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kontron

» CP308 «



Intel® Core™2 Duo 3U CompactPCI® CPU board

» **Highest performance based on latest 45nm technology**
Intel® Core™2 Duo processor up to 2.26 GHz

» **Latest DDR3 memory technology**
Providing memory throughput (up to 17 GB/s)

» **Comprehensive I/O capabilities**
Gigabit Ethernet, USB, VGA, SATA, RAID, USB NAND Flash ...

CP308

64-bit processing performance in 45nm package

Discover the capabilities of Intel®'s new high performance 45nm technology, comprising new micro architecture features for greater performance at a given frequency, up to 50-percent larger L2 caches, and expanded power management capabilities for new levels of energy efficiency. Enhancements in technologies like Intel® Virtualization, Dynamic Acceleration and SpeedStep® allow further performance gains.

Equipped with the next generation of high-performance Core 2 Duo mobile processors manufactured using the 45nm process and the mobile chipset GS45, the CP308 offers the greatest performance ever achieved in the 3U CompactPCI® form factor. With support for up to 8GB latest DDR3 memory running at a memory bus speed of up to 1066 MHz the CP308 can provide a data throughput of up to 17 GB/s.

Unique Versatility

The huge range of state-of-the-art interfaces available either at the front, as onboard header or via Rear IO allows the CP308 to be easily adapted to the individual application needs. Further on the CP308 is equipped with two high speed expansion connectors, which can be used to directly attach one of the two extension boards CP308-HDD or CP308-MEDIA. For fast and easy data storage the CP308 can be optionally equipped with an USB NAND Flash module.

Highest Data and System Security

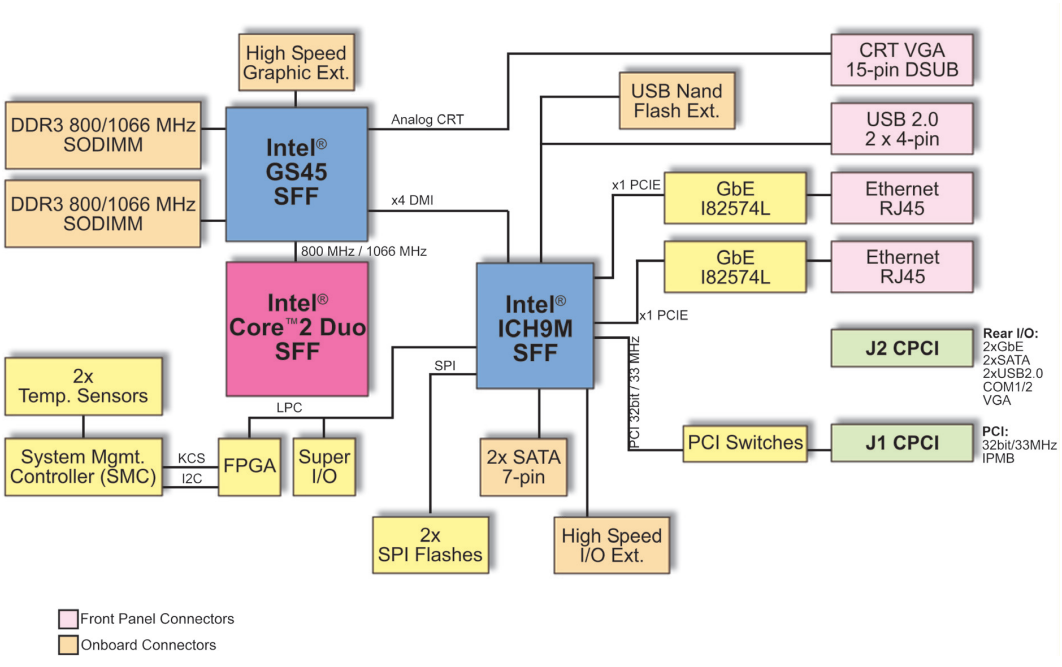
The chipset integrated Trusted Platform Module (iTPM) provides hardware based encryption mechanisms to create, seal or store keys, passwords and other important data and therefore guarantees data and system security on a high level.

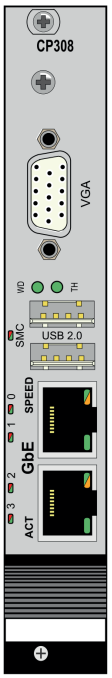
Comprehensive System & Management functionality

To take over system management tasks the CP308 provides a 32bit system management controller(SMC). With this the reading of temperature and voltage values as well as controlling and supervising of fans is possible. Moreover the status of additional in the system installed CompactPCI® cards can be controlled and their status can be read via the IPMB bus. To have a solid base the implemented Firmware is based on the well-established IPMI technology. On the system side, the CP308 supports a PCI 32-bit, 33MHz CompactPCI® interface enabling the peripheral mode feature. When installed in a system master slot, the CompactPCI® interface will work in transparent mode, whereas the CompactPCI® interface will be isolated when installed in a peripheral slot.

Longterm Availability

Investing in a new project is always a challenge and risky. Extending the lifetime of an application to the possible maximum is therefore a critical issue to save the development investments. Delivering a stable product based on Intel®'s embedded product line the CP308 ensures long term availability. This eliminates the risk of unplanned design changes and unexpected expensive application modification. While minimizing deployment risks by providing a broad range of software support the CP308 eases the process of product integration and maximizes your competitive advantage to meet your time-to-market window. Thanks to the future oriented design the CP308 provides enough headroom for the emerging next generation applications requirements.





Technical Information

Processor	Intel® Core™2 Duo processor in SFF (Small Form Factor) BGA package (45nm manufacturing process): » Core™2 Duo SP9300, 2.26 GHz, 1066 MHz FSB, 6 MB L2 cache » Core™2 Duo SL9400, 1.86 GHz, 1066 MHz FSB, 6 MB L2 cache » Core™2 Duo SU9300, 1.2 GHz, 800 MHz FSB, 3 MB L2 cache All board versions are passive cooled with a heatsink within 4HP height Forced air cooling at a specific flow rate is required depending on the processor version
Memory	
System Memory	Up to 8GByte dual channel DDR3 1066 MHz memory, without ECC, Both channels realized as SODIMM sockets
USB Flash	Up to 16GB USB NAND Flash module
Flash (uEFI)	Two redundant 4 MByte SPI Flashes
EEPROM	Serial EEPROM (24LC64)
Compact Flash	Onboard CompactFlash mounting within 8HP mezzanine
HDD	Onboard 2.5" SATA HDD mounting within 8HP mezzanine
Onboard Controller	
GMCH Graphic Memory Controller Hub	Intel® GS45 (Small Form Factor) Dual-channel DDR3 memory controller (800/1066 MHz) Internal graphics controller (two engines) or PCIe x16 port
I/O Controller Hub	Intel® ICH9M SFF 4x SATA II ports with RAID functionality (0,1) 8x USB 2.0, 6 x PCI-Express x1, LPC, SPI, HDA (High Definition Audio) 1x 32-bit/33MHz PCI master interface
VGA	Integrated in GS45 max. 2048 x 1536 pixels (QXGA), 16M colors, @75Hz, CRT, max. 384MByte used from system memory
Gigabit Ethernet	2x GbE Front or Rear (s/w switchable), 82574L PCI-Express controller, WOL (Wake-On-LAN) support
Super I/O	LPC Super I/O SMSC SCH3112I-NU with 2x UART and PS/2
Watchdog	Two-stage Watchdog with programmable timeout ranging from 125ms to 4096s in 16 steps FPGA-based, software configurable
Trusted Platform Module (TPM)	Chipset integrated TPM, Compliant to Trusted Computing Group TPM Specification revision 1.2
System Management Controller	NXP LPC2136 32bit controller with on-chip 256 kB Flash and 32 kB RAM, External 512 kbit EEPROM
Front Panel Interfaces	
VGA	1x VGA-CRT 15-pin D-Sub connector
USB	2x USB 2.0 ports, 4-pin standard USB connectors
LEDs	4x bicolor control and status LEDs, 1x bicolor SMC LED, 1x Thermal and 1x Watchdog LED
Ethernet	2x RJ45 with integrated LEDs (ACT, SPEED)
Onboard Interfaces	
USB Flash	1x USB port routed to a dedicated onboard connector for mounting an optional USB NAND Flash module
Serial ATA	4x Serial ATA II ports: 2 x ports are fixed to onboard standard SATA connectors, 2 x ports can be switched either to the I/O extension or to rear I/O
I/O Extension Connector (to 8HP)	I/O Extension connector holds the following interfaces: 2 x SATA, 3 x USB, 4x PCIe x1 or 1x PCIe x4, HDA, PS/2, COM
High Speed Graphics Extension Connector (to 8HP)	2x Display Port (DP), 2x HDMI, SDVO and PCIe x16 graphics port (the pins are multiplexed and not all interfaces can be used simultaneously)
Rear I/O via J2	The Rear I/O versions support: » Two Gigabit Ethernet ports without LED » Two SATA interfaces » Two USB 2.0 ports » Two COM ports (3.3V TTL signalling) » One CRT VGA port » One fan control input » One power management output » Monitor and control signals for fan and power supply
CompactPCI® Bus Interface	PICMG 2.0 Rev. 3.0 compatible, 32-bit/33MHz, version with rear I/O on J2 PICMG 2.0 Universal 5V and 3.3V PCI signalling voltage supported, 7 Req/Gnt & clock lines Operating in system slot as system master and in peripheral slot in PCI peripheral mode
Supervisory Functions	Watchdog, software configurable, 125ms to 4096s, generates IRQ or hardware reset, Firmware to read temperatures and onboard voltages, control fan speeds
Hot Swap	Support for all signals to allow peripheral boards to be hot swapped, The individual clocks for each slot and access to the backplane ENUM# signal comply with the PICMG 2.1 Hot-Swap specification
Compliancy	CompactPCI® Core Specification PICMG 2.0 Rev. 3.0 CompactPCI® Hot Swap Specification PICMG 2.1 R2.0 Designed to meet or exceed: » Safety: UL 60950-1, CSA 22.2 No 60950, EN 60950-1, IEC 60950-1 » EMI/EMC: EN 55022 / EN 55024, EN 61000-6-3 / EN 61000-6-2
General	
Dimensions	100 x 160mm, 3U, 4HP
Weight	460g / 4HP
MTBF	219,495 h acc. to MIL-HDBK-217 FN2, Ground Benign GB, controlled at 30°

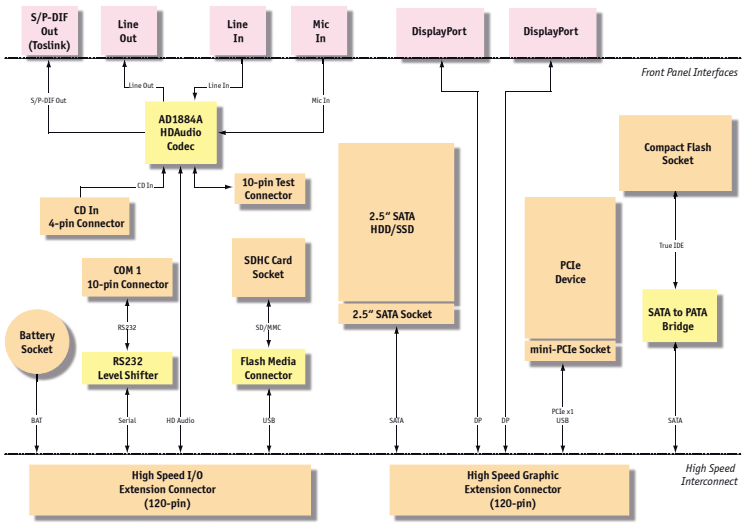
Technical Information

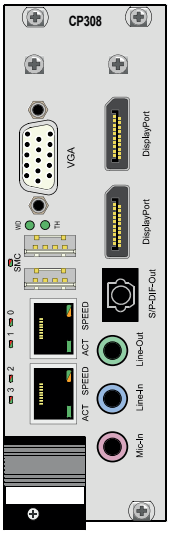
Software Support	» AMI uEFI, setup console redirection to serial port (VT100 mode) with CMOS setup access, EFI Shell support, Board configuration via Shell, diskless, keyboardless, videoless operation » LAN boot support » Board identification number accessible via EEPROM » Support for Windows® XP, Windows® XP Embedded, Windows® Vista, Windows® Server 2003, Windows® Server 2008, Windows® 7, Windows® Embedded Standard 7, Linux, VxWorks (BSP's downloadable from the Internet; other OSs may be possible, please contact us for information)
Power Consumption	
SL9400 LV 1.86 GHz and 2GB memory	Typ. 18W
Environmental	
Operating temperature	0°C to +60°C standard -40°C to +85°C with ULV 1.2 GHz

CP308-HDD & CP308-MEDIA

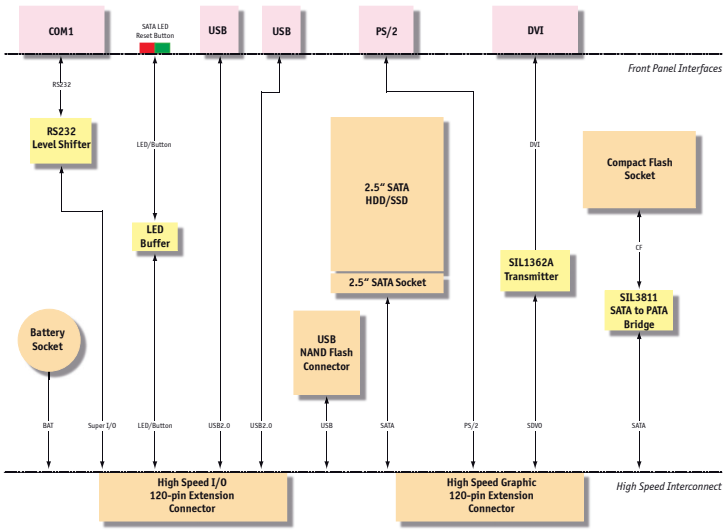
4HP Extension Modules for CP308

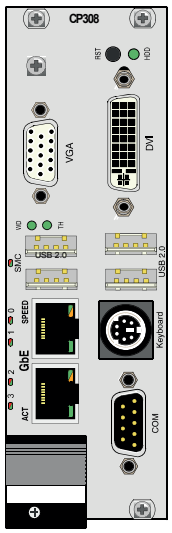
CP308-MEDIA





CP308-HDD





CP308-MEDIA

Technical Information

Onboard Controller	
HD Audio	AD1884A HD audio codec supporting the following ports: Mic-In stereo port, Line-In stereo port, Line-Out stereo port, S/P-DIF-Out digital port, CD-In stereo port, Internal line-out mono port
Front Panel Interfaces	
DisplayPort	2x 20-pin DisplayPort connectors, DVI/HDMI capable through passive cable adapter
Mic-In	1x 3.5 mm stereo jack, pink
Line-In	1x 3.5 mm stereo jack, blue
Line-Out	1x 3.5 mm stereo jack, green, with headphone detection
S/P-DIF-Out	1x optical fiber connector (Toslink)
Onboard Interfaces	
Serial ATA	1x SATA connector for connecting a SATA 2.5" HDD/SSD
CompactFlash	1x CompactFlash card socket, CF Type I and II supported
SD/SDHC	1x SD/SDHC card socket
PCI Express Mini Card	1x PCI Express Mini Card socket, with support for PCIe x1 or USB 2.0
Serial Port	1x 10-pin connector, RS232
CD-In	1x 4-pin connector, stereo port
Line-Out	1x 2-pin connector, mono port
General	
Dimensions	100 x 162mm, 4HP (extends CP308 to 8HP)
Weight	585 grams (CP308 with CP308-MEDIA)
MTBF	978,674 h acc. to MIL-HDBK-217 FN2, Ground Benign, controlled at 30°
Power Consumption	Typ. 1.5W, without peripheral devices connected
Environmental	
Operating temperature	0°C to +60°C standard, -40°C to +85°C with special screened version
Storage temperature	-55°C to +85°C
Humidity	93% RH at 40 °C, non-condensing (acc. to IEC 60068-2-78)

CP308-HDD

Technical Information

Front Panel Interfaces	
DVI	1x 29-pin DVI-D connector
USB	2x USB 2.0 ports, 4-pin standard USB connectors
COM	1x 9-pin D-Sub connector, RS232 signaling
PS/2	1x 6-pin shielded mini-DIN connector for keyboard and mouse
Control	Reset button and HDD LED
Onboard Interfaces	
USB NAND Flash	Up to 16GB USB NAND Flash module
Serial ATA	1x SATA connector for connecting a SATA 2.5" HDD/SSD
CompactFlash	1x CompactFlash card socket, Type I and II supported
General	
Dimensions	100 x 158mm, 4HP (extends CP308 to 8HP)
Weight	590 grams (CP308 with CP308-HDD)
MTBF	1,230,723 h acc. to MIL-HDBK-217 FN2, Ground Benign, controlled at 30°
Power Consumption	Typ. 1W, without peripheral devices connected
Environmental	
Operating temperature	0°C to +60°C standard, -40°C to +85°C with special screened version
Storage temperature	-55°C to +85°C
Humidity	93% RH at 40 °C, non-condensing (acc. to IEC 60068-2-78)

Ordering Information

Article	Description
Standard Configurations	
CP308-SA-1.2D-4-4R-U4-E2	Core 2 Duo SU9300, 1.2GHz, 3MB L2, 4GB SODIMM DDR3, 4HP, Rear I/O, with 4GB USB Flash, extended temp. range E2
CP308-SA-1.2D-4-4R-U8-E2-C	Core 2 Duo SU9300, 1.2GHz, 3MB L2, 4GB SODIMM DDR3, 4HP, Rear I/O, with 8GB USB Flash, extended temp. range E2, with conformal coating
CP308-SA-1.2D-4-8F-CF4-E2-C	Core 2 Duo SU9300, 1.2GHz, 3MB L2, 4GB SODIMM DDR3, 8HP with CP308-HDD, Front I/O, with 4GB CompactFlash, extended temp. range E2, with conformal coating
CP308-SA-1.2D-4-8F-E2	Core 2 Duo SU9300, 1.2GHz, 3MB L2, 4GB SODIMM DDR3, 8HP with CP308-HDD, Front I/O, extended temp. range E2
CP308-SA-1.2D-4-8MF-E2	Core 2 Duo SU9300, 1.2GHz, 3MB L2, 4GB SODIMM DDR3, 8HP with CP308-MEDIA, Front I/O, extended temp. range E2
CP308-SA-1.2D-4-8MR-E2-CR	Core 2 Duo SU9300, 1.2GHz, 3MB L2, 4GB SODIMM DDR3, 8HP with CP308-MEDIA, Rear I/O, extended temp. range E2, with conformal coating and ruggedization service
CP308-SA-1.2D-8-8F-E2	Core 2 Duo SU9300, 1.2GHz, 3MB L2, 8GB SODIMM DDR3, 8HP with CP308-HDD, Front I/O, extended temp. range E2
CP308-SA-1.86D-4-4F	Core 2 Duo SL9400, 1.86GHz, 6MB L2, 4GB SODIMM DDR3, 4HP, Front I/O
CP308-SA-1.86D-4-4R	Core 2 Duo SL9400, 1.86GHz, 6MB L2, 4GB SODIMM DDR3, 4HP, Rear I/O
CP308-SA-1.86D-4-8F	Core 2 Duo SL9400, 1.86GHz, 6MB L2, 4GB SODIMM DDR3, 8HP with CP308-HDD, Front I/O
CP308-SA-1.86D-4-8F-CF2-C	Core 2 Duo SL9400, 1.86GHz, 6MB L2, 4GB SODIMM DDR3, 8HP with CP308-HDD, Front I/O, with 2GB CompactFlash, with conformal coating
CP308-SA-1.86D-4-8MR	Core 2 Duo SL9400, 1.86GHz, 6MB L2, 4GB SODIMM DDR3, 8HP with CP308-MEDIA, Rear I/O
CP308-SA-1.86D-4-8MR-CR	Core 2 Duo SL9400, 1.86GHz, 6MB L2, 4GB SODIMM DDR3, 8HP with CP308-MEDIA, Rear I/O, with conformal coating and ruggedization service
CP308-SA-1.86D-4-8R	Core 2 Duo SL9400, 1.86GHz, 6MB L2, 4GB SODIMM DDR3, 8HP with CP308-HDD, Rear I/O
CP308-SA-1.86D-4-8R-C	Core 2 Duo SL9400, 1.86GHz, 6MB L2, 4GB SODIMM DDR3, 8HP with CP308-HDD, Rear I/O, with conformal coating
CP308-SA-2.26D-4-4F	Core 2 Duo SP9300, 2.26GHz, 6MB L2, 4GB SODIMM DDR3, 4HP, Front I/O
CP308-SA-2.26D-4-4R	Core 2 Duo SP9300, 2.26GHz, 6MB L2, 4GB SODIMM DDR3, 4HP, Rear I/O
CP308-SA-2.26D-4-4R-U8	Core 2 Duo SP9300, 2.26GHz, 6MB L2, 4GB SODIMM DDR3, 4HP, Rear I/O, with 8GB USB Flash
CP308-SA-2.26D-4-8F	Core 2 Duo SP9300, 2.26GHz, 6MB L2, 4GB SODIMM DDR3, 8HP with CP308-HDD, Front I/O
CP308-SA-2.26D-4-8F-C	Core 2 Duo SP9300, 2.26GHz, 6MB L2, 4GB SODIMM DDR3, 8HP with CP308-HDD, Front I/O, with conformal coating
CP308-SA-2.26D-4-8F-CF2	Core 2 Duo SP9300, 2.26GHz, 6MB L2, 4GB SODIMM DDR3, 8HP with CP308-HDD, Front I/O, with 2GB CompactFlash
CP308-SA-2.26D-4-8F-CF2-HK	Core 2 Duo SP9300, 2.26GHz, 6MB L2, 4GB SODIMM DDR3, 8HP with CP308-HDD, Front I/O, with 2GB CompactFlash, with HDD King Size
CP308-SA-2.26D-4-8R	Core 2 Duo SP9300, 2.26GHz, 6MB L2, 4GB SODIMM DDR3, 8HP with CP308-HDD, Rear I/O
CP308-SA-2.26D-4-8R-HK	Core 2 Duo SP9300, 2.26GHz, 6MB L2, 4GB SODIMM DDR3, 8HP with CP308-HDD, Rear I/O, with HDD King Size
CP308-SA-2.26D-8-4R	Core 2 Duo SP9300, 2.26GHz, 6MB L2, 8GB SODIMM DDR3, 4HP, Rear I/O
Rear Transition Modules	
CP-RIO3-04	4HP rear I/O module (2x Ethernet, 2x USB, VGA, 2x SATA connectors)
CP-RIO3-04	8HP rear I/O module (additional to 4HP COM1/2)
CP-RIO3-04S	4HP rear I/O module (2x Ethernet, COM, VGA, 2x SATA connectors)
Software[1)]	
VXW-BSP-CP308-V6.8	VxWorks 6.8 Board Support Package
Notes:	[1)] Windows and Linux BSP's only available as download on the web page Please contact your local sales representative for other configuration options.

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