

## Features

- Intel Atom N450 or D510 CPU, soldered
- 512MB or 1GB DDR2 SDRAM soldered
- VGA up to 2048x1536
- 2 GbEthernet frontrear switchable
- PICMG2.30: PCI 32/33, PCIExpress 4x1, 2 SATA II, 4 USB
- CF and SD interfaces, 1 or 2 GB Flash SSD soldered
- Mezzanine MIC589: 2 USB, 2 RS232, 2 RS485 isolated, 2 CAN 2.0 isolated, HD Audio, LVDS

## Overview

CPC508 is a PICMG 2.30 "CompactPCI Plus" compliant 3U module based on Intel® Atom™ N450 or D510 and ICH8M chipset. Due to the low power architecture of the Intel® Atom™ processor, the CPU card has a low power consumption and high performance. A specially outlined heat sink efficiently takes away the heat from the board, even at the extended temperature range.

CPC508 is designed especially for systems which require low power consumption, e.g. as a computing platform for rugged industrial PCs in mobile applications or for infotainment applications, offering the whole world of Windows® and Linux based software.

On the CPC508 module high-speed interfaces of input-output are applied (PCI-Express, Gigabit Ethernet, DVI) and modern technologies for operation with video are supported. Modular creation of a product allows system flexible set up for specific scopes, optimizing thereby the price/quality balance.

The PICMG 2.30 "CompactPCI Plus" compliance allows to use 32bit PCI bus together with intermodule communication for high-speed data exchange: two Gigabit Ethernet channels, four x1 PCI Express lanes, 4 USB channels, 2 SATA channels.

For extended system functionality the mezzanine module MIC589 with video/audio interfaces, CAN and serial ports is used. MIC589 can be connected to the processor CPC508 module from both sides left and right. One of the most important advantages of such expansion unit installation method is that it is possible to connect less cables to the processor CPC508 module or to avoid them absolutely. This can make the installation and dismantling of the CPU module from system easier.

## Technical Specifications

### Processors

- Intel Pineview-M Single Core (N450), 1.66 GHz, 512 KB cache
- Intel Pineview-D Dual Core (D510), 1.66 GHz, 1 MB cache

### Chipset

- Intel ICH8-M

### System memory

- DDR2 SDRAM 667 MHz, w/o ECC, 512 MB / 1 GB, 64-bit addressing, soldered

### Integrated graphics controller

- 2D/3D accelerator;
- VGA output to front panel  
N450: up to 1400 x 1050, 60 Hz,  
D510: up to 2048 x 1536, 60 Hz;
- LVDS interface  
N450: up to 1280x800, 60 Hz,  
D510: 1366 x 768, 60 Hz,  
Single channel 18-bit mode;  
Routed to mezzanine connector for MIC589

### PCI bus

- Routed to J1 connector;
- 32-bit / 33 MHz;
- Support for up to four bus master devices

### 8-bit local bus

- Routed to mezzanine connector
- Used for connection of legacy peripheral devices located on mezzanine modules (CAN controllers, UARTs)

### PCIe bus

- Routed to J2 connector (PICMG 2.30);
- Support for up to four x1 devices (2.5 Gb/s)

### Flash BIOS

- 16 Mbit SPI-Flash;
- In-system modification

### Flash-disk

- 4 GB NAND flash (dual channel);
- SATA interface: read 50 MB/s, write 45 MB/s

### CompactFlash socket

- Support for PIO & UDMA modes;
- Ultra ATA 100/66/33

### Micro SD socket

- SDHC cards up to 32 GB supported

### SATA II interface

- Two channels are routed to J2 connector (PICMG 2.30);
- Up to 300 MB/s

### Gigabit Ethernet

- Two channels, 10/100/1000 MB/s
- Software switchable between front and rear panels

### USB ports

- USB 1.1, USB 2.0 supported;
- Connection of up to ten devices:
  - USB1, USB2 at front panel of CPC508;
  - USB3, USB4 routed to Mezzanine Connector 1 for connection of MIC584 module;
  - USB5, USB6 routed to Mezzanine Connector 2 for connection of MIC589 module
  - USB7 – USB10 are routed to J2 (PICMG 2.30)

### FRAM memory

- 31 KB available to user

### RTC

- CR2032 (3V) Li battery backup;
- Batteryless operation possible

### Audio

- Discrete HD Audio routed to mezzanine connectors

### Watchdog timer

- Fixed timeout period

### Power

- +5 V ±5% from Compact PCI connector

### Humidity

- Up to 80% noncondensing

### Multiple shock / vibration stability

- 50g / 5g

### Dimensions

- 130.4 mm x 212.5 mm

### Operating temperature range

- From -40°C to +85°C

### MTBF

- Not less than 100 000 hours

### Weight

- 400 g with heatsink

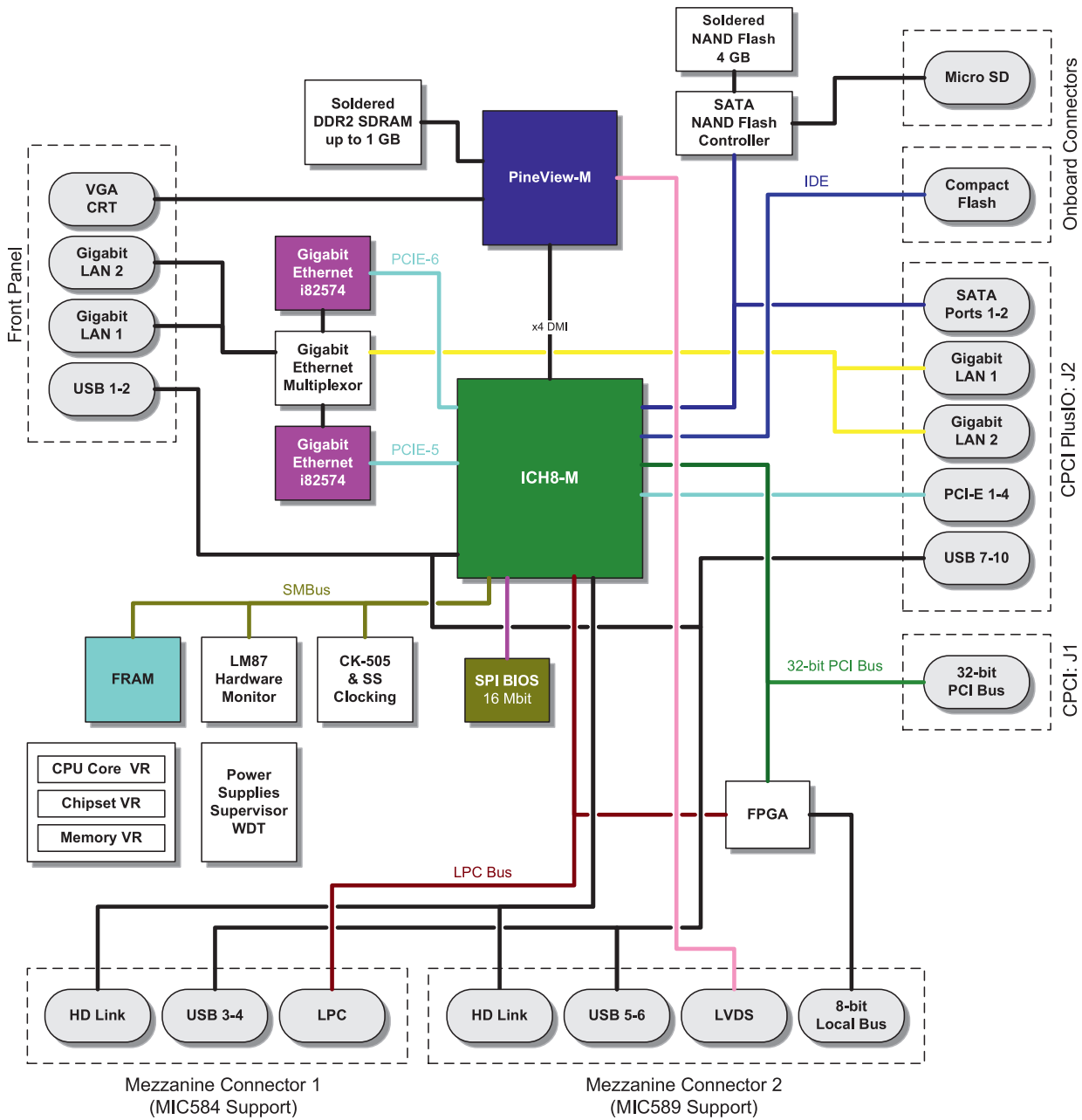
### OS compatibility

- MS DOS 6.22, FreeDOS
- Windows XP Embedded
- Linux 2.6
- QNX 6.5

# CPC508

CompactPCI PlusIO (PICMG 2.30) 3U CPU module

## Block Diagram



# CPC508

CompactPCI PlusIO (PICMG 2.30) 3U CPU module

## Ordering Information

### CPC508 Configuration

#### CPC508

##### Device Type

CPC508-1 CompactPCI CPU card 3U/4HP, PICMG2.30 Intel Atom N450 1.66 GHz soldered, 1GB DDR2 SDRAM soldered, 2 x Gigabit Ethernet, 4 x 1 PCI-E, VGA, LVDS, 4GB NAND Flash, 2 x SerialATA, 2 x USB 2.0, -40°C...+85°C

CPC508-2 ...

CPC508-3 CompactPCI CPU card 3U/4HP, PICMG2.30 Intel Atom D510 1.66 GHz soldered, 1GB DDR2 SDRAM soldered, 2 x Gigabit Ethernet, 4 x 1 PCI-E, VGA, LVDS, 4GB NAND Flash, 2 x SerialATA, 2 x USB 2.0, -40°C...+85°C

##### Options (xx - version)

CPC508-xx\XPe preinstalled Windows XPe

CPC508-xx\LNx preinstalled Linux 2.6

\Coated protective coating

##### Delivery checklist:

1. CPC508 processor module
2. Package

##### Accessories:

1. MIC589 – Mezzanine module with 2 x RS485, 2 x RS232, 2 x CAN, 2 x USB, and Audio interfaces

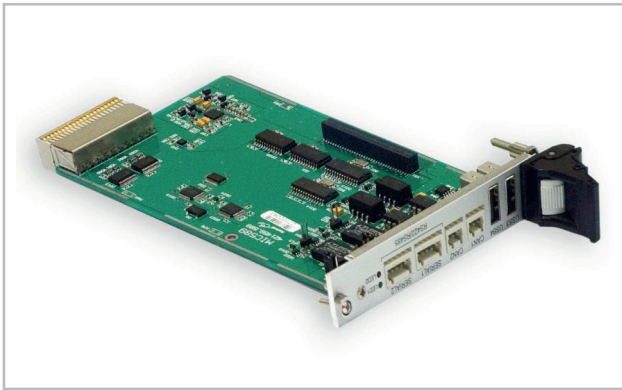
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Product specifications are subject to change without notice



# MIC589

MIC589 is an interface expansion module for use with CPC508 processor module



## Features

- 2 x USB 2.0
- 2 x CAN interfaces
- COM1, COM2 – RS232, up to 1.5 Mb/s, routed to rear panel
- COM3, COM4 – RS485/422, up to 1.5 Mb/s, switchable to front or rear panel
- HD Audio: Microphone input, Line in/Line out are routed to rear panel

## Technical Specifications

### USB 2.0

- Two front panel connectors

### Four serial ports:

- COM1, COM2 – RS232, up to 1.5 Mb/s, routed to rear panel;
- COM3, COM4 – RS485/422, up to 1.5 Mb/s, switchable to front or rear panel;
- Isolation up to 500 V (when routed to front panel).

### Two CAN interfaces

- NXP SJA1000 controllers;
- Switchable to front or rear panel;
- Isolation up to 500 V (when routed to front panel);
- Software compatibility with CPC105/CPC108

### HD Audio codec

- Microphone input, Line in/Line out are routed to rear panel

### LVDS

- 18-bit LVDS interface of CPC508 is routed to rear panel

### Power

- +5 V  $\pm 5\%$  from Mezzanine Connector 2 of CPC508

## Ordering Information

### MIC589 Configuration

#### MIC589

#### Options

MIC589\Coated Protective coating option

#### Delivery checklist:

1. MIC589 module
2. Mounting parts set
3. Package

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