NXP introduces world's first fully integrated HDMI 1.3 Interface Conditioning chips

September 8 2008

NXP Semiconductors, the independent company founded by Philips, today announced the industry's first fully integrated Interface Conditioning chips for the HDMI 1.3 port.

The new family of chips deliver 8kV of ESD protection (according to the IEC61000-4-2 standard), as well as DDC buffering, hot plug control, an enable signal for HDMI port switching and CEC ringing prevention. The NXP IP4777CZ38 chip, designed for sources such as DVD players, and the IP4778CZ38 chip, designed for sinks such as TV sets, also offer ultra-low line capacitance to ensure high signal integrity for the latest video formats such as 1080p.

NXP Semiconductors' IP4777CZ38 and IP4778CZ38 HDMI Interface Conditioning chips each integrate 30 to 50 discrete components, helping designers to reduce PCB space, design time and total system cost, and enabling manufacturers to boost their board assembly capacity by reducing throughput time.

"Many customers are asking for a reduction of device count on the board," says Kai Neumann, product line manager for Integrated Discretes at NXP Semiconductors. "By offering a fully integrated HDMI 1.3 Interface Conditioning solution with an integration level of 30 to 50 components, we enable our customers to have their newest designs faster in the market with a lower assembly bill. The end customer will benefit from the high IEC ESD protection level and the option to connect long HDMI cables to audio-visual equipment."

Integrated functions include for both the IP4777CZ38 and IP4778CZ38 include:

-- ESD protection of TMDS, Hot Plug, DDC and CEC lines according the strict IEC standard. Since HDMI is a hot-plug interface, ESD protection becomes much more important with a new series of mobile HDMI devices generating several plug events each day. IP4777CZ38 and IP4778CZ38 protect the sensitive HDMI system chip against ESD pulses according to the tough IEC61000-4-2, level 4 standard, since this standard gives the most realistic representation of a person touching an interface under real-life conditions.

-- DDC capacitive decoupling and EMI filtering between system side and HDMI connector side and buffering to drive cables with high capacitive load (>700pF). This protects TV set manufacturers from unjustified returns due to end customers using out-of-spec cables.

-- Very high diode switching speeds (nsec) and low line capacitances of 0.7pF to ground and 0.05pF between the channels to ensure signal integrity, providing easy and relaxed board layout to enable designers to improve time-to-market of their new platforms.

-- Hot plug control for direct connection to system GPIO optimized for sources (IP4777CZ38) or sinks (IP4778CZ38).

-- CEC ringing prevention through slew rate limiter back-drive protection

-- Enable signal for DDC and hot plug for multiplexing and back-drive protection.

Source: NXP