

LITERATURE WATCH

GRAPHICS

3D graphics processor chip set. Fujitsu's TGPx4 chip set uses two processors to render 300,000 polygons per second. Makoto Awaga, Tatsushi Ohtsuka, et al, Fujitsu; *IEEE Micro*, 12/95, p. 37, 9 pp.

MEMORY

Advances in DRAM interfaces. A comparison of EDO, SDRAM, RDRAM, CDRAM, and 3D-RAM. Masaki Kumano, Toshiyuki Ogawa, et al, Mitsubishi; *IEEE Micro*, 12/95, p. 30, 7 pp.

MISCELLANEOUS

Technology 1996: Computers. Windows wins; Windows NT challenges Unix; a battle is on to redefine the PC; megadisks head to market. Richard Comerford, *IEEE Spectrum*, 1/96, p. 42, 4 pp.

Technology 1996: Consumer electronics. Digital video zooms; high-definition TV searches for a market; satellites may rescue terrestrial digital broadcast. Robert Braham, *IEEE Spectrum*, 1/96, p. 47, 5 pp.

Technology 1996: Solid state. Technology advances fuel single-chip systems; powerful multimedia engines emerge; graphics unites with main memory; DRAM gets on-board microprocessors. Linda Geppert, *IEEE Spectrum*, 1/96, p. 51, 5 pp.

The tale of 3DO, a convergence tragedy. Lessons about managing alliances and technology shifts in the face of digital convergence. Marty Brochstein, HomeWorld Electronics; *OEM Magazine*, 5/95, p. 46, 7 pp.

Compiler technology for future microprocessors. A variety of new compiler techniques exploit instruction-level parallelism. Wen-Mei Hwu, Richard E. Hank, et al, University of Illinois; *Proceedings of the IEEE*, 12/95, p. 1625, 15 pp.

Advanced technologies: shaping the next century. Developments in accelerometers, audio chips, Internet security, and neural nets are turning seemingly impossible applications into reality. Cheryl Ajluni, *Electronic Design*, 12/16/95, p. 69, 4 pp.

1996 industry outlook: semiconductors. Demand remains strong, but some prices will slip. Fab build-up will ease shortages. Robert Ristelhueber, *Electronic Business Today*, 1/96, p. 44, 3pp.

Technology and business: forces driving microprocessor evolution. Predicting the direction of the microprocessor industry requires illogical extrapolation. Nick Tredennick, Tredennick, Inc.; *Proceedings of the IEEE*, 12/95, p. 1641, 12 pp.

Chip-making in China. ICs from China are fast becoming contenders on world markets, thanks to an infusion of cash, technology, and management know-how from overseas. Linda Geppert, *IEEE Spectrum*; 12/96, p. 36, 8 pp.

Truth in SPEC benchmarks. Attempts to reproduce vendors' SPEC92 results achieve only 65–85% of the rated performance. Nikki Mirghafori, Margaret Jacoby, et al, University of California at Berkeley; *Computer Architecture News*; 12/95, p. 34, 9 pp.

PROCESSORS

The design of the microarchitecture of UltraSPARC-1. Analysis and tradeoffs made during the design of a recent high-performance CPU. Marc Trembley, Sun Microsystems; *Proceedings of the IEEE*, 12/95, p. 1653, 11 pp.

The history of the microcomputer—invention and evolution. A member of Intel's early design teams traces the development of the microprocessor from the 4004 in 1972 through the 8086. Stanley Mazor, C-ATS Software; *Proceedings of the IEEE*, 12/95, p. 1601, 8 pp.

The RISC penalty. RISC code expansion becomes a significant performance issue as bandwidth becomes more critical. Tom Pittman, *IEEE Micro*, 12/95, p. 5, 6 pp.

The microarchitecture of superscalar processors. A general overview and comparison of superscalar design techniques. James E. Smith, Gurindar Sohi, University of Wisconsin; *Proceedings of the IEEE*, 12/95, p. 1609, 16 pp.

6x86: the Cyrix solution to executing x86 binaries on a high performance microprocessor. A comparison of the 6x86 with "RISC-like" x86 processors. Steve McMahan, Mark Bluhm, Cyrix, et al; *Proceedings of the IEEE*, 12/95, p. 1664, 9 pp.

Roundup: embedded processors. Processor architectures originally aimed at desktop uses are increasingly implemented for embedded use, but controller specialized architectures hold on in 4- and 8-biters. Rodney Myrvaganes; *Electronic Products*, 1/95, p. 59, 1 pp.

SH3: high code density, low power. Hitachi's SH3 features a small die size and low power consumption. Atsushi Hasegawa, Ikuya Kawasaki, et al, Hitachi; *IEEE Micro*, 12/95, p. 11, 9 pp.

Low-power multimedia RISC. NEC's new V830 has strong signal-processing performance. Kouhei Nadehara, Ichiro Kuroda, et al, NEC; *IEEE Micro*, 12/95, p. 20, 10 pp.

SYSTEM DESIGN

Are embedded designs using PCs-on-a-chip within the reach of average engineers? Several issues impact embedded systems using single-chip PCs. Russ Lindgren, *Personal Engineering*, 1/95, p. 30, 5 pp.

Beam-on-pad interconnect hits new density heights. With over 100 contacts per linear inch, a backplane/daughterboard connector is the ticket to vast bandwidths. David Maliniak, *Electronic Design*, 12/16/95, p. 57, 4 pp.

Vector prefetching. Extending the memory subsystem by integrating a prefetch-buffer mechanism. Michael K. Gschwind, Institut fur Technische Informatik Austria, Thomas J. Pietsch, Tandem Computer GmbH; *Computer Architecture News*, 12/95, p. 1, 7 pp.

Direct satellite broadcast. Fed by a pizza-sized dish antenna, these satellite receivers combine advanced compression, modulation, and error-correction techniques to provide consistent operation under difficult technical constraints and at low cost. Bill Schweber, *EDN*, 12/21/95, p. 53, 5 pp.