

Features

- Intel Core i7 2nd generation 2 cores (2.2 GHz and 1.5 GHz) / 4 cores (2.1 GHz)
- DDR3 SDRAM 1333 MHz with ECC, up to 8, GB, dual channel, soldered
- XMC/PMC expansion modules support (x8 PCI_E GEN2 + 64_bit / 133 MHz PCI_X)
- 4xGigabit Ethernet controllers (two ports switchable between P16 XMC connector and backplane, two ports available at the front panel)
- 10xUSB 2.0 ports with HS, FS and LS support (four on front panel, four via RIO, two on P16 XMC)
- 4xSATA II ports (one for 1.8" HDD, one at P16 XMC, two via RIO)
- 2xDisplayport interfaces (one on front panel, one via RIO)
- 1xDVI_I on front panel
- 1xDVI_D via RIO
- HD Audio via RIO and P16 XMC
- LPC via RIO, P16 socket
- -40...+85°C/ 0...+70°C
- Windows XP Embedded, Linux 2.6, QNX 4.25, 6.4
- MTBF 100 000

Overview

CPC503 6U CompactPCI CPU module is an embedded computer on x86 platform for use in server or client systems for a wide range of applications. CPC503 is based on 2nd-nd generation Intel Core i7 (2/4 cores) processors operating at frequencies from 1.5 to 2.2 GHz and on QM67 Peripheral Controller Hub.

Up to 8 GB of DDR3 SDRAM memory with ECC operating at 1333 MHz is soldered onboard the CPC503.

CPC503 graphics capabilities include VGA, Displayport, DVI, and LVDS interfaces. Four Gigabit Ethernet ports are used for networking.

Interface set of CPC503 also includes 12 USB 2.0 ports, four SATA channels, audio interface and standard J1-J5 CompactPCI connectors at the rear edge of the board. Fastwel CPC503 supports one XMC/PMC expansion module mounted onboard and specially designed Fastwel RIO587 rear I/O module. CPC503 provides one 64-bit 66 MHz CompactPCI interface with hot swap capability. The module interfaces with CompactPCI bus via the built-in PCI-E <-> PCI bridge, this allows using CPC503 either as master system controller or as a slave device in one PCI bus segment.

One of the features of CPC503 is support for PICMG CompactPCI Packet Switching Backplane Specification version 2.16. Being installed on a backplane supporting the packet switching mode, CPC503 can communicate with peripheral devices or with the system master board supporting this mode via two Gigabit Ethernet ports.

The components of CPC503 are carefully selected according to the criteria of applicability in embedded systems and long-term availability on the market. This makes this module an ideal device, based on which the systems with long life cycle can be built.

CPC503 is compatible with Windows 7, QNX 6.5.0, VxWorks 6.8 (on request), and Linux® 2.6 operating systems.

Technical Specifications

System

- CPU:
 - Core i7-2715QE, 2.1 GHz, 6 MB L4 Cache,
 - Core i7-2655LE, 2.2 GHz LV, 4 MB L2 Cache
 - Core i7-2610UE, 1.5 GHz ULV, 4 MB L2 Cache
- Chipset: PCH QM67 (includes standard peripherals of IBM PC AT platform)
- DDR3 SDRAM 1333 MHz with ECC, up to 8 GB, dual channel, soldered
- FRAM: 256 Kbit, RAM 256 B for BIOS Setup parameters storage; realized on SPI bus
- Watchdog Timer: integrated programmable watchdog timer
- MTBF: not less than 100 000 hours (TBA)

Flash BIOS

- 16 Mbit SPI-Flash

Graphics

- DVI-I interface (VGA, 2048×1536 @75 Hz), DVI-D (1920×1200 @60 Hz) on front panel
- DisplayPort interface (up to 2560×1600 @60 Hz) on front panel
- DisplayPort interface (up to 2560×1600 @60 Hz) via Rear I/O module
- Simultaneous operation of two interfaces

Storage

- NAND Flash-Disk: Integrated 4-channel NAND controller, up to 100 MB/sec, connected to SATA6 interface
- Serial ATA:
 - One channel available at P16 XMC connector
 - One channel is used for connection of onboard 1.8" HDD
 - Two channels available via Rear I/O module

Software support

- Linux 2.6
- QNX 4.25, 6.4
- VxWorks 6.8

Interfaces

- PCI Bus:
 - Routed to Compact PCI J1/J2 connectors
 - 64-bit/ 66 MHz
 - PI7C9X130 PCI-E-to-PCI-X bridge
 - HotSwap support
 - Non-system slot operation (Non-Transparent Bridge mode)
- LPC Bus:
 - available via P16 XMC connector
 - available at Rear I/O module
- PCI Express:
 - PCI-E 2.0 support (up to 5 GT/s)
 - Routed to P15 XMC connector, up to x8 devices
 - Routed to CPCI J3/P3 connector, up to x4 devices
 - XMC conforms to ANSI/VITA 42.3 specification
- SMBus:
 - Conforms to SMBus 2.0 specification
 - Speed up to 100 Kbit/sec
- SPI Interface: FRAM support, up to 25 MHz
- Ethernet: via PCI Express x4 Gen2 interface. Four 10/100/1000 ports: two ports switchable between P16 XMC connector and Rear IO, two ports available at the front panel. PICMG 2.16 support. Server network controller
- Real-time clock (RTC): CR2032 3V lithium battery backup
- LED Indicators: two user programmable LEDs – startup status/Hot swap indicator, SATA activity
- Hardware Monitor:
 - Realized via PECE/SMBus interfaces
 - Three power voltages monitoring
 - CPU and PCB temperatures monitoring
- Audio: HD Audio interface available via P16 XMC connector and Rear I/O

XMC/PMC Expansion Modules Support

- One XMC/PMC module can be installed onboard
- PCI-X 64-bit/133 MHz bus routed to P1-P4 PMC connectors (ANSI/VITA 39, PCI-X on PMC)
- PMC I/O P4 routed to Rear IO (PICMG 2.0)
- PCI-E x8 Gen2 bus routed to P15 XMC connector (ANSI/VITA 42.3, XMC PCI Express Protocol Standard)
- Additional interfaces (one SATA, two USB, LPC, HD-Audio, two Gb Ethernet) routed to P16 XMC connector

Mechanical

- Dimensions: 212.5×266.05 mm (8.37"×10.47")
- Weight: 0.720 kg

Power

+5 V 8 A; +12 V 1 A; -12 V 1 A; +3.3 V 10 A

Environmental conditions

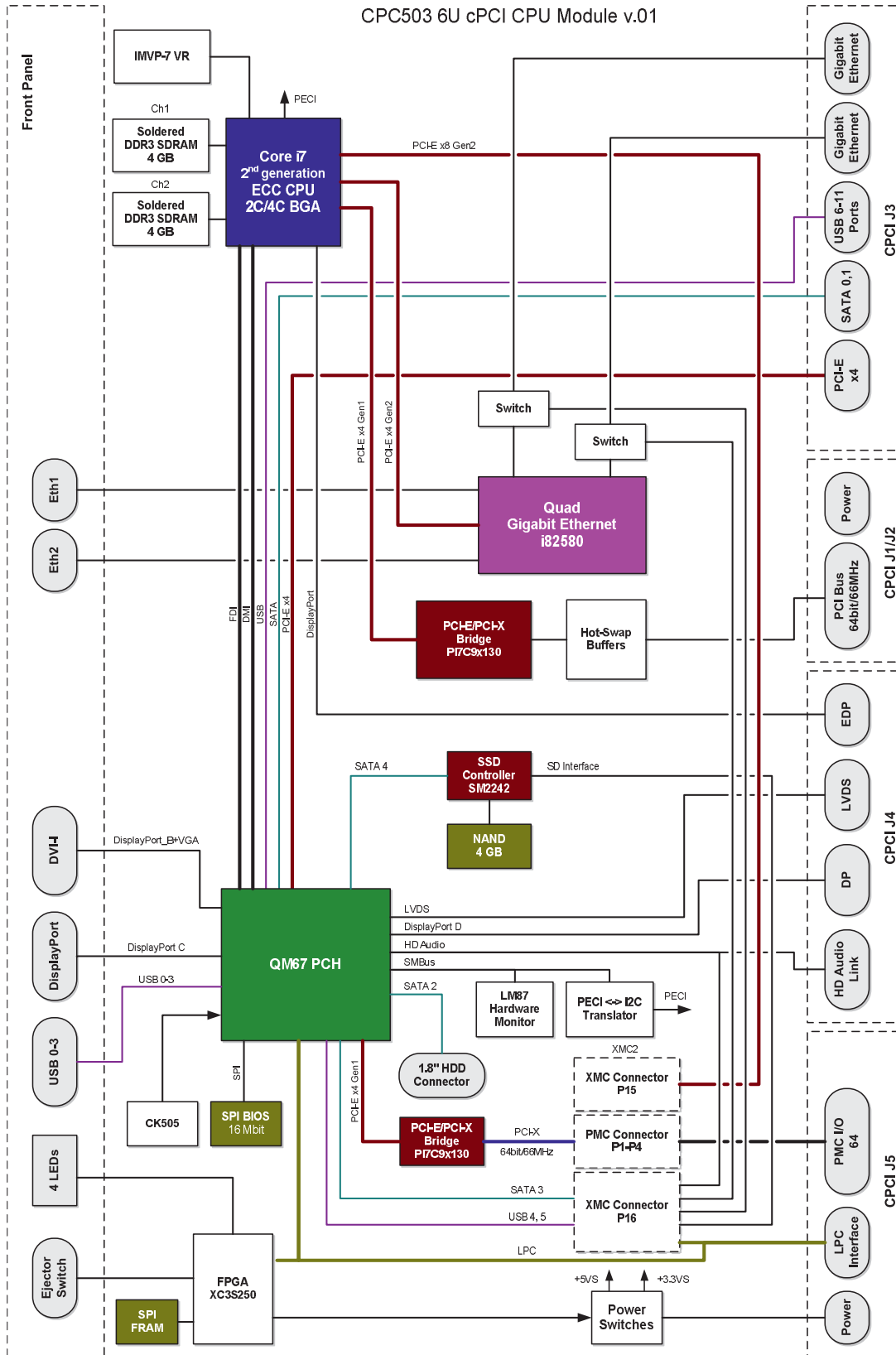
- Operating temperature:
 - 0°C to +70°C – commercial
 - 40°C to +85°C – industrial
- Shock/vibration: 50g/5g

Warranty

- 3 years for parts and labor



Board Layout



Applications



Aerospace



Transportation



Process Control



Communications

Ordering Information

CPC503 Configuration

CPC503 _ 01 _ i72C1.5 _ RAM4G _ R1 _ I \Options

Device Type

CPC503 6U CompactPCI Intel Core i7 SBC Processor

Processor

i72C1.5 Core i7-2610UE, 2C, 1.5 Ghz, 17W, ULV
 i72C2.2 Core i7-2655LE, 2C, 2.2 Ghz, 25W, LV
 i74C2.1 Core i7-2715QE, 4C, 2.1Ghz , 45W, SV

Soldered Memory

RAM4G 4GB
 RAM8G 8GB

Temperature Range

I Industrial Range, -40...+85°C
 C Commercial Range, 0...+70°C

Options

\protective coating

Example

CPC503 - 1 - i72C1.5 - RAM4G - R1 - \Coated
 6U CompactPCI Intel Core i7-2610UE,
 1.5 GHz,
 4 GB RAM,
 8 HP Heat sink,
 Industrial range,
 -40...+85C,
 protective coating

*please, consult manufactures on available configurations

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Product specifications are subject to change without notice