Intel® Core™ 2 Duo
Based 3U CompactPCI SBC

Best solutions
to fit your demands!

- Intel Core 2 Duo 533/800 MHz FSB
- Dual Channel DDR II SDRAM up to 4096 MB (soldered)
- Two PCI-E Gigabit Ethernet controllers 10/100/1000 Mbit/s
- CRT support up to 2048×1536
- VGA and LVDS interfaces or two DVI-D interfaces
- Wide range of interfaces via mezzanine modules
- Industrial operating temperature range: –40°C to +85°C
- Protective coating (option)

http://www.fastwel.com
**Overview**

CPC504 is a CompactPCI PICMG 2.0 compliant host processor module based on low power dual-core Intel Core 2 Duo CPUs operating at 1.6 GHz or 2.2 GHz with 4 MB level 2 cache and featuring 800 MHz system bus. 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 with effective surface area of up to 682 cm² allows efficient heat dissipation within wide ambient air temperature range.

For high-speed data exchange CPC504 employs two Gigabit Ethernet channels, four x1 PCI Express lanes, and 32-bit PCI bus. The graphics controller of Intel 965GME supports output of two independent video streams to VGA and LVDS interfaces or to two DVI-D interfaces available on 8HP and 12HP modifications.

The firmware of CPC504 supports booting from LAN, from the onboard SD cards, from soldered 4 GB flash memory disk, or from SATA II (up to 300 MB/s) and IDE drives located on MIC584 mezzanine expansion module or on a rear I/O module.

The MIC584 mezzanine module supports two SATA II interfaces with option to mount either SATA DOM solid-state modules or one standard 1.8” SATA disk drive. Six COM ports, two USB 2.0, PS/2, and audio interfaces are available via the MIC584 module as well.

CPC504 supports Windows XP/XP Embedded, Linux, and QNX operating systems.

**Features**
- Intel Core 2 Duo, 533/800 MHz FSB
- Dual Channel DDR II SDRAM up to 4096 MB (soldered)
- Two PCI-E Gigabit Ethernet controllers, 10/100/1000 Mbit/s
- CRT support up to 2048×1536
- VGA and LVDS interfaces or two DVI-D interfaces
- Wide range of interfaces via RIO modules
- Industrial operating temperature range: –40°C to +85°C
- Passive cooling version
- Protective coating (option)

**Technical Specifications**

**System**
- CPU: Intel Core 2 Duo 1.6 and 2.2 GHz, 4 MB level 2 cache, 800 MHz FSB
- Chipset: Intel 965GM+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 256 MB memory shared with system
- VGA monitor support, resolution up to 2048×1536, 32 bit at 60 Hz
- Dual display support with 2xDVI-D interfaces (8HP and 12HP modifications)
- VGA and LVDS interfaces or two DVI-D interfaces*

**Storage**
- Secure Digital card socket with USB 2.0 interface
- Flash disk: up to 4 GB soldered with IDE interface
- SATA interface: 3 ports, SATA and SATA II support*

**Software Support**
- FDOS (Fastwel DOS) preinstalled
- QNX 6.3x, QNX 4.25
- Windows XPe
- Linux 2.6

* available on mezzanine and custom RIO modules

**Interfaces**
- Ethernet: two PCI-E based Gigabit Ethernet controllers, 10/100/1000 Mbit/s, front/rear switchable Gigabit Ethernet ports
- USB: 1.1, 2.0 support, up to five devices connection
- Serial ports: available via mezzanine module connectors or at RIO module through LPC interface
- HD (high definition) audio: available via a mezzanine MIC548 module HD interface; Line In/Out; Microphone input
- 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: 100×160×20.32 mm (3.94”×6.3”×0.8”)
- Weight: 0.380 kg max

**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
- MTBF: 100,000 hours

**Warranty**
- 3 years for parts and labor

**List of Deliverables**
- CPC504 module with heatsink installed
- PCI-Express configurator jumpers
- CD with software and documentation
- Package
Expansion Capabilities

MIC584 mezzanine module for CPC504 expands its functions by carrying the following interfaces:

- High definition audio (MicIn, LineIn, LineOut)
- Two USB ports
- Parallel port (IEEE 1284) onboard
- PS/2 interface
- Six COM ports (5 onboard)
- 1×SerialATA onboard
- Passive cooling
- MTBF: 700,000 hours
- Dimensions: short 3U, 88.3×100mm (3.48"×3.94"), 4HP
CPC504-Intel® Core™ 2 Duo Based 3U CompactPCI SBC

Ordering Information

CPC504 Configuration

CPC504 - 01 - P1.8 - I \Options

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<tr>
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<td>NAND Flash 2048MB, no 2xDVI-D</td>
</tr>
<tr>
<td>02</td>
<td>no NAND Flash 2048MB, no 2xDVI-D</td>
</tr>
<tr>
<td>03</td>
<td>NAND Flash 2048MB, 2xDVI-D</td>
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<tr>
<td>04</td>
<td>no NAND Flash 2048MB, 2xDVI-D</td>
</tr>
</tbody>
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Processor

CS1.0: Intel Celeron Processor ULV 573 (512K Cache, 1.0 GHz, 533 MHz FSB)
C2D1.6: Intel Core 2 Duo Processor L7500 (1M 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 MB Soldered DDR2 SDRAM
4096 MB Soldered DDR2 SDRAM

Cooling system (front panel widths)

R1: 4HP
R2: 8HP

Temperature Range

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

CPC504 Available Options

<table>
<thead>
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<th>Protective Coating</th>
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<tr>
<td>QNX</td>
<td>QNX 6.3, 4.25</td>
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<td>XPE</td>
<td>Windows XP Embedded</td>
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<tr>
<td>LNX</td>
<td>Linux 2.6</td>
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</tbody>
</table>

Example

CPC504-01-C2D2.2-RAM4096-R2-I\COATED\XPE
3U CompactPCI SBC, Intel Core 2 Duo 2.2 GHz, NAND Flash 2048MB, no 2xDVI-D
4096 MB Soldered DDR2 SDRAM
8HP cooling system
Industrial temperature range –40°C to +85°C
Protective coating
Windows XP Embedded

Applications

Embedded
Process Control
Avionics
Transportation

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