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Motherboard marries Pentium-4 with PCI-X

By Alex Mendleson

05/17/2004 11:00 AM ET

Board maker **Supermicro** (San Jose, Calif.) has a new motherboard called the P4SCT+II that puts an Intel Pentium-4 processor on the PCI-X high-bandwidth architecture. SuperMicro's P4SCT+II's provides Internet and multimedia functions for applications ranging from gaming to graphics-intensive workstations.

Gamer's Choice

"For workstation users, the P4SCT+II has now become our Pentium-4 platform of choice," Chris Connolly wrote in a recent report in GamePC.

"As if four ports of PCI-X-connected Serial ATA/150 RAID wasn't enough, the SuperMicro board also features two more Serial ATA/150 RAID ports connected directly to the Intel Hence Rapids south-bridge controller. Since these ports are native to the south-bridge, they can run without any special drivers and are wicked fast."

The new motherboard also leverages Intel's latest E7210 chipset. It's first single-processor chipset that boasts 64-bit functions, permitting standard inexpensive Pentium-4 microprocessors to be paired with high-bandwidth PCI-X slots.



High Throughput

"Since the board is based on the 875P architecture, the P4SCT+II also benefits from Intel's CSA (Communications and Streaming Architecture)," adds Connolly. "It provides a dedicated 266-Mbyte/s pipe to the Gigabit Ethernet controller; it doesn't have to travel through the PCI bus." Connolly also describes how SuperMicro used an AGP Pro slot. It enables workstation users with high-voltage graphics cards to benefit from the platform. "The board has five PCI slots, three of them being 64-bit PCI-X slots, and two being standard 32-bit PCI slots," says Connolly.

"Both are connected to the Hence Rapids south-bridge, but the 64-bit PCI-X slots are capable of supporting four times the bandwidth of a conventional 32-bit PCI slot (533-Mbytes/s to 133-Mbytes/s)."

"The Hence Rapids PCI-X implementation isn't as high-end as the dedicated PCI-X chips on Xeon boards---but I don't think anyone will argue that adding higher-speed expansion connectivity to the Pentium 4 platform is a bad thing."

A High-Speed Controller

The Supermicro P4SCT+II also takes advantage of a new high-speed controller. "The fourth PCI-X connection is connected to a Marvell 88SX5040 Serial ATA/150 Serial ATA/150 RAID controller," notes Connolly. "It supports up to four Serial ATA/150 disks supporting RAID-0 and RAID-1."

"To our knowledge, this is the first PCI-X-connected Serial ATA/150 controller to hit the market and be implemented on a motherboard, which high-end workstation users will no doubt like." Connolly's benchmark tests of the P4SCT+II revealed that it performed well against other motherboards using Pentium-4 processors and PCI, too. "Testing the P4SCT+II on an array of storage functions, we saw very little performance differences between the various chipsets in single-disk JBOD and two-disk RAID-1 scenarios. But, we did see some impressive performance gains in a RAID-0 environment."

Connolly also ran tests using game software. "Gaming performance looks good on the SuperMicro board, again putting up numbers on par with other high-end Pentium-4 platforms. This should also translate well for 3D content creation. The E7210 AGP implementation with dual-channel DDR-400 memory interface helps the board perform well in 3D applications."

Workstation-Class Performance

"While we've seen other Pentium-4 motherboards try to cater to the workstation market," adds Connolly, "the P4SCT+II is the first P4 platform which actually gives us the feeling of a workstation-class motherboard. The board performs great in terms of raw CPU, graphics, and (especially) storage benchmarks."

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