

IC-PQ2p-PMCa PowerQUICC II pro PrPMC

IC-PQ2p-PMCa is a PrPMC mezzanine card, based on the Motorola Power QUICC IIpro—MPC8349E. It is designed to provide the highest level of performance with a low-power consumption.

The PowerQUICC IIpro is a high-performance embedded e300 core. It is an enhanced 603e (G2) PowerPC core. The e300 core is completely software-compatible with existing 603e core-based product.

IC-PQ2p-PMCa can be used in conjunction with Compact PCI, VME carriers or proprietary design. Many highly integrated applications can be used on-board :

- Processor with high performance and I/O throughput
- Gigabit Ethernet interfaces for high performance network connectivity or redundancy with failsafe links.
- Line cards.
- Industrial control, etc.



Description

IC-PQ2p-PMCa is powered by a MPC8349E, being part of the PowerQUICCII processor family. It integrates a double-precision floating point unit. This e300 is a 32-bit superscalar core that provides 1260 MIPS at 667MHz. It also integrates 2 * 32KB L1 caches.

IC-PQ2p-PMCa integrates a 32/64-bit PCI controller, a DDR-ECC memory controller, a 4-channel DMA, a multi-channel interrupt controller.

IC-PQ2p-PMCa integrates two 10/100/1000 Ethernet controllers. The two auto-sensing ports can run as well with a 10/100BT (half or full-duplex) or a 1000BT network. These channels supports jumbo frame. The transceivers implement an on-line virtual cable tester. These ports are available on RJ45 front connector or rear Pn4 PMC connector.

An embedded **security** engine is also available for instance to perform single-pass encryption and authentication as required by security protocols such as Ipsec.

IC-PQ2p-PMCa provides two USB2.0 channels. The controllers supports Hi-speed (480Mbps), full-speed (12Mbps) and loaw-speed (1.5Mbps) operation. They can run as device or host. These ports are available on USB front connector or rear Pn4 PMC connector.

IC-PQ2p-PMCa can be used in several PMC or PrPMC configurations in compliance with PCI 2.2 32/64-bits at 33/66MHz.

Main features

Processor Unit

- ▶ e300 core running at 667 MHz with :
 - L1 caches : 32KB Inst. and 32KB Data with parity.
 - MMU and FPU-DP capabilities.
 - DMA-channel controllers.
- ▶ 128 or 256MB SDRAM-DDR333 with ECC.
- ▶ 32 or 64 MB soldered Flash.
- ▶ 32KB SPI EEPROM.
- ▶ PPC Real Time clock and four 32 bit-timers.
- ▶ Calendar clock with lithium cell or supercap backup.

This processor provides an integrated security engine that supports DES, 3DES, MD-5, SHA-1, AES, ARC4, etc. encryption algorithms.

I/O subsystem

- ▶ Two Ethernet 10/100/1000TX ports with L2 acceleration and support for Jumbo frames.
- ▶ Temperature sensor
- ▶ One Asynchronous RS232 serial port.
- ▶ One Asynchronous TTL serial port (rear Pn4).
- ▶ General-purpose I/O on the rear Pn4.
- ▶ Extension bus for Compact flash socket.

Accessories

- ▶ Engineering kit for debug : JTAG/COP and RS232 console.
- ▶ Add-on Adapter to plug an extension compliant with Compact Flash Type II (5mm thick) cards.
- ▶ Dual PMC VME64 carrier with VME2eSST capabilities : IC-PMC-VMEa.

IC-PQ2p-PMCa

PowerQUICC IIpro PrPMC

On-board firmware

Our software takes in charge that Motorola's new MPC8349E is the legacy of the PowerQUICC architecture. IC's on-board firmware is a comprehensive set of software stored in flash memory including:

IC_Boot

This module is called by the reset vector when the board is powered up. It initializes the PowerQUICCIIp, the memory controller, performs the Power on self tests, the module IC_Bios, before using the PCI bridge and jumping in different applications according to the values stored in memory.

IC_Bios

This module allows the user to access the specific IC-PQ2p-PMCa hardware resources via an easy-to-use API. A set of about 60 functions are provided.

IC_Tools

It is a firmware monitor which allows loading files from Ethernet via Bootp, running files in RAM or flashing them. In addition it permits to display or modify the RAM data. To end with, it enables the user to perform maintenance tests.

IC-BSP basic

These BSPs products are based on the standard distribution of the OS editor. They take in charge 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 MPC8349E, the advanced CPM functionalities require specific protocol drivers.

U_Boot

This standard monitor, Linux-oriented, can be provided on request.

Board specifications

Physical dimensions

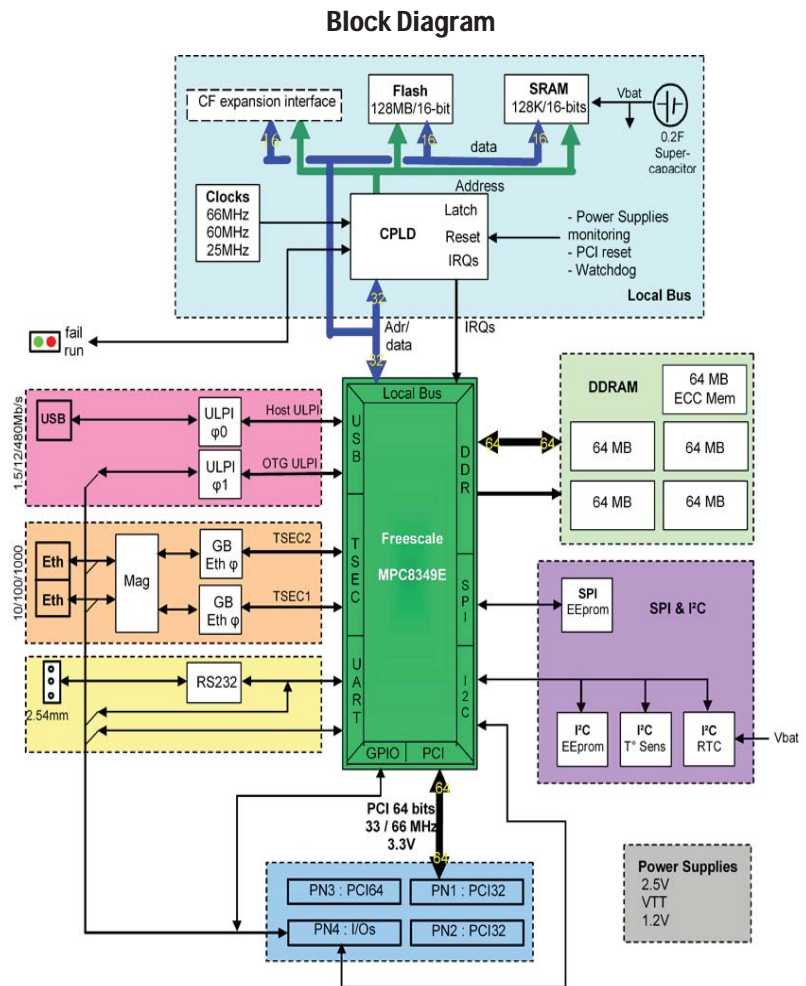
PMC Module single width, IEEE P1386 compliant (150 mm * 75 mm).

Power requirements

Typically 7W on 3.3VDC.

EM compatibility

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



Environment Specifications:

Please refer to information below.

Ordering Information:

Please consult the **IC-PQ2p-PMCa datasheet** at www.interfaceconcept.com (listing all products reference and environment grades availability).

This document supersedes any earlier documentation relating to the products referred to herein. The information contained in this document is current at the date of publication. It may subsequently be updated or withdrawn without notice.

