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EMBEDDED TIDBITS

By Mark Long [9/18/00-06]

IA REFERENCE DESIGN INTROED

Conexant Systems and Connect One have announced a jointly developed reference design featuring Conexant's SmartSCM single-chip modem and Connect One's iChip Internet Controller. The two companies say this reference design will enable appliance designers to quickly and cost-effectively add Internet functionality to PDAs and other wireless Internet appliances.

Announced earlier this year, Conexant's SmartSCM single-chip modem combines a modem controller, data pump, ROM, RAM, and Conexant's patented SmartDAA silicon data access arrangement (DAA). Conexant offers SmartSCM in versions that emulate V.32, V.34, or V.90 modems.

Connect One's iChip is an Internet controller that mediates the connection between the host device processor and the Internet. The iChip reportedly works in tandem with the SmartSCM modem controller and runs the Internet protocols for sending and receiving email messages and Web pages and also for opening and closing TCP and UDP sockets.

The iChip includes 256K or 512K of on-chip flash memory for storing and updating the Internet protocols. According to Connect One, the company's high-level AT+i command set enables manufacturers without any Internet programming capability to Internet-enable their devices by writing just a few lines of code instructing their host processor to invoke Internet protocol commands on iChip. The joint reference design is available now. For more information: *www.conexant.com*.

MONTAVISTA PREVIEWS REAL-TIME LINUX 2.4

MontaVista Software has announced the immediate availability of a hard real-time Linux kernel based on current 2.4 software. MontaVista says this fully preemptable kernel provides a 30-fold improvement to the application responsiveness of the Linux kernel while fully preserving the Linux programming model. MontaVista is targeting a January 2001 release for a standard Hard Hat Linux product based on this technology.

According to MontaVista, a fully preemptive kernel is essential for highly responsive real-time systems. The preemptable kernel improves real-time application response from hundreds of milliseconds (worst case) to about 12 milliseconds. MontaVista says it expects to achieve submillisecond (hundreds of microseconds) worst-case application responsiveness by the time the product is generally available next January.

The prototype of MontaVista's preemptable Linux kernel is available immediately for IA-32 platforms at *ftp://ftp.mvista.com*. A technical paper, entitled "Design of a Fully Preemptable Linux Kernel," is available at *ftp://ftp.mvista.com/pub/Real-Time/2.4.0-test6/preempt.txt*.

OPERSYS, LINEO INTRO LINUX TRACE TOOLKIT

Opersys and Lineo have announced the availability of the Linux Trace Toolkit (LTT) for real-time Linux. Although LTT has been available for standard Linux user-space tasks for many months, it has just recently been modified to provide the capability to trace real-time Linux tasks running in the kernel memory space.

LTT provides developers with all the information necessary to reconstruct a system's behavior over a specified time period. Using LTT, designers can graphically view the precise dynamics of a system, identify which application has access to the hardware during a specific time slice, and see what actually happens to an application when it receives data. I/O latencies in a given application can also be identified, as well as the time when a specific application is actually reading from disk and the reasons for certain synchronization problems.

A prepatched version of LTT, as well as other real-time Linux debug tools, will be available, starting in mid-September, on Lineo's Embedix RealTime CD, which is now undergoing beta testing. For more information: *www.lineo.com*.

Triscend, EPI Roll Out A7 Board

Triscend Corporation and Embedded Performance (EPI) have rolled out an application-development board for the A7 configurable SOC that will serve as a platform for software engineers who are prototyping A7-based embedded applications. Scheduled for release in 4Q00, the price for the A7 Application Development Board will range from $1,995 up, depending on the amount of on-board memory required. For more information: *www.epitools.com*.

Log Point Intros Math Library

Log Point Technologies has announced new extensions to its line of software mathematical function libraries for execution on embedded microprocessors, plus related extensions to its line of mathematical function microcircuit designs. The new extensions reportedly include ultrahigh-speed lookup-table-based generators for scientific and engineering functions, such as reciprocal, square root, logarithmic, exponential, and trigonometric functions. The company claims these functions can speed mathematical computations by a factor of 20 to 50.

According to Log Point, these new function-generator designs need no explicit multiplication operations, so they perform as well on the lowest-cost, highest-volume embedded systems possessing no hardware multiplier as they do on more expensive ones that have a hardware multiplier. The new function- generator designs will be described in an upcoming online lecture by Lester Pickett, to be published in the inaugural issue of the Online Symposium for Electronics Engineers (OSEE). For more information: *http://www.techonline.com/osee*.

Zilog Intros Embedded Webserver Software

Zilog has announced an Embedded Webserver Software Suite that runs on the company's 8-bit Z180 microprocessors, including the recently introduced Z80S183. The Embedded Webserver Software Suite implements Internet protocol stacks that enable 8-bit microprocessors to access the Internet; it adheres to standards defined by groups such as the Internet Engineering Task Force (IETF) and the World Wide Web Consortium (W3C).

The software stack features 15 Internet protocols: IPv4, TCP, UDP, ARP, RARP, IGMP, ICMP, PPP, SLIP, HTTP 1.1, DHCP, SMTP, TFTP, SNMP, and TELNET. An optimized software stack will also be available that implements key Internet protocols (IPv4, TCP, UDP, ARP, RARP, ICMP, PPP, HTTP 1.1, and DHCP) in a reduced memory footprint.

Zilog's Embedded Webserver Software Suite will be available in October. For more information: *www.zilog.com*.

NETsilicon Acquires PSI Assets

NETsilicon has acquired the strategic network technology assets of software developer PSI Softworks Technology, a subsidiary of PASW, Inc., in exchange for 90,000 shares of NETsilicon common stock.

The newly acquired operation, which will remain in Newbury Park, California, will operate as the NETsilicon Softworks Group. Sales and ongoing development of FUSION products will continue to be managed from the Newbury Park location.

NETsilicon has also announced a Web seminar that will be held on Thursday, September 21, 2000, at 2:00 p.m. EST. The topic is "Embedded Networking Fundamentals: Designing a Network Connected Device." Free registration for the "live" Internet seminar is now open. For more information: *www.netsilicon.com*.

Microsoft Announces Embedded System Briefings

Microsoft has announced that it will be inaugurating a series of worldwide briefings about embedded systems to be held in China, Germany, Great Britain, Japan, Taiwan, and the United States. Original equipment manufacturers (OEMs) are invited to attend the Microsoft Embedded Global Briefings to learn how the Microsoft Windows CE and Windows Embedded operating systems can be incorporated into 32-bit connected devices for Internet applications.

The briefing sessions will include overviews of the Microsoft Windows CE 3.0 and Windows NT Embedded 4.0 systems; tutorials covering the writing of applications using Embedded Visual Tools; and discussions on the way OEMs can work with Microsoft to build Windows-powered embedded products. The dates and locations for the Microsoft Embedded Systems Global Briefings are as follows: Sept. 12, 2000, London; Sept. 14, 2000, Munich, Germany; Sept. 29, 2000, San Jose, California; Oct. 17, 2000, Tokyo; Oct. 20, 2000, Taipei, Taiwan; and Oct. 25, 2000, Shenzhen, China. For more information: *www.microsoftembedded.com*.

Triscend, Wind River Announce A7 Debugging Tool Set

Wind River and Triscend have extended the firmware and software debugging functionality of Wind River's visionPROBE II and visionCLICK to provide Triscend's A7 customers with a tool set for configurable SOC-based embedded designs. Within visionCLICK's environment, logic designers reportedly can access and control the entire device, down to every signal in the embedded programmable logic.

The Triscend A7 Development Kit will be available in 4Q00 at a price of $1,495. The kit will include the Triscend A7 Evaluation Board, the Triscend FastChip software, the visionPROBE II debug cable, and an evaluation version of visionCLICK. Additional visionPROBE II cables and full visionCLICK licenses can be purchased directly from Wind River. For more information: *www.triscend.com*.