

LITERATURE WATCH

AUDIO/VIDEO

3D graphics chip takes on high-speed tasks. Philips' SAA7101 is a 50-MHz graphics processor that includes on-chip PCI bus mastering and works with existing graphics controllers. Peter Fletcher, *Electronic Design*, 6/10/96, p. 165, 2 pp.

3D audio: above and behind you or moving low left to right? Signal-processing wizards can now position sound sources anywhere in a 3D space using two speakers or a pair of headphones. Target applications include entertainment, simulation, and biomedical. Maury Wright, *EDN*, 6/6/96, p. 87, 7 pp.

BUSES

Interface bus lets 3D graphics chip move data quickly. By creating a superset of the PCI bus, Yamaha's Shadow Bus allows fast 3D graphics data movement. Dave Bursky, *Electronic Design*, 6/10/96, p. 67, 4 pp.

CompactPCI expands the reach of the PCI bus. The architecture's high speed and rugged specification are designed to meet system performance and reliability requirements well into the next decade. Joe Pavlat, *Pro-Log; Electronic Products*, 6/96, p. 57, 2 pp.

Understanding CardBus—the marriage of PC Cards to PCI bus. CardBus is where PCI and PC Card technologies meet. Smoothing the seam requires harmony between Card and Socket Services and your system's BIOS. Paul Sereiko, *Portable Design*, 6/96, p.43, 3 pp.

PC Cards will have enough flavors to satisfy everyone. Memory and communications will continue to be the predominant applications for PC Cards. John Miklosz, *Portable Design*, 6/96, p. 54, 2 pp.

DEVELOPMENT TOOLS

Digital scope targets 8-bit microcontroller designs. The HP 54645D mixed-signal oscilloscope integrates two digital oscilloscope channels with 16 logic-timing channels. John Novellino, *Electronic Design*, 6/10/96, p.169, 3 pp.

Whose fault is it anyway? An introduction to digital fault simulation. Rigorous fault simulation ensures confidence in designs, but relatively few designers perform fault simulation. Clive Maxfield, *Intergraph; EDN*, 6/6/96, p. 127, 5 pp.

CAE tools make light work of portable designs. With the growing complexity of nomadic products, it's almost unthinkable to attempt a design without using electronic-design-automation tools. Wireless RF products, in particular, can be especially difficult without EDA. Bob Margolin, *Portable Design*, 6/96, p. 33, 8 pp.

PERIPHERALS

Fast Ethernet matures with second-generation products. The 100Base-TX standard emerges as the clear winner in the Fast Ethernet wars. Surprises abound as a flurry of new products further cut cost and boost performance. Lee Goldberg, *Electronic Design*, 6/10/96, p. 53, 5 pp.

A/D and D/A converters. Here is a sampling of recently introduced A/D and D/A converter ICs. *Electronic Products*, 6/96, p. 45, 7 pp.

PROCESSORS

Using hybrid branch predictors to improve branch prediction accuracy in the presence of context switches. A new hybrid branch predictor is more accurate (for a given cost) than any previously published scheme. Marius Evers, Po-Yung Chang, et al, Univ. of Michigan; *Computer Architecture News*, 5/96, p. 3, 9 pp.

An analysis of dynamic branch prediction schemes on system workloads. The recently proposed two-level adaptive schemes can suffer from higher aliasing than the original per-branch two-bit counter scheme. Nicolas Gloy, Cliff Young, et al, Harvard; *Computer Architecture News*, 5/96, p. 12, 10 pp.

Evaluation of design alternatives for a multiprocessor microprocessor. Both shared-primary and shared-secondary architectures perform similarly when the full costs of sharing the primary cache are included. Basem A. Nayfeh, Lance Hammond, et al, Stanford; *Computer Architecture News*, 5/96, p. 67, 11 pp.

Performance comparison of ILP machines with cycle time evaluation. A VLIW machine with predication achieves a speedup of 1.4x over a superscalar machine. Tetsuya Hara, Hideki Ando, et al, Mitsubishi; *Computer Architecture News*, 5/96, p. 213, 12 pp.

Exploiting choice: instruction fetch and issue on an implementable simultaneous multithreading processor. A simultaneous multithreading architecture achieves a 2.5x improvement over an unmodified superscalar with similar hardware resources. Dean M. Tullsen, Susan J. Eggers, et al, Univ. of Washington, Digital; *Computer Architecture News*, 5/96, p. 191, 12 pp.

16-bit embedded controllers open up new markets. Higher levels of integration and throughput in the newest 16-bit MCUs help trim system cost. Dave Bursky, *Electronic Design*, 6/10/96, p. 77, 10 pp.

PROGRAMMABLE LOGIC

Programmable logic pushes its limits. As tools converge and hardware-description languages gain on schematic entry, the development of programmable logic becomes more like that of ASICs. Rodney Myrvaagnes, *Electronic Products*, 6/96, p. 27, 5 pp.

SYSTEM DESIGN

User needs chart course for PDA design. The HP OmniGo 100 is built around a Vadem processor and the Geos operating system. Frank Caruthers, *Portable Design*, 6/96, p. 49, 5 pp.

Memory bandwidth limitations of future microprocessors. In the long term, off-chip accesses will be so expensive that all system memory will reside on one or more processor chips. Doug Burger, James R. Goodman, et al, Univ. of Wisconsin-Madison; *Computer Architecture News*, 5/96, p. 78, 12 pp.