EMBEDDED TIDBITS

By Mark Long [9/4/00-03]

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❖ STM CHIP SUPPORTS DOLBY DIGITAL, MP3, AND HARD DISK CONVERGENCE

STMicroelectronics has introduced a multimedia chip for set-top boxes, called the STi5518, that supports Dolby Digital and MP3 audio decoding. More logic has also been added to the device to enable attachment of hard-disk drives for products that offer such features as the pausing and time-shifting of live TV programs.

The STi5518 integrates on a single chip a transport demultiplex block; an ST20 32-bit system CPU; an audio/video MPEG-2 decoder; display and graphics features; a digital video encoder; and system peripherals. It integrates DirecTV and Digital Video Broadcasting (DVB) descramblers in the transport demultiplex block, allowing it to be used in both DVB and Digital Satellite System (DSS) set-top box applications. Macrovision copy protection is also included.

Other features include direct support for IR transmitter/receivers, plus a modem analog front-end (MAFE) interface, which will allow a software modem to be implemented on the ST20. The STi5518 also interfaces to STM single-chip front-end devices, such as the STV0299 QPSK demodulator, to create an entire satellite-receiver appliance.

Housed in a 208-pin PQFP package, the STi5518 is available now for sampling, with volume production set to ramp up in 4Q00. For more information: *www.st.com*.

❖ ARM EXPANDS DEVELOPMENT TOOLS PORTFOLIO

ARM has expanded its development tools portfolio by introducing the ARM Developer Suite version 1.1 (ADS 1.1) software toolkit and Multi-ICE version 2.0 in-circuit emulator tools. The enhanced Multi-ICE 2.0 product supports the real-time elements of ARM's Trace Debug tools and reportedly downloads debug data at speeds exceeding 120kb/s. Multi-ICE 2.0 also features debugging of very low voltage cores (as low as 1V), along with debug support for multiple ARM cores on a single SOC.

ADS 1.1 also supports the ARM966E and ARM946E macrocells and the ARM10 Thumb family of cores, along with debug for Intel's recently announced ARM-core-compliant microarchitecture, which now includes a JTAG interface. Both ADS 1.1 and Multi-ICE 2.0, which are compatible with previous versions of ARM development tools, will be available in October 2000. Pricing for ADS 1.1 is $5,500 per seat; pricing for Multi-ICE 2.0 is $3,500 per seat. For more information: *www.arm.com*.

❖ WIND RIVER TO OPTIMIZE VXWORKS FOR HITACHI SUPERH

Hitachi has joined Wind River's "Center of Excellence" program to ensure that the latest Wind River products, including the Tornado IDE and VxWorks RTOS, are optimized and available for Hitachi's SuperH family of microprocessors. The jointly funded agreement covers the Hitachi SH-2, SH-3, SH-DSP, SH3-DSP, and SH-4 architectures and the new 64-bit SH-5 (see *MPR 10/6/99-04*, "Hitachi, ST Extend SuperH to 64 Bits") that is being codeveloped by Hitachi and STMicroelectronics (STM). The agreement also covers STM's ST40 family, which includes the SH-4 CPU core that is embedded into a range of SOC designs.

The Center of Excellence program will also include within each organization a team of engineers dedicated to implementing and deploying new products, so that when new microprocessors are introduced, compatible application development software will be available early in a processor's life cycle. The first new product from the joint effort will be a Tornado II release for the SH-2, SH-3, SH-DSP, SH3-DSP, and SH-4. Initial versions of this product will begin beta testing in fall 2000, with the first customer release following in 4Q00. The Center of Excellence will also provide support for the SH-5 processor when it becomes available in Q400. Wind River currently ships Tornado I with support for SuperH series SH-1 through SH-4 processors. For more information: *www.windriver.com*.

◇ LYNUXWORKS ROLLS OUT BLUECAT LINUX 3.0

LynuxWorks has announced that BlueCat Linux 3.0 now provides processor support for the ARM (including the Thumb extensions), StrongARM, and Hitachi SuperH microprocessor architectures in addition to its support for the Motorola PPC750 and MPC8260 PowerQUICC II CPUs on previously released cards.

BlueCat Linux 3.0 offers common Linux APIs, development tools, comprehensive booting options, functionality, tested performance, and stability across the different processors. The open-source LynuxWorks Messenger provides a messaging API and backplane communications technology to further facilitate complex multi-CPU designs.

BlueCat Linux also provides tools for creating kernel image and root file system images; a large number of BSPs (board support packages); a flash file system; advanced power management; software RAID; kernel porting guide; and example kernel configurations. Licensed for a single development system, BlueCat Linux is available for US$299. For more information: *www.LynuxWorks.com*.

◇ THOMSON SELECTS MAVERICK FOR RCA E-BOOK

Thomson Consumer Electronics has selected Cirrus Logic's Maverick EP7212 ARM processor (see *MPR 11/15/99-03*, "Cirrus Logic Makes Music With ARM") for use in its book-shaped, electronic reading tablet. The 17-ounce RCA e-Book is capable of holding the texts of about 20 book titles simultaneously, and it allows the reader to view text both in daylight and darkness by means of a backlit touch-sensitive LCD that reportedly enhances reading in any lighting situation.

According to Cirrus, the Maverick will enable the REB-1100 to download multiple-standard (MP3, WMA, AAC) Internet audio files, and a built-in DAC interface will also facilitate future software upgrades. The Maverick's programmable on-chip LCD controller directly drives the REB1100's high-resolution 5.5-inch display, which, the company says, reduces cost and the number of chips required. Cirrus also claims that the e-Book's 40-hour reading-time performance results from the low battery-power requirements of its processor.

The RCA e-Book includes a 56K soft modem running on the Maverick's 74MHz RISC processing core; this modem can directly download books and other digitized content from the Internet. The REB1100 also contains Internet-ready audio hardware that Cirrus says will allow the product to download music files from the Internet. For more information: *www.cirrus.com*.

◇ RADISYS DEMOS VIRTUAL ROUTER

At the recent Intel Developer Forum (IDF), RadiSys Corp. and Nortel Networks showcased a CompactPCI virtual router based on two boards: the EPC-3201 CompactPCI system controller, which features a Pentium II 266MHz processor and 512K L2 cache, and the EPC-3305 peripheral processor based on a 500MHz Pentium III low-power module (LPM). The virtual router also included a demonstration board with TDM (H.110) capabilities based on the Intel IXP1200 Network Processor and a CompactPCI system platform. All the elements were integrated together with Nortel Networks Open IP Environment, a portable real-time software suite for IP-enabling devices.

The RadiSys CompactPCI system platform used in the demonstration incorporated a system controller, an IXP-1200 board, and a peripheral processor. The demonstration showed virtual router software running on the IXP board. The control for the router was set up through the peripheral processor in the system, and the system controller performed the initial setup and management of the CompactPCI system. For more information: *www.radisys.com*.

◇ OPERA, AMD PROVIDE BROWSERS TO EMBEDDED MARKET

Opera Software and AMD have announced an agreement under which the two companies will exchange development tools to create for embedded designers Web-browser applications that will be used in Internet appliances, set-top boxes, Web pads, and similar products. Under the agreement, the two companies plan to combine Opera's browser software with AMD's line of embedded 32-bit processors, including the K6-E, the Elan SC400, and Elan SC520 processors. The agreement permits AMD and Opera to assist each other's respective development efforts and to exchange hardware, software, technical support, and documentation to further those efforts. For more information: *www.amd.com*. ◇