Literature Watch

Buses

New bus drivers carve out a broad path. As processor bus widths increase, chip makers provide wider buffers but must trade off delay times, power consumption, and cost. Gary Tharalson, Motorola; *Electronic Products,* 3/94, p. 63, 5 pp.

Chip set simplifies high-speed interconnects. The P1394 high-speed serial bus solves numerous problems, from those involving electrical signal and noise issues to ease-of-use. Dave Bursky, *Electronic Design,* 3/7/94, p. 114, 4 pp.

Development Tools

Step-by-step procedures help you solve Spice convergence problems. When iterating to solve a nonlinear problem doesn't yield a converging solution, change the model. Charles Hymowitz, Intusoft; *EDN,* 3/3/94, p. 121, 3 pp.

PC-based EDA-tool directory. Workstation-based tools are being challenged by a broad range of software that runs on PCs. Doug Conner, *EDN,* 3/17/94, p. 41, 7 pp.

Probing the limits of logic synthesis. Schematics and gate-level design impose discipline by their limitations, but hardware description languages require the engineer to internalize that discipline. Ray Weiss, *EDN,* 3/17/94, p. 51, 8 pp.

Debuggers expand view on embedded systems. As embedded systems grow more complex, designers turn to increasingly sophisticated tools. (Includes directory of debuggers for embedded systems.) Jeff Child, *Computer Design,* 3/94, p. 105, 6 pp.

Halsim—a very fast SPARC V9 behavioral model. Clever implementation techniques allowed designers to model the SPARC V9 64-bit architecture. David Barach, et al, Hal Computer Systems; *Computer Architecture News,* 3/94, p. 52, 7 pp.

Testing the mettle of VHDL. The future of VHDL is to build productive, cost-effective design tools. Dr. Allen Dewey, IBM; *Computer Design,* 3/94, p. 129, 3 pp.

DSPs

EDA tools zero in on DSP design. Designing a DSP-based product involves stages from algorithm development to hardware implementation—all of which can be automated with modern software tools. Lisa Maliniak, *Electronic Design,* 3/7/94, p. 51, 5 pp.

Libraries bring DSP within a non-expert's reach. Libraries of linkable DSP code make processing hardware available to less sophisticated users. Michael L. Porter, *Personal Engineering,* 3/94, p. 39, 8 pp.

Miscellaneous

Compile time instruction cache optimizations. Based on information available at compile time, this technique reduces instruction-cache misses caused by code segments within a loop that are mapped into the same cache set. Abraham Mendlson, Shlomit S. Pinter, Israel Institute of Technology; *Computer Architecture News,* 3/94, p. 44, 7 pp.

The state of knowledge-based systems. Knowledge-based systems can assist human operators by autonomously making decisions in complex systems. Frederick Hayes-Roth, Neil Jacobstein, Teknowledge; *Communications of the ACM,* 3/94, p. 27, 13 pp.

Computer vision applications. Vision lets a system extract the parameters of an environment, recognize patterns, and interact. W.E.L. Grimson, MIT, J.L. Mundy, General Electric; *Communications of the ACM,* 3/94, p. 45, 7 pp.

The basic ideas in neural networks. Parallel-distributed systems and connection-based architectures exhibit many of the characteristics of brain-style computation. David E. Rumelhart, Stanford University, et al; *Communications of the ACM,* 3/94, p. 87, 6 pp.

ATM networking. A fully developed ATM network could offer bandwidth-on-demand to match users' needs for everything from telephony to video. Richard A. Quinnell, *EDN,* 3/3/94, p. 67, 7 pp.

Ratio detection precisely characterizes signals' amplitude and frequency. A modification to the fast Fourier transform can increase accuracy by several orders of magnitude. Robert H. McEachern, *EDN,* 3/3/94, p. 107, 3 pp.

In our image. The convergence of computers and communications creates both problems and opportunities in interface design. Meera M. Blattner, University of California, Davis; *IEEE Multimedia,* Spring '94, p. 25, 12 pp.

GaAs finds home in wireless & high-speed data-communications applications. Because of their ability to capture high-speed edges, GaAs devices are in demand for optical fiber front ends. Stephan Ohr, *Computer Design,* 3/94, p. 59, 6 pp.

A successful MCM design isn't a matter of luck. As standard IC processes progress, designers keep a wary eye on this next-generation technology. Mike Donlin, *Computer Design,* 3/94, p. 73, 6 pp.

Micromachines. Seemingly unrelated technologies converge to create an entirely new area of development. Charles Ostman, *Midnight Engineering,* March/April '94, p. 27, 4 pp.

System Design

Embedded systems developers embrace the PC architecture. The common desktop architecture offers advantages in cost, time-to-market, and familiar tools. David Shear, *EDN,* 3/3/94, p. 39, 5 pp.

Simulation programs iron out transmission-line effects. Basic rules and simple calculations help avoid the pitfalls of high-speed signals. Carol J. Steinberg, Ian M. Wilson, MicroSim; *EDN,* 3/3/94, p. 115, 4 pp.

