Why use motherboards based on the Intel® 840 Chipset?

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Technology Focused on Workstations and Servers

Advanced computing tasks such as digital content creation, automated design, and high-speed networking are driving demand for purpose built workstations and servers. Designed to take advantage of the fastest Intel® Pentium® lll or Intel® Pentium® lll Xeon™ Processors, the Intel® 840 chipset enables the next generation of these systems by providing a leap in platform capabilities.

## New Features Deliver Greater Performance

Next Generation Processors: The 840 chipset supports dual Pentium lll or Pentium lll Xeon Processors using the 133 MHz system bus. A forward-looking internal chipset design assures a high performance balanced platform, even as future CPU speeds continue to accelerate.

Advanced PCI I/O: Most current desktop systems have 133 Megabytes per second (MB/s) of I/O bandwidth. With the 840 chipset, up to 800 MB/s of I/O bandwidth is available, supported by separate 32-bit and 64-bit PCI segments. The 64-bit PCI segment may be used for high speed SCSI devices, Gigabit Ethernet, or a variety of custom applications for industries such as computer aided design or video production. Intel® Accelerated Hub Architecture provides a narrow, fast, reliable interface designed to enable isochronous communication and maximize system I/O concurrency.

Improved Graphics: The AGP4X capability provides up to 1 Gigabyte per second (GB/s) of bandwidth for the next generation of 3D graphics cards. The result is advanced rendering and more realistic real-time visuals which are especially important for workstation users.

High Speed Memory: A high bandwidth memory subsystem is vital to balance the faster system bus, advanced I/O, and graphics capabilities of Intel 840 chipset-based systems. The 840 chipset has two RDRAM channels operating in lock-step to provide up to 3.2 GB/s of memory bandwidth, eliminating system memory bottlenecks.

Add Ultra ATA/66, AC97, USB, and a number of other features combined with a core architecture designed to maximize system concurrency, and the result is an Intel® platform which will meet the needs of the most demanding applications both today and tomorrow.
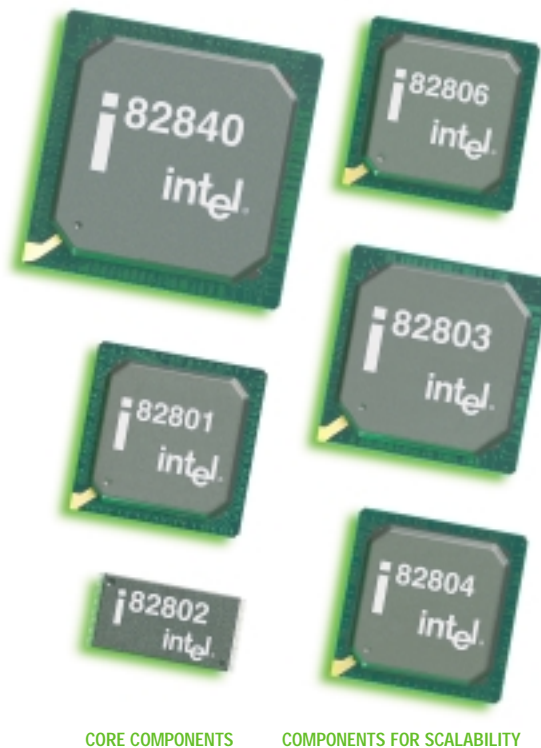
CORE COMPONENTS   COMPONENTS FOR SCALABILITY

Flexibility with Intel® Scalable Bandwidth Technology

The emergence of the connected enterprise increases the need for platform scalability without compromising system performance. The 840 chipset was designed to meet this demanding requirement, allowing a single scaleable motherboard or various motherboard configurations depending on the specific implementation of the 840 chipset.

I/O: The 840 chipset's Memory Controller Hub (MCH) may be connected to a companion chip designed specifically for the 840 chipset, the P64H. The P64H adds 64-bit/66 MHz PCI capability to the 32-bit PCI slots available with the I/O Controller Hub (ICH). Since entry-level designs may not require 64-bit PCI, the use of the P64H is optional to allow design flexibility.

Memory: Up to 2GB of RDRAM* memory is available directly off with the two channels of the MCH. For increased memory capacity and flexibility, memory repeater hubs may be used on the two memory channels. Memory Repeater Hubs are companion chips designed and optimized specifically for the 840 chipset. RDRAM based memory repeater hubs (MRH-R) may be used to increase RDRAM memory

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capacity. Alternately, SDRAM based repeater hubs (MRH-S) may be used to support PC100 SDRAM. Often, motherboard designs using memory repeater hubs allow a specially designed memory expansion card (MEC) to connect directly to the motherboard, allowing a single motherboard design to use either SDRAM or RDRAM based memory.
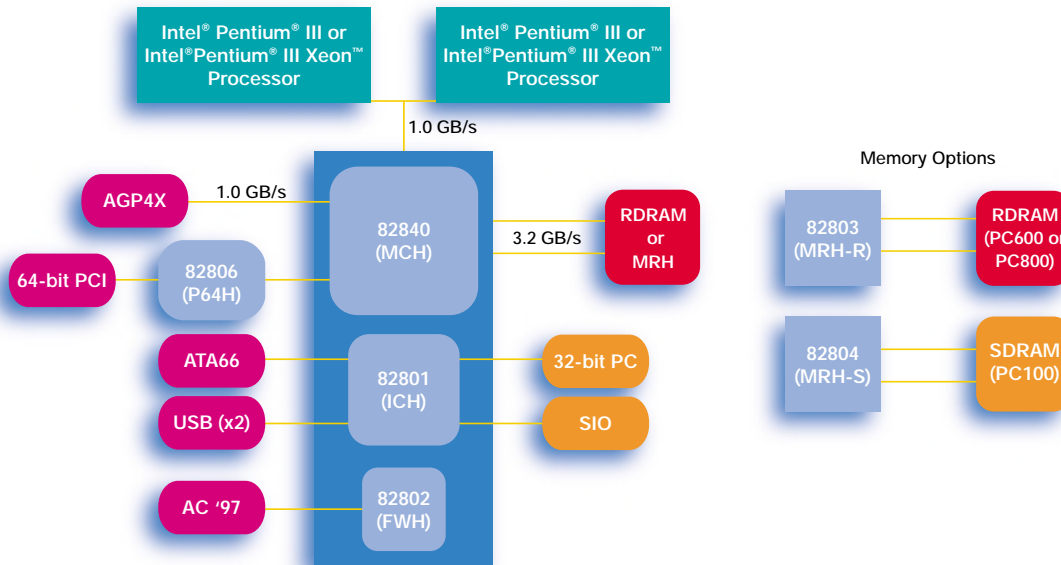
Graphics: The 840 chipset's MCH AGP interface seamlessly connects to AGP1X, AGP2X, or AGP4X devices. Furthermore, designs with the 840 chipset and AGP PRO connector can accept high performance AGP cards that require up to 110 watts of power.

Reliability, Manageability & Security

The 840 chipset incorporates enhanced system reliability features. It provides error correction on memory and the system bus. Parity checking may also be performed on interface to the P64H and the ICH. This means that data integrity is ensured on all key interfaces of the 840 chipset.

The 840 chipset, when used in conjunction with an 82559 network controller enables Alert on LAN* capability. Alert on LAN is a new feature that broadcasts an alert in the case of a software failure or system intrusion. This feature can help reduce system downtime and improve remote problem resolution for IT groups, as the alert occurs even when the OS is not present, the CPU is removed, or the system is turned off.

The 840 chipset also integrates the new Intel® Random Number Generator, providing strong data protection for Intranet/Internet use. Random Numbers are the fundamental building blocks for encryption, digital signing, and unique key generation. This means that 840 chipset-based platforms provide an added measure of security for e-commerce and Internet communications.

Intel® Pentium® III or Intel®Pentium® III Xeon™ Processor

Intel® Pentium® III or Intel®Pentium® III Xeon™ Processor

1.0 GB/s

Memory Options

AGP4X — 1.0 GB/s

82806 (P64H)

64-bit PCI

82840 (MCH) — 3.2 GB/s — RDRAM or MRH

82803 (MRH-R) — RDRAM (PC600 or PC800)

ATA66

82801 (ICH) — 32-bit PC — SIO

82804 (MRH-S) — SDRAM (PC100)

USB (x2)

AC '97

82802 (FWH)

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