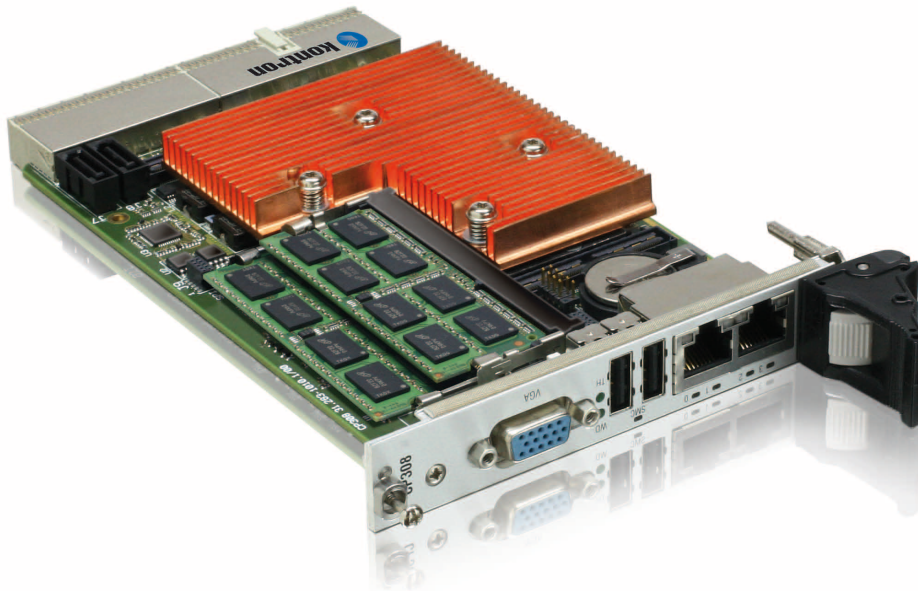# » CP308 «

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 an appropriate extension board, e.g. for legacy I/O support or to add audio and digital video outputs.
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.

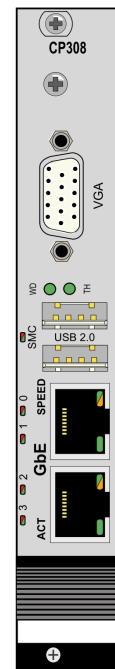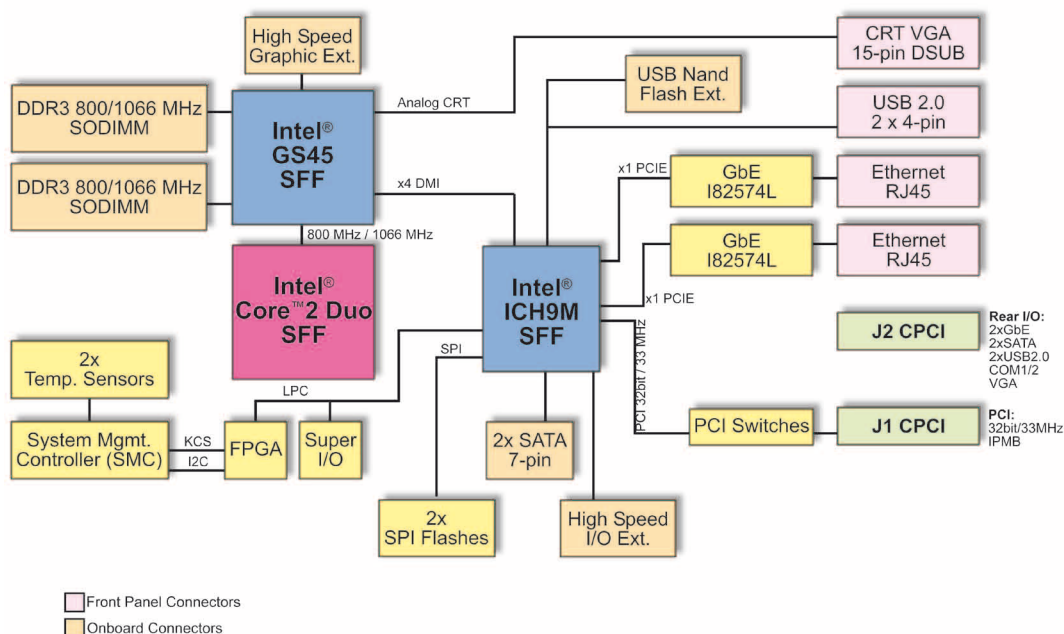### Comprehensive System & Management functionality
To take over system management tasks the CP308 provides a 32bit system management controller(SMC). With this the reading of temperature and voltage values as well as controlling and supervising of fans is possible. Moreover the status of additional 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, 33 MHz CompactPCI interface enabling the passive 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 4 x SATA II ports with RAID functionality (0,1) 8 x 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 memory used from system memory
Gigabit Ethernet:	2 x 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:	1 x VGA-CRT 15-pin D-Sub connector
USB:	2 x USB 2.0 ports, 4-pin standard USB connectors
LEDs:	4 x bicolor control and status LEDs, 1x bicolor SMC LED, 1x Thermal and 1x Watchdog LED
Ethernet:	2 x RJ45 with integrated LEDs (ACT, SPEED)
Onboard Interfaces	
USB Flash:	1 x USB port routed to a dedicated onboard connector for mounting an optional USB NAND Flash module
Serial ATA:	4 x 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):	2 x 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 passive 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 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:	100 x 160mm, 3U, 4HP
Weight:	460g / 4HP, 560g / 8HP
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, XP Embedded, Vista, Windows® 7, Linux®, VxWorks (other OSs may be possible, please contact us for information)
Power Consumption	
SL9400 LV 1.86 GHz and 2GB memory	typ. 18W
Environmental	
Operating temp.:	0°C to +60°C , passive module heat sink, forced system airflow required -40°C to +85°C with ULV 1.2 GHz

Ordering Information

Article	Part.-No.	Description
CPU Baseboard		
CP308-F-2.26D-U	1036-3907	SP9300 2.26 GHz, 6MB L2, Front I/O, universal PCI interface
CP308-R-2.26D-U	1036-3918	SP9300 2.26 GHz, 6MB L2, Rear I/O, universal PCI interface
CP308-F-1.86D-U	1036-3926	SL9400 1.86 GHz, 6MB L2, Front I/O, universal PCI interface
CP308-R-1.86D-U	1036-3932	SL9400 1.86 GHz, 6MB L2, Rear I/O, universal PCI interface
CP308-F-1.2D-U-E2	1036-3936	SU9300 1.2 GHz, 3 MB L2, Front I/O, universal PCI interface, for extended temp. range E2
CP308-R-1.2D-U-E2	1036-3937	SU9300 1.2 GHz, 3 MB L2, Rear I/O, universal PCI interface, for extended temp. range E2
Frontpanel / Extension Modules		
CP308-FP-4HP	1028-6723	4HP front panel (2x Ethernet, 2x USB, LED´s, VGA)
CP308-HDD [2]	1028-7547	8HP Extension module (additional to 4HP DVI, 2x USB, COM, PS/2, Reset button, SATA HDD & NAND Flash mounting option, Compact Flash socket)
CP308-MEDIA [2]	1031-9782	8HP Extension module (additional to 4HP 2x DisplayPort, analog and digital audio ports, Mini PCIe socket, Compact Flash socket, SD/SDHC socket, SATA HDD mounting option)
Memory Modules		
SODIMM-DDR3-2G	1028-6724	SODIMM DDR3 2GB (2 x 1GB modules)
SODIMM-DDR3-4G	1028-6725	SODIMM DDR3 4GB (2 x 2GB modules)
SODIMM-DDR3-8G	1028-7546	SODIMM DDR3 8GB (2 x 4GB modules)
USB-Flash Modules		
FLASH-USB-4GB-CP308	1030-6880	USB-Module, low Profile, 4GB, industrial temp. (-40°C to 85°C)
FLASH-USB-8GB-CP308	1030-6881	USB-Module, low Profile, 8GB
FLASH-USB-16GB-CP308	1030-6882	USB-Module, low Profile, 16GB
Rear Transition Modules		
CP-RIO3-04	33995	4HP rear I/O module (2x Ethernet, 2x USB, VGA, 2x SATA connectors)
CP-RIO3-04	33996	8HP rear I/O module (additional to 4HP COM1/2)
Software		
KIT-CP308 [1]	1028-7548	Windows XP, Vista Board Support Package, CP308 User's Manual
LIN-BSP-CP308 [1]	1028-7549	Linux Board Support Package, CP308 User's Manual
WXPE-BSP-CP308 [1]	1028-7550	Windows XP embedded Board Support Package, CP308 User's Manual
VXW-BSP-CP308-V6.7	1036-4011	VxWorks 6.7 Board Support Package, CP308 User's Manual

Notes:
[1] Free of charge, downloadable from the Internet
[2] HDD/ SSD must be ordered separately
Please contact your local sales representative for other configuration options.

CORPORATE OFFICES

Europe, Middle East & Africa
Oskar-von-Miller-Str. 1
85386 Eching/Munich
Germany

Tel.: +49 (0)8165/ 77 777
Fax: +49 (0)8165/ 77 279

info@kontron.com

North America
14118 Stowe Drive
Poway, CA 92064-7147
USA

Tel.: +1 888 294 4558
Fax: +1 858 677 0898

info@us.kontron.com

Asia Pacific
17 Building,Block #1,ABP.
188 Southern West 4th Ring Road
Beijing 100070, P.R.China

Tel.: +86 10 63751188
Fax: + 86 10 83682438

info@kontron.cn

www.kontron.com