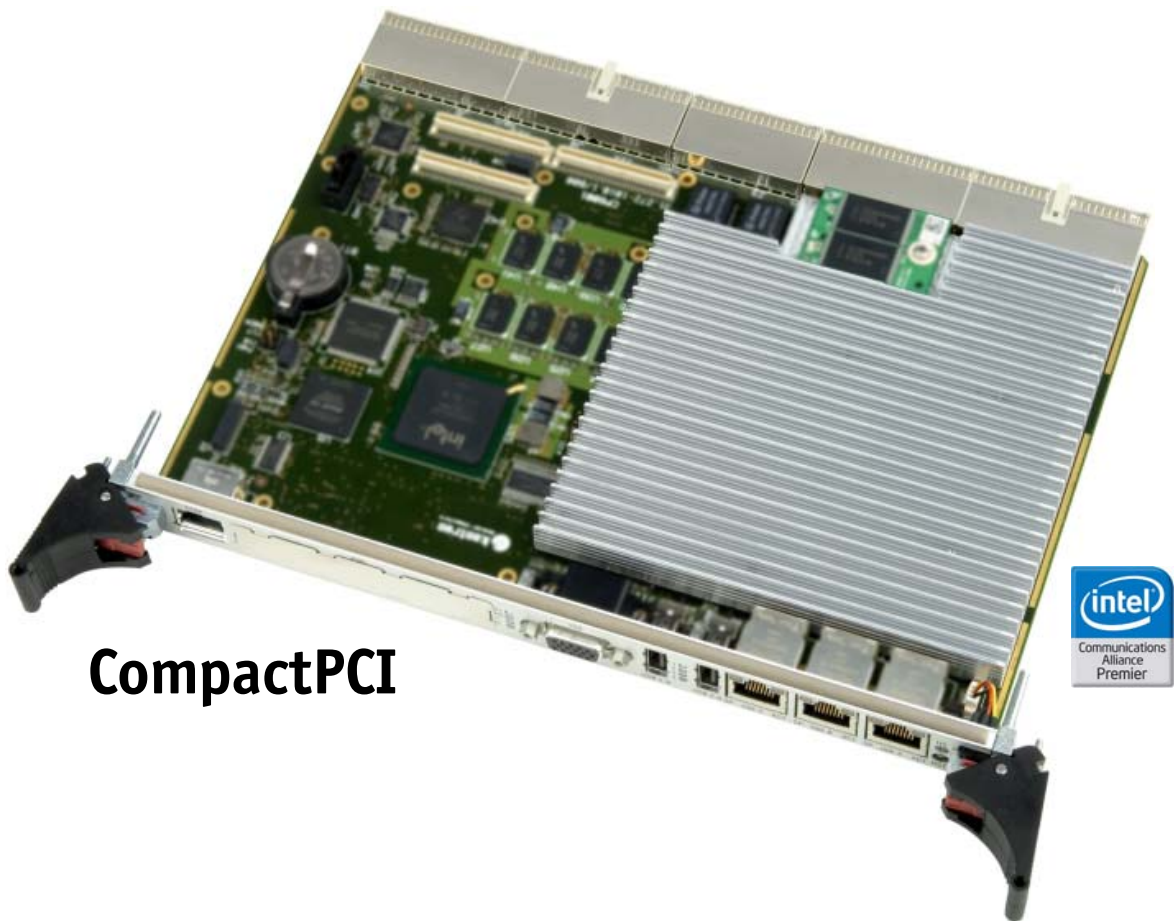




CP6001

6U Intel® Core™2 Duo Rugged Processor Blade



CompactPCI

- **High computing and graphic performance**
ULV and LV Intel® Core™(2) Duo processors combined with 945 chipset
- **Three Rugged Levels - R1, R2, R3 - for demanding application requirements**
High shock and vibration resistant and conduction cooled versions
- **Comprehensive I/O capabilities**
3x GbE, 4x SATA, 2x DVI, onboard HDD, Flash ...

➤ The Power of Intel® Core™2 Duo

Reliable, Resistant, Robust ...

Explore the power and the potential of two cores in one processor with Kontron's CP6001 based on the Intel® Core™ Duo / Core™2 Duo processor.

The CP6001, a CompactPCI PICMG 2.16 compliant 6U CPU board, comes with three rugged levels, making it yet another addition to Kontron's rugged PICMG 2.16 portfolio. Based on the Intel® Core™ Duo / Core™2 Duo processor and mobile chipset, the CP6001 features high computing and graphic performance with a low thermal power design and a complete set of data, communication and multimedia interfaces.

Maximum Ruggedization

Designed to withstand even the toughest environmental conditions, the passively cooled CP6001 featuring up to 4 GByte of soldered RAM and 2 GByte of soldered application flash comes in three rugged levels - defined as R1, R2 and R3. All three

versions are available with E2 capabilities on project request (extended temperature range from -40° C to +85° C). The R1 version is designed for standard application requirements in air-cooled environments. The R2 version is ruggedized for high shock and vibration, air-cooled environments up to, and including VITA 47's EAC3. The R3 version is fully conduction cooled and meets the VITA 47's ECC4 requirements.

The CP6001 features energy efficient embedded Intel dual core processors. With the 1.2 GHz Intel® Core™ Duo U2500 ULV processor and the Intel® Core™2 Duo L7400 LV processor, the CP6001 has extraordinary performance-per-watt values. Based on the Intel® Mobile 945GM chipset with a front side bus of up to 667 MHz and ICH7-R Southbridge, the CP6001 provides high graphics performance for the two independent digital video outputs to the rear I/O as well as HDA audio capabilities.

Comprehensive Versatility

The CP6001 offers comprehensive I/O capability with 3 x GbEthernet, 4 x SATA with RAID 0/1/5/10 functionality as well as 6 x USB 2.0, 2 x COM and VGA and/or DVI. It can also accommodate a PMC slot or an onboard 2.5" SATA HDD. With up to 8 Gbyte of USB or 2 GByte soldered flash, the CP6001 enables construction of a highly shock and vibration resistant system with non-rotating, non-volatile memory.

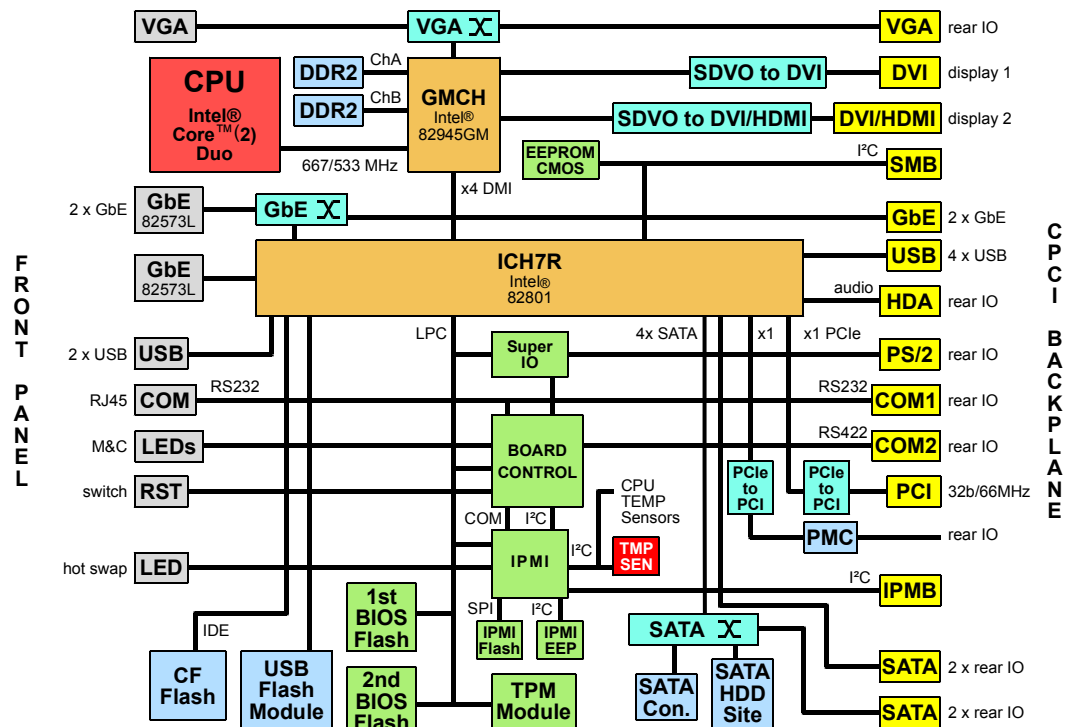
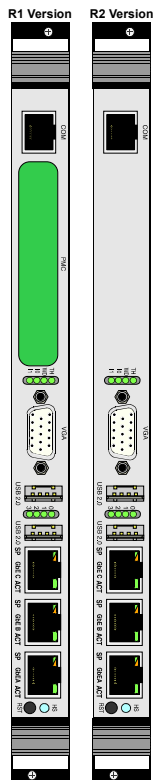
Unique Security

The board provides safety and security via a trusted platform module, (TPM) 1.2, two redundant 8 Mbit firmware hubs (fail-over) and IPMI (Intelligent Platform Management Interface) support (PICMG 2.9 R1.0).

Long-term Availability

Delivering a stable product based on Intel's embedded product line the CP6001 ensures long-term availability.

➤ Front Panels ➤ Functional Block Diagram



➤ Specification

... three levels of ruggedization

Processor

Intel® Core™(2) Duo Processor (65 nm):

- Core Duo U2500, 1.2 GHz, 533 MHz FSB, 2 MB L2 cache, (ULV)
- Core2 Duo L7400, 1.5 GHz, 667 MHz FSB, 4 MB L2 cache, (LV)

Note: Versions incorporating other CPUs available on project request.
Please contact us for further assistance.

Chipset

- GMCH Intel 945GM, dual-channel DDR-2 memory controller, internal graphics controller with dual independent graphic channels
- I/O Hub Intel ICH7R, 4 SATA II controllers, 7 x USB 2.0 (used 6 x USB), 6 x PCI-Express x1 (used 5 x PCI-Express x1), 1 x LPC

Memory

- Up to 4 GByte DDR-2, 533/667MHz, w/o ECC, 2 channels: 2 GB soldered + 2 GB soldered
- Up to 4 GB NAND soldered Flash with onboard CompactFlash controller
- Two redundant 8 Mbit Firmware Hubs (FWH)
- Serial EEPROM (24LC64) 64 kbit for storing CMOS data when operating without battery

Onboard Controller

- Gigabit Ethernet: three Intel 82573L Gigabit Ethernet PCI Express bus controllers:
 - 1x fixed to front I/O
 - 2x selectable between front or rear I/O to support PICMG 2.16
- Watchdog: FPGA-based, software configurable, two-stage Watchdog with programmable timeout ranging from 125 ms to 256 s in 12 steps
- RTC, integrated in ICH7R
- IPMI Controller, Renesas H8S/2166 controller with on-chip 512 kB Flash and 40 kB RAM; ext. 1 MB SPI Flash, 64 kbit EEPROM
- Super I/O: LPC Super I/O from SMSC SCH3112I-NU, 2x UART, HW-Monitor, PS2, fan control
- Trusted Platform Module (TPM): Infineon SLB 9635 TT 1.2

System Interconnect

- Serial ports: two COM ports (transceivers onboard)
 - COM1 as RS232 COM1 on front and rear I/O
 - COM2 as RS422 on the rear I/O interface
- USB NAND Flash: One USB port of the ICH7R is routed to a dedicated onboard connector, where USB-NAND-Flash modules can be connected
- SATA: Four Serial ATA II ports
 - Two ports are routed to rear I/O
 - Two are selectable between rear I/O or onboard usage:
 - One onboard SATA interface routed to a standard SATA connector
 - One available as 2.5" onboard HDD (mutually exclusive with PMC)
- PMC: one 32-bit / 66 MHz PCI PMC slot with rear I/O support, 5V and 3.3V PCI signalling supported

Front Panel Functions

- Ethernet: 3 x 1000/100/10 Base Ethernet on RJ45
- VGA: 1 x 15-Pin D-Sub connector for standard analog displays
- COM: 1x RS232 UART interface on RJ45 connector
- USB: 2x 4-pin connectors
- PMC: opening for PMC front panel (R1 only)
- LEDs: 2x LAN activity (yellow) and speed (green)
one blue control LED for hot swap
2x for IPMI, 1x watchdog, 1x thermal control
4-LED-field for BIOS POST code or general purpose
- Reset: reset button, guarded
- Micro switch: for hot swap

I/O Table Summary

Description	Front I/O	Rear I/O	Onboard Connector	Total
Video	1	2	-	2
USB	2	4	-	6
Serial	1	2	-	2
PS/2 Mouse/Kbd	-	1	-	1
Ethernet	3	2	-	3
SATA	-	4	2	4
USB-Flash	-	-	1	1
PMC	1	via J4	Pn1/Pn2/Pn4	1

CompactPCI Bus Interface

- PICMG 2.0, 32-bit / 66 MHz
- Universal signaling, REQ/GNT for 7 slots
- Operating in system slot as system master and in peripheral slot in PCI passive mode (no communication to CompactPCI bus)

Rear I/O via J3/J4/J5

- J3: PICMG 2.16, VGA, COM 1/2, keyboard, mouse, USB 3-6, HDA, speaker, FAN sense
- J4: PMC I/O
- J5: SATA 1-4, DVI, HDMI

IPMI

- IPMI 1.5 compliant

Compliance

- CompactPCI Core Specification PICMG 2.0 Rev. 3.0
- CompactPCI Hot Swap Specification PICMG 2.1 R2.0
- CompactPCI System Management PICMG 2.9 R1.0
- CompactPCI Packet Switching Backplane PICMG 2.16 R1.0

Designed to meet or exceed:

- Safety: UL 1950, UL 94, CSA 22.2 No 950, EN 60950, IEC 950
- EMI/EMC: EN 55022 / EN 55024, EN 50081-1 / EN 6100-6-2

General

- Dimensions: 233 x 160 x 20.5 mm, 6U, 4HP
- Weight: R1: 622g; R2: 740g; R3: 698g
- MTBF: 180,332 h acc. to MIL-HDBK 217FN2, Ground Benign GB controlled at 30°C

Software Support

- AMI BIOS with POST codes
- Setup console redirection to serial port (VT100 mode) with CMOS setup access
- BIOS parameters saved in EEPROM
- Diskless, keyboardless, videoless operation, LAN boot support
- Board identification number accessible via EEPROM
- Support for Windows® XP, XP Embedded, Linux®, VxWorks® (other OSs may be possible, please contact us for information)

Power Consumption

- U2500 ULV 1.2 GHz and 1GB memory: max. 23W
- L7400 LV 1.5 GHz and 4GB memory: max. 35 W

Environmental

- CP6001-R1: IEC 60068-2-6; IEC 60068-2-27; IEC 61131-2; (0 to 60°C, forced air cooling required)
- CP6001-R2: R1 + VITA 47, class V1/EAC3; normal and extended (-40 to +85°C, forced air cooling required)
- CP6001-R3: VITA 47, class ECC4
MIL-STD-810 Method 514 Proc 1
MIL-STD-810 Method 516 Proc 1
extended (-40 to +85°C, conduction cooling required)
Higher shock and vibration levels can be achieved when installed in a ruggedized system.

➤ Ordering Information

Product	Description	Order Number
CPU Boards		
CP6001-R1-1.2-1G	R1-Level, Intel Core Duo U2500 ULV 1.2 GHz, 1GB soldered Memory	36880
CP6001-R1-1.5-2G	R1-Level, Intel Core2 Duo L7400 LV 1.5 GHz, 2GB soldered Memory	36874
CP6001-R1-1.5-4G	R1-Level, Intel Core2 Duo L7400 LV 1.5 GHz, 4GB soldered Memory	37139
CP6001-R2-1.5-2G ¹⁾	R2-Level, Intel Core2 Duo L7400 LV 1.5 GHz, 2GB soldered Memory	36879
CP6001-R2-1.2-1G-E2 ¹⁾	R2-Level, Intel Core Duo U2500 ULV 1.2 GHz, 1GB soldered Memory, E2 (-40°C to +85°C)	1021-8796
CP6001-R3-1.2-1G-E2 ¹⁾	R3-Level, Intel Core Duo U2500 ULV 1.2 GHz, 1GB soldered Memory, E2 (-40°C to +85°C)	37059
USB-Flash Modules		
FLASH-UDOC-2GB	uDOC-Module, low Profile, 2GByte	35953
FLASH-UDOC-4GB	uDOC-Module, low Profile, 4GByte	35954
FLASH-UDOC-8GB	uDOC-Module, low Profile, 8GByte	-
Services		
CP6001-MK2.5SATA ^{2) 3)}	Mounting kit for 2,5" SATA-HDD onboard, mounting within 4HP	37248
Rear Transition Modules		
CP-CTM80-3	Various 4HP versions available	29973
CP-RI06-001	With 2xDVI-D; 2xUSB2.0; 2xGbE; headers for 2xCOM, Flash, SATA, fan	37459
	With 1xDVI-D; 2xUSB2.0; 2xGbE; socket for SATA 2.5" disk; headers for 2xCOM, Flash, SATA, fan	37460
Software Support		
KIT-CP6001 ⁴⁾	Documentation and Windows driver kit on CD-ROM	36894
LIN-BSP-CP6001 ⁴⁾	Linux BSP CP6001 for Suse and RedHat	36895
VxW-BSP-CP6001	VxWorks BSP 6.6 SMP support	36896

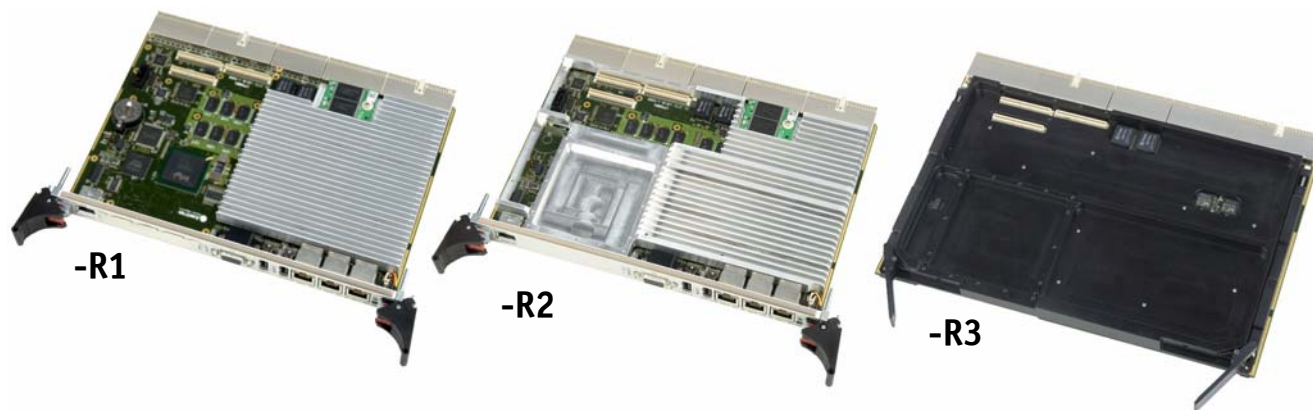
1) No onboard HDD possible, only conduction cooled PMC.

2) Mounting kit CP6001-MK2.5SATA for -R1 version only; mutually exclusive with PMC slot usage.

3) HDD must be ordered separately.

4) Free of charge, downloadable from the Internet.

Please contact your local sales representative for other configuration options.



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