Intel IvyBridge CPU (2/4 Cores)
- Intel i7-3517UE (DC, 2C/4T, 1.7 GHz, 1600 MHz, 4 MB, 17 W)
- Intel i7-3555LE (DC, 2C/4T, 2.5 GHz, 1600 MHz, 4 MB, 25 W)

Panther Point PCH

Memory
- DDR3 SDRAM 1333, 1600 Mhz or DDR3L SDRAM 1066, 1333 Mhz with ECC up to 8 GB soldered, dual-channel

Video Output (simultaneous output to 3 monitors)
- Two DisplayPort connectors (resolution up to 2560×1600@60Hz at the front panel)
- DisplayPort interface (resolution up to 2560×1600@60Hz) is routed to the mezzanine module

LPC Bus
- To the mezzanine connector
- PCI-E Bus
- CPU Hosts. PCI-E 2.0 support (up to 5GT/s):
  - Output via the PCI-E switch to J1 and J2 PCI Serial connectors with support for four x4 devices.
  - Support for the Non-Transparent mode for FatPipe1.
- PCH Hosts. PCI-E 2.0 support (up to 5GT/s):
  - Output to the mezzanine module on the left; support for 1 x4 or 4 x1 devices;
  - MIC590 connection.

SMBUS Bus
- Compatibility with the 2.0 specification
- Speed up to 100 kbps

FLASH BIOS
- 64 Mbit SPI-Flash
- MicroSD Interface
- Support for the SDHC 2.0 specification
- Connected to a USB 2.0 interface

SATA II Interface
- One interface is always routed to the mezzanine connector:
  - One interface - is switched between J3 PCI Serial connector and the mezzanine connector;
  - Two ports are routed to the J3 PCI Serial connector.

SATA III Interface
- Two interfaces are routed to the J3 PCI Serial connector
- Support for RAID 0, 1, 5, 10

USB ports
- 13 USB 1.1 ports (12 Mb/sec), USB 2.0 (480 Mb/sec) and 4 USB 3.0 ports (4.8 Gb/sec)
- Two USB2.0 ports are routed to connectors at the front panel
- Two USB2.0 ports are routed to the mezzanine connector
- 8/4 USB2.0 ports are routed to the J3 PCI Serial connector
- 1 USB2.0 port is used for implementation of the MicroSD interface
- 4 USB3.0 ports are routed to the J1 and J2 PCI Serial connectors*

FRAM Memory
- 32 Kbyte, RAM 1 Kbyte for storing settings of the Bios Setup
- Implemented on the SPI Bus

Real time clock (RTC)
- Power is supplied from a CR 2032 lithium battery (3V)

Audio Support
- HD Audio interface is routed to the mezzanine connector

Watch dog timer
- Internal with a possibility of programmed control

SGPIO Interface
- Support for signaling according to the SFF-8485 Specification

Hardware monitor
- Implemented via PECI/SMBUS interfaces
- Monitoring of three supply voltages
- Monitoring of the CPU temperature
- Monitoring of the PCB temperature
- Monitoring of the RAM temperature

Support for the power source management Indication
- Board Startup Diagnostics LED / Hot Swapping Light
- SATA/SD Drives Access LED
- Two software-controlled LEDs (user-defined)
- Temperature state LED
- PCI Express Interconnections state LED

OS Programming Compatibility
- Windows 7 Embedded
- Linux 2.6
- DXN 6.5

Power Requirements
- Power voltage +12V, +6V STBY (option)

Operating temperature range
- Industrial Modification: from –40°C to +85°C
- Commercial Modification: from 0°C to +70°C

Humidity
- Up to 80% non-condensing

Vibration / Single shock resistance
- 5g/100g

MTBF
- Not less than 100,000 hours

* When USB 3.0 is used four USB 2.0 ports are utilized by the USB 3.0 ports

http://www.fastwel.com
CPC510
3U CompactPCI CPU board

Expansion modules

A number of interfaces output from the board may be increased by means of connecting MIC584, KIC550 modules and a MIC590 board

**MIC584 module interfaces**
- 2 x USB 2.0
- 2 x Audio IN/OUT/MIC
- 4 x RS-232
- 2 x RS-485
- LPT
- PS/2 keyboard+mouse

**KIC550 module interfaces**
- 1 x USB 2.0
- 1 x USB 2.0/3.0
- 2.5” SATA HDD Interface
- 1 x Gigabit Ethernet (optional)

**MIC590 board (a part of CPC510-02 module)** contains the following set of interfaces
- Video Output
  - DisplayPort connector (resolution up to 2560x1600@60Hz) at the front panel

- Dual channel LVDS Interface (25–112 MHz, up to 224 Mpixel/sec) is switched between a connector at the board and via a RIO backplane
- Support for a TFT panel power management with a 3.3 V power voltage and illumination circuits with a 5 V or a 12 V power voltage
- CompactPCI Bus
  - 32-bits, clock frequency of 33/66 MHz
  - Operation mode – System Master, support for up to seven Bus Mastering devices
  - Support for the PCI Local Bus Rev. 3.0 Specification
  - 3.3 V and 5 V VIO Support
- PCI Express Bus
  - 3 ports x1 (a through route for the PCI Express PCH ports of the CPC510 module)
  - Complies with the PCI Express 1.0a Specification
  - Complies with the PICMG 2.30 Compact PCI PlusIO Specification
- Allows for a module binding CPC510+MIC590 installation into a hybrid backplane, complies with the PICMG 2.30 specification
- A simultaneous support for four Legacy CompactPCI peripheral devices and for three Compact PCI Serial peripheral devices is provided with that. Though SATA and USB interconnects, which are parts of the PICMG 2.30 Specification, are not available
- **Power Source**
  - The MIC590 module power consumption is 2 W without consumption of the TFT panel and the illumination inverter
  - The maximum power consumption of a TFT panel connected to the MIC590 module is 6 W, and that of the illumination circuits is 10 W (for Upow = 5 V) or 30 W (for Upow = 12 V)
- The module does not utilize the voltage generated at the Compact PCI backplane for feeding its internal circuits
- **OS Programming Compatibility**
  - The MIC590 module is compatible with software which is designed for operation along the CPC510 CPU Module

http://www.fastwel.com
CPC510
3U CompactPCI CPU board

Ordering Information

CPC510 Configuration

CPC510 - 01 - i72C1.7-RAM4096-R1-I\Options

<table>
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<th>Configurations</th>
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<th>Memory</th>
<th>Cooling system (front panel width)</th>
<th>Temperature Range</th>
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<td>Without mezzanine card</td>
<td></td>
<td>R1 4HP</td>
<td>Industrial Range, -40...+85°C</td>
</tr>
<tr>
<td>02</td>
<td>MIC590</td>
<td>4096MB Soldered DDR3L SDRAM</td>
<td>R2 8HP</td>
<td>Commercial Range, 0...+70°C</td>
</tr>
<tr>
<td>03</td>
<td>i72C1.7 Intel i7-3517UE (DC, 2C14T, 1.7 GHz, 1600 MHz, 4MB, 17W), BGA 1023 CPU</td>
<td>4096MB Soldered DDR3L SDRAM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>04</td>
<td>i72C2.5 Intel i7-3555LE (DC, 2C14T, 2.5GHz, 1600 MHz, 4MB, 25W), BGA 1023 CPU</td>
<td>8192MB Soldered DDR3L SDRAM</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CPC510 Available Options

<table>
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<tr>
<td>QNX</td>
<td>QNX 6.5</td>
</tr>
</tbody>
</table>

Other configurations and options are available upon request.

Example

CPC510-01 - i72C1.7- RAM4096-R1-I-Coated/LNX
3U CompactPCI serial SBC, Intel i7-3517UE (DC, 2C14T, 1.7 GHz, 1600 MHz, 4MB, 17W), BGA 1023 CPU, 4096MB Soldered DDR3L SDRAM, 4HP cooling system, Industrial Range, -40...+85°C, Protective Coating, Linux 2.6

Delivery checklist
1. CPC510 module or CPC510 assembled with the MIC590 module (video/PCI bridge mezzanine expansion module)

Additional accessories
1. MIC584 module, I/O mezzanine expansion module
2. KIC590 module, 2.5" HDD carrier module or 2.5" SSD

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Ver.1.05.2014
Product specifications are subject to change without notice
**Overview**

MIC584 is designed for the extension of functionalities of processor modules in 3U CompactPCI format.

**Features**

- Audio controller: audio codec, compatible with the High Definition Audio standard (for 2.1: AD1986A module version, for 3.1: CS4702 version)
- 2×USB 2.0 ports
- 1×parallel port (IEEE 1284)
- PS/2 interface
- 6×serial ports (6×16c550 UART)
- Operating temperature range: –40°C to +85°C
- Vibration/Shock resistance: 5g/100g
- MTBF: No less than 800 000 hours
- Dimensions: shortened 3U: 88,3×128,4×36,5 mm

**Technical Specifications**

**Audio controller**

- Audio codec, compatible with the High Definition Audio standard (for 2.1: AD1986A module version, for 3.1: CS4702 version)
- Linear input, Uвх=1 В (RMS); routed to the board connector
- Linear output, output resistance Z=10 K; routed to the board connector
- Mic. input; Uвх=1 В (RMS) at the amplification 0 dB; Uвх=0.1 V (RMS) at the amplification 20 dB; routed to the front panel
- Audio output to headphones, output resistance Z=65 Om; routed to the front panel

**2x USB 2.0 ports**

- Compliant with USB 2.0 specification
- Routed to front panel

**Parallel port (IEEE 1284)**

- Standard Bi-directional SPP mode
- Extended EPP v.1.7 and v.1.9 mode
- High-speed ECP, IEEE 1284 mode
- Routed to the board connector (IDC2-26)

**PS/2 interface**

- Standard Mini-DIN for the connection of Y-cable (included in the delivery kit)
- Routed to the front panel

**Six serial ports (6x 16C550 UART)**

- COM1 – non-isolated RS-232 port; routed to the front panel (DSUB9M)
- COM2, COM3, COM4 – non-isolated RS-232 ports; routed to the connectors onboard (IDC2-10)
- COM5, COM6 – non-isolated RS-485 ports; routed to the connectors onboard (IDC2-10)

**Serial ATA interface (2x channels), implemented on MIC584-01**

- Simultaneous connection of up to 2 external SATA-drives using standard cables (included into the delivery kit)
- Support of 2x SATADOM modules for the revision of MIC584 2.2 version and higher
- 1x channel may be used for the connection of 1.8” SATA HDD or SSD, installed via carrier board
- Routed to the connectors onboard

**Additional capabilities**

- Module board has a shortened version, for increasing cooling capacity of processor modules in 3U CompactPCI format

**Environmental**

- Operating temperature range: industrial version: from –40°C to +85°C, commercial version: from 0°C to +70°C
- Resistance to cyclic damp heat when lacquer-coated: at the ambient temperature +(55 ± 2)°C, relative humidity (93±3)%

**Mechanical**

- Vibration/single shock resistance: 5g/100g
- MTBF: no less than 800 000 hours
- Weight: no more than 100 g
- Dimensions: shortened 3U: 88,3×128,4×36,5 mm

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MIC584 is designed for the extension of functionalities of processor modules in 3U CompactPCI format.

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- Mic. input; Uвх=1 В (RMS) at the amplification 0 dB; Uвх=0.1 V (RMS) at the amplification 20 dB; routed to the front panel
- Audio output to headphones, output resistance Z=65 Om; routed to the front panel

**2x USB 2.0 ports**

- Compliant with USB 2.0 specification
- Routed to front panel

**Parallel port (IEEE 1284)**

- Standard Bi-directional SPP mode
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- High-speed ECP, IEEE 1284 mode
- Routed to the board connector (IDC2-26)

**PS/2 interface**

- Standard Mini-DIN for the connection of Y-cable (included in the delivery kit)
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- COM1 – non-isolated RS-232 port; routed to the front panel (DSUB9M)
- COM2, COM3, COM4 – non-isolated RS-232 ports; routed to the connectors onboard (IDC2-10)
- COM5, COM6 – non-isolated RS-485 ports; routed to the connectors onboard (IDC2-10)

**Serial ATA interface (2x channels), implemented on MIC584-01**

- Simultaneous connection of up to 2 external SATA-drives using standard cables (included into the delivery kit)
- Support of 2x SATADOM modules for the revision of MIC584 2.2 version and higher
- 1x channel may be used for the connection of 1.8” SATA HDD or SSD, installed via carrier board
- Routed to the connectors onboard

**Additional capabilities**

- Module board has a shortened version, for increasing cooling capacity of processor modules in 3U CompactPCI format

**Environmental**

- Operating temperature range: industrial version: from –40°C to +85°C, commercial version: from 0°C to +70°C
- Resistance to cyclic damp heat when lacquer-coated: at the ambient temperature +(55 ± 2)°C, relative humidity (93±3)%

**Mechanical**

- Vibration/single shock resistance: 5g/100g
- MTBF: no less than 800 000 hours
- Weight: no more than 100 g
- Dimensions: shortened 3U: 88,3×128,4×36,5 mm
* SATA connectors are provided only for MIC584-01 version (Fastwel manufactures MIC584 in two versions: MIC584-01 and MIC584-02).

MIC584 Configuration

MIC584 - 01 - C \Options

**Configurations**
- 01: SATA (XP8…XP10) – Yes
- 02: SATA (XP8…XP10) – No

**Temperature Range**
- I: Industrial Range, –40…+85°C
- C: Commercial Range, 0…+70°C

**Options**
- Coated: Conformal coating

**Delivery checklist**

MIC584 delivery checklist contains:
1. MIC584 – 1 pcs.
2. PS/2 Y-cable – 1 pcs.
3. Standard Serial ATA cable – 2 pcs. (for MIC584-01)
4. HDD SATA supply cable – 1 pcs. (for MIC584-01)
6. Module’s mounting kit
7. Packaging

Kit for installation of ACS20044 hard drive needs to be purchased separately.

**Note:**
Retain all original packaging at least until the warranty period is over. You may need it for shipments or for storage of the product.