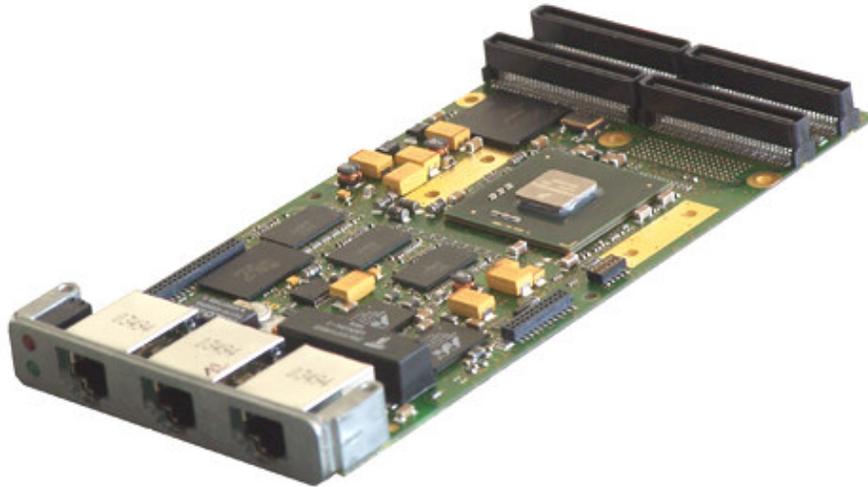


Model 8756 and 8757

PowerQUICC III PrPMC/XMC with dual Gigabit Ethernet and USB 2.0



The Model 8756 / 8757 are PrPMC/XMC mezzanine cards based on the Freescale Power QUICC III—MPC85xx. They are designed to provide the highest level of performance and integration available today. The PowerQUICC III is a high-performance embedded e500 core. They implement the enhanced Book E instruction set architecture and provides unprecedented levels of hardware and software debugging support. Both models can be used in conjunction with CompactPCI, VME carriers or proprietary designs. Both models feature:

- Processors with high performance and I/O throughput
- Gigabit Ethernet interfaces for high performance network connectivity or redundancy with failsafe links
- Powerful control element for network routers and switches, storage subsystems, network appliances, and print and imaging devices.

Description

Two versions of this board are available.

The 8756 is powered by an 833MHz MPC8541E and the 8757 is powered by the 533MHz MPC8555E processor. This e500 core is a 2-way super-scalar and 7-stage pipeline design with out-of-order issue and execution. The core implements three integer units : two simple (1-cycle Ops) and one complex for integer multiply, divide. A 64-bit signal processing unit with 64-bit GPRs completes the embedded processor. The core also integrates 2 * 32KB L1 caches and a 256KB L2 cache.

Both integrate two 10/100/1G and one 10/100 Ethernet controllers, a 64-bit PCI-PCI-X controller, a DDR memory controller, a 4-channel DMA, a multi-channel interrupt controller and a RapidIO controller. The revolutionary on-chip 128 Gb/s non-blocking crossbar switch fabric allows full duplex and independent connections between these sub-systems and the e500 core.

The 8757, based on the MPC8555E provides a Communication Processor Module (CPM) with an additional RISC processor. The main added functions are: 1 Fast Ethernet controllers and 3 multi-purpose serial controllers. One USB 2.0 controller is also provided on the 8757. These I/O are available on the Pn4 rear I/O without transceivers. The 8756 provides only the additional fast Ethernet controller.

A security engine is also available to perform single pass encryption and authentication as required by security protocols.

Both can be used in several PMC or PrPMC configurations in compliance with PCI 2.2 32/64-bit 33/66Mhz or PCI-X 64-bit 133Mhz.

Features

Processor Unit

- e500 core running 533 or 833 MHz with :
- L1 caches : 32KB Inst. and 32KB Data with parity
- 256 KB of L2 integrated cache or private SRAM
- MMU and FPU-SP capabilities
- DMA-channel controllers
- 128 or 256MB SDRAM-DDR266
- 16-64 MB soldered Flash
- 32KB SPI EEPROM
- 2KB I2C EPROM
- PPC Real Time clock and four 32 bit-timers
- Calendar clock with lithium cell or supercap backup.
- An integrated security engine that supports DES, 3DES, MD-5, SHA-1, AES, ARC4 and other encryption algorithms
- A USB 2.0 Full / low speed host or device (8757 only)

I/O subsystem

- Two Ethernet 10/100/1000TX ports with L2 acceleration and support for Jumbo frames
- One 10/100TX Ethernet port and 1 without transceiver
- Ethernet ports are routed to front RJ45 or Pn4
- Temperature sensor
- Optionally on the 8757: a Communication Processor Module (independent 333MHZ RISC processor) providing :
 - 2 additional Enhanced Multi-protocol channels (Fast Ethernet,ATM, TDM with 256 HDLC)
 - 3 Async/Synchronous serial controllers

Accessories

- Engineering kit for debugging : JTAG/COP and RS232 console
- Add-on Adapter to plug an extension compliant with CompactFlash Type I and II (5mm thick) cards
- Dual PMC/XMC VME64 carrier with VME2eSST capabilities (ACT Model 5000)

On-board firmware

Boot

This module is called by the reset vector when the board is powered up. It initializes the PowerQUICCIII, the memory controller, performs the power on self tests, and the Bios before using the PCI bridge and loading the application.

Bios

This module allows the user to access the specific hardware resources via an easy-to-use API. A set of about 60 library functions are provided.

Tools

Tools is a firmware monitor which allows loading files from Ethernet via Bootp, running files in RAM or flashing them. In addition it allows for the display or modification of RAM data and enables the user to perform maintenance tests.

BSP basic

The BSP products are based on the standard distribution of the OS editor. They enable the user to set hardware initialization, interrupt handling and generation, hardware clock and timer services, memory management, PCI management, mapping of memory spaces, serial ports, MAC driver for Gigabit and Fast Ethernet ports. For the MPC8560, the advanced CPM functions require specific protocol drivers. ACT/Technico provides BSP for VxWorks® and Linux® operating systems. Other RTOS (LynxOS, Integrity...) can be ported on request.

Board specifications

Environmental

Both models in standard and extended grade

Physical dimensions

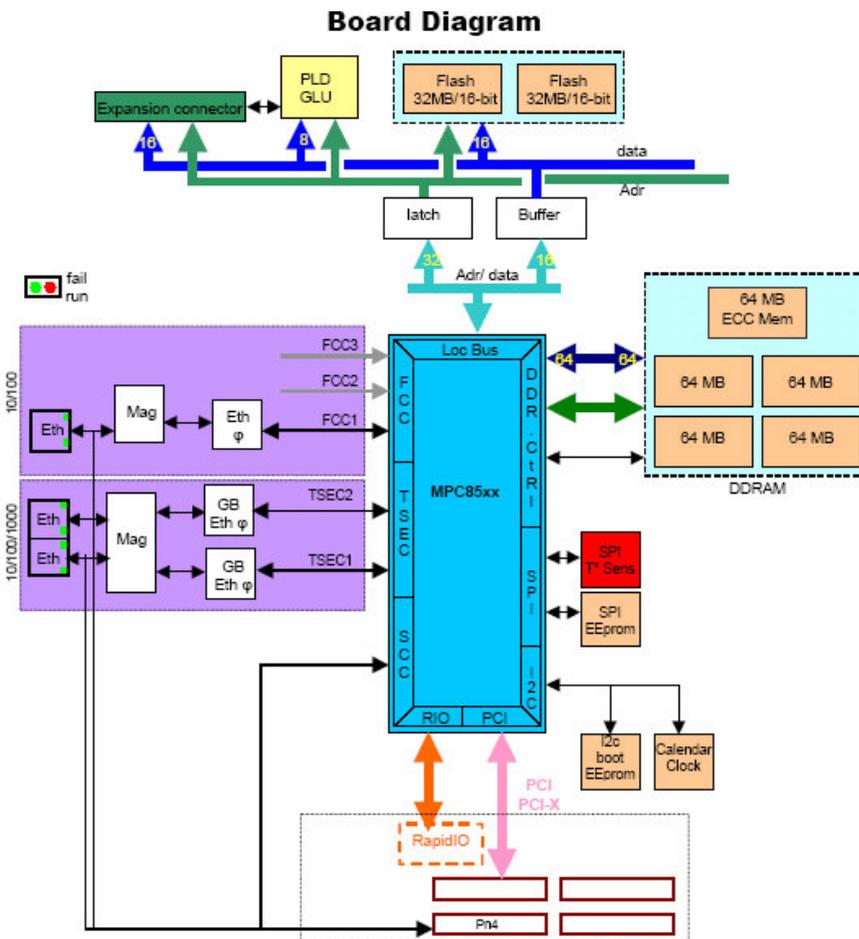
PMC Module single width, IEEE P1386 compliant (150 mm * 75 mm)

Power requirements

Typically 12W on 3.3VDC

EM compatibility

EMC/EMI : 89/336/ECC, EN55022 CIE, EN50082-2



Order Information

All Extended Grade, Rugged Grade and Conduction Cooled boards below are conformal coated
 S= standard grade (0-+55C), X= ext grade (-20-+65C), R = rugged grade (-40 - +75C), cc = cond cooled
 (-40 - +75C)

Model Number	Description	Grade
8756-S	PowerQUICC III-8541E@833MHz - 256MB DDR/ECC - 64MB Flash - T° monitoring 2*1000BT(FP) - 1*10/100TX (FP) RTC_SuperCap - 128KB SRAM Compact Flash expansion bus PPMC (monarch-non monarch) PCI 32bits 33/66MHz	Standard
8756-X	PowerQUICC III-8541E@833MHz - 256MB DDR/ECC - 64MB Flash - T° monitoring 2*1000BT(FP) - 1*10/100TX (FP) RTC_SuperCap - 128KB SRAM Compact Flash expansion bus PPMC (monarch-non monarch) PCI 32bits 33/66MHz	Extended
8757-S	PowerQUICC III-8555E@533MHz - 128MB DDR/ECC - 32MB Flash - T° monitoring 2*1000BT(FP) - 1*10/100TX (FP) - 1*USB2.0 full/low-speed (Pn4) RTC_SuperCap - 128KB SRAM Compact Flash expansion bus PPMC (monarch-non monarch) PCI 32bits 33/66MHz	Standard
8757-X	PowerQUICC III-8555E@533MHz - 128MB DDR/ECC - 32MB Flash - T° monitoring 2*1000BT(FP) - 1*10/100TX (FP) - 1*USB2.0 full/low-speed (Pn4) RTC_SuperCap - 128KB SRAM Compact Flash expansion bus PPMC (monarch-non monarch) PCI 32bits 33/66MHz	Extended
8756 Eng Kit	Engineering kit + Console cable User's + Manual (Hw & Sw)	
8756 Fan / Vent Kit	IC-PQ3-PMCx fan heatsink kit for stand-alone application or evaluation platform see "Accessories"	

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