

Executive Director's Report

In early August, the 1394 Trade Association teamed up with HANA to participate for the first time at the CableLabs Summer Conference in Keystone, Colorado. The TA had the largest demonstration in the exhibit area with three 1394-over-coax demos from Pulse-LINK, Samsung/HANA, and Freescale Semiconductor. Traffic at the booth was excellent, providing us with the opportunity to talk to almost everyone we wanted to meet.

Reaction to the demos was very encouraging, as we showed the power and versatility of 1394. Most of the cable engineers were familiar with 1394 at a basic level, but did not fully understand the performance, quality-of-service, distance and other features and benefits the technology provides. A group from MoCA even spent a fair amount of time looking over the demo and asking questions. The two most common questions from all attendees centered on the timing of the next HANA specification and the availability of 1394-over-coax silicon and system solutions.

A number of follow-up meetings have already taken place in response to the favorable reception we received at this conference. We are planning to attend the CableLabs Winter Conference in Denver March 4-6.

Also, we have picked up several new members recently, including WJR Consulting, Analog Devices, and XFN-Group. Many of you are familiar with Bill Rose, President of WJR Consulting. Bill has been a strong pro-1394 force inside the CEA standards activities for many years, chairing the R7 Home Networks Committee.

Brooke Crossley of Analog Devices gave a presentation on JPEG2000 to the HANA organization and to the 1394TA Residential Backbone Working Group. She also voiced support for 1394 at the CEA meetings in Coronado the week before the TA meeting in San Diego, helping to increase the pro-1394 groundswell re-emerging inside CEA.

Those of you who have met Robby Gurdan, President of XFN-Group, have sensed his passion for 1394 in the pro-audio market. Robby chairs the

Czech Republic's National Court System is Largest Single-Site FireWire Installation

A new high-performance 1394-based professional audio system in the Czech Republic's National Court system in Prague demonstrates how cost-efficient the IEEE 1394 standard can be in a multi-room, multi-purpose installation.

The court system, where work was finished the end of July, represents the largest single 1394-equipped site anywhere in the world. A FireWire audio system links the entire court into a single audio network, eliminating the expense of complex media-control systems.

Audio Engineering Society's "Audio Installations Use Case" task group for 1394 applications. XFN-Group recently completed the installation of a 1394 audio network in the Prague National Court. An article on this appears in the newsletter.

We welcome all our new members and expect good things for 1394 as we continue to grow in exciting new markets.

James Snider
Executive Director
1394 Trade Association

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The 1394 Trade Association featured a popular, well-attended demonstration of 1394 over coax via UWB at the annual CableLabs Conference in Keystone, Colorado. 1394 over coax provides a whole-home distribution capability that runs over existing coaxial cable and co-exists with legacy cable and satellite programming.

The installation was completed by D-Mexx s.r.o, and developed by the XFN-Group, based in Germany and led by Robby Gurdan, president.



D-Mexx chief Robby Gurdan, right, and Genio Kronauer from DFM, who is responsible for the hardware development within the group, led the installation of the 1394-based system in the 50-room Czech Republic national court in Prague.

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The PC-based, FireWire-equipped audio system serves 50 different rooms within the court system using a media-control interface (AMX) and 10 movable rackmount systems configured with either 16 x 16 or 24 x 24 inputs/outputs. A digital 64 x 64 matrix is located in each room. The system uses a 32-channel, multi-track recorder/player with MP3 encoding set up for archiving court records, making that major court priority easy and cost-effective. The implementation also incorporates a voice-disguising capability to hide the identity of witnesses who are testifying anonymously. Testimony, comments and other proceedings enter through the microphones at each station in the courtroom, including the judge's bench, witness stand, jury box, and other locations. The testimony then is transported over 1394 into the digital matrix and through the media-control network. All court proceedings are recorded and integrated into the system.

"The entire system is easy for users to operate and configure," said Gurdan. "The Czech Republic's national court is very proud of this implementation, which is an excellent model for other European court systems." Fred Speckeen of TC Group, who chairs the 1394 Trade Association's Pro Audio Working Group, said: "This is a very innovative application of 1394. At the request of manufacturers and designers, and in conjunction with the Audio Engineering Society, the 1394TA is currently developing 1394 deployment use-cases for recording live sound and commercial installations like the court system implementation. 1394 is proving itself as a tremendously powerful solution for audio and video networking, and is significantly superior to proprietary and Ethernet-based alternatives."

Mac Pro with FireWire 800, 1394b ICs from TI, Agere, SanDisk CompactFlash Top List of New 1394-Equipped Products

Plenty of new 1394-equipped products have come to the market, starting in the late spring and throughout the summer.

Apple unveiled its new Mac Pro this summer, a quad Xeon, 64-bit desktop workstation featuring a handful of FireWire ports, two new Dual-Core Intel Xeon processors running up to 3.0 GHz, and a new system architecture that delivers up to twice the performance of the Power Mac G5 Quad. The Mac Pro provides quick and convenient access to connect the most popular external devices. The computer's front panel includes a FireWire 800 port, a FireWire 400 port and two USB 2.0 ports, with additional FireWire 800, FireWire 400 and three USB 2.0 ports on the back panel.

Apple also introduced a new 24-inch iMac version which includes 1394b ports, and which Apple senior VP of worldwide product marketing, Philip Schiller, called the "fastest, biggest, and brightest iMac we've ever made."

SanDisk Corporation introduced the SanDisk Extreme® IV line of CompactFlash digital film cards for professional photographers, who require the highest performance and largest capacities for their medium-format and high-end, digital, single lens reflex (SLR) cameras. SanDisk also introduced the Extreme FireWire reader, which can transfer images from

the SanDisk Extreme IV cards to computers at up to 40MB/sec.

Two important silicon products also have been announced. Texas Instruments' new TSB81BA3 is a three-port, bilingual, physical-layer device capable of speeds up to 800 Mbit/s, compliant with the approved version of the IEEE 1394b specification. This first IEEE 1394b PHY doubles the speed of the previous-generation 1394a PHYs to 800 Mbit/s, and increases communication distances up to 100 meters.



1394b with its 800 Mbit/s bandwidth is now available on a wide range of Apple's computers, including the 24-inch iMac.

Agere Systems introduced its FW430 and FW843 chipset, which is based on the 1394b standard and transports voice, data and video signals moving between computer and consumer electronics equipment at up to 800 Mbit/s twice as fast as current 1394a 400 Mbit/s technology. This high performance, PCI-bus-based, open host controller for 1394a- or 1394b-compliant systems and devices is equipped with a select switch. The FW843 integrates both a controller and three-port, 400 Mbit/s 1394a PHY.

Leading storage system manufacturers led by La Cie and Iomega also have introduced several new 1394-equipped products. The LaCie Little Big Disk with FireWire 400 is perfect for mobile audiovisual enthusiasts who need fast transfer rates, a compact form factor, and multiple connection options.

Iomega launched two high-capacity drives in 80GB and 120GB capacities offering host-powered operation. The Iomega Hi-Speed USB 2.0/FireWire drives feature a metallic industrial design with a thickness of 0.5-inches.

Other World Computing (OWC) also has a new drive. Its Mercury Elite-AL Pro Striped RAID is an external hard disk storage system with FireWire 400, FireWire 800 and USB 2.0 interfaces.

Trans International introduced miniXpress, a new external hard-disk-drive

enclosure that features a Serial ATA (SATA) interface. The miniXpress features two FireWire 800 ports, and a FireWire 400 port.

NitroAV.com, a developer and manufacturer of FireWire/1394 hardware peripherals, storage and RAID subsystems, has expanded its "ExpressWay Series" of FireWire 800/1394b and USB v2.0/1.1 combo PCIe (PCI-Express) host adapters with the introduction of the 7-Port NitroAV PCIe card. The 7-Port FireWire 800/1394b and USB v2.0 Combo Professional PCIe Host Adapter offer two external FireWire 800 ports, three external USB v2.0/1.1 ports and an internal FireWire 800 port. The ports provide an easy and affordable way to add additional FireWire 800 to desktop computers that support PCIe host adapters.

CEEntrance has released its new Ideal Driver for FireWire audio interfaces. According to CEEntrance, this new Windows audio software features one-third of the latency and higher stability of drivers typically shipped with FireWire audio interfaces. Also, pro audio leader M-Audio has posted new drivers for its FireWire line of peripherals for Intel Mac-based musicians.

Griffin Technology is shipping FireWave, its 5.1 surround-sound output device that connects to the Mac's FireWire port. FireWave is a small, portable external box that's compact enough to work with a laptop.

The two U.S. leaders in backup storage, Seagate and Western Digital, also have added products this summer. Seagate introduced the 750GB Pushbutton backup drive, equipped with a pair of FireWire 800 connections. Western Digital's 320GB Media Center storage system, the WDXB3200JB, includes one FireWire 800 slot.

From Ilmenau, Germany, Emsys Inc. introduced a pair of 1394 link layer cores for use in ASIC and FPGA designs. The cores, which include interfaces to 8-bit, 16-bit and 32-bit microcontrollers, support data-transfer rates up to the 800 Mbit/s provided by 1394b.

1394 TA Issues New Product Book for 2006

The soft-bound book includes more than 3,500 FireWire products now available via normal retail outlets from hundreds of companies around the world that have embraced the technology and implemented it for the CE, PC, storage, camcorder, automation, test, and other markets. It covers all product categories, with special focus on PC, CE and Infrastructure/Networking. First major distribution is at CEDIA 2006. For more information, visit www.1394ta.org



Trade Association Sets New Cable, Connector Compliance Program

1394a Cable, Connector Procedures Set; 1394b Plan to be Ready in January 2007

The Trade Association has established a cable and connector compliance program for 1394a products. Two independent test companies, ETC of Taiwan (Electronics Testing Center) and NTS of the U.S., have been certified as official testing organizations.

The certification program, which covers all 1394a cables and connectors, is effective immediately. A similar procedure for 1394b cables and connectors is under development and is expected to be ready by January 2007, according to Sam Liu, chair of the Cables and Connectors Working Group.

The two testing organizations were certified on the basis of several criteria, including international certification; non-alignment with any cable or connector manufacturer; experience in testing products for standards organizations; and at least five years experience testing products designed for high-speed connectivity. The compliance suite includes electrical, mechanical, environmental and other tests. Cables and connectors that meet the compliance procedures can use the 1394 Trade Association's compliance logo. The compliance testing can be completed in less than 60 days.

Six leading cable and connector manufacturers – Comoss, Delphi, Elka, Foxconn, Molex and Newnex – led the way in establishing the criteria for the program. The test samples provided by the six companies passed the verification tests of high-speed electrical functionality. The verification tests are crucial for selection of the test labs. All the leading participants have 1394a cables and connectors that meet the standards and have completed the compliance-testing process.

New VersaPHY Enhancement Expands 1394 Market to Very Low-Cost Devices

Simple, Lightweight Devices Cut Cost by Taking Direction from a Full-featured Controller Node

A new, streamlined enhancement to the IEEE 1394 standard called VersaPHY applies an expanded physical layer (PHY) that enables low-cost, simplified implementations for aerospace, automotive, pro-audio, industrial, home networks, and other applications.

VersaPHY significantly expands the applications in which 1394 can deliver its superior speeds, distance, media and protocol capabilities. This 1394 enhancement enables endpoint devices to operate at lower costs by receiving their configuration and operational direction from one or more full-service controller nodes. VersaPHY retains full compatibility with all existing 1394 products.

The development work will be directed by the Trade Association's Industrial and Instrumentation Working Group under the leadership of Richard Mourn of Quantum Parametrics LLC. Mourn has worked closely with the 1394 Trade Association since it was founded in 1994. A draft specification is available to 1394 Trade Association members now.

The VersaPHY's expanded PHY layer will support low-bandwidth, asynchronous, peer-to-peer communication between nodes, along with high-bandwidth, guaranteed real-time streaming, with no need for link, transaction, or management layers within the VersaPHY device.

"Adding this backward-compatible versatility to the 1394 PHY will let designers take advantage of 1394's superior peer-to-peer, distance, and speed capabilities with the benefits of lower cost and reduced complexity," said Mourn. "VersaPHY enables the simplicity of USB with connections to a 1394 network that fully supports all existing 1394 applications such as mass storage, Internet protocol (IP) and real-time streaming. VersaPHY is another tool in the 1394 arsenal, providing 100 percent of the original 1394 with very low-cost basic functionality."

VersaPHY's Simplified Architecture Eliminates Link Layer, Transaction Software

The VersaPHY architecture model includes one or more controllers plus one or more VersaPHY devices, which incorporate a register set and simplified management logic. (In contrast, USB is not equipped to divide the master control function among multiple nodes when needed for reliability, scalability, or any other purpose.) The architecture connects the 1394 PHY directly to a specific application, removing the asynchronous transaction requirements from simple asynchronous and streaming devices, and replacing them with a much simpler set of VersaPHY requirements. This architectural change allows devices such as sensors, actuators, cameras, speakers and microphones to be created without a link controller, 1394 transaction software or a microprocessor. VersaPHY reduces or even eliminates the "device-discovery" process and its corresponding software, simplifying control and data-delivery functions.

VersaPHY will include new facilities such as static node labels, which will be used as permanent or semi-permanent addressable names for devices, and in complex implementations as names for profiles within a device. Another key enhancement will be the creation of writeable PHY registers, enabling PHY-only devices to initiate transaction-like communication. This enhancement will simplify the use of 1394 and eliminate the cost of implementing transaction-capable nodes in mass-market, cost-sensitive applications.

Automotive companies are using IEEE-1394 for entertainment and navigation systems. This places 1394 cabling next to other automotive components that need to be controlled but currently use a separate control bus, which increases cable and connector weight and costs. VersaPHY's simplicity allows these applications to take advantage of the 1394 cabling to control, monitor, and power the modules using 1394.

Other applications for VersaPHY include professional audio distribution and control for large networks between and within facilities. In aircraft, 1394 is being used widely as an inflight control bus. VersaPHY will be able to sharply reduce the complexity of single-function modules such as actuators

and sensors. In aircraft-entertainment networks with VersaPHY, 1394 can be expanded to passenger-user interface modules, dramatically reducing weight and wire harness complexities.

The VersaPHY also will be ideal for designs that require low-bandwidth asynchronous control with streaming real-time data, such as automotive cameras, industrial-inspection cameras, and professional audio applications including digital speakers and microphones. VersaPHY also will be useful for remote sensors and actuators used in industrial products, and for a variety of home-networking applications including control of lighting, temperature, and motion sensors.

1394-over-Coax Demos Highlight Q3 Meeting in San Diego

The demonstration room was filled with the latest 1394-based technologies and products during the third quarter meeting in San Diego August 1-3.

Pulse~Link Inc., the meeting sponsor, demonstrated advanced 1394 over coax using ultrawideband (UWB) technology. The demonstration showed bi-directional video streaming of 1394 S400 over coax with 400Mbps of application layer throughput. 1394 over coax using UWB will enable a powerful, whole-home distribution capability, which can run over pre-existing in-home coax cable and co-exist with legacy cable and satellite programming. The 1394-over-coax solution, which operates in the 3GHz to 6GHz spectrum, does not interfere with all other known services that operate on coax in the home. Also, this IP-based network is capable of providing broadband service distribution within the home.

DAP Technology showed its FireStealth 1394b bus analyzer, the industry's first "Stealth Mode" IEEE 1394b analyzer. The FireStealth analyzer is a bus-monitoring device that is attached to the IEEE 1394b bus, leaving the existing topology unaffected.

Newnex Technologies brought its new S400 FireNEX-CAT5™ repeater, which reaches up to 100 meters using only 3 Watts of power in a compact 80 x 68 x 27 mm package. Quantum Parametrics, the designated service provider for the Trade Association's compliance program, demonstrated its latest testing tools.

Ecqologic demonstrated its Equalizer for 1394b, which operates at 125 Mbit/s to 500 Mbit/s. The fully adaptive equalizer enables the use of UTP cable (Cat5e or Cat6), with ranges up to 150m (125 Mbit/s) and 80m (500 Mbit/s).

TC Group and D-Mexx also presented the latest in 1394-equipped audio systems and technology at the meeting. D-Mexx brought its X1 system for 1394 audio, which has 16 analog I/O with 1/4 inch jack, AES/EBU option, and ADAT interface.

Upcoming Events:

Net-atHome, Sept. 26, Cannes, France
CEA Plugfest, Sept. 24-27, Milpitas, California
Q4 2006 meeting, Nov. 6-9, Yokohama, Japan
Q1 2007 meeting, Jan. 28-31, Kona, Hawaii