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PC4-PRESTO

CompactPCI® PlusI/O CPU Card • 4th Generation Intel® Core™ Processor (Haswell)

Inquiry

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PC7-FESTIVAL



The PC4-PRESTO is a rich featured high performance 4HP/3U CompactPCI® PlusIO CPU board, equipped with a 4th Generation Intel® Core™ mobile processor (Haswell dual- or quad-core). The PC4-PRESTO front panel is provided with two Gigabit Ethernet jacks, two USB 3.0 receptacles, and two Mini DisplayPort connectors, compliant with the DisplayPort 1.2 standard for Multi-Stream-Transport (MST). Local expansion mezzanine boards (side cards) are available for additional front panel and/or rear I/O, resulting in an 8HP front panel width assembly unit. The PC4-PRESTO is equipped with up to 16GB RAM with ECC support. 8GB memory-down are provided for rugged applications, and another 8GB are available via the DDR3 ECC SO-DIMM socket. Low profile SSD mezzanine modules are available as on-board mass storage solution, maintaining the 4HP front panel width. The PC4-PRESTO backplane connectors comply with the PICMG® CompactPCI® PlusIO system slot specification, via J2 suitable for a rear I/O module or hybrid CompactPCI® Serial system. The PC4-PRESTO is backwards compatible to classic CompactPCI® systems. The PC4-PRESTO is equipped with a set of local expansion interface connectors, which can be optionally used to attach a mezzanine side board. A variety of expansion cards is available, e.g. providing

PC4-PRESTO and the related side card would come as a readily assembled 8HP unit. As an alternate, low profile installation of any popular operating system.

Downloads & Resources

Documents

- User Guide
- Block Diagram

Application Notes

- Power Event (Power Down)

General Information

- Mezzanine Overview
- C4x Series Overview
- Mezzanine Concept
- Smart Solution

Firmware

- Firmware Update

- Release Notes

Drivers

- Intel® Driver & Support Assistant
- SATA

Monitoring

- SpeedFan

Board Support Packages

QNX

VxWorks

Expansion Modules

Side Cards

PCL SCS PCS

Mezzanine Side Cards

C32 C20 C47 C48

Specifications

General

- CompactPCI® PlusIO (PICMG® CPCI 2.30) System Slot Controller
- Form factor single size Eurocard (board dimensions 100x160mm2)
- Mounting height 3U
- Front panel width 4HP (8HP/12HP assembly with optional mezzanine side card)
- Front panel I/O connectors for typical system configuration (2 x USB3, 2 x DisplayPort, 2 x GbE)
- Backplane communication via CompactPCI® J1 and J2 hard metric connectors
- J1 Connector for PICMG® CompactPCI® 32-Bit support
- J2 Connector (UHM high speed) for CompactPCI® PlusIO support (4 x PCIe Gen2, 4 x SATA 3G/6G*, 4 x USB, 2 x GbE)
- J2 PlusIO configuration allows for either CompactPCI® Serial backplane usage or rear I/O module attachment
- On-board PCIe x 4 Gen2 mezzanine expansion option (side card)

Processor

- 4th Generation Intel® Core™ CPU (Haswell)
- i7-4700EQ Processor 2.4/1.7GHz (TB 3.4GHz) • 47W/37W TDP • Quad-Core • GT2-4600 Graphics 1000MHz • vPRO™/AMT
- i5-4400E Processor 2.7GHz (TB 3.3GHz) • 37W TDP • Dual-Core • GT2-4600 Graphics 1000MHz • vPRO™/AMT
- i5-4410E Processor 2.9GHz • 37W TDP • Dual-Core • GT2-4600 Graphics 1000MHz • vPRO™/AMT
- i5-4422E Processor 1.8GHz (TB 2.9GHz) • 25W TDP • Dual-Core • GT2-4600 Graphics 900MHz • vPRO™/AMT
- i3-4110E Processor 2.6GHz • 37W TDP • Dual-Core • GT2-4600 Graphics 900MHz
- i3-4112E Processor 1.8GHz • 25W TDP • Dual-Core • GT2-4600 Graphics 900MHz
- Celeron 2000E Processor 2.2GHz • 37W TDP • Dual-Core • HD Graphics 900MHz
- Celeron 2002E Processor 1.5GHz • 25W TDP • Dual-Core • HD Graphics 900MHz

Firmware

- Phoenix® UEFI (Unified Extensible Firmware Interface) with CSM*
- Fully customizable by EKF
- Secure Boot and Measured Boot supported – meeting all demands as specified by Microsoft®
- Windows®, Linux and other (RT)OS' supported
- Intel® AMT supported for i7 and i5 processors (disabled by default, must be enabled via BIOS setup)

* CSM (Compatibility Support Module) emulates a legacy BIOS environment, which allows to boot a legacy operating system such as DOS, 32-bit Windows and some RTOS'

Main Memory

- Integrated memory controller up to 16GB DDR3L 1600 +ECC
- DDR3L +ECC soldered memory up to 8GB
- DDR3L +ECC SO-DIMM memory module socket up to 8GB

Graphics

- Front panel: Dual Mini-DisplayPort (mDP) or single VGA connector option
- 3rd DisplayPort connector via mezzanine side card
- DisplayPort™ 1.2 Multi-Stream Transport (MST) – display daisy chaining
- Max Resolution 3200 x 2000 @60Hz (any DisplayPort), 1920 x 1200 (VGA)
- 4k x 2k @24Hz supported for Blu-ray playback
- Integrated audio

Networking

- Up to 4 networking interfaces in total – 2 x front RJ45 GbE, 2 x backplane GbE via J2
- 1000BASE-T, 100BASE-TX, 10BASE-T connections
- Front port 1 – I217LM with Intel® AMT support
- Front port 2 – Intel® I210-IT -40°C to +85°C operating temperature GbE NIC w. integrated PHY
- Front port option M12 X-coded connectors (replacement for RJ45, requires 8HP front panel width)
- IPv4/IPv6 checksum offload, 9.5KB Jumbo Frame support, EEE Energy Efficient Ethernet
- IEEE 802.1Qav Audio-Video-Bridging (AVB) enhancements for time-sensivitive streams
- IEEE 1588 and 802.1AS packets hardware-based time stamping for high-precision time synchronization
- Backplane Gigabit Ethernet w. 2 x I210-IT NIC

Chipset

- Intel® QM87 Lynx Point Platform Controller Hub (PCH)
- 8 x PCIe Gen2 5GT/s
- 6 x SATA 6G
- 10 x USB2, 4 x USB3
- LPC, Audio, Legacy

On-Board Building Blocks

- Additional on-board controllers, PCIe® based
- 3 x Gigabit Ethernet controllers Intel® I210IT
- 1 x Gigabit Ethernet PHY Intel® I217LM

* Marvell SATA RAID controller setup for 3Gbps by default – please refer to the PC4-PRESTO User Guide

Security

- Trusted Platform Module
- TPM 2.0 for highest level of certified platform protection
- Infineon Optiga™ SLB 9665 cryptographic processor
- Conforming to TCG 2.0 specification
- AES hardware acceleration support by 4th Gen processor 4xxx series (Intel® AES-NI)

Front Panel I/O (4HP)

- 2 x Gigabit Ethernet RJ45 (1 = PCH & I217LM – iAMT, 2 = I210IT)
- 2 x DisplayPort (from processor integrated HD graphics engine, mDP style receptacles, optional cable connector retainer available)
- 2 x USB 3.0

CompactPCI® & Compact PCI PlusI/O Backplane Resources

- PICMG® CompactPCI® 2.0 CPU card & system slot controller for J1 based 32-bit PCI® systems, 33/66MHz
- PICMG® CompactPCI® 2.30 J2 UHM connector according to CompactPCI® PlusIO
- J2 can be used to enable CompactPCI® Serial peripheral card slots for hybrid systems with a split backplane
- J2 can be used alternatively for a rear I/O module
- J2 is assigned to 4 x PCIe Gen2 5GT/s (from PCH), 4 x SATA 3G/6G* (from Marvell SATA hardware RAID controller), 4 x USB2 ports (from PCH), 2 x Gigabit Ethernet (I210IT networking controllers)

* Marvell SATA RAID controller setup for 3Gbps by default – please refer to the PC4-PRESTO User Guide

Local Expansion and Mass Storage Solutions

- Mezzanine side card connectors for optional local expansion
- P-EXP – 2 x USB 2.0 & Legacy (from PCH)
- P-DP3 – 3rd DisplayPort video (from Intel® Core™ CPU)

- 4HP Low profile mezzanine module options (to be ordered separately)
- CFast™ Card with C41-CFAST mezzanine module
- SATA 1.8-Inch Solid State Drive with C42-SATA mezzanine module
- Dual mSATA SSD with C47-MSATA mezzanine module
- Dual M.2/NGFF SATA SSD 2230 – 2280 size with C48-M2 mezzanine module
- Custom specific module design

- 8HP/12HP Mezzanine side card options (to be ordered separately)
- PCL-CAPELLA – multi function side card
- PCS-BALLET – multi function side card
- SCS-TRUMPET – multi function side card
- C32-FIO – 2 x COM RS-232, USB, PS/2 (12HP assembly)
- Variety of other side cards available
- Custom specific side card design

Environmental & Regulatory

- Suitable e.g. for industrial, transportation & instrumentation applications
- Designed & manufactured in Germany – ISO 9000 quality management certified
- Long term availability
- Rugged solution
- Coating, sealing, underfilling on request
- Lifetime application support
- RoHS compliant 2002/95/EC
- EN55022, EN55024, EN60950-1 (UL60950-1/IEC60950-1)
- Operating Temperature: 0°C to +70°C
- Operating temperature -40°C to +85°C (industrial temperature range) on request
- Storage Temperature: -40°C to +85°C, max. Gradient 5°C/min
- Humidity 5% … 95% RH non Condensing
- Altitude -300m … +3000m
- Shock 15g 0.33ms, 6g 6ms
- Vibration 1g 5-2000Hz
- MTBF 11.0 years (PC4-480D)

- On Time RTOS-32 – on request
- OS-9 – on request
- QNX
- Real-Time Linux (RT Patch) – on request
- RTX – on request
- VxWorks 5.5 & 6.9 – on request
- VxWorks 7.0 – under development
- Others – on request

Simplified Block Diagram

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