CPC504

Fastwel
Creating the Future!

Intel® Core™ 2 Duo
Based 3U CompactPCI SBC

SERIAL ATA

Gbit Ethernet

+85°C
−40°C
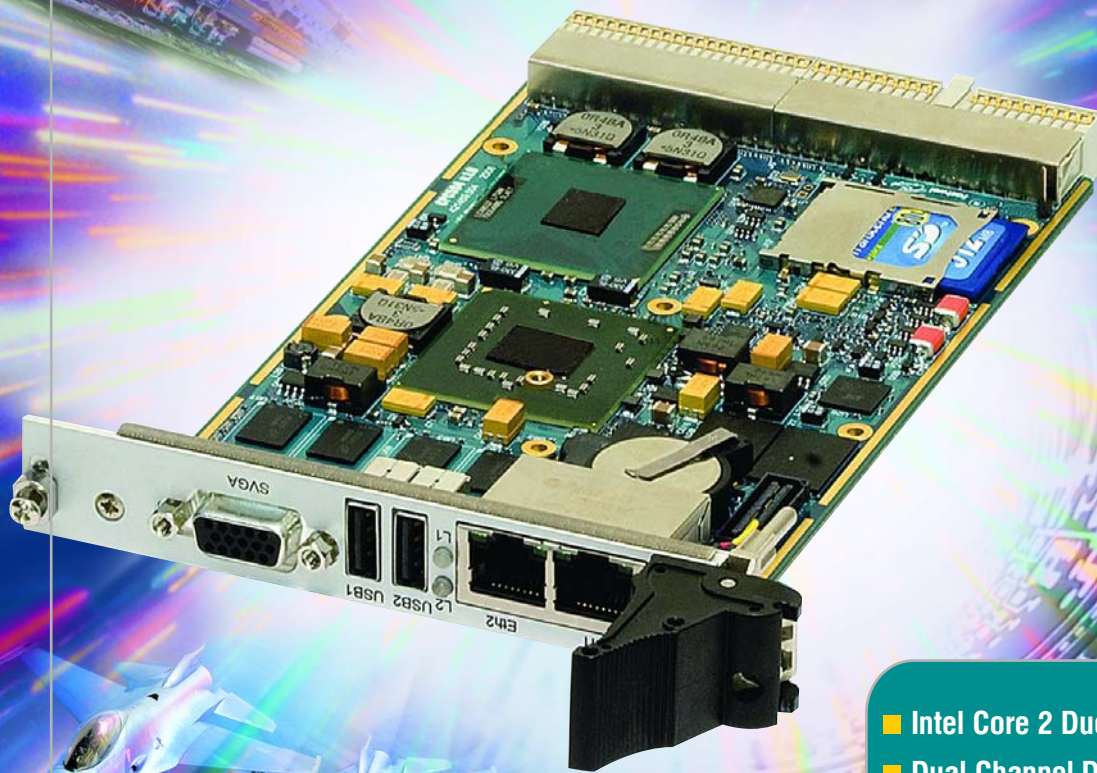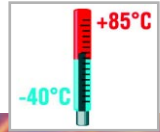
Best solutions
to fit your demands!

- 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)

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Intel® Core™ 2 Duo Based 3U CompactPCI SBC

Features

- Intel Core 2 Duo, 533/800 MHz FSB
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- Two PCI-E Gigabit Ethernet controllers 10/100/1000 Mbit/s
- CRT support up to 2048×1536
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- Wide range of interfaces via RIO modules
- Industrial operating temperature range: –40°C to +85°C
- Passive cooling version
- Protective coating (option)

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.

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

Interfaces
- Ethernet: two PCI-E based Gigabit Ethernet controllers, 10/100/1000 Mb/s, front/rear switchable Gigabit Ethernet ports
- 1×4 or 4×1 PCI Express configurable
- 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
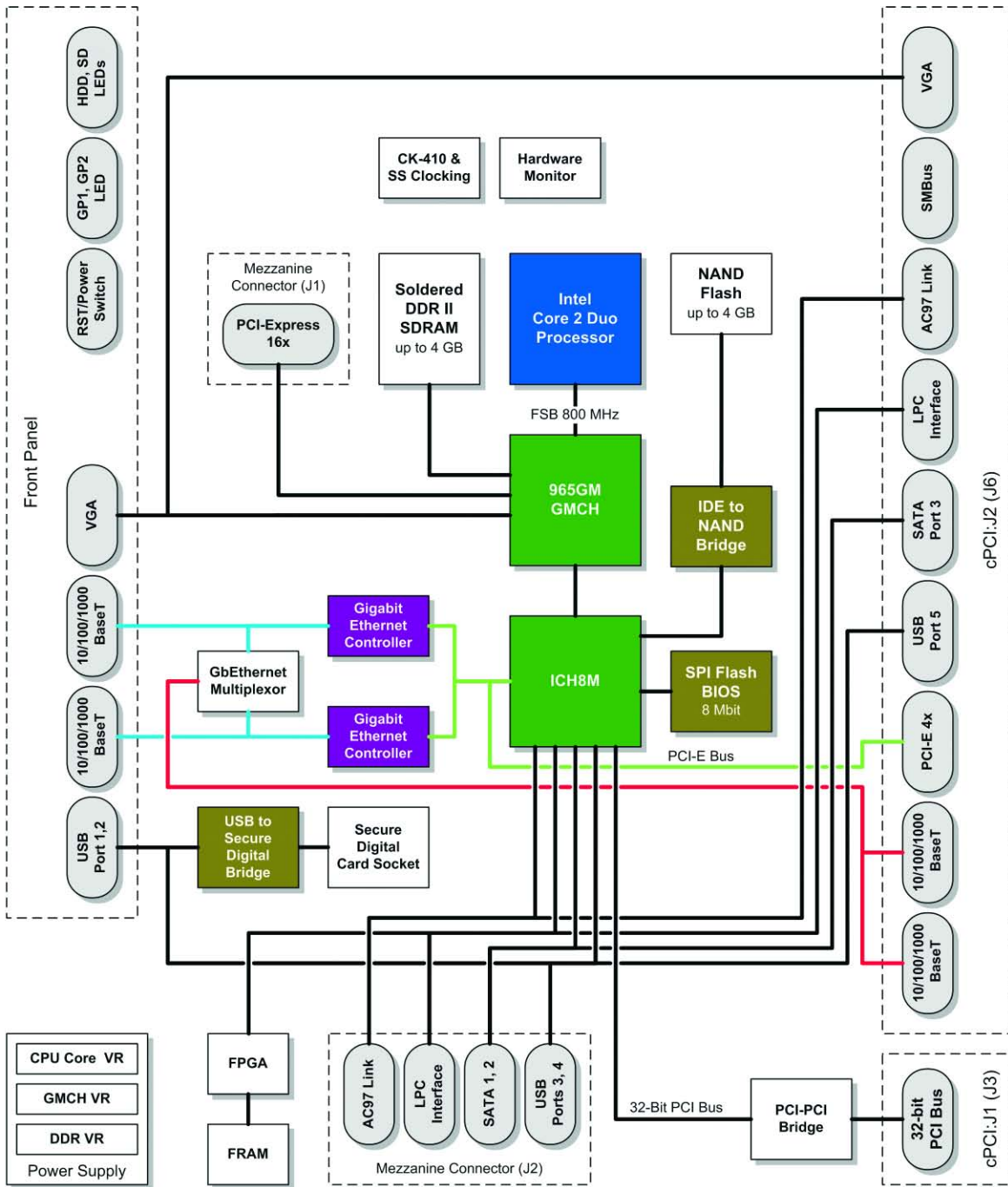- MTBF: 100 000 hours

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

* available on mezzanine and custom RIO modules

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Block Diagram

Expansion Capabilities

MIC584 mezzanine module for CPC504 expands its functions by carring 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, 88.3x100mm (3.48"x3.94"), 4HP

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Ordering Information

CPC504 Configuration

CPC504 - 01 - P1.8 - I \Options

Configurations

01	NAND Flash 2048MB, no 2xDVI-D
02	no NAND Flash 2048MB, no 2xDVI-D
03	NAND Flash 2048MB, 2xDVI-D
04	no NAND Flash 2048MB, 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

CPC504 Available Options

Coating	
\COATED	Protective Coating
Operating System Presetting	
\QNX	QNX 6.3x, 4.25
\XPE	Windows XP Embedded
\LNX	Linux 2.6

Other configurations and options are available upon request.

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

Ver. 1.2 2011
Product specifications are subject to change without notice

Applications

Embedded

Process Control

Avionics

Transportation

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