

**Cypress, Fujitsu, inSilicon, Intel, HP, Kawasaki LSI, Lucent, ST Microelectronics,  
Texas Instruments Back New USB 2.0 Transceiver Interface UTMI Interface  
Enhances USB 2.0 Interoperability**

San Jose, CA. March 30, 2000 -- Cypress Semiconductor (NYSE:CY), Fujitsu, inSilicon, Intel, Hewlett-Packard Company, Kawasaki LSI, Lucent Microelectronics, ST Microelectronics, and Texas Instruments today announced their support for a proposed USB 2.0 transceiver interface specification, intended to improve interoperability between USB 2.0 products developed by different manufacturers.

Developed by Intel Corporation and circulated within the industry as the USB 2.0 Transceiver Macrocell Interface (UTMI), the specification partitions USB 2.0 functionality between the USB 2.0 Transceiver and Parallel Interface Engine. UTMI is similar in concept to the Ethernet MII (Media Independent Interface) communication standard, which defines the interface between Layer 1 Ethernet PHYs and Layer 2 Media Access Controllers.

UTMI Simplifies USB 2.0 Development Adoption of a well-defined USB 2.0 media independent interface would broaden the implementation choices available to USB designers. With a common UTMI specification, designers could choose either external transceiver chips or a semiconductor intellectual property (SIP) macrocell to integrate transceiver functionality directly into the ASIC design. With multiple ASIC, FPGA, and SIP suppliers supporting the UTMI standard, designers would have a wider selection of vendors from which to choose.

“With widespread adoption, UTMI will increase flexibility and speed deployment of USB 2.0 peripherals,” stated Barry Hoberman, chief technology officer of inSilicon.

“Customers will be able to mix-and-match standard USB components, as well as ASIC or FPGA SIP blocks that are developed to the UTMI specification.” inSilicon, who originally proposed the UTMI concept, has provided USB semiconductor IP building blocks for more than 100 USB

1.1 designs, and is currently developing USB 2.0 products based around the UTMI specification.

“We are looking for a smooth transition to high volume as the overall USB 2.0 market demand increases,” said Ed Beeman, USB 2.0 product architect manager for HP’s Greeley Hardcopy Division. “Having the choice of a stand-alone transceiver chip or an integrated ASIC transceiver with a common interface would be a real plus. This is clearly a win/win for everyone.”

“A standard interface simplifies designs and will speed to market USB 2.0 products,” stated Kevin Lynch, strategic marketing manager, Lucent Technologies Microelectronics Group. “Our standard product and ASIC customers are time-to-market driven, and cannot afford to customize interfaces for every USB 2.0 design. The UTMI standard streamlines both the design process and USB 2.0 interoperability.”

“The UTMI specification allows us and our customers to work with a common interface to create a range of ASSP parts, including low-cost, highly integrated single-chip solutions,”

said Cathal Phelan, vice-president, Interface Products, at San Jose, Calif.-based Cypress Semiconductor. Cypress is the market leader in USB controller chips with more than 50 million units shipped. "Having a common interface for system peripheral chips would be a real plus, streamlining the design process and speeding time-to-market."

"The integration of a standalone transceiver solution into an ASIC as an embedded block provides optimized cost and overall system simplification. It is therefore important that a

standard interface be specified and used throughout the industry. UTMI adoption creates significant benefits, both for system makers and ASIC vendors," said Philippe

Magarshack,

group vice president for Design Automation, Central R&D, ST Microelectronics. "The UTMI

will allow us to provide an optimum solution across the USB 2.0 design spectrum. Early adopters will benefit from the standalone transceiver by getting their designs to market earlier, and then the integrated PHY will provide a smooth path to economical high-volume

production," said Dan Harmon, strategic marketing manager for USB Products at Texas Instruments. TI is the leading supplier of USB 1.1 hub controller silicon. "The commonality

of the interface between the high-speed serial function and the byte processing function will

facilitate USB hub and peripheral design."

“The proliferation of products incorporating USB 1.0 has inspired us to begin work on all products to include USB 2.0,” said Joel Silverman, vice president of marketing, Kawasaki LSI U.S.A., and a member of the USB Implementers Forum. “With this dramatically faster specification, USB will become the preferred bus for next-generation equipment for Imaging, networking and storage devices,” said Silverman. “Kawasaki LSI believes that the UTMI specification will help to enable the rapid development of USB 2.0-compliant devices by offering our customers a standard ASIC style approach for this high-speed interface. Without UTMI the development of 2.0 peripherals would be longer and more expensive. UTMI will enable the release of USB 2.0 products this year.”

The UTMI specification provides for two primary interfaces. An 8-bit interface operating at 60MHz is intended for standard products and ASIC implementations. An optional 16-bit data interface operates at 30MHz, and is intended to support FPGA-based designs.

The specification is provided with a royalty-free license and is available for download from Intel’s website at [http://developer.intel.com/technology/usb/download/USB\\_TMI\\_spec.pdf](http://developer.intel.com/technology/usb/download/USB_TMI_spec.pdf).

“While the UTMI specification was designed for integrated USB 2.0 ASICs, the interface can also be used as the interface to discrete USB 2.0 transceivers,” stated Jason Ziller,

technology initiatives manager at Intel Corporation. “We are pleased that these key USB companies have stepped forward to support the USB 2.0 transceiver interoperability initiative, and we are looking forward to the resulting USB 2.0-enabled products which will broaden and enhance the computer experience of the end user.”

### **About USB 2.0**

USB enables cost-effective, outside-the-box connectivity with plug-and-play capability for personal computer, consumer, industrial, embedded computing and PC peripheral products. The current USB 1.1 standard is widely deployed in hundreds of millions of personal computers and peripherals including printers, scanners, keyboards, and digital cameras. USB 2.0 is a new version of the specification designed to increase USB performance. Fully compatible with USB 1.1, the USB 2.0 specification increases performance to 480 Mbit/sec compared to the current USB maximum transfer rate of 12 Mbit/sec. The USB Implementer’s Forum, an industry group consisting of over 600 member companies, supports the testing and promotion of USB products for its members. More information can be found at <http://www.usb.org>.

### **About the Participating Companies**

#### **About Cypress**

Cypress Semiconductor provides high-performance integrated circuit solutions  
“By

Engineers. For Engineers™” for fast-growing companies in fast-growing markets, including data communications, telecommunications, computation, consumer products, and industrial-control. With a focus on emerging communications applications, Cypress's product lines include networking-optimized and micropower static RAMs; high-bandwidth multi-port and FIFO memories; high-density programmable logic devices; timing technology for PCs and other digital systems; and controllers for Universal Serial Bus (USB). Cypress is No. 1 in the USB and clock chip markets.

### **About Fujitsu**

Fujitsu Limited (TSE: 6702) is a leading provider of comprehensive information technology and network solutions for the global marketplace. Comprising over 500 group companies and affiliates worldwide -- including ICL, Amdahl and DMR Consulting Group -- the Fujitsu Group had consolidated revenues of 5.24 trillion yen (\$43.3 billion) in the fiscal year ended March 31, 1999. With world-class hardware and software technology in computers, telecommunications and microelectronics, and a corps of 55,000 systems and services experts around the world, Fujitsu is uniquely positioned to harness the power of the network to help its customers succeed. Altogether, the Fujitsu Group has 188,000 employees and operations in over 100 countries. Information about Fujitsu is available at <http://www.fujitsu.co.jp/index-e.html>.

### **About inSilicon**

inSilicon Corporation, a subsidiary of Phoenix Technologies Ltd., is a provider of communications and connectivity semiconductor intellectual property (SIP) and software. inSilicon offers SIP and system software that speed customer time-to-market for systems-on-chip and embedded systems designs. The Company's communications standards-based, silicon-proven SIP solutions for Ethernet, VCI, USB, IEEE 1394, PCI-X, PCI, IrDA, and AGP deliver high system efficiency, interoperability, and performance. Information about inSilicon and its products is available at <http://www.in-silicon.com>.

### **About Intel**

Intel, the world's largest chip maker, is also a leading manufacturer of computer, networking and communications products. Additional information about Intel is available at <http://www.intel.com/pressroom>.

### **About HP**

Hewlett-Packard Company -- a leading global provider of computing and imaging solutions and services for business and home -- is focused on capitalizing on the opportunities of the Internet and the proliferation of electronic services.

HP plans to spin off Agilent Technologies and distribute its shares to HP shareowners by mid-calendar year 2000. Agilent consists of HP's test and measurement, semiconductor products, chemical analysis and healthcare solutions businesses, and has leading positions in multiple market segments.

HP has 85,400 employees worldwide and had total revenue from continuing operations of \$42.4 billion in its 1999 fiscal year. Information about HP, its products and the company's

Year 2000 program can be found on the World Wide Web at <http://www.hp.com>.

### **About Kawasaki LSI**

Kawasaki LSI U.S.A. is the North American affiliate of Kawasaki LSI, which in turn is a division of Kawasaki Steel in Japan. The company provides the product development, marketing, sales and technical support for customers in the Americas in connectivity and data communications applications.

### **About Lucent Microelectronics**

Lucent Technologies designs, builds and delivers a wide range of public and private

networks, communications systems and software, data networking systems, business telephone systems and microelectronics components. Bell Labs is the research and development arm for the company. For more information on Lucent Technologies, headquartered in Murray Hill, N.J., USA, visit its web site at <http://www.lucent.com>.

Lucent's Microelectronics Group designs and manufactures integrated circuits and optoelectronics components for the computer and communications industries. More information about Lucent's Microelectronics Group can be found at <http://www.lucent.com/micro>.



## **About ST Microelectronics**

ST Microelectronics (formerly SGS-THOMSON Microelectronics) is a global independent semiconductor company, whose shares are traded on the New York Stock Exchange, on the ParisBourse and on the Milan Stock Exchange. The Company designs, develops, manufactures and markets a broad range of semiconductor integrated circuits (ICs) and discrete devices used in a wide variety of microelectronic applications, including telecommuni-cations systems, computer systems, consumer products, automotive products and industrial automation and control systems. In 1999, the Company's net revenues were \$5.056 billion and net earnings were \$547 million. Further information on ST can be found at <http://www.st.com>.

## **About TI**

Texas Instruments Incorporated, headquartered in Dallas, Texas, is a global company and the world's leading designer and supplier of digital signal processing and analog technologies. TI is also a leading silicon supplier supporting many communication protocols, including PCI, Cardbus, IEEE 1394, ADSL, Ethernet, and USB. The company's businesses include materials and controls and educational and productivity solutions. The company has manufacturing or sales operations in more than 25 countries.

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