

LITERATURE WATCH

AUDIO/VIDEO

Balancing in three dimensions. Graphics-chip suppliers walking a tightrope to success are encountering numerous obstacles that may cause their downfall. Brian Dipert, *EDN Europe*, 5/00, p. 78, 11 pp.

BENCHMARKS

SPEC CPU2000: measuring CPU performance in the new millennium. The SPEC consortium's mission is to develop technically credible and objective benchmarks, so that both computer designers and purchasers can make decisions on the basis of realistic workloads. John Henning, Compaq Computer; *IEEE Computer*, 7/00, p. 28, 8 pp.

EMBEDDED

Doubling up. Innovative processor core for embedded applications combines DSP and microprocessor features (ST100). Serge Palmieri, STMicroelectronics; *New Electronics*, 6/13/00, p. 29, 2 pp.

Don't pin me down. The next generation of communications processors will mix more performance with even more flexibility. Philip Ling, *New Electronics*, 6/13/00, p. 33, 2 pp.

A single-chip multiprocessor for smart terminals. Merlot, the first MP98 architecture prototype, promises 1GIPS performance at 1W for 1.3V operations in support of smart 21st-century information terminals. Masato Edahiro et al., NEC; *IEEE Micro*, 8/00, p. 12, 9 pp.

IC PROCESSES

Dual-damascene: overcoming process issues. An overview of the primary damascene techniques under study and in production and their related processing issues. Ruth DeJule, *Semiconductor International*, 6/00, p. 94, 6 pp.

Low-k dielectrics: will spin-on or CVD prevail? When IBM announced it will use SiLK in its 0.13 μ m process, some industry experts expressed surprise that a somewhat traditional "CVD house" would turn to a spin-on solution. Laura Peters, *Semiconductor International*, 6/00, p. 108, 8 pp.

Circuit aging: a new phenomenon for SoC designs. Dealing with the issues created by shrinking geometries may be the only way to ensure design performance. James Chen, BTA Technology; *Electronic Design*, 7/10/00, p. 115, 4 pp.

MULTIMEDIA

Digital audio breaks the sound barrier. Dust off your digital-signal-processing reference manuals and get ready to trick the listener's ears and brains. Brian Dipert, *EDN*, 7/00, p. 71, 11 pp.

PACKAGING

Packaging provides viable alternatives to SoC. While many people concentrate on the ability to integrate more functions on a single chip, advances in packaging provide alternatives that are sometimes much better. John Baliga, *Semiconductor International*, 7/00, p. 169, 5 pp.

PROCESSORS

Implementing streaming SIMD extensions on the Pentium III processor. In implementing the SSE, the Pentium III developers made a number of design trade-offs to satisfy tight die-size constraints and attain frequency goals. Srinivas Raman et al., Intel; *IEEE Micro*, 8/00, p. 47, 11 pp.

PROGRAMMABLE LOGIC

Processors drive (or dive) into programmable-logic devices. Vendors of reprogrammable logic have for many years had processor support. But recent product announcements indicate that this support may be more than a trend. Understand the trade-offs before beginning to design a system on a reprogrammable chip. Markus Levy, *EDN*, 7/20/00, p. 107, 5 pp.

SOFTWARE

Embedded Java performance tools peek into target systems. Use the correct tools to troubleshoot embedded virtual machines. Jesse Hill, Object Technology International; *Electronic Products*, 6/00, p. 33, 2 pp.

Linux, interrupted. Every operating system has different mechanisms for and approaches to handling interrupts. This article lays out the specifics of handling interrupts in Linux. Thomas Besemer, *Embedded Systems Programming*, 8/00, p. 49, 10 pp.

SYSTEM DESIGN

Don't forget the sun screen. If you think designing for space still means redundancy, ruggedness, and rad-hard devices, you may be surprised to learn how it has changed. Louise Joselyn, *New Electronics*, 6/13/00, p. 25, 2 pp.

Doing it right. "The Human Interface—New Directions for Designing Interactive Systems" tells how to make computer interfaces that humans can use. "The Deadline—A Novel about Project Management" uses fiction to explore the ways humans can work together to produce good software. Richard Mateosian, *IEEE Micro*, 6/00, p. 4, 2 pp.

WIRELESS

With devices ready to go, Bluetooth is poised to make its move. As semiconductor manufacturers gear up to mass-produce Bluetooth silicon, they're concentrating on solving technical and price hurdles. Alfred Vollmer, *Electronic Design*, 7/24/00, p. 85, 5 pp.

The wireless Internet: promises and challenges. As computing becomes more mobile, the limitations of 3G cellular telephony and the wireless applications protocol become more apparent. David Goodman, Polytechnic Univ.; *IEEE Computer*, 7/00, p. 36, 6 pp.

No strings attached? The Bluetooth business opportunity is huge, but the payoff is years away. It will take some careful technology management to reach the promised land. Hank Hogan, *Electronic Business*, p. 116, 5 pp.