EE Herald

Date: 6th Apr 09

New semiconductor devices for DisplayPort video interface

To support the growing importance of DisplayPort video interface standards, there are now more semiconductor vendors with new ICs for this market. Chrontel has launched a new DisplayPort receiver IC part numbered CH7507 with Integrated Timing Control (TCON) for use in laptop and netbook computer displays.

The DisplayPort is developed as an alternate for the widely used Low Voltage Differential Signaling (LVDS) standard to send high-speed video data from processor or graphics controller to flat panel LCD display screens of laptop and netbook computer. Its not only targeted at notebook and netbook computers but also designed for much broader display systems which include even projectors and PCs. DisplayPort is better in handling high definition video content in comparison to LVDS in multiple aspects of video quality. DisplayPort interface with latest specification version 1.1a is designed for use in both chip-to-chip as well as box-to-box video display connections.

This new Chrontel's DisplayPort interface IC CH7507 meets DisplayPort specification version 1.1a, and supports 1440x900 display resolutions with 8-bit color depth, and 1680x1050 resolutions with 6-bit color depth, at 60Hz refresh rates. A DC voltage below 2.5 V can power this IC, which is not possible in LVDS.

To interface directly with the video data transmitter, CH7507 applies reduced swing differential signaling (RSDS). This device integrates gamma correction and pixel dithering. The CH7507 supports data rates up to 2.7Gb/s. The device integrates a brightness control function that manages LCD backlight modules. And specific ON/OFF sequences for different LCD panels can also be controlled through the CH7507's register map or programmed through the AUX channel by the transmitter.

"A single video standard makes enormous sense for computer OEMs," said Dr. David Soo, Chrontel President and CEO. "It simplifies design and reduces cost. Our new CH7507 is an embedded DisplayPort device that meets the needs of Chrontel's extended account base, which currently uses our popular LVDS devices. The market for these devices is huge-every notebook and netbook computer must use either an LVDS or embedded DisplayPort Receiver IC."

The other popular video interface standards such as Video Graphics Array (VGA), Digital Visual Interface (DVI) and even High-Definition Multimedia Interface (HDMI) have limitation in handling high definition video. The limitation includes video resolution, supply voltage, distance, and clock speed, number of connecting pins. Where as DisplayPort resolves all these issues and replaces more or less all the old video interface standards. HDMI might not be that old but is exclusive for box-to-box type consumer electronics video interface.

With such multiple advantages and benefits, this standard will take over LVDS for use in laptops/notebooks and the latest low cost netbooks. This will also make VGA, DVI as obsolete standards. Market research firm Instat predicts, DisplayPort-enabled product shipments to exceed 600 million units annually by 2012.

What about the price? Chrontel priced this immediately available IC packaged in 64 pin QFN at $1.60 each for 10K units. Not expensive.

Some of the other semiconductor vendors with DisplayPort Transmitter and Receiver IC offerings are Analogix Semiconductor and ST Microelectronics.

For further information on DisplayPort semiconductor devices visit below websites,
Chrontel website address is: www.chrontel.com
VESA website address is: www.displayport.org
Analogix website address is: http://www.analogix.com
ST Microelectronics website address is: www.st.com