toshiba HD DVD and Samsung Blu-Ray players in an attempt to help these manufacturers figure out where they are out of compliance and how to fix it. “Unfortunately, we have not heard back from them,” stated Lee.

Lee speculates that the companies are more concerned about getting products to market than with making sure the products are in full compliance. However, this approach has resulted in some bad press which these companies will have to deal with.

But Toshiba and Samsung are not alone. None of the HD DVD or Blu-Ray player makers have submitted their products to Simplay Labs, HDMI’s testing and compliance lab, says Lee. Testing is about \$3K and the lab will work with companies to fix problems, so this is not a financial hurdle.

Finally, while the HDMI Licensing group is very happy with the mass adoption of the connector, it also wonders how much the connectors are actually being used. “We want to know how real consumers are connecting their home theater system in the home and if they are actually using the HDMI ports,” noted Steve Venuti, the Retail Marketing analyst at HDMI Licensing. “In addition, we’d like to know what their experience was when they used the HDMI link.”

Unless manufacturers using the HDMI 1.3 option pay more attention to compliance, the consumer experience might well be negative. We will find out more once more products hit the street. -CC

HDMI Licensing, Joseph Lee, 408-616-4107, jlee@hdmi.org

HDMI Licensing Cuts Fee; China to Push HDMI

HDMI Licensing, the agent responsible for licensing the High-Definition Multimedia Interface (HDMI) specification, announced a reduction the annual administration fee for HDMI adopters from \$15K to \$10K. The company said the reduction was made possible by HDMI’s growing success in the marketplace with more than 400 makers of consumer electronics and PC products worldwide as adopters. The fee reduction will apply to all HDMI annual fee payments due after November 1, 2006.

Silicon Image Inc. (Sunnyvale, CA; www.siliconimage.com), a leading HDMI component supplier, announced an agreement with the China Video Industry Association (CVIA) under which CVIA will

promote and support the use of HDMI by the consumer electronics industry in China, *EE Times* reported. The agreement with CVIA positions China to play a major role developing next-generation digital consumer electronics technology for sale worldwide.

As part of the agreement, Silicon Image and CVIA have agreed to work together to promote HDMI adoption among Chinese electronics manufacturers, co-develop new technology applicable to HDMI, and collaborate on establishing testing and interoperability certification labs in China.

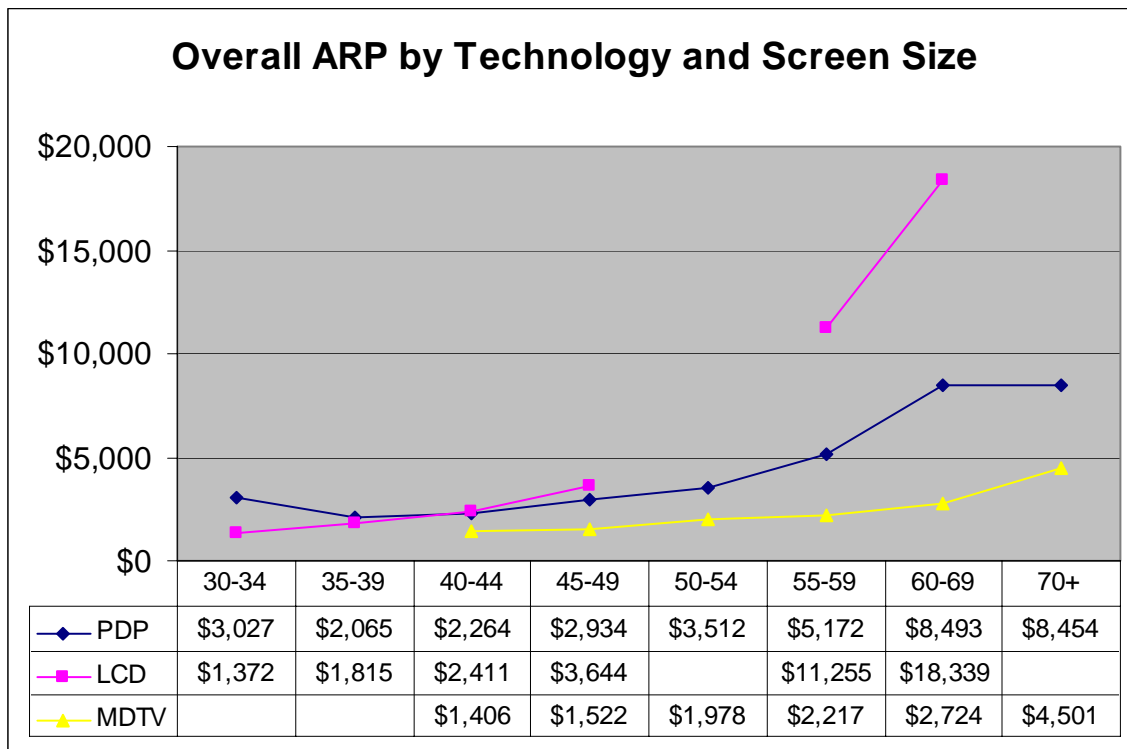
Silicon Image also announced the opening of China's second combined HDMI ATC/Simplay HD Testing Center in Shanghai, and with CVIA, plans to open a third facility in China at a location to be determined. *-JD*

Trend Analysis

Ken Tompkins

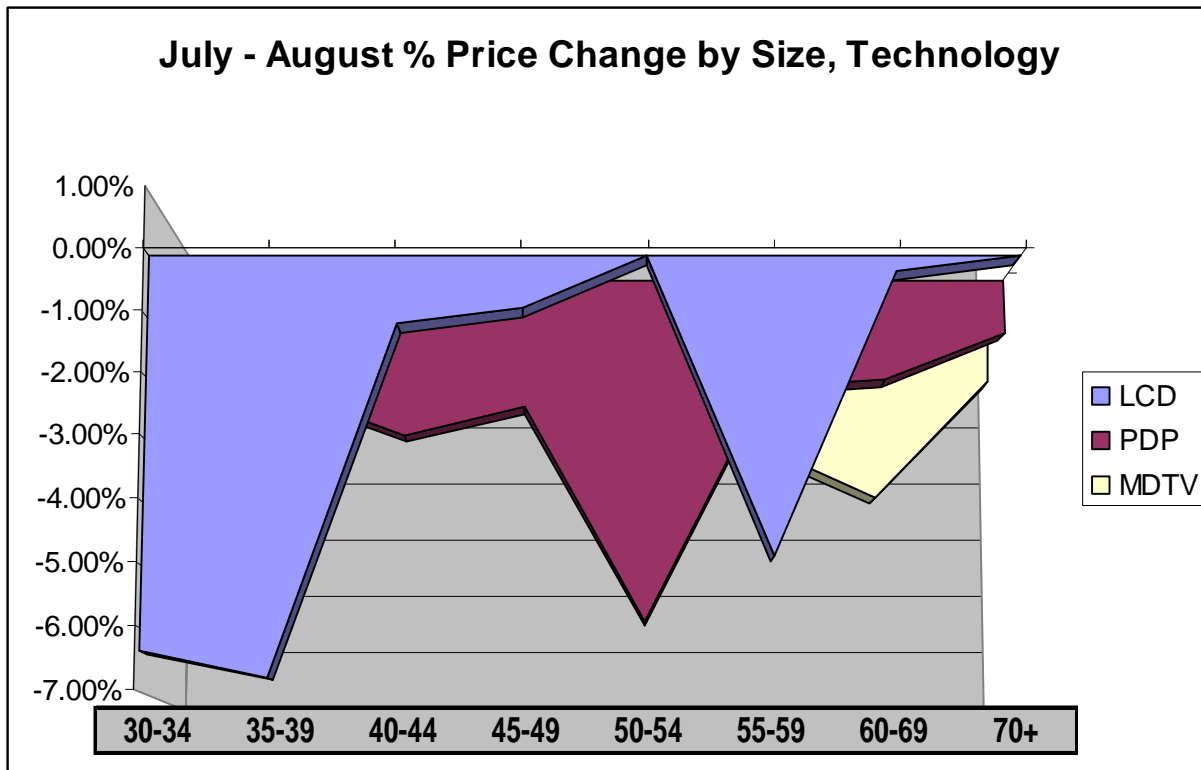
All Model Analysis

This month sees LCD-TV dominating average retail price (ARP) declines in key size segments – especially in the 30-34” and 35-39”. ARPs in these LCD-TV sizes declined by larger percentages than any of the other HDTV technology, as the chart below indicates. LCD-TV had the largest ARP declines



again in 55-59”, but LCD-TV’s of the largest sizes barely budged, falling by approximately 0.25% in 60-69”.

Whereas last month’s survey saw the decline in LCD-TV ARP highest in the battleground size of 40-44”, this month was PDP-TV’s chance to be in the spotlight, falling the most not only in the aforementioned size range, but also in PDP-TV’s other high-volume size category – the 50-54” segment.



July to August % Change in ARP by Size, Technology								
	30-34	35-39	40-44	45-49	50-54	55-59	60-69	70+
PDP	0.01%	-1.88%	-2.62%	-2.14%	-5.72%	-1.81%	-1.68%	-0.90%
LCD	-6.35%	-6.78%	-1.12%	-0.85%	-	-4.86%	-0.27%	-
MDTV	-	-	-1.27%	-0.41%	-3.00%	-2.52%	-3.43%	-1.39%

In this latter segment, retailers may be responding quickly to MSRP decreases by Panasonic and other plasma manufacturers. These brands dropped suggested retail prices by \$400 in several models to carve out secure positions for themselves vis-à-vis the competition ahead of the all-important holiday shopping season, as we shall see.

In the largest segments of 60-69” and 70+, MDTV ARPs fell by larger percentages than those of LCD- and PDP-TV in the same size ranges. These more modest (less-than-5%) ARP declines in MDTV’s largest sizes were led by double-digit falls in LCOS-RPTV. -KT

LCD Panel

Ken Werner

Philips LG to Part in LCD JV

Royal Philips Electronics announced in early August it intends to withdraw from LG.Philips LCD (LPL), the joint venture founded by Philips and Korea's LG Electronics in 1999 – a company that has become one of the two largest LCD panel makers in the world. The announcement was confirmed a few days later by officials at LPL and the Philips branch in Korea confirmed Philips' plan to pull out of the partnership, reported the *Korea Times*. The original agreement between the parties required Philips to hold more than 30% of LPL's shares until July 2007, so the Dutch company is giving itself time to liquidate its shares.

In 1999, Philips obtained 50% of the shares in LPL for 725B won. Philips has sold some of the shares, but retains 117,625,000 shares (32.9%), which are worth more than 4T (that's trillion) won or \$4.2B, based on an early-August market price. That means Philips will realize over 3T won (\$3.2B) in capital gains if it sells all of its shares, according to the *Korea Times* story, but an Insight Media source says these amounts have been substantially overstated.

There's no question that LPL has been stumbling recently. The company reported a record loss of 322B won in 2Q and postponing investment in a next-generation production line.

The *Korea Times* said, "The departure of Philips will deal a painful blow to the world's second-largest liquefied [sic] crystal display panel manufacturer," but spokespersons for LPL and LG Electronics did not sound alarmed. Cho Jung-kwon, a public relations officer for LG Electronics, said, "Philips has to keep its shares until next July. In this industry, one year is a very long time. Even if Philips sells its shares next year, there will be no big change to the investment plans of LG.Philips."

Philips has not disclosed how much of its holdings it will sell, although it is likely the company will liquidate all of its shares. There do not seem to have been any discussions between LG Electronics and Philips regarding how many of the shares LG might purchase. LG Electronics is currently the largest shareholder in LPL with 37.9% of the stock. "In this industry, 40% is thought to be enough to hold management rights. As we already have 37.9%, adding 3% will not be a big issue for us," said Cho.

A former LPL executive told Insight Media that this is really an old story, and that the handwriting was on the wall last December when Philips sold a substantial block of stock, breaking the 50/50 stock parity with LG Electronics. He did not see this as a problem for LPL, though. "Selling shares at a profit does not hurt Philips or LPL."

A former Philips employee in the US said the Philips action is consistent with the company's long-term record of shedding display businesses. That view was echoed, and even extended, by Park Yong-beom, a public relations official at Philips Korea: "The announcement means that Philips is going to reduce its investment from cyclical tech industries such as components and semiconductors, where earnings are volatile and associated with market conditions. The company plans to shift the R&D investment to healthcare and lifestyle businesses.

The *Korea Times* quoted a representative of Philips' Korean branch as saying it is clear that Philips' headquarters wants to withdraw from the LCD component business, as shown in the company's decision to change its name from Royal Philips Electronics to Royal Philips.

In 2Q, the quarter ended June 30, LPL sales decreased by 6% to \$2.45B (2.31T Korean won) from sales of \$2.6B (2.47 trillion KRW) in 1Q. The company said its sequential decline in sales resulted from the industry-wide decline in average selling prices across the three major panel segments, as well as a less than expected growth in sales volume growth coupled to overcapacity.

"The second quarter was a difficult quarter for the company, as we were significantly impacted by much greater than expected industry-wide pricing weakness," Bon Joon Koo, LPL VP and CEO, said in a prepared statement. "We are disappointed with our financial performance in the second quarter of 2006," said LPL president and CFO in the statement. "As a result, the company is now taking initiatives to address the issues that are affecting our business. As we announced in June, we are addressing an increase in inventory levels during a period of overcapacity, primarily in the LCD-TV segment, by temporizing production. We will continue to control inventory levels going forward."

LG Philips LCD said it expected prices to stabilize because of growing consumer demand for LCD-TVs in Q4. "We have made a decision to postpone investment in existing fabs and, as a result, have revised our capital expenditure guidance downward from 4.2 trillion KRW [\$4.45 billion] to 3 trillion KRW [\$3.2 billion] for 2006," Wirahadiraksa said.

Shortly after LPL issued its statement, the Chinese-language *Commercial Times* reported that the company had informed Taiwan-based LCD-TV makers that it would offer a 10% discount on 32-inch LCD-TV panels ordered in volumes of 300K-500K units.

Subsequently, at IMID/IDMC 2006 in Daegu, Korea, executives at Samsung Electronics' LCD Business Unit – LPL's chief competitor – informed Insight Media that Samsung's supply relationships with Sony and Samsung Electronics' TV unit had allowed the company to avoid inventory build-ups, and that its investments in next-generation fabs were continuing on schedule. –KW

LCD-TV

Ken Werner

Sharp Introduces First LCD-TVs with New Gen 8 Panels

On August 31 in NBC's Studio 8H in Rockefeller Center (from which Saturday Night Live is broadcast), Sharp introduced the first LCD Television sets made with LCD panels manufactured in a Generation 8 fab.

The sets themselves are full-HD, true 1080p, AQUOS-branded sets in 46- and 52-inch screen sizes – sizes that are new to Sharp. The LCD panels come from Sharp's new Kameyama No. 2 plant, which cranked up production in August. The new plant is the first Gen 8 plant to enter production, and Sharp is leveraging the plant's ability to produce either eight 46-inch panels or six 52-inch panels on a single mother glass. The company plans to introduce the new sets at very competitive MSRPs: \$3499.99 for the 46-inch LC-46D62U and \$4799.99 for the 52-inch LC-52D62U.

“With our new state-of-the-art facility, sharp is advancing the LCD industry and increasing our production capacity of high-quality, affordable AQUOS televisions to meet robust consumer demand,” said Toshihiko Fujimoto, Chairman and CEO of Sharp Electronics Corp., in New York. “When Kameyama No. 2 is running at full capacity by the end of 2008, the combined production capacity of both Kameyama plants will increase to 20M LCD-TVs a year based on 32-inch panels.”

Sharp has consistently maintained that a major reason it dropped from being the leading supplier of LCD-TVs to being the No. 3 supplier late last year was a shortage of LCD panels, so sufficient supply is a major issue for the company. “Kameyama No. 2 represents Sharp’s re-emergence as the undisputed leader in LCD manufacturing,” Fujimoto said. And Mike Troetti, President of Sharp Electronics Company of America, said, “Kameyama No. 2 means the days of panel shortages are over for Sharp. Record-breaking LCD-TV sales are projected for this holiday season. Starting now, we will have an uninterrupted supply of those LCD-TV sizes most desired by North American customers.” The sets will be in stores starting in October and the introduction will be accompanied by “an unprecedented advertising campaign,” Troetti said.

Bob Scaglione, senior VP of Sharp’s Product and Marketing Group, summarized the new set’s specifications: 10,000:1 dynamic contrast ratio and 2,000:1 “native” contrast ratio; 4ms response time, four-wavelength CCFL backlight units, and 176-degree viewing angles in all directions. The sets each have two HDMI connectors, two HD connectors, and one S-Video connector, as well as one set of component inputs.

An active Q&A session brought out more details, including the fact that neither set accommodates cable cards. Insight Media asked Aki Nishimura, manager of product planning and display products, about the size of the color gamut. “The four-wavelength BLU adds a red phosphor, permits a gamut of 92-95%, and imposes a \$300 premium at the retail level over a standard three-wavelength BLU,” he said, Sharp did not believe that consumers would be willing to absorb that \$300 premium for these sets, and so, is absorbing a portion of the cost.

Sharp introduced a 57-inch LCD-TV in March with a five-wavelength BLU that produces a 95-96% gamut by adding a second green phosphor in addition to the new red, but imposes a \$400 premium over the four-wavelength version. Sharp would like to include the five-wavelength BLU in all of its LCD-TVs, Nishimura said, but the cost is currently too high for mainstream products. Sharp will track costs carefully and introduce five-wavelength BLUs into specific TV sets as cost permits.

But the four-wavelength backlights work very well on the new sets. In fact, the sets produced beautiful, high-contrast images without obvious reflections despite the fact that Sharp had positioned them under some of the rather bright lights of Studio 8H. Scaglione commented that in bright room conditions, these sets will exhibit five times the contrast of a plasma panel.

Also missing from these sets was obvious motion blur, at least on the imagery being used in the demonstration. Sharp has previously shown in rather demanding demonstrations the excellent results it achieves by going to a switching speed of 4ms, even without utilizing any of the “dynamic addressing” approaches for minimizing that portion of motion blur attributable to the sample-and-hold addressing technique used on all TV-use LCD panels.

But, for the first time, Sharp was willing to discuss dynamic addressing approaches. In answer to a question from Insight Media, Bob Scaglione said Sharp found frame-rate conversion to be very interesting and would consider it for future products. (This is the approach Samsung has adopted – as

“frame-rate doubling” – for its new 70-inch panel and has demonstrated extensively. Although AUO will be using its proprietary gray frame insertion (GFI) approach this year and Hitachi has been using black data insertion (BDI) on commercial sets for several years, it seems as if some important players are now coalescing around frame-rate conversion.)

In its new D62U AQUOS LCD-TVs, Sharp has two extremely attractive products and a several-month window before Samsung’s Gen 8 fab comes on line to provide direct competition for the panels. And that will be after the holiday buying season, as Sharp knows very well. -KW

DTV

Aldo Cugini

China Adopts Own DTV Standard

Chinese regulators will soon announce a digital TV standard for the world's biggest television market, the state news agency Xinhua reported on Monday. According to Wang Xiaojie, director of the technology department of State Administration of Radio, Film and Television (SARFT), the system will apply to terrestrial, satellite and cable broadcasts in China.

The government said earlier that it would start rolling out digital television broadcasts this year. Xinhua reports that China already has 4.13M households that receive digital pay-TV channels, and companies that serve them will be required to switch to the new standard. Previous sources reported that China has been testing digital cable TV since 2003 in 49 areas, with more than one million subscribers.

China has more than 120 licensed pay television channels, according to the government. It said earlier that some 30M households would sign up for digital pay channels in coming years. With about 400M television viewers, China is already one of the leading producers of digital television sets.

Our own research with several sources in the U.S. and in China has already turned up some interesting information. First, it seems that one goal was to avoid as much pre-existing intellectual property as possible—and certainly to avoid royalty payments *leaving* China. Therefore, the new system does not overtly use elements of ATSC, DVB or ISDB; nonetheless, some technologists (and lawyers) may argue that some parts of the system use modulation and other technologies developed elsewhere. Some analysts are predicting both lawyers and state department officials will have a field day with this one.

Next, it would also seem that the internal competition to develop a “best of the best” system was not without its own politics. Technically, there were at least three different proposals under consideration by the Chinese government. A group at Shanghai Jiao Tong University developed the first, a single carrier offset-QAM system, Advanced Digital Television Broadcast-Terrestrial (ADTB-T). Next, there was a non-single-carrier system using “Time-Domain Synchronous-OFDM” (TDS-OFDM), Digital Multimedia Broadcast-Terrestrial (DMB-T), developed by a group at Tsinghua University in Beijing. Finally, a group at the Academy of Broadcasting Science (ABS) in Beijing developed a multi-carrier COFDM system, Terrestrial Interactive Multi-service Infrastructure (TiMi).

After lab testing and field trials, a “merging scheme” emerged based on these proposals. At the time of this writing, possible acronyms for the new merged transmission standard included CDMB-T and DMB-T/H. It also appears that, while the system layer may be MPEG-2, the video and audio compression scheme is being used only “provisionally” as MPEG-2, with a new Chinese standard called “AVS” (Audio-Video Standard) in development.

Early information suggests that, while many “modes” are possible for the system, these may in fact be simply groupings of characteristics from the various proponent systems. This could allow, in effect, for the different proponent systems to be used in different geographical areas. This is somewhat of a “Solomon’s solution” but not necessarily the most economical. (Think, for instance, how a “universal receiver,” with both ATSC and DVB decoders could work on both sides of the Atlantic.) In addition, some observers have already questioned how well the “merged” approach might technically perform.

Last August (2005) SARFT decided to jump-start its DTV transition by handing out free cable set-top boxes, giving birth to at least 30M digital TV users and creating a digital TV market valued at over \$2.5B. By 2010, China will realize complete coverage of DTVs with the plan to stop analog broadcasts by 2015. But slow progress in making these goals is what prompted SARFT to implement the plan to distribute free digital STBs.

From a display standpoint, all of this may in fact be moot—as long as the system works and meets consumer expectations. While there is no advance information on what display formats will (or will not) be supported, it would seem that a significant deviation from the rest of the world is unlikely—but given the market size and potential revenue streams involved, such a scenario may not be farfetched. Thus, the continued proliferation of 16x9 widescreen displays, together with the growing application of scaling electronics, is expected to support this growing market and new standard in one form or another.

While the Chinese announcement has already been delayed several times, it is also likely that the official specification will be released soon—at least if there is any hope of building a significant product base in anticipation of the 2008 Beijing Olympics. As they say, stay tuned for more information. –AC

About VESA

VESA is an international non-profit corporation led by a Board of Directors, which represents a voting membership of more than 140 corporate members worldwide. VESA supports and sets industry-wide interface standards for the PC, workstation, and consumer electronics industries. VESA promotes and develops timely, relevant, open standards for the display and display interface industry, ensuring interoperability and encouraging innovation and market growth.

Video Electronics Standards Association

860 Hillview Ct., Suite 150, Milpitas, CA 95035, Phone 408-957-9270, Fax 408-957-9277

www.vesa.org



About Insight Media

The VESA Monitor is published monthly
By *Insight Media*
3 Morgan Avenue, Norwalk, CT 06851 USA
Phone: 203-831-8464 Fax: 203-838-8432
Web Site: www.insightmedia.info

The VESA Monitor Contributors

Jane Bowman	Editor	John DiLoreto	Analyst
jane@insightmedia.info	503-590-6422	john@insightmedia.info	408-559-1034
Matthew Brennesholtz	Analyst	Tom Edwards	Retail Specialist
matthew@insightmedia.info	203-831-8464	tom@insightmedia.info	732-671-4993
Chris Chinnock	Senior Editor/Analyst	Steve Sechrist	Analyst
chris@insightmedia.info	203-831-8404	steve@insightmedia.info	503-419-6239
Ken Tompkins	Analyst	Ken Werner	Analyst
ken@insightmedia.info	510-742-2440	kwerner@insightmedia.info	203-853-7069