

CPC600

Fastwel 
Creating the Future!

6U VME64/VME64x/2eSST Intel® Pentium® M SBC

2eSST

Gbit
Ethernet

SERIAL
ATA

+85°C
-40°C



Best solutions to fit your demands!

- Full VME64/64x and 2eSST compatibility
- Intel® Pentium® M up to 1.8 GHz onboard
- Four Gigabit Ethernet ports
- Six USB 2.0 ports
- Soldered disk up to 1 GB
- Two Serial ATA channels
- VITA 31 conformance
- Industrial and commercial temperature ranges

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CPC600

6U VME64/VME64x/2eSST Intel® Pentium® M SBC



Overview

CPC600 offers system developers advantage of maximum utilization of VME 64x parallel bus capabilities with an opportunity to use x86 compatible software components running on thermally efficient long-term available Intel processors. CPC600 architecture is based on Intel Pentium M CPUs, and Tundra Semiconductor Tsi148 VME bridging silicon, providing highest parallel bus bandwidth available. Tsi148 supports data rates up to 320 MB/s (2eSST protocol) and is backward compatible with VME32, VME64, and VME64x protocols.

Intel CPU line with long-term availability starts from ULV Celeron M processor, 1.0 GHz with thermal budget of as low as 5.5 W that gives an opportunity to use it in systems with natural convection cooling environment, and ends with Pentium M 1.8 GHz capable to run complex tasks within wide temperature range.

CPC600 employs DDR SDRAM memory with ECC. This function corrects 1-bit errors in 64-bit memory blocks, thus increasing system persistence in environments with unstable power supply, static discharges, high RFI levels, and radiation interference. Maximum memory capacity is 2 GB.

CPC600 has vast communication capabilities – 4 independent Gigabit Ethernet channels, 2 of which are available at the front panel, and the rest 2 are routed to P0 backplane connector according to VITA31.1 standard. CPC600 gives VME system developers a choice of three high-speed communication interconnects – two Gigabit Ethernet and one highest bandwidth VME parallel bus (up to 320 MB/s) – to build the most efficient architecture for data planning, control and management tasks.

CPC600 uses onboard graphics controller for video signal output via two independent interfaces, VGA (resolutions up to 2048x1536 at 75 Hz) and LVDS routed to P0 backplane connector and can be available via rear I/O board.

CPC600 storage subsystem includes CompactFlash socket, soldered onboard 32 MB solid-state disk and sites for two 1.8" and 2.5" IDE HDDs, within boundaries of one 4HP slot. CPC600-01 has a site, in which either 1.8" HDD or 64-bit PMC module is installed. CPC600-02 is capable to carry additional 2.5" HDD at expense of heatsink size (reduced heatsink size requires more efficient forced system ventilation). Besides, CPC600 has two SATA and one EIDE interfaces accessible via rear I/O board.

To increase running applications reliability, CPC600 is equipped with a number of hardware tools for system monitoring: user programmable baseboard management controller, watchdog timer, supply voltages and temperatures monitoring. All key components of CPC600 including CPU and memory are soldered onboard, thus allowing the board to withstand vibration loads up to 5G and shocks up to 50G.

For customers developing systems for conductive cooling environment Fastwel offers cost-effective adaptation of CPC600 with doubled width (8HP) and Rear I/O (Fastwel RIO680).

Fastwel CPC600 supports various operating systems from hard real-time to most commonly used in general industrial automation systems.

Features

- Full VME64/64x and 2eSST compatibility
- Intel® Pentium® M up to 1.8 GHz onboard
- Four Gigabit Ethernet ports
- Six USB 2.0 ports*
- Soldered disk up to 1 GB
- Two Serial ATA channels
- VITA 31 conformance
- IPMI ready
- Operating temperature:
 - 0°C to +70°C — commercial
 - 40°C to +85°C — industrial

Technical Specifications

System

- Intel® Pentium® M/Celeron® M ULV processor, up to 1.8 GHz
- Up to 2 MB L2 on-die cache at CPU speed
- 400 MHz processor system bus
- Chipset: 82855GME GMCH & 6300 ESB ICH & Tundra Tsi148
- Up to 2 GB PC2700 DDR SDRAM with ECC:
 - Up to 1GB soldered
 - Up to 1GB in SODIMM socket
- Hardware monitor: voltages and temperature monitoring, system control functions, remote control
- Programmable watchdog timer
- Real time clock with Li battery
- MTBF: 85 000 hours

BIOS

Phoenix® BIOS

- LAN Boot
- USB Boot
- Multi Boot
- Quick Boot
- ACPI 3.0

Graphics

- Video controller integrated in 855GME
- 2D/3D built-in accelerator
- Shared video memory up to 64 MB
- Analog display interface supports resolution up to 2048x1536 @ 75 Hz
- LVDS interface via blackplane

Storage

- 32 MB solid-state disk (up to 1GB upon OEM request) soldered onboard
- CompactFlash™ Type I socket
- Two EIDE Ultra ATA/100 Interfaces*
- Two SerialATA channels*
- Floppy disk interface*

Software support

- Linux® 2.4.20, 2.6.11
- Fastwel DOS™ (MS™ DOS compatible)
- QNX 6.3, 4.25

Interfaces

- 64-bit PMC modules support; PCI-X interface, 3.3 V; 1.8" HDD site shared with PMC
- PCI-X/VME bridge Tsi148; VME and VME64 compliant; PCI-X 133 MHz compliant

- Four Gigabit Ethernet ports 10/100/1000 Mb/s: two of them are available via Rear I/O front panel connectors
- Six USB 2.0 ports*
- Serial port RS-232. High speed NS16C550 compatible. Two more serial ports are available via RIO 680
- Parallel port: SPP/ECP/EPP compatible*
- PS/2 keyboard and mouse interface*
- AC'97 2.3 compliant stereo audio*
- Program upgradable firmware; ANSI/VITA 38 compliant
- Opto-isolated remote Reset*
- LPC interface*
- Compatibility with VME64 systems with legacy 96-pin headers
- Transition Board support
- Two programmable LEDs

VME compliance

- ANSI/VITA 1, VME64
- ANSI/VITA 1.1, VME64 Extensions
- ANSI/VITA 31.1, Gigabit Ethernet on VME64x
- ANSI/VITA 35, PMC-P4 Pin Out Mapping to VME
- ANSI/VITA 39, PCI-X on PMC and Processor PMC

Mechanical Dimensions

- 6U, 4HP (233x160 mm, 9.0"x6.2")
- Weight: 0.725 kg

Power requirements

- 5 V @ 8 A, 12 V @ 0.1 A, 5 V stby

Environmental conditions

- Operating temperature:
 - 40°C to +85°C — industrial
 - 0°C to +70°C — commercial
- Storage temperature: -55°C to +95°C
- Humidity: 0% to 95%, noncondensing
- Shock/Vibration: 50G/5G

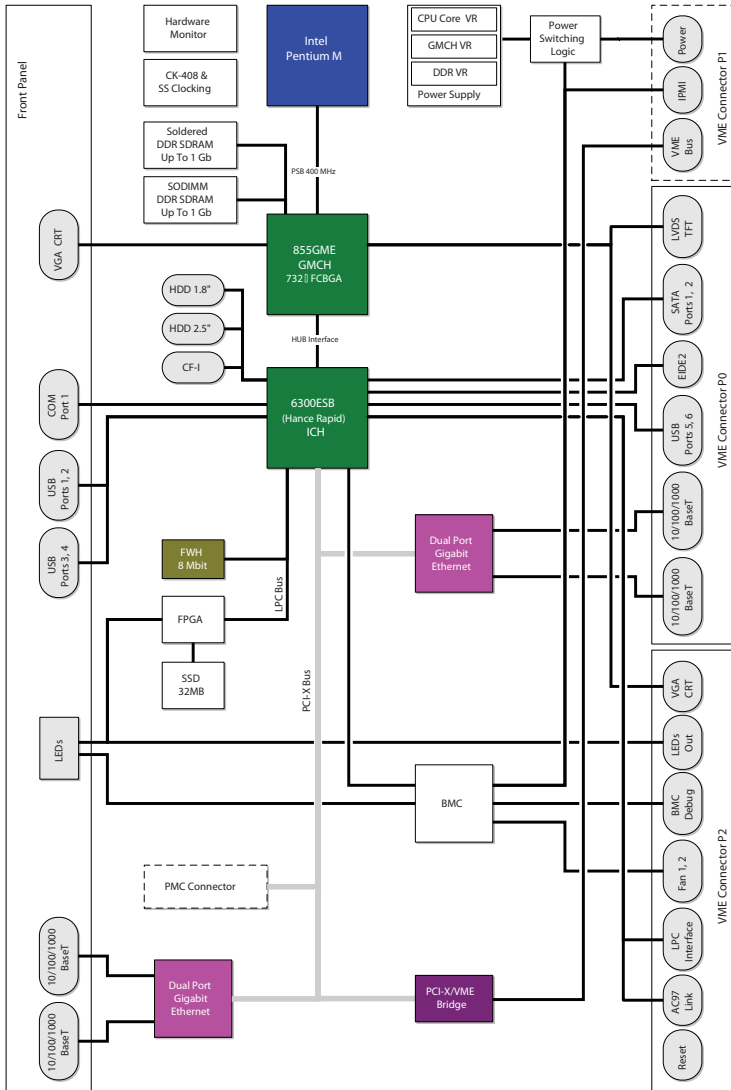
Warranty

- 3 years for parts and labor

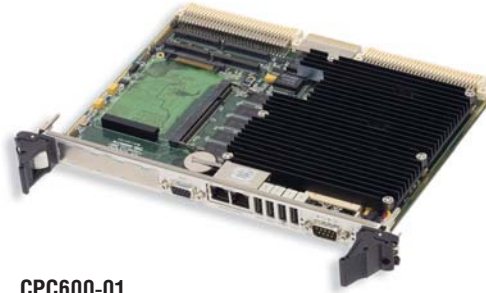
List of deliverables

- CPC600 module with radiator installed
- Screws set for HDD 2.5" installation
- CD-ROM with documentation and service SW

Board Layout



CPC600 Configurations:

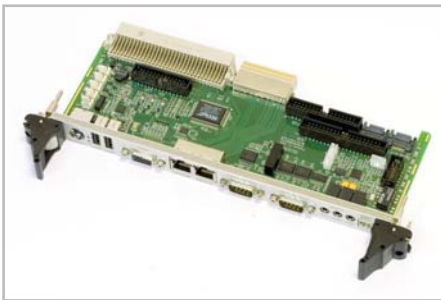


CPC600-01
HDD 1.8" site only, standard heat sink



CPC600-02
HDD 1.8" site, HDD 2.5" site, reduced heat sink

RIO680 Rear I/O module



Interfaces on front panel:

- 2 opto-isolated RS-232 and RS-485
- 2 USB 2.0 ports
- 2 Gigabit Ethernet ports
- SVGA
- AC'97
- PS/2 port for mouse and keyboard connection

Interfaces onboard:

- 2 SATA
- 1 EIDE
- FDD
- LPT
- RS-232
- Connectors for external fans

Overview

RIO680 module is especially designed for use with CPC600 processor module. This Rear I/O module is plugged into the appropriate backplane connectors in line with the CPC600 CPU module and expands its functionality. Processor module can work with only one Rear I/O module at a time. Besides expansion of CPC600 functionality, RIO680 can provide benefits for system design with rear cabling.

RIO680 is available in two versions: for commercial and industrial operating temperature ranges. Custom design is available upon request.

CPC600

6U VME64/VME64x/2eSST Intel® Pentium® M SBC

Ordering Information

CPC600 Configuration

CPC600 - 01 - P1.8 - RAM1024 - I \Options

Device Type

CPC600 6U VME 2eSST, VME VITA 31.1, Pentium® M, SVGA, 4xGigabit LAN, 64-bit PMC

Configurations

01 HDD 1.8" site only, standard heat sink
02 HDD 1.8" site, HDD 2.5" site, reduced heat sink

Processor

P1.4 Pentium M 1.4 GHz, LV, 400 MHz FSB
P1.8 Pentium M 1.8 GHz, 400 MHz FSB

Soldered Memory

RAM512 512 MB soldered DDR SDRAM ECC
RAM1024 1024 MB soldered DDR SDRAM ECC

Temperature Range

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

Options

\xxx Choose available options from the table

CPC600 Available Options

SODIMM Memory Module	
\SODIMM512	512 MB DDR SDRAM SODIMM, industrial range
\SODIMM512C	512 MB DDR SDRAM SODIMM, commercial range
\SODIMM1024	1024 MB DDR SDRAM SODIMM, industrial range
\SODIMM1024C	1024 MB DDR SDRAM SODIMM, commercial range
\SODIMM1024ECC-I	1024 MB DDR SDRAM SODIMM with ECC, industrial range
\SODIMM1024ECC-C	1024 MB DDR SDRAM SODIMM with ECC, commercial range
Compact Flash Module	
\CF1024	1024 MB Compact Flash, industrial (CF1024C – commercial)
\CF2G	2 GB Compact Flash, industrial (CF2GC – commercial)
\CF4G	4 GB Compact Flash, industrial (CF4GC – commercial)
\CF8G	8 GB Compact Flash, industrial (CF8GC – commercial)
\CF16G	16 GB Compact Flash, industrial (CF16GC – commercial)
Disk Drive 2.5" Installed (for CPC600-02 only)	
\HDDxx	Hard Disk Drive 2.5" xx GB
\FFD2048	Flash Disk 2.5" 2048 MB
Coating	
\COATED	Protective coating
Operating System Presetting	
\LNX	Linux 2.4.20, 2.6.11

Other configurations and options are available upon request.

Example

CPC600-01-P1.8-RAM1024-C\SODIMM512\CF1024C\HDD20S\FFD2048\COATED\LNX
6U VME, Pentium® M SBC, DDR, FFD 32 MB, VGA, 4xGB LAN
Standard heat sink; Pentium M 1.8 GHz, 400 MHz FSB; 1024 MB soldered DDR SDRAM
Commercial temperature range 0...+70°C; 512 MB DDR SDRAM SODIMM, commercial;
1024 MB Compact Flash, commercial; Hard Disk Drive 1.8" 20 GB;
Flash Disk 2.5" 2048 MB; Protective coating; Linux

Ver. 1.2 2009

Product specifications are subject to change without notice

Applications



Avionics



Space



Transportation



Embedded

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