

LITERATURE WATCH

AUDIO/VIDEO

CMOS megapixel image sensors deliver nearly noise-free pictures. A distributed programmable-gain amplifier/ADC architecture gives an imaging-chip family low background noise and scalability. Dave Bursky, *Electronic Design*, 11/99, p. 66, 2 pp.

Applying and implementing the MPEG-4 multimedia standard. MPEG-4's many algorithms and high-performance requirements pose a challenge for designers of a new generation of flexible, low-power coder/decoder VLSI implementations for mobile and portable applications. Johannes Kneip et al., Robert Bosch GmbH; *IEEE Micro*, 12/99, p. 64, 11 pp.

DEVELOPMENT TOOLS

Focus report: Web-based design. As difficult as it may be to specify what actually constitutes a tool for Web-based design and database management, a number of companies and products are beginning to explore this space and its definitions. Peggy Aycinena, *ISD*, 12/99, p. 38, 6 pp.

IC DESIGN

New ITRS roadmap portends massive design changes ahead. EDA vendors must take dramatic steps forward to keep up with the predicted trends in design size, speed, and power consumption. Steve Schulz, Texas Instruments; *ISD*, 12/99, p. 48, 3 pp.

Phase-shifted digital signal processor said to be world's fastest at 1V. Researchers at Lucent Technologies' Bell Labs, Murray Hill, N.J., have developed the world's fastest digital-signal processor (DSP) running at 1V. Joseph Desposito and Ashok Bindra, *Electronic Design*, 12/99, p. 32, 1 pp.

Advanced IC packages keep silicon and systems flying. High I/O counts, high-speed operation, and demand for greater system-level integration drive development of chip-scale and multichip packages. David Morrison, *Electronic Design*, 12/99, p. 63, 4 pp.

MEMORY

Ultra-thin gate oxide and direct tunneling improve flash write/erase performance. The combination of an ultra-thin gate oxide and a novel sidewall control-gate structure overcomes some of the scaling limitations of previous floating-gate flash memories. Dave Bursky, *Electronic Design*, 1/00, p. 28, 1 pp.

MISCELLANEOUS

Not your father's chip industry. The confluence of several trends is forcing chip company executives to rethink strategies and explore new business models. In large portions of the industry, a new world order is on the way. Tam Harbert, *Electronic Business*, 12/99, p. 87, 5 pp.

PERIPHERAL CHIPS

How to increase interrupts in an MCU design. The author looks at how a hardware/software co-design solution can stretch a given processor's usefulness. He describes an interrupt controller with a serial interface for microcontrollers. Richard Wall, University of Idaho; *Embedded Systems*, 1/00, p. 82, 5 pp.

PROCESSORS

Overlaps between microcontrollers and DSPs. Microcontrollers are used in applications that are interrupt driven, sensing and controlling external events. You find DSPs in systems that require the precision processing of analog signals. This article describes how DSP and MCU applications are crossing over into each other's territories. Bill Giovino, Microcontroller.com; *Embedded Systems*, 1/00, p. 20, 10 pp.

Internet streaming SIMD extensions. Streaming data—data that's used only once and discarded—characterizes today's 3D and video applications. Pentium III's Streaming SIMD Extensions boost the performance of these applications. Shreekanth Thakkar and Tom Huff, Intel; *Computer*, 12/99, p. 26, 9 pp.

Network processors: the sky's the limit. Network processors, sporting some of the most complicated IC designs today, promise to be even sexier than 3D-graphics accelerators. Nicholas Cravotta, *EDN*, 11/99, p. 108, 8 pp.

PROGRAMMABLE LOGIC

Reconfiguring one-time-programmable FPGAs. This reconfiguration method quickly repairs single and multiple faults in FPGAs with low delay overhead. Experiments showed 100% successful reconfiguration with single faults. Xiao-Tao Chen, Lucent, et al.; *IEEE Micro*, 12/99, p. 53, 11 pp.

SYSTEM DESIGN

New printed-wiring-board materials guard against garbled gigabits. At 2.4–4.8GB/s, the old standby, FR4, can produce unacceptable signal distortion. A couple of other materials offer good alternatives, and one costs only about twice as much as FR4. Chad Morgan and David Helster, Amp; *EDN*, 11/99, p. 73, 6 pp.

Introduction to TCP/IP. For almost everyone, the TCP/IP protocol suite is the core technology for connectivity. For many, TCP/IP is now the technology of choice for all data transfers, including both video and voice. Thomas Herber, Wind River Systems; *Embedded Systems Programming*, 12/99, p. 57, 11 pp.

A century-old technology enters the digital age. Although it will be a while before special-purpose digital ICs and all analog components except ADCs and DACs disappear from radios, some applications are already enjoying software radio's benefits. Dan Strassberg, *EDN*, 10/99, p. 139, 5 pp.