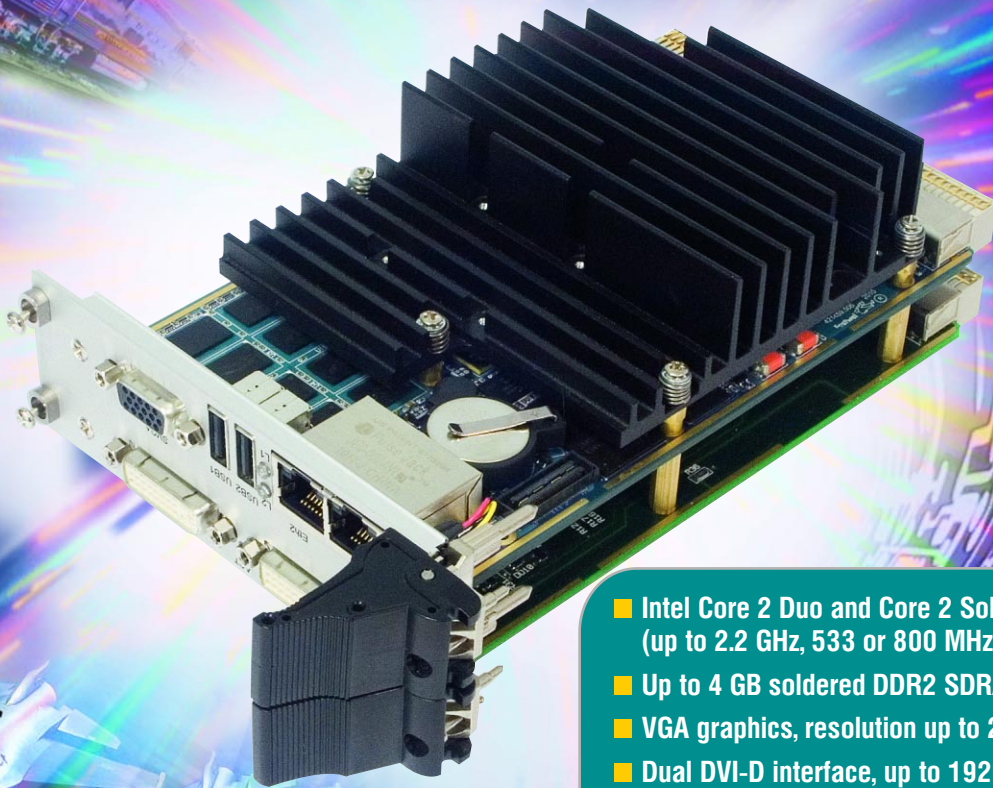
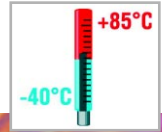


# CPC506

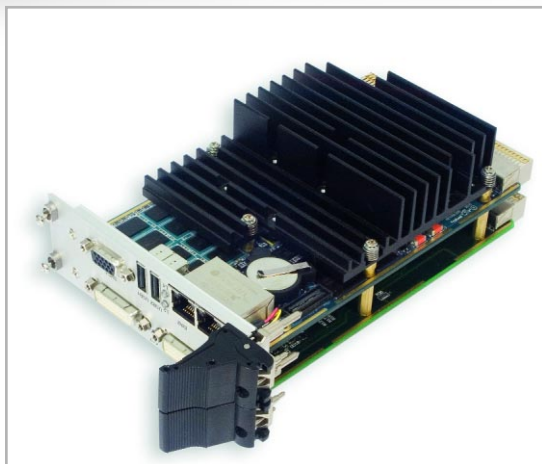
**Fastwel**   
Creating the Future!

## cPCI 3U 8HP CPU Module



**Best solutions  
to fit your demands!**

- Intel Core 2 Duo and Core 2 Solo processors (up to 2.2 GHz, 533 or 800 MHz FSB)
- Up to 4 GB soldered DDR2 SDRAM
- VGA graphics, resolution up to 2048x1536
- Dual DVI-D interface, up to 1920x1200 (8HP and 12HP versions)
- Intermodule communication (PICMG 2.30): 32-bit PCI bus, 4 x1 PCI Express, 3 SATA II, 4 USB 2.0
- Two Gigabit Ethernet ports switchable between front panel and backplane
- Soldered 4 GB NAND Flash with IDE interface
- SD card slot with USB 2.0 interface
- Increased heatsink versions for passive cooling
- MIC584 mezzanine module: 1 SATA II, 6 RS-232/485, 2 USB, PS/2
- Protective coating (optional)
- Operating temperature range: -40...+85°C or 0...+70°C
- Linux, QNX, and Windows XP Embedded support



## Features

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## Overview

CPC506 is a PICMG 2.30 "CompactPCI Plus" compliant 3U module based on Intel Core 2 Duo CPUs (from long term manufacturing program) operating at up to 2.2 GHz with 4 MB level 2 cache, featuring 800 MHz system bus and 965GME/ICH8M chipset. The processor executes up to 8 floating point operations per clock cycle and can address up to 4 GB of soldered DDR2 system memory in 64-bit mode.

An increased heatsink for CPU and chipset cooling allows efficient heat dissipation within wide ambient air temperature range.

CPC506 is PICMG 2.30 "CompactPCI Plus" compliant and allows to use 32-bit PCI bus together with intermodule communication for high-speed data exchange: two Gigabit Ethernet channels, four x1 PCI Express lanes, 4 USB channels.

The graphics controller of Intel 965GME supports output of two independent video streams to two DVI-D interfaces (8HP modification) or to standard VGA interface.

The firmware of CPC506 supports booting from LAN, from SD cards, from soldered 4 GB flash memory disk, or HDDs, installed on CompactPCI Plus carrier (KIC550) with SATA support, or from drives located on MIC584 mezzanine module.

The MIC584 mezzanine module supports SATA II interface with option to mount 1.8" SATA disk drive, SATA DOM solid-state modules and also offers six COM ports, two USB 2.0, PS/2 and audio interfaces.

CPC506 supports Linux, QNX and Windows XP Embedded operating systems.

## Technical Specifications

### System

- CPU:
  - Intel Celeron ULV 573, 1.0 GHz, 512 KB L2 cache, 533 MHz FSB
  - Intel Core 2 Duo L7500 1.6 GHz, 4 MB L2 cache, 800 MHz FSB
  - Intel Core 2 Duo T7500 2.2 GHz, 4 MB L2 cache, 800 MHz FSB
- Chipset: Intel GMCH 82965GME+ICH8M
- Soldered Dual Channel DDR II SDRAM up to 4096 MB
- CMOS+SFRAM for configuration parameters storage
- FRAM: 31 KB memory available to user
- Watchdog timer: programmable timeout period; NMI, IRQ, or Reset signals generation
- MTBF: 100 000 hours

### Flash BIOS

- SPI interface, 8 Mbit
- In-system modification

### Graphics

- 2D accelerator
- Up to 384 MB memory shared with system
- VGA monitor support, resolution up to 2048x1536, 32 bit at 75 Hz
- 2xDVI-D interfaces\*, video output switchable from front panel to RIO
- External video adapter PCI-E x16 support

### Storage

- Secure Digital card socket
- Flash disk: up to 4 GB soldered with IDE interface
- SATA interface: 3 ports (via backplane, PICMG 2.30), SATA and SATA II support

### Software Support

- FDOS (Fastwel DOS) preinstalled
- Windows XPe
- Linux 2.6

### Interfaces

- PCI: 32-bit/33 MHz interface (System Master), PICMG 2.0 compliant
- PCI-Express: 4 x1, or 1 x4, rooted to J2 (PICMG 2.30) socket

- Ethernet: two PCI-E Gigabit Ethernet controllers, 10/100/1000 Mb/s, front panel/J2 socket (PICMG 2.30) switchable Gigabit Ethernet ports
- USB: 1.1, 2.0 support, up to eight devices connection
- Serial ports: 6 ports available via MIC584 module through LPC Interface
- Parallel port: IEEE1284, ECP/EPP/SPP support (via MIC584)
- HD (high definition) audio: available via a mezzanine MIC584; Line In/Out, Telephone Out, Microphone In
- PS/2 port for connecting KB and mouse via mezzanine module MIC584
- Real-time clock (RTC): batteryless operation capability (without RTC)
- Self-control and monitoring system
- LED indicators
- Programmable ejector switch

### Mechanical

- Dimensions: 130.4x212.5 mm (5.1"x8.4"), height:
  - CPC506-01/-02 with R1 - 4 HP, with R2 - 8 HP
  - CPC506-03/-04 (with MIC588) with R1 - 8 HP, with R2 - 12 HP
- Weight:
  - CPC506-01/-02 with R1 - 0.400 kg
  - CPC506-03/-04 (with MIC588) with R2 - 0.650 kg

### Power Supply Options

- +5 V ±5% and +3.3 V ±5% from CompactPCI connector

### Environmental Conditions

- Operating temperature:
  - 40°C to +85°C - Industrial
  - 0°C to +70°C - Commercial
- Storage temperature range: -55°C to +85°C
- Humidity: 0% to 80%, non\_condensing
- Shocks/vibration: 50G/5G

### Warranty

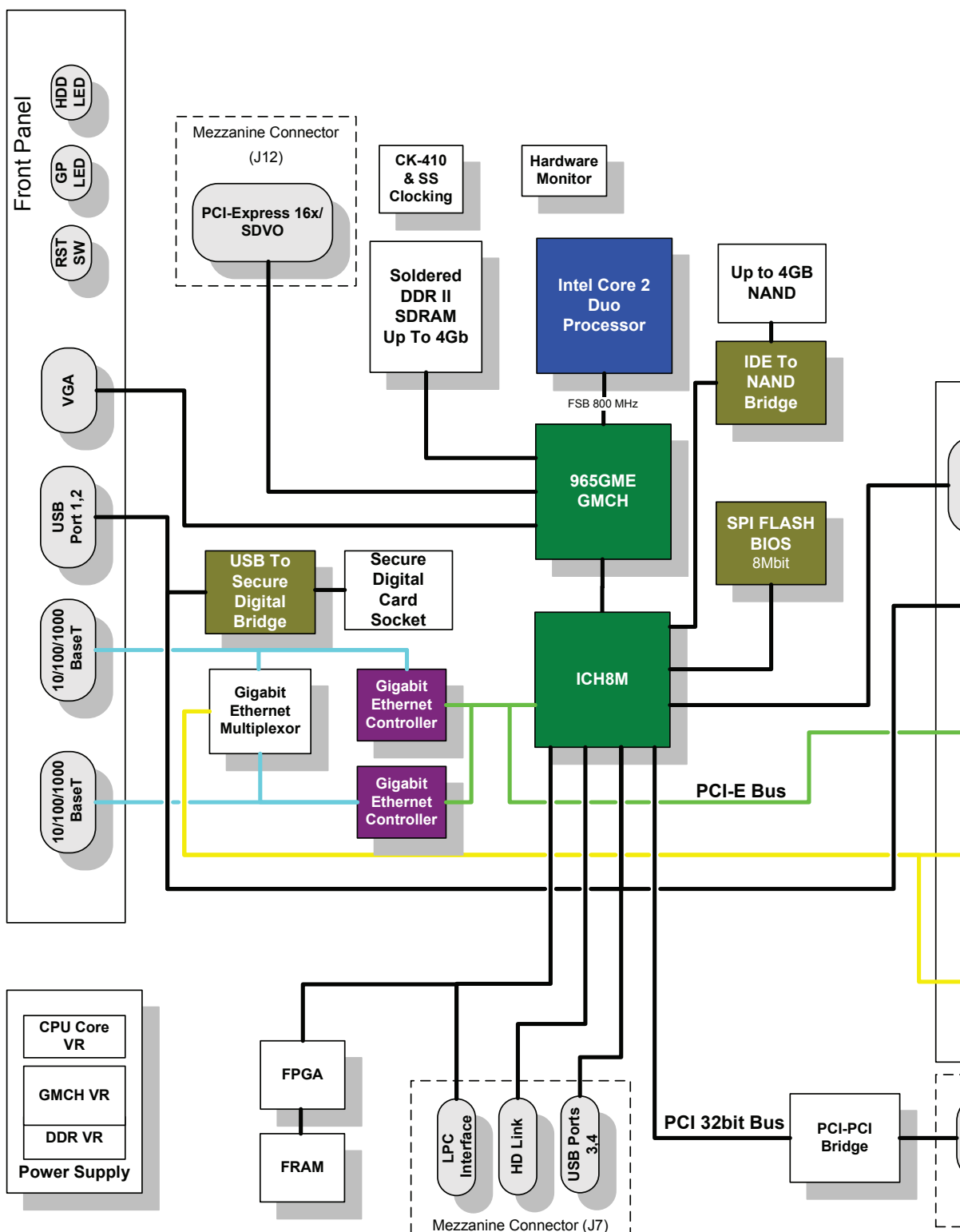
- 3 years for parts and labor

## Block Diagram



ПРЕДВАРИТЕЛЬНО

### ФУНКЦИОНАЛЬНАЯ СХЕМА CPC506





### Expansion Capabilities



#### KIC550 Interface Module:

- SATA HDD 2.5" adapter: support for HDDs with SATA and SATA II interfaces; HDD dimensions: 100×70×9.5 mm (2.5"); HDD power control; Hot swap capability; SGPIO interface support; HDD activity indication
- USB port: passthrough USB port of the processor module; USB 2.0 compliance; overload protection; standard front panel connector
- Ethernet interface (optional): KIC550-01 version only; passthrough Ethernet port of the processor module; 10/100/1000 Base-T with auto-detection (defined by the processor module specifications); standard RJ45 front panel connector
- Microcontroller: 8-bit Atmel ATmega 8-16I; communication with host-controller (SGPIO); power voltage monitoring; Indication control
- Power switch: controlled by  $\mu$ C; P-channel MOSFET
- Additional features: HDD activity and hot swap indicators on the front panel; hot swap switch integrated in the front panel ejector handle
- Does not require forced cooling
- Supported operating systems: Windows XP Embedded; Linux 2.4, 2.6; QNX 4.x, 6.x
- Power: +12 V
- Dimensions: 3U 130.4×212.8 mm (5.13"×8.38"), 4HP



#### MIC584 Expansion module for CPC506:

- HD audio: Line In/Out, Telephone Out, Microphone In
- Two USB 2.0 ports on front panel
- Parallel port: IEEE1284, ECP/EPP/SPP support
- PS/2 port for connecting KB and mouse
- Six COM ports (6×16C550UART):  
COM1 – RS-232 on front panel (DSUB9M), no isolated  
COM2, COM3, COM4 – RS-232; IDC2-10 sockets, no isolated  
COM5, COM6 – RS-485; IDC2-10 sockets, no isolated
- No active cooling required
- MTBF: 700000 hours
- Dimensions: short 3U, 88,3×128,4 mm (3.48"×5.06"), 4HP (without front panel).



#### VIM552 Graphics Controller:

- LynxExp SM750 graphics processor: x1 PCI-E 1.1; 16 MB internal 32-bit DDR RAM; external 64-bit DDR RAM interface, up to 64 MB; two independent RGB outputs; digital 24-bit output used for DVI
- System memory: 64 MB soldered DDR SDRAM at 300 MHz (four 16-bit or two 32-bit chips)
- Video output: VGA, up to 1920×1200 @60 Hz, front panel connector; DVI-I, up to 1920×1200 @60 Hz, single channel mode, front panel connector; optional output to RearIO
- RearIO connector: DVI output copy; VGA0 output copy
- PCI-E bus: PCI-Express x1 link according to PlusIO PICMG 2.30 specification; compatibility with PCI-E 1.1 (2.5 Gb/sec)
- SATA interface: angle SATA data and power connector on board; the mode and transfer rate are determined by the processor module; max current: 1 A (+5V)
- USB port: one USB port available via standard front panel connector; one USB port available via DVI connector (optional)
- Flash BIOS: 512 Kbit SPI-Flash
- Operating temperature range: commercial –0...+70°C, industrial –40...+85°C
- OS compatibility: MS DOS 6.22, FDOS 6.22, FreeDOS, Windows XP, XPe, Linux 2.6
- Power: +12V
- Dimensions: 130.4×212.8 mm (5.13"×8.38")

## Ordering Information

### CPC506 Configuration

#### CPC506 - 01 - P1.8 - I \Options

##### Configurations

01	NAND Flash 4096MB, no 2xDVI-D
02	no NAND Flash 4096MB, no 2xDVI-D
03	NAND Flash 4096MB, 2xDVI-D
04	no NAND Flash 4096MB, 2xDVI-D

##### Processor

CS1.0	Intel Celeron Processor ULV 573 (512K Cache, 1.0 GHz, 533 MHz FSB)
C2D1.6	Intel Core 2 DUo Processor L7500 (4M Cache, 1.6 GHz, 800 MHz FSB)
C2D2.2	Intel Core 2 DUo Processor T7500 (512K Cache, 2.2 GHz, 800 MHz FSB)

##### Memory

2048	2048MB Soldered DDR2 SDRAM
4096	4096MB Soldered DDR2 SDRAM

##### Cooling system (front panel width)

R1	4HP
R2	8HP

##### Temperature Range

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

### CPC506 Available Options

Coating	
\COATED	Protective Coating
Operating System Presetting	
\XPE	Windows XP Embedded
\LNX	Linux 2.6

Other configurations and options are available upon request.

#### Example

##### CPC506-01-C2D2.2-RAM4096-R2-\COATED\XPE

3U CompactPCI SBC, Intel Core 2 Duo 2.2 GHz, NAND Flash 4096MB, no 2xDVI-D  
4096 MB Soldered DDR2 SDRAM  
8HP cooling system  
Industrial temperature range -40°C to +85°C  
Protective coating  
Windows XP Embedded

Ver. 1.0 2012

Product specifications are subject to change without notice

## Applications



Embedded



Process Control



Avionics



Transportation

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