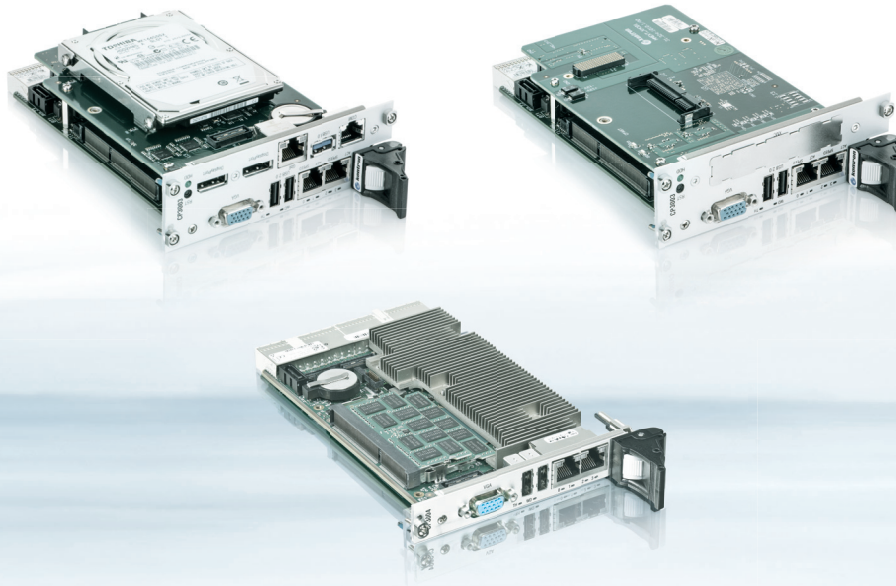


CP3004-SA



5TH GEN. Intel® Core™ 3U CompactPCI CPU BOARD HIGH PERFORMANCE RANGE, HIGH-END GRAPHICS, HIGH CONNECTIVITY

- ▶ Core™ i7 Quadcore and Dualcore (4th gen) versions
- ▶ DirectX® 11, OpenGL 4, three independent outputs
- ▶ USB 3.0, SATA 6Gbit/s, 3x Gbit Ethernet, PCI Express
- ▶ rugged VITA47 EAC3, extended temperature

POSSIBILITIES START HERE



CP3004-SA FIFTH GENERATION INTEL® CORE™ 3U COMPACTPCI CPU BOARD

With CP3004-SA, the fifth Generation of Intel® Core™ technology has been made available in Kontron's CompactPCI product portfolio. The high density design offers extraordinary performance-per-watt values based on the 14 nanometer technology, and is an ideal backbone for powerful network-intensive applications providing virtualization (VT-X, VT-D) and highest graphics performance. The new-generation graphics controller has up to 40 execution units providing OpenCL 1.2 / OpenGL 4 and triple independent display support. The Intel® Advanced Vector Extensions AVX 2.0 enhancements provide a huge performance improvement in floating-point-intensive computations, which are a key part of digital signal and image processing applications.

CP3004-SA is prepared to be used in demanding and harsh environments. Dual-Core versions (4th gen CPU) provide for low heat dissipation. The processor's TDP can be adjusted dynamically to a desired performance and power envelope. Typical applications can be found in the markets

- Military / Defence: radar, sonar, general
- Industrial Automation: plant control, machine control
- Energy: demanding environments
- Medical: imaging

Long term availability and Kontron's commitment to a rich CompactPCI portfolio make CP3004-SA a safe investment with low total-cost-of-ownership.

CP3004-SA is available with dual- and quad-core CPU performance scalable from the 1.8 GHz Intel® Core™ i3-4112E up to the 2.6 GHz

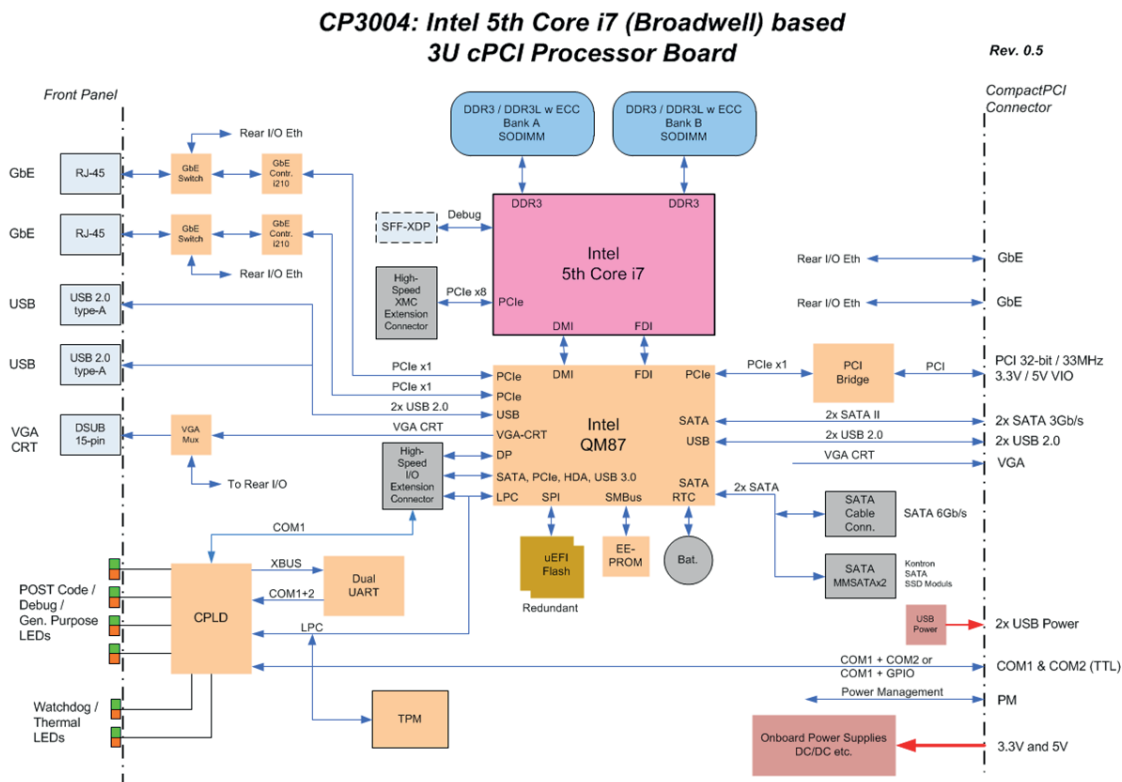
i7-5700EQ processor. Intel® Celeron® processors will be offered on request. Memory-demanding applications can make use of up to 16GB 1600 MT/s DDR3 SDRAM with Error Checking and Correction (ECC). For onboard data storage, the CP3004-SA offers up to 32GB on a dedicated SLC SATA Flash module or a HDD/SSD and CFast option on the 8HP extension module. On the system side, CP3004-SA supports a PCI 32-bit, 33MHz (66MHz on request) CompactPCI interface, enabling the peripheral mode feature. When installed in a system master slot, the CompactPCI interface is enabled, whereas the CompactPCI interface will be isolated when installed in a peripheral slot.

Variety of Interfaces and Options

The CP3004-SA comes with a comprehensive I/O feature set supporting known and established interfaces such as VGA, USB2.0, Gigabit Ethernet and serial ports as well as the new high-speed interfaces USB3.0 and SATA 6Gb/s. By adding one of the three extension modules - XMC Carrier, Legacy I/O or SATA/USB extension - the CP3004-SA's I/O capabilities will be further extended. Backwards compatibility is also granted - the optional Rear I/O interface is compatible with previous CPU board series.

System Security

Options for write protection and TPM1.2 are provided. The Trusted Platform Module (TPM) provides hardware-based encryption mechanisms to create, seal or store keys, passwords and other critical data.



PROCESSOR		5th Generation Intel® Core™ i7 processor (14nm technology): - i7-5700EQ Quad-Core up to 2.6 GHz, 6MB L3 cache Moreover 4th generation: - i5-4410E: Dual-Core 2.9 GHz, 3MB L3 cache - i3-4112E: Dual-Core 1.8 GHz, 3MB L3 cache All boards are passive cooled with a heatsink in 4HP height Forced air cooling at specific flow rate is required depending on the processor version
MEMORY	SYSTEM MEMORY BOOT FLASH (UEFI) SATA NAND FLASH HDD CFAST	Up to 16GB dual channel DDR3L SDRAM running at 1600 MHz, with ECC, via two SODIMM sockets Two redundant 16 MB SPI boot flashes with fail-over functionality Up to 32GB SLC NAND Flash on a dedicated SATA NAND Flash module The SATA NAND Flash option is only available on a 4HP CP3004-SA Onboard 2.5" SATA SSD/HDD installation via CP3004-HDD extension, optionally available with two SSD/HDD Onboard CFast installation via 8HP extension
ONBOARD CONTROLLER	PLATFORM CONTROLLER HUB GRAPHICS GIGABIT ETHERNET UART WATCHDOG RTC TRUSTED PLATFORM MODULE (TPM)	Mobile Intel® QM87 Platform Controller Hub featuring: - USB host interface with eight USB2.0 and six USB3.0 ports (5x USB2.0 and 1x USB3.0 ports are used) - SATA host controller with six SATA total (max four ports SATA 6Gb/s) with RAID 0/1/5/10 support Intel® HD Graphics 5600 integrated (Quad-Core). - Support for up to 3x independent graphics outputs - max. resolution (HDMI 1.4) 2560 x 1600 @ 60 Hz - max. resolution (DP) 4096 x 2304 @ 60 Hz - Supports DirectX® 11.2, OpenGL® 4.3 Intel® HD Graphics 4600 integrated (Dual-Core). - Support for up to 3x independent graphics outputs - max. resolution 2560 x 1600 @ 60 Hz - Supports DirectX® 11.1, OpenGL® 4.0 Up to three 1000BASE-T interfaces, two front/rear switchable with WOL (Wake-on-LAN) support, third available via extension CP3004-HDD, Intel® i210 Ethernet controller dual UART, 16C550-compatible FPGA-based, timeout ranging from 125ms to 4096s programmable in 16 steps, IRQ, reset, dual-stage configuration Integrated in PCH, with 256 Byte CMOS RAM Atmel AT97SC3204 TPM 1.2 controller
FRONT INTERFACES 4HP	VGA USB ETHERNET LED's	1x VGA-CRT 15-pin D-Sub connector 2x USB 2.0 ports, 4-pin standard USB connectors 2x RJ-45 with integrated LEDs (ACT, SPEED) 6x LEDs: 4x POST Code or General Purpose, WD, TH
ONBOARD INTERFACES	SATA CABLE CONNECTOR HIGH-SPEED EXTENSION CONNECTORS SATA EXTENSION CONNECTOR	1x onboard standard 7-pin SATA connector with locking mechanism, SATA 6Gb/s 2x high-speed connectors holding: - PCI Express - One SATA 3Gb/s - One SATA 6Gb/s - 2x USB 2.0/3.0 - 2x DisplayPort - COM1 (TTL) - HDA - LPC 1x 18-pin connector holding one SATA port for the SATA NAND Flash module
REAR I/O VIA J2		The CP3004-SA supports: - 2x SATA 3Gb/s ports - 2x Gigabit Ethernet ports without LED signals - 2x USB 2.0 ports - 1x VGA analog port - 2x COM port RS-232 (LVTTTL signal level) - 5x GPIs and 3x GPOs (LVTTTL signal level) - Reset and Power Management signals - Option to write protect non-volatile RAMs via a special pin
COMPACTPCI BUS INTERFACE		PICMG 2.0 Rev. 3.0 compatible, 32-bit/33MHz (66MHz on request), version with rear I/O via J2 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 in 16 steps, generates IRQ or hardware reset or dual-stage configuration
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® 7, Windows® Embedded Standard 7, Windows® 8, Windows® Server 2008R2, Linux, VxWorks® (Other OSs may also be used with the CP3004. Please contact Kontron for further information)
COMPLIANCY		- CompactPCI Core Specification PICMG 2.0 Rev. 3.0 - CompactPCI Hot Swap Specification PICMG 2.1 Rev. 2.0 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 WEIGHT MTBF	3U 4HP/8HP/12HP CompactPCI, 100 x 160 mm CP3004-SA 4HP: 320 g 234 051 hrs acc. to MIL-HDBK-217 FN2, Ground Benign, controlled at 30°C
POWER CONSUMPTION		CP3004-SA with i3-4112E: Dual-Core 1.8 GHz typ. W tbd CP3004-SA with i5-4410E: Dual-Core 2.9 GHz typ. W tbd CP3004-SA with i7-5700QE QC up to 2.6 GHz typ. W tbd
ENVIRONMENTAL	OPERATING TEMPERATURE STORAGE TEMPERATURE CLIMATIC HUMIDITY OTHER	0°C to +60°C, standard -40° to +85°C, extended temp. E2 depending on CPU and Wattage (ask) -40°C to +85°C (without additional components) 93% RH at 40°C, non-condensing (acc. to IEC 60068-2-78) / ENEC, CE, RoHS, REACH, ELV, Cr VI, ErP, Energy Star, TCO Certified, ISO 9001, ISO 14001, ISO 26262, ISO 26264, ISO 26265, ISO 26266, ISO 26267, ISO 26268, ISO 26269, ISO 26270, ISO 26271, ISO 26272, ISO 26273, ISO 26274, ISO 26275, ISO 26276, ISO 26277, ISO 26278, ISO 26279, ISO 26280, ISO 26281, ISO 26282, ISO 26283, ISO 26284, ISO 26285, ISO 26286, ISO 26287, ISO 26288, ISO 26289, ISO 26290, ISO 26291, ISO 26292, ISO 26293, ISO 26294, ISO 26295, ISO 26296, ISO 26297, ISO 26298, ISO 26299, ISO 26300, ISO 26301, ISO 26302, ISO 26303, ISO 26304, ISO 26305, ISO 26306, ISO 26307, ISO 26308, ISO 26309, ISO 26310, ISO 26311, ISO 26312, ISO 26313, ISO 26314, ISO 26315, ISO 26316, ISO 26317, ISO 26318, ISO 26319, ISO 26320, ISO 26321, ISO 26322, ISO 26323, ISO 26324, ISO 26325, ISO 26326, ISO 26327, ISO 26328, ISO 26329, ISO 26330, ISO 26331, ISO 26332, ISO 26333, ISO 26334, ISO 26335, ISO 26336, ISO 26337, ISO 26338, ISO 26339, ISO 26340, ISO 26341, ISO 26342, ISO 26343, ISO 26344, ISO 26345, ISO 26346, ISO 26347, ISO 26348, ISO 26349, ISO 26350, ISO 26351, ISO 26352, ISO 26353, ISO 26354, ISO 26355, ISO 26356, ISO 26357, ISO 26358, ISO 26359, ISO 26360, ISO 26361, ISO 26362, ISO 26363, ISO 26364, ISO 26365, ISO 26366, ISO 26367, ISO 26368, ISO 26369, ISO 26370, ISO 26371, ISO 26372, ISO 26373, ISO 26374, ISO 26375, ISO 26376, ISO 26377, ISO 26378, ISO 26379, ISO 26380, ISO 26381, ISO 26382, ISO 26383, ISO 26384, ISO 26385, ISO 26386, ISO 26387, ISO 26388, ISO 26389, ISO 26390, ISO 26391, ISO 26392, ISO 26393, ISO 26394, ISO 26395, ISO 26396, ISO 26397, ISO 26398, ISO 26399, ISO 26400, ISO 26401, ISO 26402, ISO 26403, ISO 26404, ISO 26405, ISO 26406, ISO 26407, ISO 26408, ISO 26409, ISO 26410, ISO 26411, ISO 26412, ISO 26413, ISO 26414, ISO 26415, ISO 26416, ISO 26417, ISO 26418, ISO 26419, ISO 26420, ISO 26421, ISO 26422, ISO 26423, ISO 26424, ISO 26425, ISO 26426, ISO 26427, ISO 26428, ISO 26429, ISO 26430, ISO 26431, ISO 26432, ISO 26433, ISO 26434, ISO 26435, ISO 26436, ISO 26437, ISO 26438, ISO 26439, ISO 26440, ISO 26441, ISO 26442, ISO 26443, ISO 26444, ISO 26445, ISO 26446, ISO 26447, ISO 26448, ISO 26449, ISO 26450, ISO 26451, ISO 26452, ISO 26453, ISO 26454, ISO 26455, ISO 26456, ISO 26457, ISO 26458, ISO 26459, ISO 26460, ISO 26461, ISO 26462, ISO 26463, ISO 26464, ISO 26465, ISO 26466, ISO 26467, ISO 26468, ISO 26469, ISO 26470, ISO 26471, ISO 26472, ISO 26473, ISO 26474, ISO 26475, ISO 26476, ISO 26477, ISO 26478, ISO 26479, ISO 26480, ISO 26481, ISO 26482, ISO 26483, ISO 26484, ISO 26485, ISO 26486, ISO 26487, ISO 26488, ISO 26489, ISO 26490, ISO 26491, ISO 26492, ISO 26493, ISO 26494, ISO 26495, ISO 26496, ISO 26497, ISO 26498, ISO 26499, ISO 26500, ISO 26501, ISO 26502, ISO 26503, ISO 26504, ISO 26505, ISO 26506, ISO 26507, ISO 26508, ISO 26509, ISO 26510, ISO 26511, ISO 26512, ISO 26513, ISO 26514, ISO 26515, ISO 26516, ISO 26517, ISO 26518, ISO 26519, ISO 26520, ISO 26521, ISO 26522, ISO 26523, ISO 26524, ISO 26525, ISO 26526, ISO 26527, ISO 26528, ISO 26529, ISO 26530, ISO 26531, ISO 26532, ISO 26533, ISO 26534, ISO 26535, ISO 26536, ISO 26537, ISO 26538, ISO 26539, ISO 26540, ISO 26541, ISO 26542, ISO 26543, ISO 26544, ISO 26545, ISO 26546, ISO 26547, ISO 26548, ISO 26549, ISO 26550, ISO 26551, ISO 26552, ISO 26553, ISO 26554, ISO 26555, ISO 26556, ISO 26557, ISO 26558, ISO 26559, ISO 26560, ISO 26561, ISO 26562, ISO 26563, ISO 26564, ISO 26565, ISO 26566, ISO 26567, ISO 26568, ISO 26569, ISO 26570, ISO 26571, ISO 26572, ISO 26573, ISO 26574, ISO 26575, ISO 26576, ISO 26577, ISO 26578, ISO 26579, ISO 26580, ISO 26581, ISO 26582, ISO 26583, ISO 26584, ISO 26585, ISO 26586, ISO 26587, ISO 26588, ISO 26589, ISO 26590, ISO 26591, ISO 26592, ISO 26593, ISO 26594, ISO 26595, ISO 26596, ISO 26597, ISO 26598, ISO 26599, ISO 26600, ISO 26601, ISO 26602, ISO 26603, ISO 26604, ISO 26605, ISO 26606, ISO 26607, ISO 26608, ISO 26609, ISO 26610, ISO 26611, ISO 26612, ISO 26613, ISO 26614, ISO 26615, ISO 26616, ISO 26617, ISO 26618, ISO 26619, ISO 26620, ISO 26621, ISO 26622, ISO 26623, ISO 26624, ISO 26625, ISO 26626, ISO 26627, ISO 26628, ISO 26629, ISO 26630, ISO 26631, ISO 26632, ISO 26633, ISO 26634, ISO 26635, ISO 26636, ISO 26637, ISO 26638, ISO 26639, ISO 26640, ISO 26641, ISO 26642, ISO 26643, ISO 26644, ISO 26645, ISO 26646, ISO 26647, ISO 26648, ISO 26649, ISO 26650, ISO 26651, ISO 26652, ISO 26653, ISO 26654, ISO 26655, ISO 26656, ISO 26657, ISO 26658, ISO 26659, ISO 26660, ISO 26661, ISO 26662, ISO 26663, ISO 26664, ISO 26665, ISO 26666, ISO 26667, ISO 26668, ISO 26669, ISO 26670, ISO 26671, ISO 26672, ISO 266

CP3004-SA EXPANSION CAPABILITIES

The CP3004-SA provides various expansion capabilities via specifically designed modules such as the SATA Flash Module, the Smart Extension Module, the CP3004-HDD module and the CP3004-XMC module. The 4HP CP3004-SA can accommodate two modules, the SATA Flash Module and the Smart Extension module. The SATA Flash Module is available with up to 32 GB SLC NAND flash memory and can be used as storage device for onboard data or operating system data. The SATA Flash Module is specifically designed and optimized for embedded systems providing high performance, reliability and security. The Smart Extension Module expands the onboard I/O capability and provides one additional SATA cable connector plus one USB 2.0 connector thereby facilitating the connection to system-internal USB and SATA devices. Furthermore, two extension modules are available to expand the CP3004-SA to a doubleslot 8HP version, the CP3004-HDD module and the CP3004-XMC module.

If more interfaces to the front are needed, the CP3004-HDD is the right choice. This module provides one USB 3.0 port, one Gigabit Ethernet interface, two DisplayPorts, and one COM interface on the front panel. In addition, the CP3004-HDD module provides support for a 2.5" SATA HDD/SSD and a CFast card. As a further extension capability of the CP3004-SA to 12HP, a SATA adapter module is available with the CP3004-HDD to provide an additional SATA connector for 2.5" SATA HDD/SSD devices. The 12 HP CP3004-SA does not provide a CFast socket. The CP3004-XMC module provides one x8 (or less) PCI Express 2.0-compliant interface with up to 5 GT/s for one XMC module. In addition, the CP3004-XMC module is capable of accommodating a CFast card.

SATA FLASH MODULE

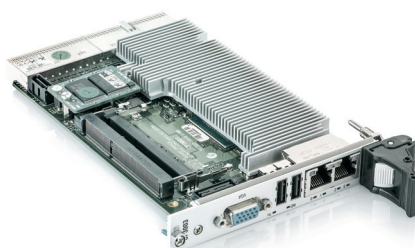
► TECHNICAL INFORMATION

MEMORY	CAPACITY NAND FLASH MEMORY BANDWIDTH	Up to 32 GB SLC-based NAND Flash memory 32nm Toshiba Single Level Cell Components Up to 60 MB/s read rate Up to 55 MB/s write rate
GENERAL	DIMENSIONS WEIGHT MTBF POWER CONSUMPTION	38 x 27mm Ca. 7 grams 3,848,557 h acc. to MIL-HDBK-217 FN2, Ground Benign, controlled at 30°C Typ. 0.5W, 3.3V supply
ENVIRONMENTAL	OPERATING TEMPERATURE STORAGE TEMPERATURE CLIMATIC HUMIDITY	0°C to +60°C, standard -40°C to +85°C, extended temperature -40°C to +85°C 93% RH at 40°C, non-condensing (acc. to IEC 60068-2-78)

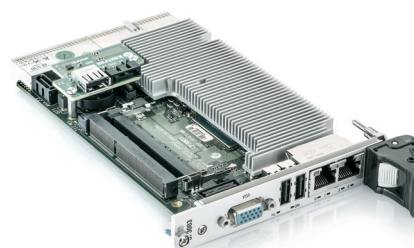
SMART EXTENSION MODULE

► TECHNICAL INFORMATION

ONBOARD INTERFACES	SATA USB	One onboard angled standard SATA connector One onboard angled standard USB 2.0 connector
GENERAL	DIMENSIONS WEIGHT MTBF	34 x 49 mm Ca. 11 grams 6,534,579 h acc. to MIL-HDBK-217 FN2, Ground Benign, controlled at 30°C
ENVIRONMENTAL	OPERATING TEMPERATURE STORAGE TEMPERATURE CLIMATIC HUMIDITY	0°C to +60°C, standard -40°C to +85°C, extended temperature -40°C to +85°C 93% RH at 40°C, non-condensing (acc. to IEC 60068-2-78)

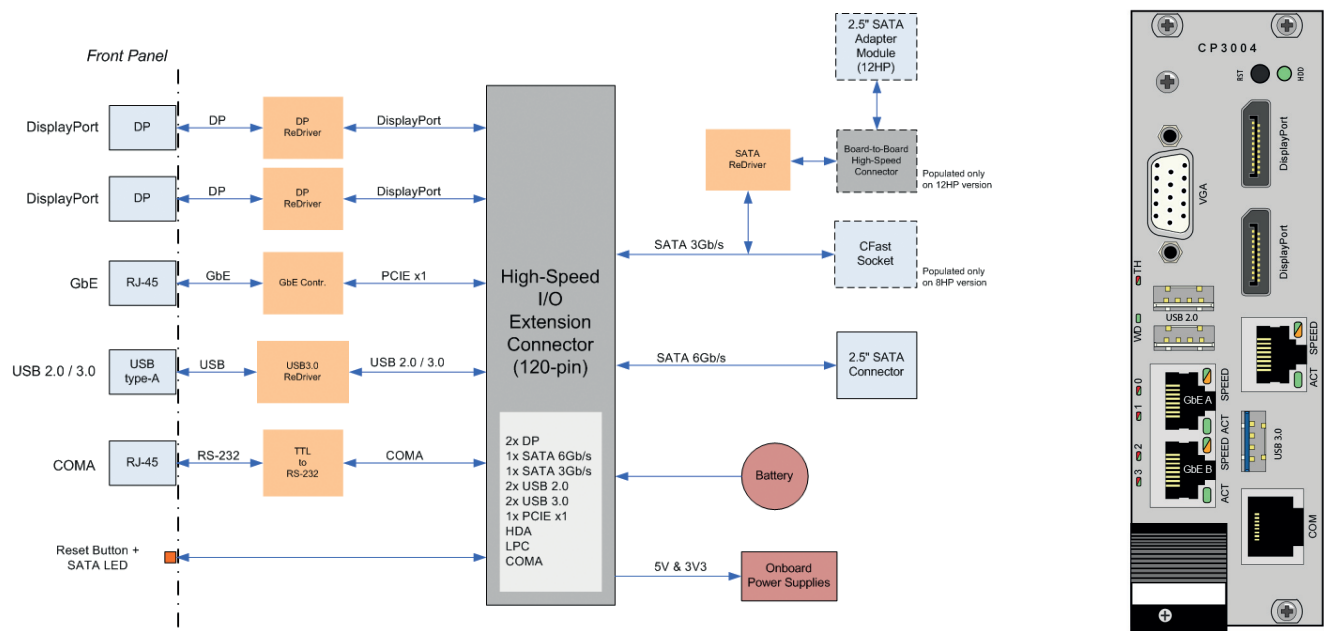


// CP3004-SA WITH SATA FLASH MODULE



// CP3004-SA WITH SMART EXTENSION MODULE

CP3004-HDD



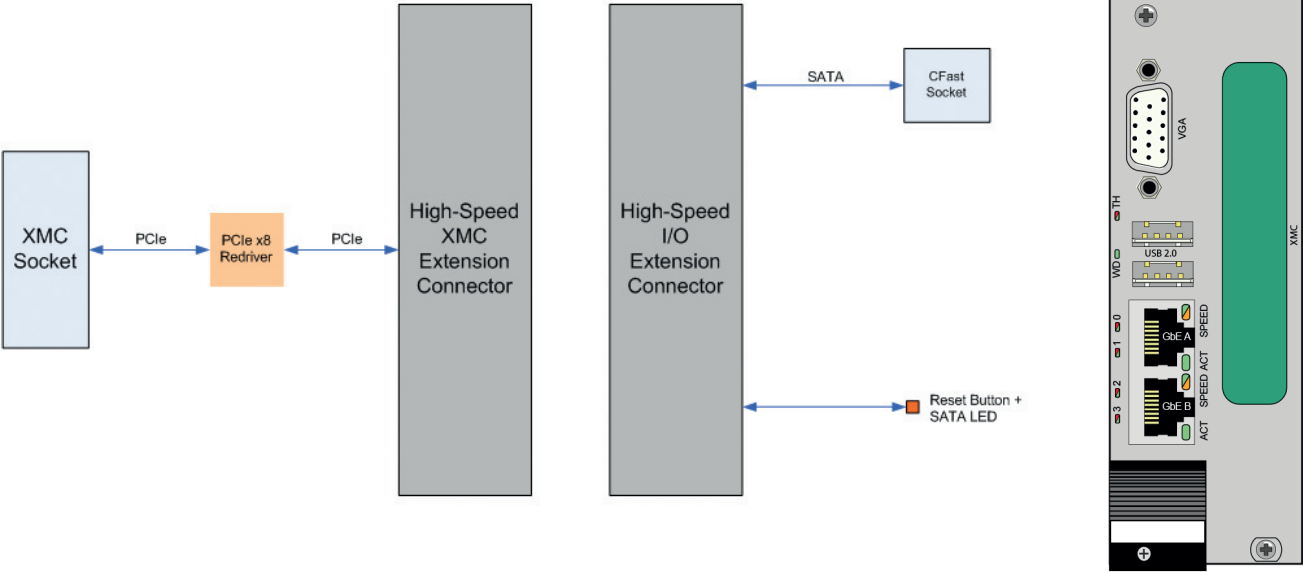
TECHNICAL INFORMATION

FRONT INTERFACES (8HP)	DISPLAYPORT ETHERNET USB SERIAL PORT CONTROL	2x 20-pin DisplayPort connectors, DVI/HDMI capable through passive cable adapter 1x RJ-45 with integrated LEDs (ACT, SPEED) 1x USB 3.0 port, 9-pin type-A connector 1x 16C550-compatible serial port, RS232 signalling, RJ-45 Reset button and HDD activity LED
ONBOARD INTERFACES	SATA CFAST	1x SATA connector for connecting a SATA 2.5" HDD/SSD (SATA 6Gb/s), Option to add 2 nd SATA HDD/SSD (results in 12HP stacking height and CFast socket won't be available) 1x CFast card socket
GENERAL	WEIGHT MTBF POWER CONSUMPTION	CP3004-SA 8HP: 460 g, CP3004-SA 12HP: 520 g 1,120,458 h acc. to MIL-HDBK-217 FN2, Ground Benign, controlled at 30°C typ. 0.5W, without peripheral devices connected
ENVIRONMENTAL	OPERATING TEMPERATURE STORAGE TEMPERATURE CLIMATIC HUMIDITY	0°C to +60°C, standard -40°C to +85°C, extended temperature -40°C to +85°C (without additional components) 93% RH at 40°C, non-condensing (acc. to IEC 60068-2-78)



// CP3004-SA 12HP

CP3004-XMC



► TECHNICAL INFORMATION

FRONT INTERFACES (8HP)	XMC CONTROL	XMC front panel bezel cutout Reset button and CFast activity LED
ONBOARD INTERFACES	XMC CFAST	1x onboard XMC connector (P15), 1x x8 PCI Express 2.0-compliant interface with up to 5 GT/s 1x CFast card socket
GENERAL	WEIGHT MTBF POWER CONSUMPTION	CP3004-SA 8HP: 430 g 2,017,352 h acc. to MIL-HDBK-217 FN2, Ground Benign, controlled at 30°C Depends on XMC module, typ. 0W without XMC
ENVIRONMENTAL	OPERATING TEMPERATURE STORAGE TEMPERATURE CLIMATIC HUMIDITY	0°C to +60°C, standard -40°C to +85°C, extended temperature -40°C to +85°C (without additional components) 93% RH at 40°C, non-condensing (acc. to IEC 60068-2-78)

► ORDERING INFORMATION

ARTICLE	DESCRIPTION
CP3003-SA PREFERRED CONFIGURATIONS	
CP3004-SA-1.8D-8-4F-T	CP3004-SA Dual Core i3, 8GB, 4HP, Front IO, TPM
CP3004-SA-1.8D-8-4R-T	CP3004-SA Dual Core i3, 8GB, 4HP, Rear IO, TPM
CP3004-SA-2.9D-8-4F-T	CP3004-SA Dual Core i5, 8GB, 4HP, Front IO, TPM
CP3004-SA-2.9D-8-8R-T	CP3004-SA Dual Core i5, 8GB, 8HP, Rear IO, HDD Mezzanine, TPM
CP3004-SA-2.6Q-16-4F-T	CP3004-SA Quad Core i7, 16GB, 4HP, Front IO, TPM
CP3004-SA-2.6Q-16-4R-T	CP3004-SA Quad Core i7, 16GB, 4HP, Rear IO, TPM
Please contact your local sales representative for other configuration options: CPU variant, RAM size, rear I/O support, HDD I/O mezzanine option, XMC mezzanine option, extended temperature option, conformal coating option)	
FLASH STORAGE	
	(as separate items, not mounted on the CPU)
FLASH-SATA-XGB-CP300X	SATA NAND Flash module, various sizes available
CFastx	Industrial grade CFast, various sizes available
REAR TRANSITION MODULES	
CP-RI03-04	4HP rear I/O module (2x Ethernet, 2x USB, VGA, 2x SATA connectors)
CP-RI03-04	8HP rear I/O module (in addition to 4HP: COM1/2)
CP-RI03-04S	4HP rear I/O module (2x Ethernet, COM, VGA, 2x SATA connectors)
SOFTWARE	
VXW-BSP-CP3004-SA-V6.9.x	VxWorks 6.9.x Board Support Package
LINUX BSP	Available as download on the webpage
WINDOWS PACKAGES	Available as download on the webpage
NOTES	
The SATA NAND Flash module cannot be used in conjunction with the CP3004-HDD/CP3004-XMC module	

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