❖ LITERATURE WATCH

AUDIO/VIDEO

The high-end PC looks for a home. Does the long-touted vision of the PC as the home's entertainment hub have any reality behind it—now or in the future? Brian Dipert, *EDN,* 11/99, p. 145, 11 pp.

QoS for multimedia applications in satellite systems. A policy for handling multimedia traffic over satellite air interfaces. It extends the advantages of ATM to satellite by the statistical multiplexing of variable-rate traffic sources. Antonio Iera, University of Reggio Calabria, et al.; *IEEE MultiMedia,* 11/99, p. 46, 8 pp.

Sega Dreamcast: creating a unified entertainment world. This advanced home video game system provides access to many types of game experiences and, via its communications facilities, to applications such as online gaming, Web browsing, and email. Shiro Hagiwara, Sega Enterprises, Ian Oliver, Cross Products; *IEEE Micro,* 12/99, p. 29, 7 pp.

The dynamic digital disk. The DVD standard was the first format to truly unite the computer and consumer electronics environments—but it also launched an unprecedented debate about copy protection. Alan Bell, IBM; *IEEE Spectrum,* 10/99, p. 28, 8 pp.

DSP

Extreme levels of parallelism escalate DSP horsepower. Whether employed in a dedicated DSP chip or high-performance CPU, highly parallel architectures accelerate DSP algorithms. Dave Bursky, *Electronic Design,* 11/99, p. 71, 8 pp.

Fast-turnaround coding techniques for a GSM EFR vocoder for the StarCore DSP. The new StarCore DSP engine deploys a new, high-performance architecture designed for communications applications written in C. Dror Halahmi et al., Motorola; *RTC,* 11/99, p. 105, 3 pp.

DSP architectures reach for greater parallelism. Meeting the demand for high-speed and sophisticated digital signal processors will require clever, complex component constructs. Emmanuel Roy and David Crawford, Motorola; *ISD,* 11/99, p. 26. 4 pp.

IC DESIGN

Nanometer technology effects on fault models for IC testing. Methods for testing integrated circuits require ongoing research and continual adaptation to accommodate increasing circuit size, growing defect subtlety, and less varied manufacturing processes. Robert Aitken, Agilent Technologies; *Computer,* 11/99, p. 46, 6 pp.

Rethinking deep-submicron circuit design. Interconnect delay need not increase as CMOS process geometries shrink, and current IC design methods should suffice for modules of up to 50,000 gates. Beyond that, designers must focus on a new concept—interconnect design. Dennis Sylvester, Synopsys, and Kurt Keutzer, UC-Berkeley; *Computer,* 11/99, p. 25, 9 pp.

Synchronous oscillator outperforms the PLL. The PLL has numerous limitations. The synchronous oscillator doesn't suffer from these problems and has many powerful properties, including a self-regulation property. Vasil Uzunoglu, Synchtrack; *EDN,* 11/99, p. 111, 5 pp.

MISCELLANEOUS

Microfluidics puts big labs on small chips. By combining miniscule fluid technology with novel support electronics, companies are developing innovative chips for computing, consumer, and biotechnical applications. Jim Lipman, *EDN,* 12/99, p. 79, 6 pp.

Just curious: an interview with John Cocke. This computer architecture leader's curiosity led him to discover several of the field's most significant advances. Bruce Shriver, Genesis 2, and Peter Capek, IBM; *Computer,* 11/99, p. 34, 8 pp.

PROCESSORS

Designing and programming the Emotion Engine. Emotion synthesis requires a huge amount of calculation for the physical and thought simulation needed to generate human emotional representation with realistic computer-graphics output. To achieve this, the Emotion Engine main processor contains three independent floating-point processors. Masaaki Oka and Masakazu Suzuoki, Sony Computer Entertainment; *IEEE Micro,* 12/99, p. 20, 9 pp.

Microcontrollers wrap many features in small packages. Although marketing efforts focus on high-end, 32- and 64-bit microprocessors, DSPs, and very-long-instruction-word processors, lowly 8-bit processors continue to dominate products shipped. Markus Levy, *EDN,* 10/99, p. 121, 6 pp.

SYSTEM DESIGN

Real-time extensions to the Java platform. As it stands now, neither the Java language nor the Java Virtual Machine is compatible with true real-time systems. However, extensions to the Java specifications are now being made to make Java a better language for real-time programming. Steve Furr, QNX Software Systems; *Embedded Systems,* 12/99, p. 71, 7 pp.

New printed-wiring-board materials guard against garbled gigabits. At 2.4–4.8 GB/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.

A century-old technology enters the digital age. Although it will be awhile 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.