

## Deep Color HDMI Receiver Enhances HDTV Performance and Energy Star Compliance, Lowers System Cost

Expanding its Advantiv® advanced television solutions portfolio, Analog Devices, Inc. (ADI) today introduced the industry's first Deep Color HDMI™ (High Definition Multimedia Interface™) receiver integrated with a Consumer Electronics Control (CEC) controller and analog interface. Designed to provide 1080p video performance at Energy Star-levels of power efficiency, the ADV7604 Deep Color HDMI receiver with CEC matches a 12-bit Deep Color HDMI receiver with three 170-MHz, 12-bit analog-to-digital converters (ADCs), enabling Deep Color accuracy on the analog interface, while competitive components are still operating at only 8-bit or 10-bit color depth. This high level of integration can eliminate up to five components to reduce HDTV bill-of-material and power consumption costs, while delivering 1080p video performance, low standby power, seamless operation, and flawless HDMI reception.

'Traditional HDTV design requires that the TV's main system-on-chip—the digital scaler—remains powered-up when the set is off to 'wake' the TV when a remote control signal is issued. However, a digital scaler typically draws more than 1 Watt of standby power, which would fail to meet new Energy Star standards,' said Bill Bucklen, director, Advanced Television Segment, Analog Devices. 'The ADV7604 helps designers to meet the new Energy Star 3.0 specification of 1 Watt or less of standby power by integrating the CEC buffer and CEC control software directly into its HDMI interface driver software. A small portion of the chip remains awake to watch for CEC commands without any other HDTV systems drawing power.'

According to new data by the Consumer Electronics Association (CEA), 89 percent of households want their next televisions to be more energy efficient. However, only 25 percent of TV models will meet the Environmental Protection Agency's (EPA) revised Energy Star 3.0 specification, which took effect on November 1, 2008, and requires TVs and DVD players to reduce standby power from 3 watts to 1 watt. In addition to power savings, the ADV7604 eliminates the cost of additional components, including a separate analog video digitizer, CEC controller, analog multiplexer, HDMI receiver and HDMI multiplexer; these are all add-on components that can delay product launches or cause costly system redesigns in order to meet Energy-Star power or system budget requirements.

The new HDMI receiver's on-chip support for high-bandwidth digital content protection (HDCP) processing and integrated software driver ensure that authentication checks for unauthorized recording take place seamlessly and without delay. The ADV7604 and its software driver have been thoroughly tested during HDCP PlugFests and by completing HDCP- and HDMI-compliance testing, providing designers with a certified repeater software driver that can be easily ported to various controllers.

The ADV7604 single-chip, analog graphics digitizer with integrated 4:1 multiplexed input Deep Color HDMI receiver and on-board CEC controller supports all HDTV formats up to 1080p and is capable of digitizing analog RGB display resolutions up to UXGA (1600 × 1200 at 60 Hz). The ADV7604 HDMI inputs have high-performance cable equalizers, providing the highest picture quality over cable lengths of up to 30 meters. The new, proprietary, on-chip DPLL (digital PLL) delivers ultralow video- and audio-clock jitter, improving receiver performance and easing printed circuit board (PCB) layout and signal integrity management when interfacing high-speed video buses to downstream devices.

The ADV7604 analog interface enables conversion of component RGB and YPrPb video signals into a digital YCrCb or RGB pixel output stream. The HDMI receiver supports a wide range of component video standards, including 525i up to 1080p and 1250i, as well as many other high definition and Society of Motion Picture and Television Engineers (SMPTE) standards. The ADV7604 provides complete audio support for eight channels of I2S audio, S/PDIF (Sony/Philips Digital Interface Format) digital audio output, and SACD (Super Audio CD) and compressed SACD support with Direct Stream Digital (DSD) and Direct Stream Transfer (DST) output interfaces, respectively.

The HDMI receiver also supports High Bit Rate (HBR) audio streaming to allow recovery (and downstream processing) of compressed lossless audio formats, including Dolby® TrueHD and DTS-HD Master Audio™; or DTS-HD™ High Resolution Audio. The ADV7604 supports global analog video connections, including the D-Terminal (U.S.) and D1-D5 Terminal (Japan) Component Video connectors and SCART (Europe) Component Video connector. Using ADI's complete set of software drivers, designers are able to easily integrate the ADV7604 into any application.

### **Pricing and Availability**

The ADV7604 dual analog interface and HDMI receiver is sampling now with full production quantities available in February 2009. Manufactured on an advanced CMOS process and available in a 256-lead BGA (ball grid array) surface-mount lead-free package, the ADV7604 is specified over the -40 degrees C to +85 degrees C temperature range. The ADV7604 is priced at \$7.95 per unit in 10,000-piece quantities. For more information, please visit <http://www.analog.com/pr/ADV7604>.

### **ADI's Advantiv® Advanced Television Solutions Portfolio**

Analog Devices' Advantiv advanced television solutions are used in the world's leading consumer electronics brands, enabling the true-to-life audio and video quality discriminating consumers have come to expect everywhere, every time. Supported by ADI's system-level experts, ADI's Advantiv advanced television solutions drive many of today's high-definition system components, including HDTVs, Blu-ray disc players, DVRs, AVRs, digital still cameras (DSCs), camcorders, and the HD interconnects that carry content among them. The broad range of Advantiv advanced television solutions enable high-performance functionality and features to meet all consumer electronics price points. For more information on ADI's Advantiv advanced television solutions portfolio, visit <http://www.analog.com/pr/advantiv>.

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