

From the Editors of **residential**
systems

Wire & Cable Innovations 2008

Planet Waves ■ DVI Gear ■ Liberty Wire & Cable ■ Accell

NewBay
Media

2 Behind the Scenes

IN DEMANDING INSTALLATIONS, WIRES AND CABLES MAKE THE DIFFERENCE

"We're the largest manufacturer in the residential industry, offering more than 7,000 SKUs, and yet, we are invisible," explained Liberty Wire & Cable's Kirk Horlbeck, senior vice president, corporate marketing and business development. For Horlbeck, even though wires and cables are usually out of sight, tucked behind gear, they are where the magic really

happens. "It's funny, no one really pays attention to the wires at first, but they substantially improve performance and solve installation challenges." Liberty brings products to market that not only connect systems but also give installers design flexibility and cost and time savings.

Barlow says that not all cables are created equal, and going digital is an immediate upgrade and improvement on analog. "Digital is 10 times higher, and at much higher speeds all the issues associated with performance are addressed." With the higher bandwidth requirement in a demanding integration, and the longer lengths needed for a large-scale home theater, cable performance is crucial.

The current buzz words for improved performance are High Speed HDMI, and HDMI 1.3, Category 2, which promises more colors via Deep Color, and enhanced audio (including Dolby Tru HD and DTS Master Audio HD). Standard HDMI cables are tested to carry a standard HD 720p or 1080i signal. According to HDMI, you will need a High Speed HDMI Cable if your home theater/television is capable of increased resolution (1080p at 60 Hz refresh rate or higher); your home theater/television supports resolutions greater than 1080p; and your home theater/television supports Deep Color for resolutions of 720p, 1080i, and higher.

Starting soon, HDMI will migrate toward marking HDMI 1.3, Category 2 cables.

THE CHALLENGES AND PROMISES OF HIGH-DEFINITION

Despite the promise of enhanced performance and the simplicity of the HD interface, the wire is only one piece of the puzzle. Without a compatible source and display, an HDMI 1.3, Category 2 cable isn't much more than HDMI 1.0—a cable that is still not embraced fully in the custom industry.

Another difficult issue when devel-

oping HDMI 1.3 cables is how to cost effectively offer longer runs—more than 30 feet—that provide consistent performance with a wide range of sources. Most of the problems originate from source components that have varying output levels, which are difficult for long cables to overcome.

Steve Barlow said that DVI Gear's technical message is performance and speed. "Two things that really degrade cable performance are long lengths [because] the longer the cable, the more problems one can have—losses get progressively higher," he said

"Higher speed is the other factor," Barlow continued. "The higher the resolution and/or the more colors one has, the higher the speed. So the worst-case scenario is very long, high-speed cables. This is what - DVI Gear excels in making. Our cables operate flawlessly at the high speed required by today's new digital signal formats (AKA DVI, HDMI, and soon DisplayPort), even at lengths up to 50 meters (164 feet)."

Another problem in the HDMI world is EDID (extended display identification data) or HDCP (high-bandwidth digital copy protection) signal confirmation errors over long-run applications.

Keeping up with the evolving specifications and making sure products



Planet Waves' RGB5P250 RGB cable provides dual shielding and high-braid spec for proper shielding of HD audio and video signals.

happens. "It's funny, no one really pays attention to the wires at first, but they substantially improve performance and solve installation challenges." Liberty brings products to market that not only connect systems but also give installers design flexibility and cost and time savings.

Steven Barlow, president of DVI Gear, agrees that the wiring aspect should be as important to installers as the components they connect, especially in high-definition applications. "Some people think cables are just cables," he said. "The conventional wisdom is just 'connect it up and don't think too much about it because there is no high-tech message.' But really, it isn't the case at all."



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Accell UltraAV 1x4 HDMI
Audio/Video Splitter

meet and/or exceed the HDMI spec is helps cable manufacturers stay ahead of the curve. Properly communicating these capabilities to their integrator clients and consumers also helps.

One common misconception is that all HDMI cables are the same. In reality, higher performance, higher data-hungry sources and software require equally robust cables. Varying degrees of resolution put strain on the cable and quality of the assembly and construction is essential.

Manufacturers agree that most HDMI cables at shorter lengths can handle higher bandwidth demands of HDMI 1.3, Category 2 without much trouble. Longer runs, past five meters (16 feet), demand stricter manufacturing standards and better testing.

Industry professionals still must recognize that components with varying and poor power supplies, questionable applications of HDMI chipsets, and other factors influence the installations as much as the cable. Six generations of changes in the HDMI specifications compound the issue even more.

Additionally, even if a component or cable is certified as HDMI 1.3, it does not mean that it features every capability available. Each new HDMI 1.3, Category 2 feature is optional for inclusion in various products, and only one of the key features of 1.3 has to be implemented to claim 1.3-compatibility.

The eye pattern test is growing in popularity with manufacturers who want to guarantee longer lengths of HDMI cable.

TESTING ONE TWO, TESTING

Although the promise provided by the HD interface standard is one of simplicity and high performance, the idiosyncratic nature of CI installations often reveals the problematic nature of any new technology.

That is where DPL Labs wants to help. The new testing company founded by Jeff Boccaccio, president of the engineering firm In-Visions Technology, uses Tektronix equipment to help manufacturers test HDMI cables and components in a neutral space. Boccaccio is using the entire Tektronix testing suite for HDMI in all-DPL testing. What's more, Tektronix technical support has allowed DPL to conduct better digital testing procedures, which guarantees repeatable testing procedures for more accurate rankings.

Another issue regarding testing is the actual HDMI certification. Some companies promote HDMI 1.3, Category 2 capability or 1080p, full HD capability, but do not have the equipment to actually complete the extensive testing process. Even with a lab available, testing HDMI 1.3, Category 2 cables without the availability of compatible source components and display devices makes the process even more difficult for some cable vendors.

When HDMI 1.3 first came out, Accell redesigned its cables to embrace the new spec and overcome the challenge of maintaining quality over longer runs. In the words of

(continued on page 10)

Planet Waves INNOVATIVE, TIME-SAVING CUSTOM CABLE PRODUCTS



The Planet Waves Instant Interconnect System: is designed for the custom installer and allows quick assembly of custom length, HD cables for audio and video applications.

All Planet Waves connectors are reusable and affix to Planet Waves cable without stripping, crimping, soldering, or special tools. Use the same cable for multiple signal types, simplifying the install process and the inventory you need to keep on hand.

ZM Series, Two-piece Modular

Connectors: Precision-machined from solid brass and coated with a soft-touch matte black finish, the ZM Series of reusable connectors are the latest innovation from Planet Waves.



Incorporating a two-piece socket and tip configuration, the ZM Series provides the installer with a visible connection point of the cable as it is to be connected to the connector tip. The connector socket is easily attached to the Planet Waves cable with its gold grounding screw and simply screws into the connector tip. Connector tips are available in RCA, BNC, RCA Female, and F-connector types.



Contact

www.planetwaves.com/ci

Pre-wire RGB Cable Bundles:

Addressing the needs of the professional installer with a lower priced three-wire and five-wire cabling solution. The Planet Waves RGB3P250 and RGB5P250 cables support all Planet Waves reusable connectors and are easily terminated using Planet Waves' "Cut, Twist, Screw" technique. The new RGB cables continue to provide dual-shielding and high-braid spec for proper shielding of HD audio and video signals.

Planet Waves Modular Wall-Plate

System: The perfect "finishing touch," the new Modular Wall-Plates provide a rich visual benefit for interior room aesthetic and also ensure a secure connection from in-wall to out-of wall cabling runs. Available as Decora style wall-plate inserts, each insert can accommodate a Planet Waves reusable connector which is key-fitted to the inside of the wall plate and matches with a Planet Waves connector tip on the exterior side of the wall plate. A variety of A/V connection types can be made easily.

Planet Waves CI Tools: Time-saving solutions designed to facilitate the cleanest, most efficient installations possible. The newest tool solution from Planet Waves is the RC-01, Radial Cutter. Designed specifically to further enhance the installer's experience when preparing Planet Waves multi-conductor RGB cables, the RC-01 quickly scores and removes the outer jacket without damaging the jacket of the inner conductors. Used with the Planet Waves RGB "End Caps" the finished result is a professional appearance with superior reliability. Now with Planet Waves' innovative series of cable cutters, continuity testers and precision grounding screwdriver, Planet Waves installers

have a complete and inexpensive tool set for time savings and quality custom cable making results.

IN = OUT™
PURE SIGNAL TRANSPARENCY

IN = OUT means no more worrying about which cable is needed for video versus audio, or digital versus analog. All Planet Waves cables and connectors are designed to meet systems' requirements with precise coax construction and specifications, delivering total signal transparency.

Planet Waves is owned and operated by D'Addario & Company, Inc, where they "live music every day, from the stage to the studio, to the home." Visit www.planetwaves.com/ci.



DVIGear High Resolution Series DVI and HDMI Cables:

DVIGear's High Resolution Series DVI and HDMI cables are engineered for great value and exceptional performance. Designed to support virtually any DVI or HDMI application with cable lengths up to 25 ft., these cables set a new benchmark for quality and value for price sensitive applications.



DVIGear's High Resolution DVI cable

Key Features:

- Supports HDMI v1.3 with "Deep Color" resolutions up to 1080p (12-bit)
- Supports HDMI v1.3/Category 2 data rates (3.4 Gbit/sec.) up to 5 meters (16.4 ft.)
- Supports HDMI v1.3 data rates up to 2.25 Gbit/sec. all lengths
- Supports PC resolutions up to 1920x1200/60 Hz
- Heavy-duty 24AWG copper wires for minimum insertion loss
- Ultra-low Skew guarantees unsurpassed digital fidelity
- Triple-shielded for superior noise immunity
- Dual UL Ratings: UL13 (CL2) and UL758 (AWM20276)
- In-Wall Rated
- RoHS-compliant (green friendly)
- Gold-plated connectors

Contact

www.dvigeear.com
Ph: 888.463.9927

DVIGear Super High Resolution Series Cables:

DVIGear's Super High Resolution (SHR) DVI and HDMI cables are engineered for superior performance and reliability. Designed for fully transparent operation with bit rates up to 2.25 Gbit/sec./channel, DVIGear's SHR cables deliver unsurpassed picture quality and rugged durability.

Key Features:

- All cables 12.5 meters (41 ft.) or longer include DVIGear ACE (Active Cable Extender) and a 0.5-meter cable
- Supports HDMI v1.3 with "Deep Color" resolutions up to 1080p (12-bit)
- Supports HDMI v1.3/Category 2 data rates (3.4 Gbit/sec.) with lengths up to 7.5 meters (24.6 ft.)
- Supports HDMI v1.3 data rates up to 2.25 Gbit/sec. lengths up to 40 meters (131 ft.)
- Supports PC data rates up to 1.65 Gbit/sec. lengths up to 60 meters (197 ft)
- Supports PC resolutions up to 1600x1200/60 Hz and 1920x1200/60 Hz
- Heavy-duty 22AWG copper wires for minimum insertion loss
- Ultra-low Skew guarantees unsurpassed digital fidelity
- Triple-shielded for superior noise immunity
- Dual UL-Ratings: UL13 (CL2) and UL758 (AWM20276)
- In-Wall Rated
- RoHS-compliant (green friendly)
- Gold-plated connectors



DVIGear Super High Resolution HDMI-DVI Cable

DVIGear DVI and HDMI Fiber Optic Cables:

Engineered to overcome the barriers of sending digital DVI and HDMI signals over copper wires, these cables provide unmatched signal fidelity and transparency over a wide range of input resolutions with lengths up to 100 meters (328 ft.).



DVIGear's Fiber Optic Cable

Key Features:

- Supports HDTV resolutions up to 1080p
- Supports PC resolutions up to 1600x1200 and 1920x1200
- Supports digital bit-rates up to 1.65 GBit/second
- Optical fibers immune to environmental signal noise
- Low RFI/EMI profile for sensitive applications
- Integrated +5VDC power receptacle provides power to both ends of cable
- Optional +5VDC external power supply
- Rugged yet pliable construction

Liberty Wire & Cable BROAD SELECTION FOR THE RIGHT SOLUTION



The Liberty Wire & Cable mission is to capture customer loyalty by exceeding customers' expectations of satisfaction, providing outstanding service, and supplying solution oriented products to make their customers' jobs easier. Innovations in 2008 include:

DigitalInx

Liberty's DigitalInx system incorporates a device and interconnection system to route DVI and HDMI signals. Liberty's HDMI cables are designed to reflect the same premium image quality that clients expect to see in their HD displays. The cable provides ultimate digital performance with flawless transmission of HDMI 1.3 signals at resolutions up to 1080p.

Available in one and two-meter lengths, Liberty's new DigitalInx HDMI Cables deliver high-quality performance at competitive prices.

Solutions include: digital repeaters, distribution amplifiers, switchers, fiber optic extenders, HDMI over coax, and more.

Contact

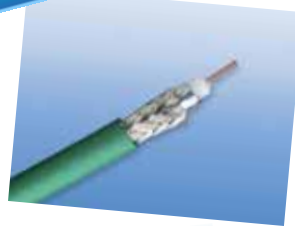


www.libertycable.com
Ph: 800.530.8998 (US)
Ph: 719.388.7542
(International)

ConnecTec Termination System

Coaxial Connectors play a critical role in signal transmission. That's why Liberty created the ConnecTec Termination System with a full product offering of advanced-engineered RCA, BNC and F connectors to fit all of the RG59, RG6 and RG6 Quad coax cables.

Designed with space-age technology, Liberty's compression connectors are revolutionary in design and exceptional in performance. Includes more than 60 different styles of RCA, BNC and F connectors.



EZLINX

Liberty's EZLINX system includes two parts: the EZLINX cable is constructed with 26 AWG coax with a threaded 13-pin female connector on each end. The 17 EZLINX termination option offers a threaded male connector on one end and broad selection of high-quality VGA, BNC, RCA, Analog DVI, S-Video and customizable options on the other.

PanelCrafters Plates and Panels

PanelCrafters products are manufactured with the most advanced CAD/CAM technology available. Liberty's drawings are developed and designed by skilled CAD operators to guarantee that your proof is executed with the utmost care and precision. The line of active products are fabricated from high-quality aluminum and are designed to fit perfectly into all standard-sized junction boxes.

RGB Cables

Largest selection of RGB products in the industry.

- 3, 5, and 6 conductor bulk cable
- Plenum and PVC available
- Custom and stock cable assemblies
- QuickInx Solid AWG cables serial digital coax cable

continued from page 3

Michael Weizer, Accell's director of marketing, "Accell is a true cable manufacturer. Our Ultra Run 1.3 HDMI cables utilize a built-in signal repeater that regenerates the HDMI A/V signal for long length transmission without signal loss." UltraRun 1.3 cables are High Speed HDMI 1.3-compatible and reach 82 feet with no degradation.

"Even if you don't need them now,

installers are wise to start migrating toward the features that HDMI 1.3 provides," Weizer continued. As for Accell's message to its customers is this: "If you are going in-wall, we have a great solution that's specifically UL rated for in-wall," he said.

Accell's removable repeater is also a cost-effective addition. Customers who might want to remodel or

upgrade and don't want to pull cable out of the wall will benefit from Accell's design breakthrough. Weizer says that at Accell, there is a mandate to innovate: "We want to always do better for our customers."

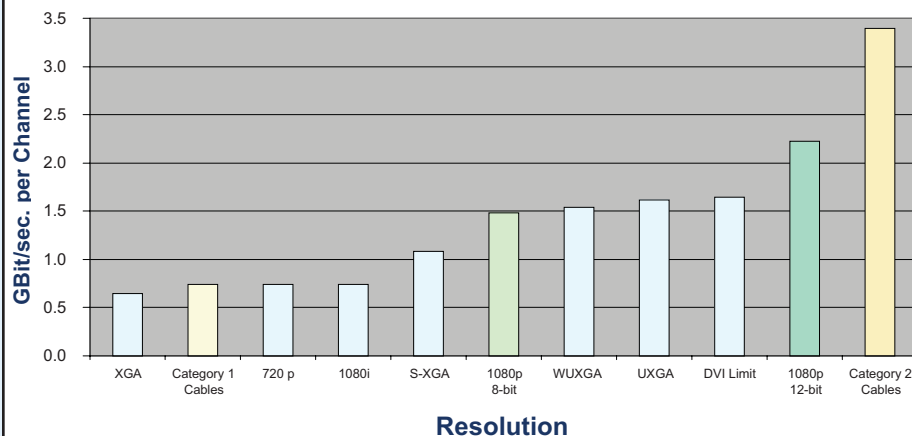
Margot Douaihy is a contributing editor of Residential Systems in New York City.

Resolutions and Bit Rates for DVI and HDMI Signals

EXAMPLE SPECS FROM DVIGEAR

Name	Format Type	Resolution	Refresh Rate	Color Depth	Single Channel Bit Rate (Gbit/sec.)	Aggregate Channel Bit Rate (Gbit/sec.)	Comments
XGA	PC	1024 x 768	60 Hz	8 bit	0.6500	1.9500	
HDMI v1.3 - Category 1 Cables					0.7425	2.2275	Same as 720p and 1080i
720 p	HDTV	1280 x 720	60 Hz	8 bit	0.7425	2.2275	
1080i	HDTV	1920 x 1080	30 Hz	8 bit	0.7425	2.2275	
S-XGA	PC	1280 x 1024	60 Hz	8 bit	1.0800	3.2400	
1080p 8-bit	HDTV	1920 x 1080	60 Hz	8 bit	1.4850	4.4550	
W-UXGA	PC	1900 x 1200	60 Hz	8 bit	1.5400	4.6200	
UXGA	PC	1600 x 1200	60 Hz	8 bit	1.6200	4.8600	
DVI Limit	PC				1.6500	4.9500	Limit for Single-Link DVI signals
1080p 12-bit	HDTV	1920 x 1080	60 Hz	12 bit	2.2275	6.6825	Highest HDMI bit rate available today
HDMI v1.3 - Category 2 Cables					3.4000	10.2000	Upper speed limit for HDMI v1.3 Very few products support this speed

Bit Rates for DVI and HDMI Signals





UltraRun 1.3 HDMI cables for long length transmission up to 82

ULTRARUN 1.3
The Accell UltraRun 1.3 HDMI cables are designed using a built-in miniature signal repeater. This repeater regenerates the HDMI A/V signal

Key Features:

- Built-in miniature signal repeater for runs of up to 82 feet (25m)
- Supports all HD resolutions including 1080p and 36-bit Deep Color
- UL Listed CL3 and CSA FT4-rated cable for in-wall installation
- Removable repeater for easy replacement without disturbing cable
- Fully compatible with HDCP-compliant components

feet, without signal loss. UltraRun 1.3 cables are high speed HDMI 1.3-compatible providing a total bandwidth of up to 6.75 Gbps (225 MHz) and supporting up to 1080p resolution and 36-Bit Deep Color. The removable repeater module design allows for easy module replacement. Should the repeater become non-operational, it can be easily detached from the cable and replaced without disturbing the cable run. Prices start at \$279 MSRP for the 33ft (10m) cable.

ULTRAAV 1X4 HDMI 1.3 SPLITTER

The Accell UltraAV 1x4 HDMI 1.3 Audio/Video Splitter sends an HD audio/video signal to up to four displays at once. The splitter is compliant to the High Speed HDMI 1.3 specification transmitting an all digital signal at up to 6.75 Gbps (225 MHz). The UltraAV 1x4 Splitter supports all



UltraAV 1x4 HDMI Audio/Video Splitter

HD video formats including 1080p resolution and refresh rates of up to 120Hz for smoother video reproduction. Compatible with Dolby TrueHD and DTS-HD lossless Surround Sound and supports up to 36-bit Deep Color providing greater color depth and detailed gradations. The splitter features a built-in signal repeater that boosts the HDMI signal up to 82 feet. Available now for \$199 MSRP.

Key Features:

- High speed HDMI 1.3 compliant up to 6.75 Gbps (225 MHz)
- Supports resolution up to 1080p, 36-bit Deep Color
- Compatible with HDCP-compliant devices
- Splitter can be daisy-chained for a larger distribution
- Built-in signal repeater up to 82 feet

WIRES & CABLE INNOVATIONS 2008

True HD is Now Within Reach

High Speed HDMI™ 1.3 Cables up to 82 Feet

"The performance, design, and value of these cables are unsurpassed!"
LAAudioFile.com, August 2008



Detachable Repeater
Easily replace without disturbing cable.

A few years ago Accell launched the world's first long-length HDMI cables featuring a built-in signal repeater. The UltraRun™ cables provided flawless digital signal transmission over long cable runs and were awarded the CE Pro Editors Pick. Now Accell has done it again with the UltraRun 1.3 HDMI cables.

The **UltraRun 1.3** High Speed HDMI 1.3 cables support HD resolutions up to 1080p and Deep Color™ technology providing a crystal clear picture. UltraRun 1.3 cables are UL Listed and CL3 rated, perfect for in-wall installation. Available in lengths of up to 82 feet, these cables feature a detachable signal repeater. Should the repeater become disabled, it can easily be replaced without removing the cable from the inside of the wall. For more information, visit www.accellcables.com.

For dealer information contact:
sales@accellcables.com or call 510-438-9288

