

TV TechCheck

The Weekly NAB Newsletter for TV Broadcast Engineers



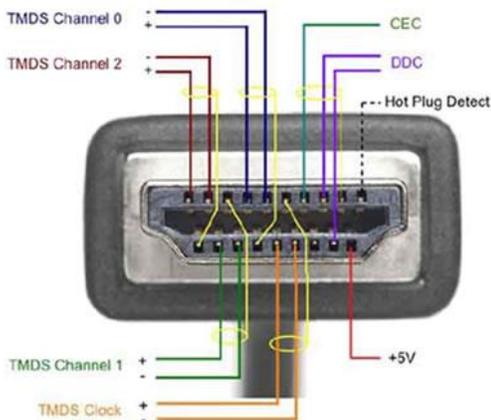
HDMI 2.0 and Other Announcements Help Move Ultra HDTV Forward

Ultra HDTV (of the 4K variety, 3840 X 2160 pixels) has been making a lot of news lately, with a variety of sets available to consumers from multiple manufacturers and prices falling (and likely to continue falling). Several Ultra HDTV announcements last week provided evidence that the remaining marketplace challenges of how to get 4K content to those sets will be eventually solved.



One of the major impediments to a practical end-to-end Ultra HD service has been lack of a method for getting signals actually into the sets. The announcement of Version 2.0 of the HDMI specification last week at the IFA consumer electronics trade show in Berlin is thus a major step forward, increasing the maximum data throughput of the HDMI digital interface from 10.2 Gbps to 18 Gbps. First introduced over a decade ago, HDMI (High Definition Multimedia Interface) has become the secure interface of choice for device-to-device interconnection of digital

television signals in the home. Over 3 billion HDMI devices have been shipped since the inception of the specification. The 19-pin HDMI connector functionality is shown below.



Video (and multiplexed audio) signals are carried on the 3 lines labeled TMDS (which stands for Transition Minimized Differential Signaling), each of which has a maximum data rate of 6 Gbps. Prior to the 2.0 announcement last week, the HDMI 1.4 specification could support Ultra HD spatial resolution of 3840 X 2160, but was limited to a maximum temporal rate of 30 frames per second, making it suitable for motion picture film transfers but not live television applications such as sports. HDMI 2.0 allows full support of Ultra HD at 50/60 frames per second along with other new characteristics: up to 32 audio channels, up to 1536 kHz audio sampling frequency, support for 21:9 aspect ratio pictures, and other new features. HDMI 2.0 is fully backward compatible with previous versions of HDMI and uses the same connector.

At the IFA show, Panasonic became the first manufacturer to announce an HDMI 2.0-enabled Ultra HDTV. The WT600 65" Ultra HDTV is now available for [pre-order](#) and will be available in mid-October at an MSRP of \$6,000. As far as existing sets go, at least some manufacturers had anticipated the 2.0 specification and developed upgrade plans for their products. For example, Sony has indicated its Ultra HD sets will support HDMI 2.0 via a firmware update to be available over the Internet by the end of the

year. Taking a different approach, Samsung has said that its line of Ultra HDTVs will be updatable via their modular Evolution Kit.

HDMI 2.0 is a specification by the HDMI Forum Inc. The HDMI Forum is a non-profit corporation founded in 2011 by HDMI's founders (Hitachi, Matsushita, Philips, Silicon Image, Sony, Thomson and Toshiba) and will be the venue where all future versions of the HDMI specification are developed. The HDMI Forum currently has over 80 members from the PC, CE and semiconductor industries. HDMI 2.0 is the first specification produced by the HDMI Forum.

As an initial method of solving Ultra HD's program delivery challenge, Sony Electronics announced the launch of their Video Unlimited 4K service last week. Over 70 movies and TV shows are now available for download to the Sony FMP-X1 Ultra HD Media Player, announced earlier this year and pictured below. Circular in shape with an approximate 10" diameter and height of 2", the 4K media player is a stylishly distinctive TV accessory. With its 2TB hard drive the FMP-X1 can hold approximately 45 feature films, although it is only compatible with Sony 4K HDTVs and will not work with other brands.



Ultra HDTV is still in its infancy, and its ultimate degree of marketplace success remains a question. However, with large screen sizes and close-in viewing, there is little argument that the rendition of reality by an Ultra HDTV can be quite compelling. As more content becomes available for Ultra HDTV viewing, consumer behavior will be an important indicator of its long term acceptance and adoption.

For more information about HDMI 2.0 see <http://www.hdmiforum.org/> and www.hdmi.org.

Only 3 Weeks Left until the NAB\SBE Satellite Uplink Operators Workshop

There are only three weeks left to register to attend the NAB\SBE Satellite Uplink Operators Workshop. The workshop will be held at NAB headquarters in Washington, DC September 30 – October 3, 2013.

The Workshop will include:

- Instruction on the theory of satellite communications and all operational aspects of the ground equipment for uplink and downlink facilities
- A Compressed Digital Television and Transmission seminar covering the theory of digital video with an introduction to compression techniques and systems
- Hands-on training in a satellite newsgathering truck
- A half-day field trip to a major satellite television uplink center

The Workshop will be led by renowned telecommunications expert Sidney Skjei of Skjei Telecom.

Don't miss your chance to attend the workshop. For registration and additional information, contact [NAB Technology](#) at 202-429-5338 or click [here](#).

September is National Preparedness Month

National Preparedness Month is held each September and is designed to encourage Americans to take simple steps to prepare for emergencies in their homes, businesses, and communities. This year marks the ninth consecutive year that NAB Member Benefit Program Partner [Agility Recovery](#) and the U.S. Small Business Administration have worked together to bring awareness and insights to business leaders, with this year's theme being "Be The Hero," as determined by the Department of Homeland Security's Ready Campaign and Citizen Corps.

Throughout National Preparedness Month, business professionals are encouraged to attend free, online, interactive webinars to get the information they need to secure their businesses. Visit www.agilitywebinars.com and sign up today.

For more information on National Preparedness Month and to access the 2013 NPM toolkit, click [here](#).

Nominations now open for Women in Technology Awards

TVNewsCheck has opened nominations for the 2014 Women in Technology Awards. Presented each year at the National Association of Broadcasters Convention, the Women in Technology Leadership Award recognizes women who have contributed significantly toward advancing their industry technologically.

The Technology Women to Watch Awards shine a spotlight on women in radio, TV and digital who show significant promise of advancing their industry technologically.

Both awards support the [National Association of Broadcasters Education Foundation's Technology Apprenticeship Program](#), which places young engineers who are women or people of color in broadcast industry internships.

To nominate a colleague for the 2014 Women in Technology Leadership or Technology Women to Watch Award, please download a ballot [here](#) or call Kathy Haley, publisher, at 484 412 8297.



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