Literature Watch

Buses

The rush to local buses could obviate the need for industrial auxiliary-bus schemes. The battle lines are drawn as PCI and VL-Bus face off against a plethora of mezzanine, daughter card, and over-the-top buses. Paul G. Schreier, *Personal Engineering & Instrumentation News*, 12/93, p. 29, 10 pp.

Development Tools

Codesign of communication protocols. Based on a behavioral description, this technique helps designers produce a logical hardware/software combination to implement a given protocol. Alan S. Wenban, et al., Cornell University, *Computer*, 12/93, p. 46, 7 pp.

ESDA boosts CAE technology to higher levels. This new class of system-level tools combines an automated conceptual front end with existing lower-level design automation. Lisa Maliniak, *Electronic Design*, 12/2/93, p. 61, 7 pp.

Windows-based toolset synthesizes complex PLDs. A mixed-signal environment lets users design programmable logic in the context of their circuit boards. Lisa Maliniak, *Electronic Design*, 12/16/93, p. 43, 4 pp.

DSPs

Improved DSP ICs eye new horizons. Enhanced DSP chip architectures make multimedia and HDTV subsystems practical by packing lots of punch in one chip. Dave Bursky, *Electronic Design*, 11/11/93, p. 69, 9 pp.

Miscellaneous

Implementing the NHT-1 application I/O benchmark. Designed to test the I/O performance of parallel supercomputers, this benchmark offers a window into the world of multiprocessor systems. Samuel A. Fineberg, Computer Sciences Corporation; *Computer Architecture News*, 12/93, p. 23, 6 pp.

IEDM unveils the IC processes of the future. Advances in device structures and process techniques herald giga-element circuits. Dave Bursky, Frank Goodenough, *Electronic Design*, 12/2/93, p. 43, 5 pp.

Technology rolled up impressive gains in 1993. *1*993 was a year with no striking revelations, but marked evolution in existing packaging, display, and storage technologies. Jack Shandle, *Electronic Design*, 12/16/93, p. 53, 7 pp.

Miscellaneous

Hedonic price analysis of workstation attributes. Combining two approaches helps determine relationships between prices and characteristics. H. Raghav Rao, SUNY; *Communications of the ACM*, 12/93, p. 95, 8 pp.

Processors

Speedy RISC CPU fits NT desktop, embedded needs. *I*DT's implementation of the 64-bit MIPS R4000 architecture initially runs at 100 MHz. Dave Bursky, *Electronic Design*, 11/1/93, p. 112, 3 pp.

Programmable Logic

Enhanced programmable logic speeds up systems. Altera's MAX 7000E family offers improved CPLD performance with shorter I/O delays and improved routability. Dave Bursky, *Electronic Design*, 12/2/93, p. 111, 2 pp.

System Design

A framework for hardware/software codesign. This model helps evaluate hardware/software tradeoffs during the design phase and supports varying levels of integration between the two. Sanjaya Kumar, et al., University of Virginia; *Computer*, 12/93, p. 39, 7 pp.

An overview of techniques to support continuous retrieval of multimedia objects. Spreading objects across multiple disk drives allows a system to support the high-bandwidth of multimedia without "hiccups." Shahram Ghandeharizadeh, University of Southern California; *Computer Architecture News*, 12/93, p. 39, 6 pp.

A RISC processor architecture with a versatile stack system. A uniquely organized register file and multiple stacks give this design an edge in executing function-based languages. Claus Assmann, Christian Albrechts University; *Computer Architecture News*, 12/93, p. 63, 6 pp.

A Transputer T9000 family based architecture for parallel database machines. Using a model targeted specifically at databases, this highly parallel design solves disk-access and random data-pattern bottlenecks to achieve 10,000 transactions per second. Qiang Li, Santa Clara University, Naphtali Rishe, Florida International University; *Computer Architecture News*, 12/93, p. 55, 6 pp.

Network tricks aid in OCTC circuit analysis. Use open-circuit time constants to explore the limits of a circuit's bandwidth. Marc Thompson, Polaroid; *Electronic Design*, 12/16/93, p. 67, 3 pp.

Small real-time systems coordinate tasks over tiny local nets. The right real-time kernel can deliver a "bulletproof" scheme for coordinating multiple embedded processors. Charles H. Small, *EDN*, 11/25/93, p. 41, 4 pp.

Operating systems go head to head. The expanding realm of the microprocessor is causing a revolution in operating system software. Richard Comerford, *IEEE Spectrum,* 12/93, p. 23, 3 pp.

