

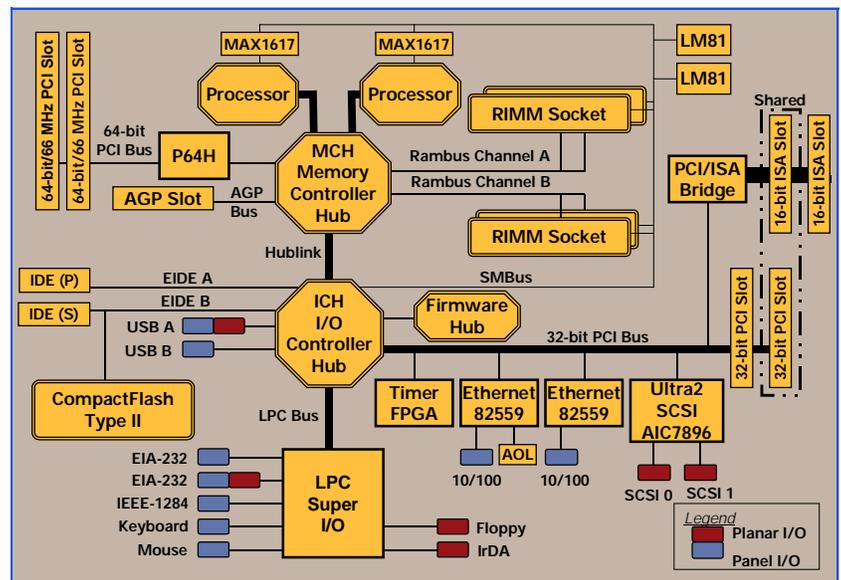


High-performance, long-life, embedded ATX motherboard

Motorola's PATX5000 combines the performance of a Pentium III processor and 840 chipset with a full-featured, long-life, embedded ATX motherboard. The PATX5000 is a dual PGA370 socket design with 133 MHz processor-side bus performance, dual Rambus memory channels with up to 400 MHz bus speeds, and support for up to 1GB of Rambus memory, both 64-bit/66 MHz and 32-bit/33 MHz PCI buses, and 4x AGP graphics.

The combination of performance and functionality allows the PATX5000 to serve demanding embedded applications, such as semiconductor manufacturing, voice over IP, high-speed data communications, medical imaging, and high-resolution color printing. Operating system support for this high-performance embedded platform includes Windows® NT, Windows 2000 and Linux.

- Single or dual Intel Pentium III processor for PGA370 socket
- Intel 840 chipset
- 100/133 MHz processor-side bus
- Up to 1GB Rambus memory
- Single or dual 10/100Mbit Ethernet interface connected to the PCI-32 bus
- Ultra ATA/66 EIDE Interface
- Dual-channel Ultra2 SCSI Interface (optional)
- Two Universal Serial Bus (USB) channels
- Two asynchronous serial ports, parallel port, PS/2 floppy port, PS/2 keyboard/mouse support, and an infrared header
- CompactFlash Type II socket
- Watchdog timer and interval timers
- One 4x/2x AGP slot, two 64-bit/66 MHz PCI slots, one 32-bit/33 MHz PCI slot, one ISA slot, and one shared PCI/ISA slot
- Hardware monitor



PATX5000 DETAILS

Intel Pentium III Processor

For high-end embedded applications, the PATX5000 fully supports the Pentium III processor. The Intel Pentium III processor is combined with the Intel 840 chipset resulting in exceptional processing capability. The Pentium III supports 100/133 MHz bus clock frequency and contains 32KB total of internal Level 1 cache memory as well as 256KB of integrated on-die Level 2 cache delivering rapid data access to complex applications. Dynamic execution, dual independent bus architecture, Intel MMX technology, and streaming SIMD extensions are additional performance advantages. For continual Pentium III processor speed enhancement options, consult your Motorola sales representative.

Memory

The PATX5000 provides four 184-pin RIMM sockets on board. Up to 1GB 300/400 MHz RDRAM memory is supported.

Legacy Support

For OEMs looking to extend previous investments in ISA cards, the PATX5000 continues to provide legacy ISA support with up to two ISA slots.

Expansion Slots

The PATX5000 provides two 64-bit/66 MHz PCI slots, one 32-bit/33 MHz PCI slot, one ISA slot, one shared PCI/ISA slot, and a 4x AGP graphics slot.

On-Board Integration

For OEMs requiring a high degree of integration in a standard ATX board, the PATX5000 offers a dual-channel Ultra2 SCSI option and single or dual 10/100Mbit Ethernet capability. This level of integration reserves the PCI and ISA slots for OEMs' proprietary or value-added functions. To meet the needs of embedded applications, the PATX5000 also provides a Type II CompactFlash socket, watchdog and interval timers, and hardware monitoring features.

On-Board I/O

The PATX5000 supports the standard motherboard I/O. On the rear panel are one or two RJ-45 connectors for Ethernet, two DB-9 serial connectors, parallel port connector, PS/2 mouse/keyboard connectors, and two USB connectors. There are headers on the board for IDE, SCSI (if populated), floppy, and IrDA.

SPECIFICATIONS

Processor

Two PGA370 sockets; supports 370-pin FC-PGA, 600+ MHz Pentium III processor

Cache

- Level 1:** 16/16KB instruction/data (Pentium III resident)
- Level 2:** 256KB L2 on-die

Memory

- Type:** ECC RDRAM
- Connectors:** Provides four 184-pin RIMM sockets on board
- Capacity:** 1GB Rambus memory using RIMMs
- Addressing:** Real and protected (36-bit) addressing supported

Intel 840 Chipset

100/133 MHz processor-side bus, includes memory controller hub (MCH), PCI-64 hub (P64H), I/O controller hub (ICH) and firmware hub (FWH).

Ultra ATA/66 EIDE Interface

- Controller:** Integrated into ICH
- Connector:** Two 40-pin headers

Ethernet Interface

- Controller:** Intel 82559 (one or two)
- Interface Speed:** 10/100Mb/s
- PCI Local Bus DMA:** PCI bus master
- Connector:** RJ-45 (one or two)

SCSI Interface

- Controller:** Adaptec AIC-7896 (dual-channel Ultra 2)
- Transfer Rate:** Up to 80Mb/s per channel
- PCI Local Bus DMA:** PCI bus master
- Connector:** HD-68 for each channel

PCI-to-ISA Bridge

Support for legacy ISA cards with one dedicated ISA slot and one shared PCI/ISA slot.

Controller: National PC87200

Connector: Two industry-standard ISA slots

RTC and CMOS RAM

MC146818B compatibility provided by the Intel I/O controller hub; 256 bytes of battery-backed RAM, EEPROM back-up for CMOS RAM via SMBus.

Advantage FPGA

Chip allows for inclusion of general-purpose timers, timestamp timers, and watchdog timers; can be customized to meet specific customer requirements.

CompactFlash Socket

Type II socket attached to the secondary EIDE interface, 3.3 V implementation; may be configured via on-board jumper as secondary master or slave.

USB

Dual independent USB channels for 1.5Mb/s and 12Mb/s transfer rates allow for easy, hot plugging of USB peripherals, such as mouse, keyboard and game controls.

Peripheral I/O Device

Controller: SMC LPC47B277

Interfaces: Two asynchronous serial ports, parallel port, PS/2 floppy port, PS/2 keyboard/mouse interfaces and an infrared header

Supervisory

Watchdog Timer: Two-level, software programmable (100 msec. to 27 min.); drives interrupt, NMI, SMI, system reset, power down, or cycle power

Two NS LM81: Board temperature (user-definable threshold alarm on selectable SMI or SCI), backplane and CPU voltages, with status interrogated via SMI or SCI

MAX1617: CPU temperature (one per processor)

BIOS Features

The PATX5000 provides the following BIOS features:

- BIOS in Flash EPROM
- Auto-configuration or extended setup with serial/parallel ports remappable
- Diskless, keyboardless, and videoless operation extensions
- BIOS POST and setup
- System and video BIOS shadowing
- Network boot using PXE (Preboot eXecution Environment)
- CMOS backup to Flash (allows operation without battery)

Integrated Super I/O Interfaces

Floppy: 34-pin header

Keyboard Port: 6-pin mini DIN, panel I/O

Mouse Port: 6-pin mini DIN, panel I/O

Serial Ports: 9-pin D-sub, panel I/O

Parallel Port: 25-pin D-sub, panel I/O

Power Requirements

(typical board requirements not including memory or processor)

+5 V: 1.34 A typ., 1.8 A max.

+3.3 V: 3.2 A typ., 4.5 A max.

+12 V: 0.07 A typ., 0.1 A max.

Demonstrated MTBF

(based on a sample of eight boards in an accelerated stress environment)

Mean: 190,509 hours

95% Confidence: 107,681 hours

Environmental

	Operating	Storage/Transit
Temperature:	0° C to +45° C	-40° C to +85° C
Humidity (NC):	5% to 90% @ 40° C	5% to 95% @ 40° C
Vibration:	0.5 G RMS, 20–2000 Hz random	6 Gs RMS, 20–2000 Hz random

Electromagnetic Compatibility (EMC)

Intended for use in systems meeting the following regulations:

U.S.: FCC Part 15, Subpart B, Class A or B

Canada: ICES-003, Class A or B

This product was tested in a representative system to the following standards:

CE Mark per European EMC Directive 89/336/EEC with Amendments; Emissions: EN55022 Class B; Immunity: EN55024

Safety

All printed wiring boards (PWBs) are manufactured with a flammability rating of 94V-0 or better.

ORDERING INFORMATION

PATX5000 ATX Motherboard Single-Board Computer

All models of the PATX5000 include socket 370 and 840 chipset technology. On-board features include: four RIMM sockets, BIOS Flash, single 10/100Mbit Ethernet, AGP slot, dual USB, interval and watchdog timers, two 64-bit/66 MHz PCI slots, one 32-bit/33 MHz PCI slot, one ISA slot, one shared PCI/ISA slot, CompactFlash socket, and EIDE with ATA/66 support. CPUs and memory must be ordered separately.

Part Number	Description
PATX5000-101	Single Ethernet, no SCSI
PATX5000-102	Dual-channel Ultra2 SCSI and a single Ethernet
PATX5000-103	Dual-channel Ultra2 SCSI and dual Ethernet
Processor Options	
IA-CPU-700-01-F/K	700 MHz Intel Pentium III processor, 100 MHz processor-side bus, w/ active heatsink
IA-CPU-733-01-F/K	733 MHz Intel Pentium III processor, 133 MHz processor-side bus, w/ active heatsink
IA-CPU-850-01-F/K	850 MHz Intel Pentium III processor, 133 MHz processor-side bus, w/ active heatsink
IA-CPU-866-01-F/K	866 MHz Intel Pentium III processor, 100 MHz processor-side bus, w/ active heatsink
IA-CPU-TERM-01-F/K	CPU terminator (required in single CPU configuration)
I/O Shield Options	
ATXIO-101-K	One Ethernet interface I/O shield
ATXIO-102-K	Two Ethernet interfaces I/O shield
ECC Rambus Memory Options	
Rambus architecture requires that all RIMM sockets be populated. For part numbers with only two RIMMs, CRIMMs (continuity RIMMs) are included to occupy vacant RIMM sockets.	
288MB RIMMs (256MB with ECC)	
RIMM256-03-F	Two PC800 RIMMs and two CRIMMs
RIMM256-04-F	Four PC800 RIMMs
Documentation	
PATX5A/IH1	Installation and Use Manual
PATX5A/PG1	Programmer's Reference Guide
Documentation is available for online viewing and ordering at http://www.motorola.com/computer/literature	

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