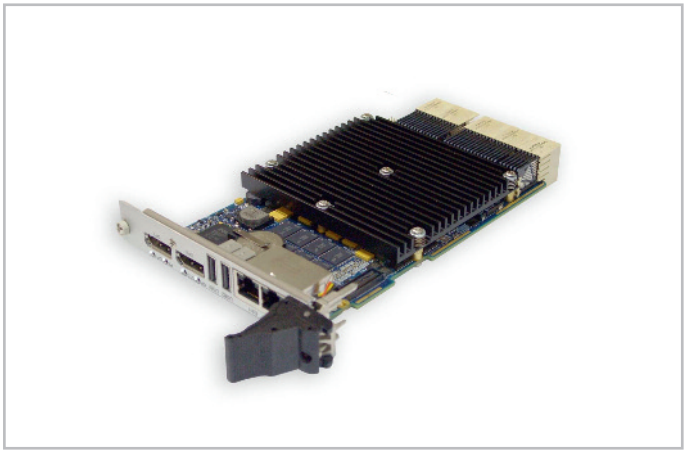
CPC512
3U CompactPCI CPU board



Features

- CPU: Intel IvyBridge (2/4 Cores)
- RAM: DDR3 SDRAM 1333, 1600 MHz or DDR3L SDRAM 1066, 1333 MHz with ECC up to 8GB soldered, 2-channel
- FRAM: 32x KB, 1 KB of which represent a closed area for storing Bios Setup settings; implemented on SPI FPGA bus
- FLASH BIOS: 2 x 32 Mbit SPI-Flash
- Power supply: Supply voltage: +12V, +5V_STBY (optional)
- Operating temperature range: –40…+85°C (according to IEC 60068-2-14)
- Single/Multiple shock resistance: 100g (according to IEC 60068-2-27) /50g (IEC 60068-2-29)
- Supported OS: Windows 7 Embedded, Linux 2.6, QNX 6.5.0

Overview

CPC512 CPU module is a highly integrated 3U CPCI Serial solution for the use in real-time, automation control, high-speed data acquisition and processing systems. The board is based on the Intel Ivy Bridge CPU (2- or 4-core CPUs) which has one of the highest performance level in its class. Reliable operation of CPC512 enables its use in mission critical applications.

Technical Specifications

CPU
• Intel Core I7 IvyBridge CPU (2/4 Cores)

RAM
• DDR3 SDRAM 1333, 1600 MHz or DDR3L SDRAM 1066, 1333 MHz with ECC up to 8GB, soldered, 2x channel

Video output
(simultaneous output to 2 displays)
• 2×DisplayPort connectors (resolution up to 2560×1600@60Hz), routed to the front panel

LPC bus
• Routed to mezzanine connector

PCI-E bus
• CPU hosts. Support of PCI-E 3.0 (up to 8GT/s)
  • Routed via PCI-E switch Gen 3.0 to J1 and J2 CPCI Serial connectors with support of 2-x devices x8
  • Support of Non-Transparent operation mode for FatPipe#1 x8 ports
  • Support of DMA mode for x8 ports;
  • Routed to J4 CPCI Serial connector with support of 2-x devices x4
• PCH hosts. Support of PCI-E 2.0 (up to 5GT/s)
  • Routed to J4 CPCI Serial connector with support of 4-x devices x1

SMBUS
• Compatibility with Specification 2.0
• Speed up to 100 kbps

FLASH BIOS
• 2×32 Mbit SPI-Flash;

MicroSD
• Support of SDHC 2.0 specification
• Connection to USB 2.0 interface

SATA III interface
• 1x interface, constantly routed to mezzanine connector
• 1x interface, - switchable between J1 CPCI Serial connector and mezzanine connector

SATA II interface
• 4x interfaces, routed to J3 CPCI Serial connector

2x ports LAN 10/100/1000 Mb on PCI-E x4 Gen2
• 2x ports, routed to the front panel connectors
• Server network adapter

1x port LAN 10/100/1000 Mb, with AMT support
• Routed to J6 CPCI Serial connector

USB ports
• 13×USB 1.1 (12Mb/sec), USB 2.0 (480Mb/sec) ports and 4×USB 3.0 (4.8Gb/sec) ports
• 2×USB2.0 ports, routed to the front panel connectors
• 2×USB2.0 ports, routed to the mezzanine connector
• 4×USB2.0 ports, routed to J3 CPCI Serial connector
• 1×USB2.0 port, used for implementation of MicroSD interface
• 4×USB3.0 ports, routed to J1 and J2 CPCI Serial connectors

FRAM
• 32 KB, 1 KB of which – is a closed area for storing Bios Setup settings
• Implemented on SPI FPGA bus

Real-time clock
• Power supply from CR2032 (rated at: 3.0 V) lithium battery

Audio support
• HD Audio interface, routed to mezzanine connector

Watchdog
• Internal, suitable for program control

SGPIO interface
• Support of LED indication in accordance with the SFF-8485 specification

Hardware monitor
• Implemented via SMBUS interface
• Monitoring of 3x supply voltages
• Monitoring of CPU temperature
• Monitoring of PCB temperature

LED-indication:
• LED of the board start diagnostics / HOT swap LED
• LED of addressing to SATA drives
• LED of the module's temperature mode
• LED of NT status of port of the PCI Express interface
• 2x software-controlled LEDs (user LEDs)

OS compatibility
• Windows 7 Embedded
• Linux 2.6
• QNX 6.5.0

Power supply requirements
Supplying voltage: +12V, +5V_STBY (optional)

Operating temperature range
• –40…+85°C (according to IEC 60068-2-14)

Operating Conditions

Type of effect	Name of the parameter	Parameter value	Document
Change of temperatures	Low temperature	–40°C (0*)(0**)	IEC 60068-2-14
	High temperature***	+85°C (+70*)(+45**)	
Humidity	Relative humidity	Up to 80%, non-condensing	IEC 68-2-14-84
Damp heat (+55°C)(for lacquerware)	Relative humidity	Up to 93%	IEC 68-2-30-82
Sinusoidal vibration	Frequency range (Hz)	10…500	IEC 60068-2-6
	Acceleration, g	5	
Single shocks	Peak acceleration, g	100	IEC 60068-2-27
Multiple shocks	Peak acceleration, g	50	IEC 60068-2-29
	Number of shocks	1000	

*For commercial temperature range.
**For reduced commercial temperature range.
***In order to avoid overheating, when the upper limit of the temperature range has been reached, CPU will automatically reduce its frequency down to 200 MHz to decrease heat dissipation.

Extension Capabilities

Number of interfaces routed from the board may be increased due to the connection of MIC584 module.
MIC584 contain the following set of interfaces:

- 2×USB 2.0
- 2×SATA
- Audio IN/OUT/MIC
- 4×RS-232
- 2×RS-485
- LPT
- PS/2 keyboard+mouse

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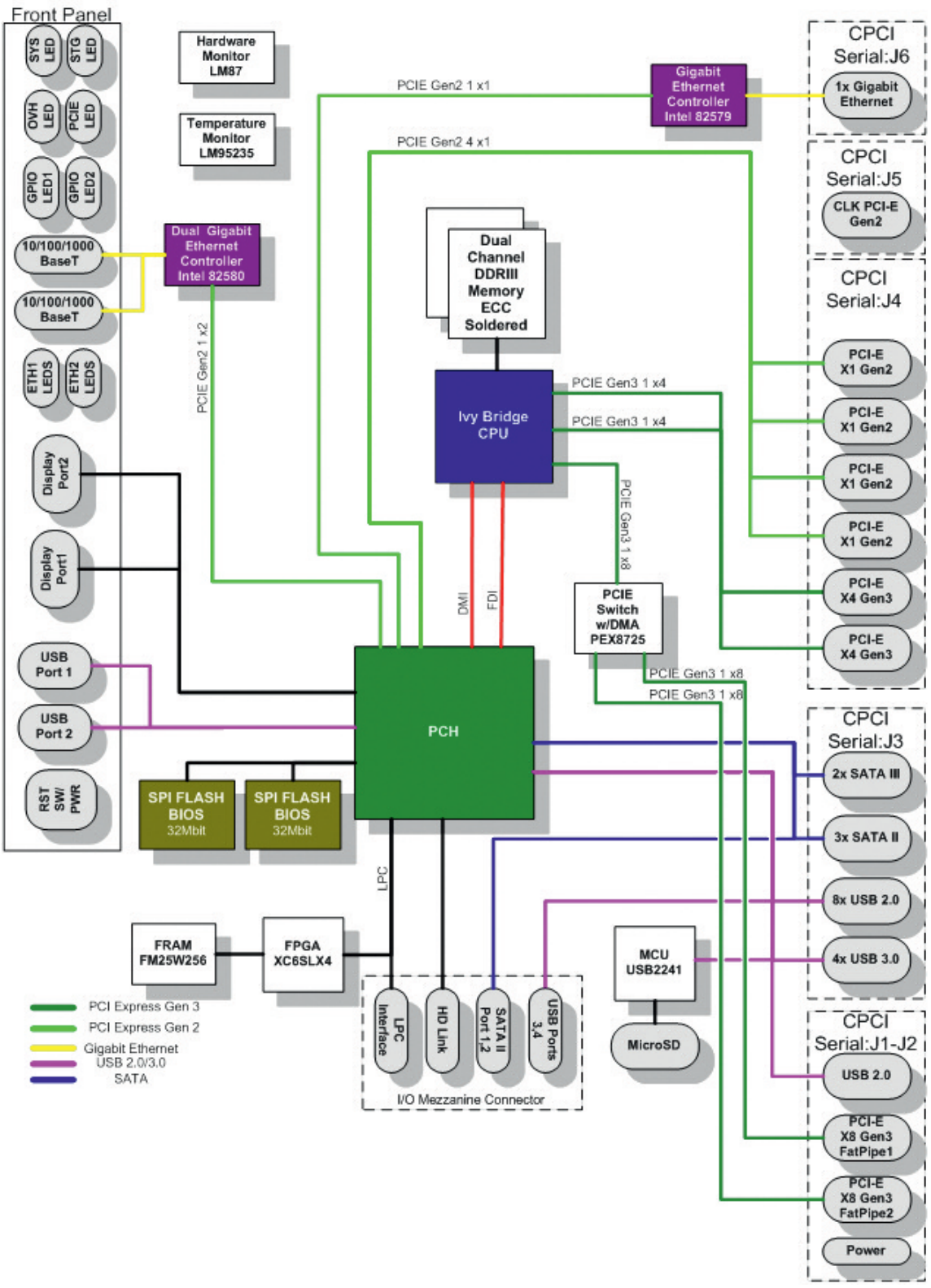
Board Layout



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Ordering Information

CPC512 Configuration

CPC512 01 - i72C1.7 - RAM4096 - R1 - C \ Options

Versions

CPC512-01-i72C1.7-RAM4096-R1-C	CPCI Serial 3U module, height: 4HP, in the regular 3U Eurocard standard, CPU: 1.7 GHz, 17 W, RAM: 4GB, with a low heat-sink designed for operation in the commercial temperature range
CPC512-01-i72C1.7-RAM4096-R2-I	CPCI Serial 3U module, height: 8HP, in the regular 3U Eurocard standard, CPU: 2 core 1.7 GHz 17 W, RAM: 4GB, with a high heat-sink designed for operation in the industrial temperature range
CPC512-01-i74C2.1-RAM8192-R2-C	CPCI Serial 3U module, height: 8HP, in the regular 3U Eurocard standard, CPU: 4 cores 2.1 GHz 35 W, RAM: 8GB, with a high heat-sink designed for operation in the commercial temperature range
CPC512-01-i74C2.1-RAM8192-R1-O	CPCI Serial 3U module, height: 4HP, in the regular 3U Eurocard standard, CPU: 4 cores 2.1 GHz 35 W, RAM: 8GB, with a low heat-sink designed for operation in the reduced commercial temperature range
CPC512-01-i72C1.7-RAM4096-RC	CPCI Serial 3U module, height: 8HP, in the regular 3U Eurocard standard, CPU: 2 cores 1.7 GHz 17 W, RAM: 4GB, conduction cooling implementation
CPC512-01-i74C2.1-RAM8192-RC	CPCI Serial 3U module, height: 4HP, in the regular 3U Eurocard standard, CPU: 4 cores 2.1 GHz 35 W, RAM: 8GB, conduction cooling implementation

Options

\Coated	Conformal coating
\OEM	with a limited package contents
\LNX	Linux 2.6
\Win7e	Windows 7 Embedded

Delivery checklist

CPC512 delivery checklist contains:

1. CPC512 CPU Module
2. Package

Ver. 1.12.2015

Product specifications are subject to change without notice

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