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CAST Announces 1394a IP Core for High-Bandwidth Digital Connections

AMBA™ interface eases ASIC or FPGA integration for FireWire™ and i.Link™ devices

February 17, 2004 (DATE) Paris, France — Semiconductor intellectual property (IP) provider CAST, Inc. today announced a new 1394a core that implements a link layer controller for the high-speed digital bus known commercially as FireWire™ and i.Link™.

The IEEE 1394a standard was developed for use with digital video and other demanding applications arising from the convergence of computers and consumer products. It defines a high-bandwidth serial interface with real-time data transmission rates of 100, 200, and 400 Mb/sec. It features automatic bus reconfiguration (plug and play), support for connecting up to 63 devices with freeform daisy chaining and branching, and guaranteed full bandwidth and transfer rates for all connected devices. Apple Computer pioneered the technology under the trademarked name "FireWire," and Sony Corporation uses it in many products with the trademarked name "i.Link."

CAST's C1394A core conforms to the IEEE 1394-1995 and 1394a-2000 standards, and provides all the specified features and capabilities. It is similar to the popular Texas Instruments TSB12LV32 General Purpose Link Layer Controller, but includes a 32-bit APB interface for easy connection with an AMBA™ bus host system. (AHB and other standard interfaces are also available.) The core can interface with any 1394-compliant physical layer (PHY) device, and it includes easy-to-apply C-language software functions for all basic operations (optional software packages provide the transaction layer and serial bus management function).

The C1394A core is FPGA-proven and has been exercised in a FireWire video camera demo system. Additional sample implementations optimized for speed (and using 2KB FIFOs) show the core yields competitive area and performance results:

Technology	Approx. Area	Frequency (APB clock)
ASIC UMC 0.18um process	38,834 gates	111 MHz
Altera Stratix EP1S10-5 Cyclone EP1C12-6	8,130 LEs 7,698 LEs	110 MHz 101 MHz
Xilinx Virtex-II XC2V1000-6 Spartan-3 XC3S1000-4	4,728 SLICES 4,973 SLICES	100 MHz 61 MHz

The core ships with full user documentation and a complete verification environment. An additional verification option further facilitates system-on-chip testing by serving as a working physical layer and emulating bus traffic and other nodes on the bus.

The C1394A core was developed by CAST partner Evatronix SA, based in Poland (www.evatronix.pl). Commercial shipments will begin later this quarter. Pricing varies by configuration and license type; contact CAST for details.

About CAST, Inc.

CAST provides general purpose IP (gpIP), offering nearly 100 different popular and standards-based cores including processors, interfaces, and application-specific functions for multimedia and encryption. ASIC, FPGA, and System-on-Chip (SoC) designers use these cores to significantly shorten their development time and reduce their overall costs. The company has about 200 customers developing products in nearly every applications area.

Privately owned and operating since 1993 with a focus on making IP practical and affordable, CAST has established a reputation for high-quality IP products, simple licensing, and responsive technical support. The company is headquartered near New York City, has a European office in the UK, and works with an international network of IP developers and distributors.

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AMBA is a trademark of ARM Limited. FireWire is a trademark of Apple Computer.
i.Link is a trademark of Sony Corporation.

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