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TIDBITS

By Mark Long [9/4/00-02]

SGI, NASA TO DEVELOP 1,024-PROCESSOR SUPERCOMPUTER

SGI is engaged in a collaborative effort with NASA Ames Research Center to develop a supercomputer that will be based on SGI's modular NUMAflex architecture (see *MPR 08/07/00-01*, "SGI Updates Systems, CPU Plans"). NASA Ames has ordered two 512-processor SGI Origin 3800 systems that will be combined to serve as a test bed for the 1,024-processor system.

The SGI supercomputer, which NASA scientists intend to use for research in the areas of aeronautics, earth sciences, and life sciences, is expected to be up and running by February 2001. NASA Ames intends to use the 1,024-processor machine to perform highly demanding mathematical tasks, such as running its Overflow-MLP (multilevel parallelism) computational fluid-dynamics code.

A 512-processor SGI 2800 system called Lomax has already helped NASA Ames scientists achieve milestones in several research areas, including computational fluid dynamics, global climate modeling, and astrobiology. NASA Ames researchers are anticipating even greater performance from the 1,024-processor SGI Origin 3000 series system.

"According to our projections, the SGI NUMAflex architecture is going to deliver about six times the performance at 1,024 processors as the 512-processor system," said Bill Feiereisen, chief of the Numerical Aerospace Simulation (NAS) Systems Division at NASA Ames, located at Moffett Field, in Mountain View, California.

SGI also recently announced the installation of a 512-processor SGI Origin 3800 supercomputer at the U.S. Army Engineer Research and Development Center (ERDC) in Vicksburg, Mississippi. The ERDC will provide authorized government and academic researchers with access to the supercomputer via high-speed networks from anywhere in the nation.

Built on the third-generation SGI NUMA architecture and IRIX 6.5 operating system, the SGI Origin 3000 series is reportedly compatible with other IRIX-OS-based servers and workstations. For more information: *www.sgi.com*.

INTEL ANNOUNCES GRAPHICS PORT INITIATIVE

Intel has announced an extension to the Advanced Graphics Port (AGP) roadmap to take it to 8x performance. The company says the new specification has been designed to satisfy the greater bandwidth needs of desktop and workstation platforms designed for the Pentium 4 processor. Like AGP4x, the latest AGP8x standard implements a 32-bit-wide data bus. The new specification, however, enables a doubling of data transfer speeds to 533MHz and supports a data rate of 2GB/s.

In the long run, however, Intel says that the AGP8x parallel interface will need to be replaced by a serial graphics bus. With this eventual goal in mind, Intel is currently evaluating future serial graphics-bus requirements in order to develop the next stage in emerging AGP technologies, which will require even higher performance and increased scalability.

Intel intends to publish the AGP8x draft specification at *www.intel.com/technology/agp/agp_index.htm* sometime later this year. A royalty-free license agreement will also be available for those wishing to participate in the licensing program.

NVIDIA announced that it will be among the first 3D-graphics companies ready to deliver a product that benefits from Intel's AGP8x interface.

VIA UNWRAPS INFORMATION PC INITIATIVE

VIA Technologies has unveiled its plans to manufacture and market an "Information PC" that is being designed to fill the gap between the latest information appliances and mainstream PCs. The plan is simple: market a PC device in the $200-$500 price range that can perform Internet-based tasks like Web surfing and email and

also provide basic PC functions like word processing and spreadsheet calculations.

VIA's Information PC will be built around a VIA Cyrix III processor (see *MPR 6/26/00-03*, "Cyrix III is Dead, Long Live Cyrix III") running at speeds upward of 500MHz. VIA says the processor's internal 12-stage instruction pipeline and 128KB integrated Level 1 cache are tuned for today's mainstream software programs. VIA also claims that power-consumption rates should be low enough to enable fanless designs in small-footprint form factor PCs.

The Information PC will feature an integrated VIA Apollo PM601 SMA chip set that incorporates a built-in Trident Blade3D graphics controller and support for PC133 SDRAM. The associated VT8231 south bridge chip will feature AC-97 audio, MC-97 modem support, Super I/O, an integrated home phone line, and a 10/100 Ethernet-compatible controller. Optional features include hardware monitoring capabilities, ATA-66, and advance power-management control. VIA also intends offer options for USB and IEEE-1394 ports for easy peripheral expansion, as well as other basic and advanced communications options via ACR (Advanced Communications Riser) or AMR (Advanced Modem Riser).

The company plans to develop additional Information PC reference platforms, including low-profile, low-power systems for notebooks built around another VIA processor. Code-named Matthew, VIA's forthcoming integrated device incorporates a processor, memory controller, and S-3 graphics controller onto a single chip.

Tyan Intros Trinity KT System Board

Tyan Computer has launched Trinity KT, a system board based on the VIA KT-133 chip set for AMD's Athlon and Duron processors. The Trinity KT offers support for a 200-MHz front-side bus (FSB) and 4x AGP. It features enhanced audio and graphics (on-chip audio and AC'97 codec) performance plus I/O transfers that Tyan says will maximize the benefits of the latest AMD processor technology without overclocking. In addition to the AGP slot, there are six PCI slots and one ISA slot, providing maximum expandability. Up to 1.5GB of high-speed PC133 memory is supported through three DIMM sockets. The Trinity KT (S2390) uses an ATX form factor (12 x 8.2 inches). Tyan is currently shipping the Trinity KT in sample quantities, with volume shipments set to commence before the end of August. For more information: *www.tyan.com*.

Cadence Rolls Intel Design Kits

Cadence Design Systems has announced the immediate availability of new Intel 32-bit (IA-32) and 64-bit (IA-64) architecture design kits for Cadence SPECCTRAQuest Signal Integrity (SI) software for high-speed printed-circuit board (PCB) design and analysis. The new design kits contain simulation models and design tools for future IA-32 and IA-64 server processors. Using these design kits, systems design and signal integrity engineers can create, implement, and verify their new Intel designs, using the Cadence SPECCTRAQuest technology.

The new design kits provide users of Cadence's SPECCTRAQuest SI with an integrated environment that enables developers to address future systems featuring Intel server processors' specific technology areas, including timing, signal integrity, source-synchronous bus design, simultaneous switching noise (SSN), and interconnect verification. Key features of the design kits include advanced macro model support for immediate access to new required functionality; instructional tutorials; topologies; test circuits; mock-up PCBs; and other applicable data.

SPECCTRAQuest SI is priced from $24,200 (U.S. list) for a one-year time-based license and is available worldwide on Windows NT and Unix (Solaris, IBM, HP). The design kits are provided at no extra charge for customers that have the appropriate nondisclosure agreements (NDA) with Intel and Cadence. For more information: *www.cadence.com*.

VIA Announces Chips for IEEE-1394

VIA Technologies has announced single-chip and two-chip devices that integrate the link and physical layers of the IEEE-1394 high-speed serial bus standard, which features transfer speeds of up to 400Mb/s. The VIA Fire is a single chip with plug-and-play capabilities that provides direct connectivity between the PCI and 1394 serial buses.

The VIA Fire II is a two-chip design featuring three ports for home networking and multiple PC access to a single Internet connection. Each individual port detects connected device types and automatically configures data speeds to either 100-, 200- or 400Mb/s to meet multistreaming I/O requirements. A programmable PCI power-management mode (specification 1.1) shuts down power to unconnected ports while the sleep function maximizes power efficiency of connected ports. For more information: *www.via.com.tw*.