



PART NUMBER: 3U-CPU-APOLLO

- CompactPCI® serial (PICMG® CPCI-S.0) system slot controller
- Single size Eurocard - 3U mounting height
- 3 x USB3/DisplayPort
- 3 x 2.5Gbps Ethernet
- Backplane communication via CompactPCI®
- On-board PCIe® mezzanine expansion option for mass storage modules or side cards
- Side cards and low profile mass storage modules available as COTS and also as custom specific

SPECIFICATION

Processor	<ul style="list-style-type: none"> • Intel® Atom™ Industrial SoC x6000RE Series (Elkhart Lake) • x6425RE • 4 Cores • 1.9GHz • 12W TDP • 400MHz/32EUs Gfx • x6416RE • 4 Cores • 1.7GHz • 9W TDP • 450MHz/16EUs Gfx • x6414RE • 4 Cores • 1.5GHz • 9W TDP • 400MHz/16EUs Gfx • x6214RE • 2 Cores • 1.4GHz • 6W TDP • 400MHz/16EUs Gfx • x6212RE • 2 Cores • 1.2GHz • 6W TDP • 350MHz/16EUs Gfx • In-band ECC • Intel® Programmable Services Engine • Intel® Time Coordinate Computing (Intel® TCC) and TSN • Operating life 10 years up to 100% active
Firmware	<ul style="list-style-type: none"> • Phoenix® UEFI (Unified Extensible Firmware Interface) with CSM* • Fully customizable • Secure Boot and Measured Boot supported • Windows®, Linux and other (RTOS)' supported • *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	<ul style="list-style-type: none"> • Integrated memory controller fo up to 32GB DDR4 w. IBECC, 3200MT/s • 16GB Soldered memory for rugged applications • 16GB SODIMM socket
Mass Storage	<ul style="list-style-type: none"> • 128Mbit SPI Flash (UEFI firmware and customer application data) • SPI Flash 128Mbit (UEFI firmware and customer application data) • Option eMMC (embedded MMC 5.0 64GByte soldered) • PCIe® based SSD module options via P-HSE1 & P-HSE2 mezzanine connectors • M.2 socket(s) on low profile mezzanine modules (4HP) or side cards (8HP) • Up to 2 x M.2 NVMe SSD size 2280, PCIe x4 (P-HSE1) and PCIe x1 (P-HSE2) • Up to 2 x 1TB as of current • Option custom specific mezzanine mass storage board design on request
Graphics	<ul style="list-style-type: none"> • Intel® UHD Graphics, 4kp60 (4096x2160@60Hz) on three simultaneous displays • 2D/3D Hardware acceleration • H.265/HEVC Decode/Encode • H.264 Decode/Encode • MPEG2 Decode • VC1/WMV9 Decode • VP8 Decode • VP9 Decode/Encode • JPEG/MPEG Decode/Encode • HDCP 2.3, PAVP • 3 x Type-C front panel connectors (DisplayPort Alternate Mode) • DisplayPort™ 1.4 MST (multiple displays if monitor is equipped with bridge chip)
Networking	<ul style="list-style-type: none"> • Up to 11 Gigabit Ethernet networking interfaces in total • 3 x 2500BASE-T RJ45 front ports via SGMII PHYs Marvell® AQR115C • Option 8 x 1000BASE-T backplane w. S80-P6 mezzanine module - Marvell® Peridot switch • Option 4 x 1000BASE-T backplane w. S82-P6 mezzanine module - 4 x Intel® I210-IT NIC • Option 4 x 2.5GBASE-T backplane w. S83-P6 mezzanine module - 4 x Intel® I226-IT NIC • Option 4 x 2500BASE-T RJ45 front w. SCJ-VEENA short side card - 4 x Intel® I225-IT NIC (8HP assy) • Option 4 x 1000BASE-T M12-X front w. SCL-RHYTHM short side card - 4 x Intel® I210-IT NIC (8HP assy) • TSN Precision time protocol (Time-Sensitive-Networking) as required for OPC UA and OpenAvnu • Enables ultra-reliable low-latency communication (URLLC) • Intel® Time Coordinated Computing (Intel® TCC) for time synchronisation and timeliness
EHL SoC I/O Usage	<ul style="list-style-type: none"> • 3 x USB Type-C front panel connectors (DP Alt Mode) • 3 x 2.5GBASE-T SGMII PHYs to RJ45 front ports • 4 x PCIe® Gen3 to HSE1 mezzanine connector (configurable 1x4 or 4x1 links) • 4 x PCIe® Gen3 to HSE2 mezzanine connector (4x1 links via Gen3 switch) • 3 x PCIe® Gen3 to backplane connectors (x1 links, 1 derived from SoC, 2 x via Gen3 switch) • 1 x PCIe® Gen3 to 1:7 switch (1 x USB controller, 2 x backplane use, 4 x HSE2 mezzanine)

EHL SoC I/O Usage (Continued)	<ul style="list-style-type: none"> eMMC 5.1 (ordering option, mass storage device up to 64GB) 1 x SATA 3.2 for backplane usage eSPI, Audio, I2C, UART, CAN-FD, Time Sync to mezzanine expansion connector N-EXP TPM 2.0 module
Additional Building Blocks	<ul style="list-style-type: none"> Additional on-board devices, PCIe® based PCIe® Gen3 packet switch P17C9X3G808GP (8-port, 8-lane) Quad port PCIe® USB3 controller TUSB7340 (Type-C, backplane, HSE1, RAID controller) Option JMS562 USB to SATA RAID 0/1 controller (backplane SATA)
Security	<ul style="list-style-type: none"> Trusted Platform Module TPM 2.0 for highest level of certified platform protection Infineon Optiga™ SLM9670 cryptographic processor Conforming to TCG 2.0 specification AES hardware acceleration support (Intel® AES-NI)
Front Panel I/O (4HP)	<ul style="list-style-type: none"> 3 x 2.5 Gigabit Ethernet RJ45 (2.5GBASE-T, 1000BASE-T, 100BASE-TX, 10BASE-T) 3 x DisplayPort (Type-C Alt Mode) 3 x USB 3.0 Type-C (same as DP connectors)
Front Panel I/O (8/12HP)	<ul style="list-style-type: none"> Variety of side cards available, common front panel 8HP/12HP with CPU card Various I/O ports e.g. UART, Audio, RJ45 Ethernet, M12-X Ethernet, Wireless (SMA) Custom specific front panel and side card design
CompactPCI® Serial Backplane Resources	<ul style="list-style-type: none"> PICMG® CompactPCI® Serial CPU card (system slot controller) Support for up to three PCIe® based CompactPCI® Serial peripheral boards, Gen3 x1 links 1 x PCIe® derived from EHL SoC, 2 x PCIe® via P17C9X3G808GP switch Support for 1 x native SATA (6Gbps) Option 3 x SATA in addition with JMS562 controller (2 x SATA RAID 0/1) Support for 1 x USB2/3 (5Gbps) via TUSB7340 controller Option 8 x Gigabit Ethernet Switch (S80-P6 low profile mezzanine module) Option 4 x Gigabit Ethernet NICs (S82-P6 low profile mezzanine module) Option 4 x 2.5Gigabit Ethernet NICs (S83-P6 low profile mezzanine module)
Local Expansion	<ul style="list-style-type: none"> Mezzanine side card connectors for optional local expansion HSE1 - High speed expansion connector, PCIe® Gen3 fully configurable, derived from EHL SoC HSE2 - High speed expansion connector, PCIe® Gen3 configured 4x1, via PCIe® packet switch EXP - Sideband expansion connector, e.g. eSPI, Audio, UART (from EHL SoC) <ul style="list-style-type: none"> 4HP Low profile mezzanine module options (to be ordered separately) <ul style="list-style-type: none"> S20-NVME Mezzanine module - 1 x M.2 2280 NVME SSD socket, 1 x Type-C USB F/P connector S40-NVME Mezzanine module - 1 x M.2 2280 NVME SSD socket, 1 x M.2 2280 SATA SSD socket, 2 x Type-C USB F/P Connector S42-MC Mezzanine module - 1 x M.2 2280 NVME SSD socket, 2 x Mini Card sockets S48-SSD Mezzanine Module - 2 x M.2 2280 NVME SSD sockets, 1 x USB Type-C S80-P6 Mezzanine module - 1 x M.2 2280 NVMe SSD socket, 8 x Gigabit Ethernet via P6 backplane connector S82-P6 Mezzanine module - M.2 NVMe SSD & 4 x GbE NIC via P6 backplane connector S83-P6 Mezzanine module - M.2 NVMe SSD & 4 x 2.5GbE NIC via P6 backplane connector Custom specific module design 8HP Mezzanine side card option (to be ordered separately) <ul style="list-style-type: none"> SCJ-VEENA Quad RJ45 2.5GbE NIC & M.2 SSD storage SCL-RHYTHM Quad M12-X GbE NIC & M.2 SSD storage SCZ-NVM Dual M.2 NVMe SSD, quad UART Custom specific side card design
Environmental & Regulatory	<ul style="list-style-type: none"> Designed & manufactured in Germany ISO 9001 certified quality management Long term availability Rugged solution Coating, sealing, underfilling on request Lifetime application support RoHS compliant Operating temperature -40°C to +85°C (industrial temperature range) 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 20.6 years (MIL-HDBK-217F, SN29500 @+40°C) EC Regulatory EN55035, EN55032, EN62368-1 (CE)

The Power to Outperform

Would you like to find out more? Be sure to speak to our on-stand team or contact us via the details here and we would be happy to help.

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