

AUDIO/VIDEO

Displays for electronic imaging. Electronic displays are seemingly pervasive, but their suitability for digital imaging depends on both underlying technology and end-user application, as this overview of displays indicates. Paul Alt, IBM; *IEEE Micro*, 11-12/98, p. 42, 11 pp.

BUSES

Multiprocessor architecture drives high-bandwidth real-time applications. Traquair's new communications architecture, Heart, focuses on getting data where it needs to go quickly, simply, and with minimal delay. Stephen Bradshaw, Traquair Data Systems; *RTC*, 1/99, p. 71, 3 pp.

NGIO and RACE: benefits of switched fabric interconnects. NGIO provides a scalable way to connect desktop processors, allowing both high bandwidth and scalability. Gérard Vichniac, Mercury Computer Systems; *RTC*, 1/99, p. 61, 3 pp.

Switches, switched fabric, bridges drive new MP architectures. New technologies and mechanisms continue to shift high-end multiprocessing from today's shared-memory model to a distributed model. Ray Weiss, *RTC*, 1/99, p. 51, 5 pp.

DEVELOPMENT TOOLS

Effective C++ memory allocation. Using features of C++, the author presents a framework for resource allocation that is temporally deterministic and provides for callback, memory pools, and deadlock prevention. Aaron Dailey, Chaparral Technologies; *Embedded Systems Programming*, 1/99, p. 44, 6 pp.

C compilers and development tools simplify DSP assembly-language programming. With multiple execution units operating in parallel, DSPs demand a level of programming dexterity that is difficult to achieve. Thanks to C compilers and development tools, your task is getting simpler. Manju Nath, *EDN*, 1/21/99, p. 103, 5 pp.

UML statecharts. Here is an examination of statechart development using the Unified Modeling Language. The author describes the event metamodel in UML and some of the more interesting features of statecharts, including nested states and orthogonal regions. Bruce Douglass, *Embedded Systems Programming*, 1/99, p. 22, 11 pp.

MISCELLANEOUS

Standards-based embedded computer industry headed for banner year. The overall market is expected to climb more than 23% for the year, topping last year's growth of about 18%—provided there are no major hiccups in the economy. Warren Andrews, *RTC*, 1/99, p. 39, 4 pp.

Survey: foundries. Foundries stand at the heart of the semiconductor industry's paradigm shift away from vertically integrated companies. Richard Quinnell, *Silicon Strategies*, 1/99, p. 34, 5 pp.

Taking Moore's law into the next century. "Cooperation" is not a word associated with the competitive world of semiconductor manufacturing. Yet the Semiconductor Research Corporation not only gets all the major players to the table, it also helps set the course for the chip industry's future. Scott Hamilton, *Computer*, 1/99, p. 43, 6 pp.

PERIPHERAL CHIPS

RTCs and the Y2K bug. The system's real-time clock (RTC), or lack thereof, plays a leading role in ensuring that the computer will perform correctly in the next century. Jim Lott, Dallas Semiconductor; *RTC*, 1/99, p. 23, 3 pp.

The broad sweep of integrated microsystems. Micromachining mechanical, chemical, and optical components onto the same wafers as electronic circuits produces powerful systems that can understand and influence their environments. S. Tom Picraux and Paul McWhorter, Sandia National Laboratories; *IEEE Spectrum*, 12/98, p. 24, 10 pp.

PROCESSORS

The pressure is on. As applications become more demanding, computer-systems research must not only redefine traditional roles but also unite diverse disciplines in a common goal: to make quantum leaps toward next-generation systems. Krishna Kavi et al., *Computer*, 1/99, p. 30, 4 pp.

A chip called Katmai. Intel's Katmai New Instructions (KNI) promise technology that can rip through 3D graphics twice as fast. Unfortunately, Intel's first KNI-infused processor will take only partial advantage of KNI. Tom Halfhill, *Maximum PC*, 2/99, p. 68, 2 pp.

PROGRAMMABLE LOGIC

Generating reliable embedded processors. This approach to designing fault-tolerant embedded systems—using PLDs to duplicate application-specific hardware—significantly reduces the costs of classical fault-tolerance techniques. Matthias Pflanz and Heinrich Vierhaus, Brandenburg Technical University; *IEEE Micro*, 9-10/98, p. 33, 9 pp.

SYSTEM DESIGN

Color processing in digital cameras. In seconds, a digital camera performs full-color rendering that includes color filter array interpolation, color calibration, antialiasing, infrared rejection, and white-point correction. This article describes the design decisions that make this processing possible. Jim Adams et al., Eastman Kodak; *IEEE Micro*, 11-12/98, p. 54, 10 pp.

Apple Macintosh's energy consumption. Much of a portable computer's utility depends on how long it can run off the battery. We measure Apple Macintosh's current power consumption (and how much of that power goes to each system component) using built-in measuring tools. Jacob Lorch and Alan Smith, UC Berkeley; *IEEE Micro*, 11-12/98, p. 54, 10 pp.