AUDIO/VIDEO

Embedded systems process 3D graphics to ease CPU burden. Dedicated, affordable 3D graphics processors give PCs the power of Unix workstations. Jules H. Gilder, *Computer Design*, 8/97, p. 71, 6 pp.

IC DESIGN

New IC packages really pack in the leads. Knowing the features—and drawbacks—of these packages can help you design your high-lead-count chips and high-performance boards. Jim Lipman, *EDN*, 9/1/97, p. 93, 7 pp.

Prepare for deep submicron with low-power strategy. With 0.35 µm upon us, major upheavals are in store—the impact of power is one of them. Barbara Tuck, *Computer Design*, 8/97, p. 60, 4 pp.

Will physical scalability sabotage performance gains? Wire scaling and its interaction with faster clocks will restrict the performance increases we've come to expect. Doug Matzke, TI; *Computer*, 9/97, p. 37, 3 pp.

Chip, test thyself. Semiconductor makers eye built-in self-test (BIST) to handle complex circuits. Robert Ristelhueber, *Electronic Business Today*, 9/97, p. 53, 3 pp.

MEMORY

Flash and EEPROM: the never-ending tradeoff. New announcements from AMD and Intel may create a shift in the flash/EEPROM market. Rick Grehan, *Computer Design*, 8/97, p. 78, 4 pp.

MISCELLANEOUS

Work slows on Samsung's big picture. Ambitious plans to become a multimedia powerhouse have been disrupted by a disastrous year in DRAMs and a slowing South Korean economy. Lewis H. Young, *Electronic Business Today*, 9/97, p. 64, 5 pp.

Tackle real-time applications with Windows NT. The Windows NT operating system has entered the embedded-systems arena. For the right applications, it can be a contender. Richard A. Quinnell, *EDN*, 9/12/97, p. 61, 6 pp.

PERIPHERALS

Communications products special section. A sampling of new communications products. *EDN*, 9/12/97, p. 81, 7 pp.

PROCESSORS

Superspeculative microarchitecture for beyond AD 2000. Superflow has a potential performance of 9.0 IPC and a realizable performance of 7.3 IPC for the SPEC95 integer suite, without requiring recompilation or changes to the instruction-set architecture. Mikko H. Lipasti, IBM, and John Paul Shen, Carnegie Mellon; *Computer*, 9/97, p. 59, 8 pp.

Trace processors: moving to fourth-generation microarchitectures. Trace processors rely on hierarchy, replication, and prediction to dramatically increase the execution speed of ordinary sequential programs. James E. Smith, Univ. of Wisconsin-Madison, and Sriram Vajapeyam, Indian Institute of Science; *Computer*, 9/97, p. 68, 7 pp.

How multimedia workloads will change processor design. General-purpose processors will make specialized digital-signal processors for media applications essentially irrelevant. Keith Diefendorff, Apple, and Pradeep K. Dubey, IBM; *Computer*, 9/97, p. 43, 3 pp.

A single-chip multiprocessor. With a billion transistors, a multiprocessor on a chip will be easiest to implement while still offering excellent performance. Lance Hammond, et al, Stanford; *Computer*, 9/97, p. 79, 7 pp.

One billion transistors, one uniprocessor, one chip. To achieve the highest performance possible, the billion transistors available on each chip should support the highest-performance uniprocessor. Yale N. Patt, et al, Univ. of Michigan; *Computer*, 9/97, p. 51, 7 pp.

Scalable processors in the billion-transistor era: IRAM. A more efficient way of using the huge amount of real estate available is to integrate a high-performance processor and the DRAM main memory on the same die, an architecture called intelligent RAM, or IRAM. Christoforos E. Kozyrakis, et al, UC-Berkeley; *Computer*, 9/97, p. 75, 4 pp.

Baring it all to software: raw machines. This approach eliminates the traditional instruction-set interface and exposes the details of a simple replicated architecture directly to the compiler, allowing the compiler to customize the hardware to each application. Elliot Waingold, et al, MIT; *Computer*, 9/97, p. 86, 8 pp.

The twilight of RISC. In a startling turnabout, the vendors of RISC chips are now under siege in their one computing stronghold: workstations. Robert Ristelhueber, *Electronic Business Today*, 9/97, p. 31, 2 pp.

Embedded control is sparked by introductions at high and low ends. The 8-bit market is stirred by a new architecture, Atmel's AVR, while 32-bit products feature variations on established themes. Rodney Myrvaagnes, *Electronic Products*, 9/97, p. 31, 3 pp.

PROGRAMMABLE LOGIC

Making the jump to HDL-based programmable logic design. Migrating to an HDL-based design approach requires an upfront investment of money and time to learn necessary tools and techniques. The reward is easier and faster completion of PLD- and FPGA-based projects. Doug Conner, Actel; *EDN*, 9/1/97, p. 181, 6 pp.

Programmable logic: designing beyond 100,000 gates. Using high-density devices requires better design, smart software, and IP. Peter Varhol, *Computer Design*, 8/97, p. 51, 7 pp.

SYSTEM DESIGN

Powering the big microprocessors. Your power-supply design must furnish many amps at a tightly controlled voltage level and respond quickly to heavy load transients. Bill Travis, *EDN*, 8/15/97, p. 30, 10 pp.