AUDIO/VIDEO

Broadcast PC reference design explores new applications horizons. Handling MPEG and AC-3 streams from cable, satellite, or DVD, a novel multimedia front end brings new capabilities to PCs. Lee Goldberg, *Electronic Design*, 11/2/98, p. 34, 4 pp.

BUSES

x86, RISCs compete for CompactPCI. Though driven by Intel and initially created for the Intel x86-based PC, the brotherhood of CompactPCI accepts all processor types. New CompactPCI μPs include SPARC, PowerPC, and Alpha. John Wranovics, *RTC*, 10/98, p. 45, 2 pp.

IEEE 1394 offers higher speed, higher performance. IEEE 1394 overcomes some of the USB's disadvantages and is now beginning to get serious attention from computer system designers. Sam Davis, *RTC*, 9/98, p. 49, 3 pp.

Complex bus-bridging issues call for innovative solutions. Chip and board schemes overcome slot-count limits and open the door to sophisticated multiprocessing and smart I/O. Jeff Child, *Electronic Design*, 11/2/98, p. 77, 5 pp.

CompactPCI multiprocessing with PowerPC. In multiprocessing, CompactPCI has been a no-show, its deployment limited to single-CPU systems. To join the multiprocessor players, the bus needs to overcome legacy PCI system hurdles. David Bohrer et al., Motorola; *RTC*, 10/98, p. 49, 3 pp.

PCI propels I/O technology to new heights. The "bus wars" of the '80s and '90s are yielding to a new architectural paradigm: the bandwidth wars. Most of the high-end combatants are using variations of the same weapon, the surprisingly versatile PCI bus. Is this a war where everyone wins, including embedded system designers? Jack Regula, Sebring Systems; *Computer Design*, 7/98, p. 66, 7 pp.

DEVELOPMENT TOOLS

Debuggers for modern embedded systems. As CPUs get faster and more deeply embedded, accessing them by traditional means, such as in-circuit emulators, grows more difficult. New technologies, such as JTAG and BDM, have arisen to help solve this problem. Jack Ganssle, *Embedded Systems Programming*, 11/98, p. 59, 6 pp.

DSP

Digital processing in an analog world. Signal processing in the digital world requires that analog signals be converted to discrete units in both a measurement dimension and time. A real-world analog-to-digital converter deals with both simultaneously. David Tweed, *Circuit Cellar*, 10/98, p. 68, 6 pp.

Benchmarking the C67x vs. C4x, Sharc. A comparative evaluation of the industry's leading digital signal processors. On one side we have the Texas Instruments 'C67xx; on the other, the ADSP2106x Sharc from Analog Devices. Karl Wale, Blue Wave Systems; *RTC*, 9/98, p. 29, 4 pp.

Algorithms for digital cellular. ZSP has launched a new family of digital signal processors (DSPs), the 164xx family. The first member of the family, the ZSP16401, has been built for efficient speech and signal coding. John Sweeney, ZSP; *RTC*, 9/98, p. 35, 8 pp.

Survey: DSP cores. Many companies market cores that offer digital signal processing functions of one sort or other—a diversity driven not only by the increasing number of applications for DSP but also by powerful design tools. Richard Quinnell, *Silicon Strategies*, 11/98, p. 24, 5 pp.

MISCELLANEOUS

The new R&D. Companies are looking for better ways to flow technology from lab to marketplace. Bill Roberts, *Electronic Business*, 11/98, p. 69, 6 pp.

PROCESSORS

A new direction for computer architecture research. Current computer architecture research continues to have a bias for the past in that it focuses on desktop and server applications. In our view, a different computing domain—personal mobile computing—will play a significant role in driving technology in the next decade. This domain will pose a different set of requirements for microprocessors and could redirect the emphasis of computer architecture research. Christoforos Kozyrakis and David Patterson, University of California, Berkeley; *Computer,* 11/98, p. 24, 9 pp.

Microprocessors and DSPs converge. Microprocessors and DSPs are converging. The DSP community is taking advantage of inexpensive transistors to make DSPs friendlier to programmers. The microprocessor community has elected to consume cheap transistors by adding functionality targeted at DSP and other algorithm-intensive applications. Craig Lund, Mercury Computer Systems; *RTC*, 9/98, p. 23, 3 pp.

32- and 64-bit processors: an embarrassment of riches. More than 120 different embedded processors are in production now. With more coming every week, how's an engineer to choose? Jim Turley, MicroDesign Resources, *Embedded Systems Programming,* 11/98, p. 85, 7 pp.

PROGRAMMABLE LOGIC

Programmable logic speeds prototypes into production. To reap the benefits of more feature-rich PLDs, designers must integrate the right device into their development cycle. Tom Troska et al., *Electronic Design*, 11/2/98, p. 140, 6 pp.

SYSTEM DESIGN

High-speed data paths in host-based routers. Host-based routers offer a number of advantages, but they suffer from inefficient support for high-bandwidth interfaces. One solution is peer-DMA forwarding, in which packets transfer directly between host interfaces. Simon Walton et al., *Computer,* 11/98, p. 46, 7 pp.