

REPORT FROM THE EXECUTIVE DIRECTOR

Welcome to a new year, one that has started well for the 1394 Trade Association with an excellent presence at the International Consumer Electronics Show in Las Vegas, followed by a successful first quarter meeting in Hawaii. 2006 should be a good year for 1394 in general, and for 1394b in particular—and it should be a pivotal year for breakthrough products in video, audio, instrumentation, and storage. As well, we're seeing solid interest among the automobile manufacturers and their suppliers, who are realizing the benefits of FireWire for exciting entertainment products in the vehicle.

According to our research, by the end of this year more than 510 million 1394-equipped devices will have been developed and shipped worldwide, reflecting the popularity of FireWire as the optimal transport mechanism for high-quality audio, video, data, and control. Our chip developers expect a particularly strong year for 1394b.

This momentum is enhanced by the support that 1394 has received from the new High-Definition Audio-Video Network Alliance (HANA), which has selected it as a base standard for its implementation guidelines. Design-ins among storage technology leaders continue to grow, because they need the quality-of-service and high bandwidth offered by 1394b. All the leading HDD makers now incorporate FireWire in most of their top products, and more new products are coming.

1394 TA Joins Newly Formed HANA in Successful Debut at ICES 2006

In a suite filled with the latest televisions, innovative FireWire-based technology demonstrations, and a steady flow of visitors from around the world, the 1394 Trade Association joined the newly organized High-Definition Audio-Video Network Alliance (HANA) at International CES 2006 in Las Vegas the first weekend in January.

HANA is the first cross-industry collaboration developed to address end-to-end requirements of connected, high-definition, home entertainment products and services. Three of its major founders, Samsung, Mitsubishi, and



The 1394 Trade Association joined the new HDTV Audio-Video Networking Alliance, HANA, at the International CES 2006 drawing large crowds to its suite throughout the annual Consumer Electronics Show.

Already this year, we've had a burst of activity in the professional audio market, with several dozen new 1394-equipped products set for introduction. The first group appeared at the NAMM Conference in January, and we know the list is growing fast. And we'll see growth in vertical markets such as industrial cameras for machine vision applications, aerospace systems communications, military systems, and robotics.

It will take some hard work and a worldwide effort by all of us this year to keep our current momentum going. New standards need to be written as we develop new partnerships with leading industry associations. In the end, we will see new markets opening for 1394 products at the same time that existing markets continue to grow. Thank you in advance for your support .

James Snider
Executive Director

IN THIS ISSUE:

- From the Executive Director
- 1394 TA Joins Newly Formed HANA in Successful Debut at ICES 2006
- Apple, Microsoft, Samsung, to Lead 1394 Trade Association in 2006
- 1394 TA to Exhibit with Newly-Formed HDTV Alliance at ICES 2006
- First Quarter Meeting Sets Upbeat Tone for 1394 in 2006
- 1394 Trade Association 1394b Compliance Workshop Set for Bellevue, April 10-12; TA to Join CEA's Interoperability Event in Milpitas April 5-7

JVC supplied the line-up of HDTVs, while a combination of large and small technology leaders including Sun Microsystems, ARM Systems, Pulse~LINK, VividLogic and Oxford Semi delivered the demonstrations that show how the HANA mission provides simple networking and product interfacing – built on the quality-of-service and optimal A/V delivery capabilities of 1394.

At the heart of the HANA development effort is the CEA-2027 specification, which combines the top applications using the TCP/IP protocol with the Quality of Service, discovery and delivery mechanisms of 1394. Several companies have developed a specific HANA 'node' to handle the traffic flow. The result: many different brands of A/V consumer electronic products can interoperate and exchange graphical user interfaces, regardless of their underlying hardware and software architectures.

As one of the leading companies behind the development of HANA, Samsung Electronics was a major contributor to the CES suite, too, with a demonstration of its 1394/coax dongle, a 1394 over coax multi-room solution for linking multiple 1394-equipped devices in the home via the HANA node. Samsung also displayed its new HANA software development kit.

One of the newest product demonstrations came from TC Applied Technologies, which brought its LongFire™ 1394/Cat5+ connection system. LongFire enables connection of up to 63 1394-enabled products over standard Cat5+ cable at distances as long 150 meters and speeds up to 400 megabits/second. LongFire beats the degradation of digital signal edges by using equalization technology from EqcoLogic. All devices on the 1394 network get a clean-edged signal and 'open eye,' even at the 150-meter distances.

Right next door to the LongFire Cat5 stand resided an excellent early example

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of 1394 over coaxial cable, in a demonstration developed by Pulse~LINK Technologies. It consisted of two 1394-enabled CWave™ On-Coax UWB transceivers, one in the Trade Association's booth and another in the Pulse~LINK booth, with splitters and several hundred feet of coax cable between them. 1394 HDTV audio and video was being streamed bi-directionally between the two booths in the HANA suite, showing how coax cable in the home works as a broadband backbone with 400Mbps 1394 having a 320 Mbps application layer throughput for seamlessly transporting multiple simultaneous streams of digital content to 1394-equipped devices throughout the home.

VividLogic demonstrated its FireBus™ stack, which is compliant with CES-2027, and has been developed in collaboration with large HDTV and set top box manufacturers. FireBus is basic 1394 software that features a complete CEA-2027 solution include 1394 legacy AVC support; IP over 1394; 5C content protection, a robust transaction layer, bus manager and CEA-2027 based discovery and device control.

Sun Microsystems, a co-founder of HANA, showed its cable server rack that was supplying DTV signals to the HANA network. The company also announced that its Sun Labs group is developing a HANA-compliant implementation of its DReaM (DRM everywhere available) technology, designed to enable a home environment in which personal content can be securely shared across PCs, HD TVs and other AV devices.

While the Asian multinational consumer electronics leaders were supplying the HDTVs, the British were providing their audio semiconductor technology. Oxford Semiconductor displayed its OXF970 FireWire audio controller, with a sound card that meets all the needs of next-generation multi-channel audio applications for any of the CE components in the HANA network.

ARM, the leading developer of IC cores for a broad range of applications, showed its media DSP, a common processor architecture for convergence that enables high-performance silicon for many HANA-compliant devices.

With interest in HANA and its application of 1394 growing, the CES exhibit was a strong first step. HANA will allow consumers to experience new applications through the connection of digital AV devices on a secure, stable and high performance home network – with IEEE 1394 as the critical AV connectivity standard.

HANA was launched at a news conference Dec. 14th in the studio used for NBC's Saturday Night Live TV show in New York's Rockefeller Center. Members of the press and analyst communities from around the country were briefed on the group's mission, objectives and timetables by the founding members, which include Samsung, Mitsubishi Electronics, NBC Universal, Charter Communications, Sun Microsystems, and JVC. Associate members now include Pulse~LINK, Freescale Semiconductor, and ARM Systems.

Apple, Microsoft, Samsung, to Lead 1394 Trade Association in 2006

Texas Instruments, Oxford Semiconductor, Agere Also Return to Board

Representatives from a world-class set of computer and consumer electronics companies will lead the 1394 Trade Association in 2006, following elections for the organization's nine-member board this week. Industry leaders Apple

Computer, Samsung Electronics, Texas Instruments, Microsoft, Agere, and Oxford Semiconductor all will hold seats on the new board.

Eric Anderson of Apple Computer was re-elected board chairman for the third year, while Sam Liu of Newnex will serve as vice chairman.

Board members also include Dave Thompson of Agere Systems, who will serve as the 1394 Trade Association secretary; Michael Scholles of Germany's Fraunhofer Institute for Photonic Microsystems, who was named editor and Chief Technical Officer; Mark Slezak of Microsoft; Jalil Oraee of Oxford Semiconductor, who is the chief financial officer; Jack Chaney of Samsung; Fred Speckeen of TC Group; and Zeph Freeman of Texas Instruments.

"The members of this 2006 board reflect the wide influence and broad applications of the IEEE 1394 standard," said James Snider, executive director. "We have leadership and representation from a very broad range of markets, including consumer electronics, computers, peripherals, automotive and industrial. We anticipate a strong year for the standard, and excellent leadership from this diverse group."

First Quarter Meeting Sets Upbeat Tone for 1394 in 2006

The 1394 Trade Association's annual first quarter meeting in Hawaii took place Jan. 23-6, setting a positive tone for the new year. The annual meeting followed a very successful appearance at International CES, which featured strong support for 1394 from the new High Definition Audio-Video Alliance. HANA has named 1394 as one of its basic standards for the organization's entertainment networking vision of 'one cable, one remote,' and will use 1394 in its initial implementation programs.

Several important developments took place at the meeting. The 2006 board of directors was elected (see accompanying article). In the Automotive Work Group, the official turnover of AMI-C (the Automotive Multimedia Interface Consortium) documents pertaining to the IDB-1394 specification has begun and will be completed by the end of the first quarter. The Residential Backbone Working Group moved forward on plans for the 1394 over coax specification that is an important element in support for 1394 from the Cable MSOs and equipment suppliers. Also, there is progress on the 1394c version of the standard, which is now in the balloting process, directed by Colin Whitby-Stevens, chair of the Silicon Working Group.

The Trade Association leaders also cited other several positive developments for IEEE 1394 at the start of 2006:

- Increased design-ins among storage technology leaders who require the quality-of-service and high bandwidth offered by the 1394b standard;
- Rapid growth in the professional audio market, with several dozen new 1394-equipped products set for introduction throughout the music industry during calendar 2006. The first set of new 1394-equipped products appeared at the NAMM Conference in January, according to Fred Speckeen, business development director at TC Group, whose sponsoring keynote highlights the strong prospects for 1394 in key audio applications. He said there are significant advantages and benefits from FireWire in the \$13 billion audio sector;

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- Availability of 1394 over co-axial cabling and over CAT-5 and CAT-6 cabling, which satisfies the requirements of the Cable MSOs and home networking installers;
- Expansion in rapidly growing vertical markets such as industrial cameras for machine vision applications, aerospace systems communications, military systems, and robotics.

"We experienced a steady increase in 1394-equipped products throughout 2005, and foresee continued expansion this year as developers demand the proven quality-of-service, high bandwidth, and peer-to-peer features that the 1394 standard delivers," said Eric Anderson, the chairman of the BoD.

"Major consumer electronics and computer products manufacturers are expanding their support for FireWire for high end storage, A/V transport and other compelling applications," said Jalil Oraee of Oxford Semiconductor, the Trade Association's chief financial officer. "More than six million 1394-equipped external storage devices shipped in 2005, which was 40 percent of total external storage market in consumer/SOHO application. The high market share is a result of higher read/write efficiencies provided by 1394."

"We expect a very good year for 1394 across all of the markets we serve," said Zeph Freeman, the 1394 Trade Association board representative from Texas Instruments, Inc. "It remains the essential interface for digital video, and is rapidly being adopted in audio, industrial and many other applications. We especially expect to see stronger adoption in 1394b." The decision by the HANA to use 1394 as its transport was based on the core benefits of 1394, including the quality of service required for reliable audio-video transport and the high throughput required for HDTV. "The leaders of HANA have adopted a 'one cable, one remote' model, and they are attracted to 1394 because any device can be added simply by using a single FireWire cable," said James Snider, executive director of the 1394 Trade Association. "1394 was designed to deliver the exacting performance required for High Definition TV. As a result, 1394 meets the requirements of this industry today with a graceful migration path that will keep 1394 ahead of industry requirements well into the future."

Snider added that the Federal Communications Commission mandate that FireWire be incorporated into digital set top boxes means the new generation of digital televisions will benefit by including 1394. This will boost design-ins in 2006.

Snider also cited prospects for growth in the professional audio industry. "In pro audio, the 1394 standard has become central in several applications including networking, studios, performing, and post-production environments," he said. "This \$13 billion industry is moving rapidly from analog to digital and

1394 is playing an increasing role." More than a dozen new 1394-equipped audio products were introduced at the annual International Music Products Association show in Anaheim in January, and product development roadmaps include significant new 1394 adoption from companies such as Denon, TC Group, Focusrite, PreSonus, ESI, Pioneer and Yamaha.

Rapid Growth in Industrial Cameras for Vision Systems

A growing number of large multinational suppliers are using 1394b in vision systems, including Sony Corporation, which now provide color and monochrome cameras; Toshiba Teli; and Hamamatsu Photonics. Also, smaller technologically innovative companies such as Point Grey Research, Basler Vision Components and Allied Vision Technologies now offer 1394b-equipped cameras, which incorporate the 800 megabits/second speeds of FireWire for downloading images to a PC for display, real-time control, and recording.

1394 Trade Association 1394b Compliance Workshop Set for Bellevue, April 10-12; TA to Join CEA's Interoperability Event in Milpitas April 5-7

The 1394 Trade Association announced today it would participate in the Consumer Electronics Association's interoperability workshop set for April 5-7 at the Embassy Suites in Milpitas.

The Trade Association also has scheduled its first Compliance and Interoperability Workshop of 2006 April 10-12 at the Embassy Suites in Bellevue, Washington, near Microsoft Corporation headquarters.

The workshop is organized by the Compliance and Interoperability Working Group. Member companies and guests are welcome. The primary goals of the event include the following:

- Provide an environment for the compliance and interoperability testing of 1394 hardware and software products from 1394 Trade Association member and non-member companies.
- Support and promote a positive end user experience with 1394 products.
- Provide an opportunity for developers to meet on a regular basis to discuss interoperability issues and concerns.

Representatives from participating companies will be able to test the operation of their products with products from the other participants. Interoperability testing sessions will be private and between two companies at a time. Three mandatory suites will be provided for earning the Compliance Logo.

"This is an important workshop since it will focus on the 1394b-equipped products now in the market, or planned for introduction soon," said James Snider, executive director.

For more information about the Workshop visit the following URL: www.1394ta.org/Events/candiworkshops/q22006_candiworkshop.htm or contact Tina Lipscomb at tinal@1394ta.org

EVENTS OF INTEREST:

February 2006

- Canadian Digital Home Summit
February 21 – 22
Metropolitan Hotel
Toronto, Ontario
Canada

March 2006

- Electronic House Expo (EHX) Spring
March 28 – April 1
Orange County
Convention Center
Orlando, Florida

April 2006

- 1394 TA 2nd Quarterly Meeting
April 24 – 27
Hilton Dresden,
Dresden, Germany