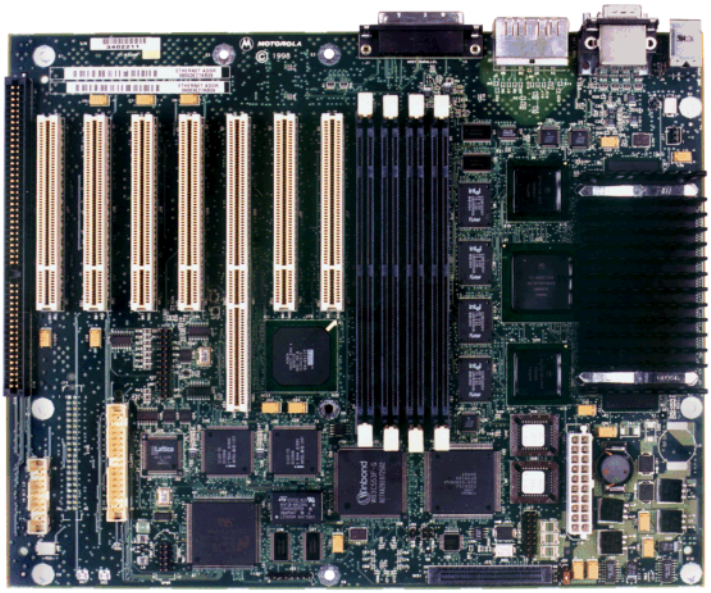
intelligence everywhere™

MTX Plus Series

7-PCI-Slot ATX Motherboards



- Single or dual PowerPC 604e processors, 333 MHz or 400 MHz
- 512KB L2 cache
- Four 168-pin gold-plated DIMM sockets for up to 1GB of DRAM
- One 64-bit PCI slot, five 32-bit PCI slots, and one shared 32-bit PCI/16-bit ISA slot
- 8MB Flash for user storage
- 1MB Flash memory, socketed as two 32-pin PLCCs, for firmware storage
- 8KB NVRAM and real-time clock (RTC) with replaceable battery, and watchdog timer
- Four 32-bit interval timers
- SCSI-3 fast/wide/ultra interface
- Dual 10/100Mb/s Ethernet interface, automatic carrier speed detection, and 10/100BaseT connectors
- PS/2 keyboard and mouse ports, and floppy disk interface
- Two serial ports and one parallel port

High-end processing solution for industry-leading embedded operating environments

MTX combines the industry-standard ATX form factor with the performance of PowerPlus Architecture.

MTX targets communications, industrial automation, and electronic imaging applications with an exciting combination of processor power and connectivity. MTX Plus motherboards include dual 10/100Mb/s Ethernet, fast wide SCSI, and an increased PCI slot count for greater variety in expansion. MTX is supported with industry-leading embedded operating environments to help get OEM applications to market quickly. Plus, Motorola's OEM support policies for MTX help maintain those applications for years into the future. All these combine to make MTX the right choice for high-end embedded processing, and Motorola the right partner for the long term.

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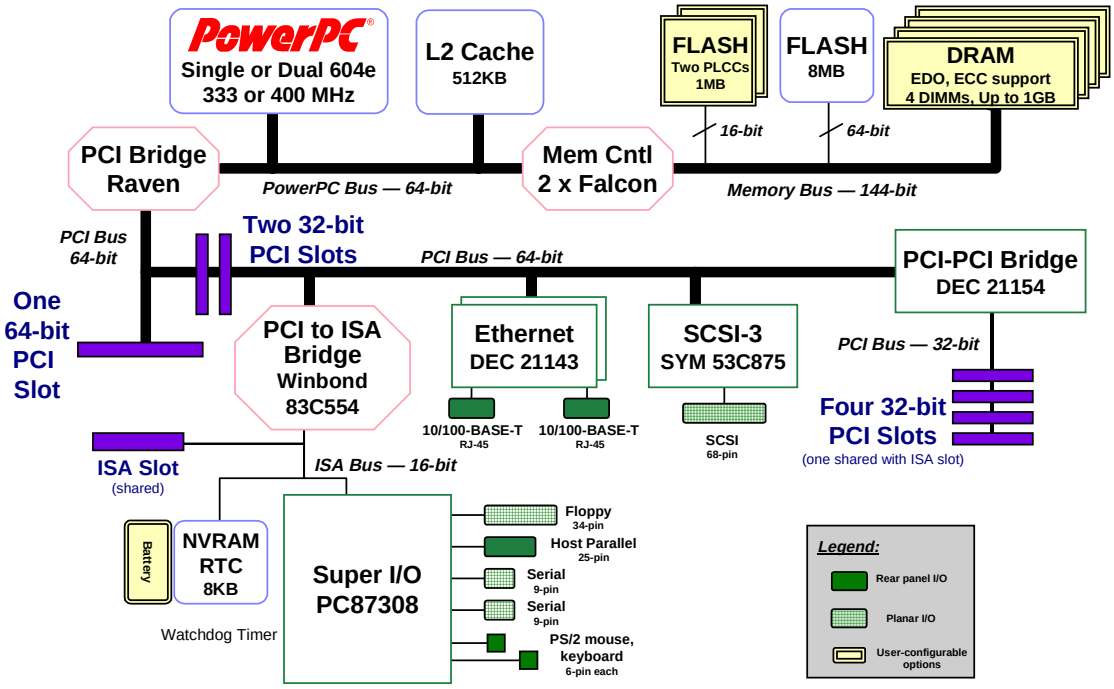

MTX Plus Details

PowerPlus Architecture

MTX PowerPlus Architecture includes:

- PowerPC processors
- 512KB look-aside L2 cache
- Four DIMM sockets, 8MB to 1GB of DRAM, 144-bit data width (two DIMMs minimum)
- 1MB of boot Flash
- 8MB Flash for user storage
- 8KB NVRAM/RTC, watchdog timer function

PCI Interface

MTX provides a 64-bit, 33 MHz PCI bus.

This MTX motherboard is fully ATX compatible and configured with one 64-bit PCI slot and two 32-bit PCI slots on the primary bus and four additional 32-bit PCI slots on the secondary bus. Consult your Motorola representative about additional requirements.

On-Board PCI Peripherals

PCI peripherals available include:

- Two 10/100Mb/s Ethernet controllers (DEC™ 21143)
- SCSI-3 fast/wide/ultra (Symbios Logic™ 53C875)

Super I/O Functions

The National 87308 provides a highly integrated set of functions: two asynchronous serial ports, IEEE-1284 host parallel port, floppy port, and keyboard and mouse ports.

Software Support

Firmware—providing basics of device initialization, diagnostics, disk boot, and network boot—is provided in Flash with each board.

MTX Plus motherboards are supported by the popular AIX® operating system, available directly from Motorola and supported by Motorola.

Warranty

MTX carries a five-year warranty.

Specifications

Processor

Microprocessor:	MPC604e	MPC604e
Clock Frequency:	333 MHz	400 MHz
On-chip Cache (I/D):	32K/32K	32K/326K
SPECint95, estimated (60ns EDO):	13.7	14.9

Memory and Bus Interfaces

DRAM: Four 168-pin gold-plated DIMM sockets, 3.3VDC, unbuffered, x64 or x72 ECC devices, EDO or fast page mode, 70ns access or faster

Capacity: 8MB to 1GB; DIMMs must be installed in pairs

Single Cycle: 8 read, 4 write (50ns EDO)

Read Burst Mode: 8-1-1-1 (50ns EDO)

Write Burst Mode: 4-1-1-1 (50ns EDO)

Firmware Storage: Flash, 1MB, two 32-pin PLCC sockets

User-Defined Storage: Flash, 8MB surface mount

L2 Cache: Look-aside, 512KB, 2-1-1-1 access

NVRAM/RTC: 8KB; contained in MK48T559

PCI Local Bus: 64-bit, 33 MHz, 5V signaling; PCI 2.1 compliant (except for host bridge target latency and AD32–63 V-I characteristic) One 64-bit PCI slot and six 32-bit PCI slots (one shared with ISA slot)

ISA Local Bus: 16-bit; one ISA slot (shared)

Super I/O Interfaces

Controller: National Semiconductor® 87308

Asynchronous Serial Interface: Two ports, EIA-232 DTE

Maximum Baud Rate: 38.4Kbps EIA-232, 115Kbps raw

Connectors: 9-pin

Parallel Interface: One port, IEEE-1284 host

Compatibility: Centronics, EPP, ECP

Connector: 25-pin IEEE-1284 “A”

Floppy Interface: DP8473, 765A, N82077 compatible

Devices: 3.5 in., 1.44MB and 2.88MB; 5.25 in., 1.2MB

Connector: 34-pin header on planar surface

Keyboard and Mouse Interface: One port each

Connectors: PS/2 style, 6-pin mini-DIN socket

10/100Mb/s Ethernet Interface

Controllers: Two DEC 21143, with automatic carrier speed detection

PCI Local Bus DMA: Yes, with PCI burst

Connectors: RJ-45 for 10/100BaseT

SCSI-3 Fast/Wide/Ultra Interface

Controller: Symbios Logic 53C875

PCI Local Bus DMA: Yes, with PCI burst

Connector: 68-pin D connector on planar surface

Counters/Timers

TOD Clock Device: MK48T559

Real-Time Timers/ Counters: Four 32-bit in PCI bridge; watchdog in MK48T559

Power Requirements (motherboard only)

Processors:	Dual 333 MHz	Dual 400 MHz	Single 400 MHz
Total Consumption:	45 watts	50 watts	35 watts
+5V ± 5%	7 A typ. 9 A max.	7.7 A typ. 10 A max.	5.5 A typ. 7 A max.

–5V ± 5% Not required by on-board components; available for ISA

+12V ± 10% Not required by on-board components; available for PCI

–12V ± 10% Not required by on-board components; available for PCI

Board Size (ATX Specification)

Width: 304.8 mm (12.0 in.)

Length: 243.84 mm (9.6 in.)

Height: 31.75 mm (1.5 in.), excluding PCI card

Demonstrated MTBF

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

Mean: 190,509

95% Confidence: 107,681

Environmental

	Operating	**Nonoperating**
Temperature:	0° C to +55° C, forced air cooling	–40° C to +85° C
Altitude:	5,000 m	15,000 m
Humidity (NC):	10% to 80%	10% to 90%
Vibration:	1 G RMS, 20–2000 Hz random	2 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 by UL recognized manufacturers.

Ordering Information

Part Number	Description
MTX Plus Series 7-PCI-slot ATX motherboards include 512KB L2 cache, one 64-bit PCI slot, five 32-bit PCI slots, and one shared 32-bit PCI/16-bit ISA slot, 8KB NVRAM, dual Ethernet, Super I/O, and 8MB Flash; and are available with the following processor options:	
MTX604-070	Twin 333 MHz MPC604e
MTX604-071	Twin 400 MHz MPC604e
MTX604-072	Single 400 MHz MPC604e
Documentation	
MTXPCIA/IH1	Installation manual for MTX604 models -07*x*
MTXPCIA/PG1	MTX Plus Programmer's Reference Guide
Documentation is available for on-line viewing and ordering at http://www.motorola.com/computer/literature.	

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