CPU-180-02

FuSa Rugged 11th Gen Intel Core - COM-HPC Client Size A



- **Functional Safety SIL2**
- **11th Gen Intel Core**
- **Xe Integrated GPU**
- **Real Time Computing**
- **COM-HPC Client Size A**
- **Rugged and Fanless**
- **Customizable**
- **Professional Services**

Features

Functional Safety - Certifiable for Functional Safety applications according to IEC 61508-2:2010 SIL2 / ISO 13849-1 Cat 3 PL = d
11th Generation Intel Core - The 11th Gen Core processors combine performance and responsiveness and deliver advanced caabilities such as PCIe Gen 4 and Thunderbolt 4 / USB4 in a low power SoC
Xe Integrated GPU - The new Xe GPU with up to 96 Execution Units accelerates dramatically both graphics and computation for applications like Artificial Intelligence and Computer Vision, while supporting 4 displays
Real Time Computing - Support for TCC (Time Coordinated Computing) and TSN (Time Sensitive Networking) enables soft Real Time applications
COM-HPC Client Size A - Compliant with COM-HPC Client, the new PICMG standard that enables unprecedented capabilities for Computer-On-Module
Rugged and Fanless - Operates from -40 to +85°C, with error correcting code memory and soldered memory
Customizable - Comes with optional personalization and full customization services, ranging from factory options to deep HW/SW configuration changes
Professional Services - Provides the foundation for Eurotech Professional Services that span from carrier board development to complete system design, certification and manufacturing

Description

The CPU-180-02 is a rugged module based on the COM-HPC Client and provides additional capabilities, such as Functional Safety (FuSa) signals via proprietary extensions.Designed for fanless applications in harsh environments where long term reliability is a must, the CPU-180-02 features the 11th Gen Intel Core CPUs and delivers up to 4 CPU cores, 96 GPU execution units and in-band ECC RAM. It comes with an all-soldered down design to improve resilience and thermal coupling, and comes with a -40 to +85°C operating temperature.
The CPU-161-20 is also suitable for Functional Safety applications, and is certifiable according to IEC 61508-2:2010 SIL2 / ISO 13849-1 Cat 3 PL = d. FuSa specific signals are provided to the carrier board via a proprietary extension that allows the customer implementation of a safety agent.
Both the CPU and the integrated GPU deliver great performance improvements and offer AI and Deep Learning, with a combination of INT8 and VNNI instructions. Video encoding and decoding are also brought to the next level with dual decode boxes capable of up to 40 simultaneous 1080p streams at 30fps and four simultaneous displays.
The CPU-180-02 brings novel capabilities: it features Time Sensitive Networking (TSN) on an Ethernet port capable of up to 2.5GbE, and Time Coordinated Computing (TCC) enabling soft Real Time applications with microsecond accuracy.
The CPU-180-02 features the latest high speed interfaces: PCIe Gen 4, with a bandwidth that is twice the previous generation and Thunderbolt 4 / USB 4 that enable PCIe, Video, USB and Power Delivery over a single, standard connector.
Supported operating systems include Everyware Linux (based on Yocto), Ubuntu and Windows 10 IoT Enterprise; additionally, the CPU-180-02 supports Everyware Software Framework (ESF), a commercial, enterprise-ready edition of Eclipse Kura, the open source Java/OSGi middleware for IoT gateways. Professional Services are available for the CPU-180-02, starting from BIOS personalization and including carrier board design, system development and production. Deep module customization, such as feature changes are also available.

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Ordering code: CPU-180-02-XX

XX		-02	-03
PROCESSOR	CPU	Core i5-1145GRE, 2.6/1.5/1.1GHz, 4 Cores	Core i7-1185GRE, 2.8/1.8/1.2GHz, 4 Cores
GPU	Type	Integrated, Iris Xe	
	Execution Units	80EU	96EU
MEMORY	RAM	16GB LPDDR4 IBECC, 4267 MT/s, Soldered Down	32GB LPDDR4 IBECC, 4267 MT/s, Soldered Down
FLASH	Type	256Mbit (SPI FLASH - UEFI BIOS)	
STORAGE	SATA	2x SATA 3.0 (up to 6Gb/s)	
MULTIMEDIA	Video Ports	1x DDI (HDMI/DP++) 1x DDI eDP (MIPI DSI Factory Option) 2x Thunderbolt 4 (4x Thunderbolt 4 Factory Option) Quad Display	
	Video Resolution	DDI1 and DD2 Resolution: 4Kp60 MIPI: 4 DPHY 2.1 (4.5Gbps), 4x Concurrent Dual Display	
	Video Acceleration	HW Encode: HEVC/H.265, H.264/AVC, VP9, M/JPEG; HW Decode: HEVC/H.265, H.264/AVC, VP8, VP9, VC1, M/JPEG, MPEG2	
	Audio	2x I2S/Soundwire 1x HDA	
CAMERA INPUT	Camera Interfaces	2x MIPI-CSI2 with DPHY 2.1 (2.5Gbps/Lane)	
	Capture Modes	Single Camera Capture: up to 4k@30FPS (HQV) / 120FPS (LQV) / 1080p@240FPS (SMV) Dual Camera Capture: (4K+4K)@30FPS (ViV) Quad Camera: (4K+2k+2k+2K) w/ Stereo Depth	
I/O INTERFACES	Ethernet	1x 10/100/1000/2500Mbps with TSN	
	USB	4x USB3/4/C 10x USB2	
	Serial	2x UART (TX/RX)	
	Digital I/O	12x GPIO	
	PCI Express	1x PCIe x4 Gen4 / 4x PCIe x1 Gen3 / 1x PCIe x4 Gen 3 / 1x PCIe x1 Gen3 (BMC - Factory Option is Exclusive with LAN)	
	System Bus	3x I2C (One Reserved for BMC)/ 2x SPI / 1x eSPI / 1x SMBus	
OTHER	RTC	Yes	
	Watchdog	Yes (with tamper detect)	
	TPM	TPM 2.0 (Discrete Chip)	
	Sensors	Temperature	
POWER	Input	VCC 12V VCCRTC	
	Consumption	12W/15/28W (CPU TDP)	
ENVIRONMENT	Operating Temp	-40 to +85°C	
	Storage Temp	-40 to +85°C	
	Humidity	5% to 90% RH	
CERTIFICATIONS	Functional Safety	Certifiable according to IEC 61508-2:2010 SIL2 / ISO 13849-1 Cat 3 PL = d	
	Regulatory	CE, FCC, ISED	
	Safety	EN 62368, UL 60950	
	Environmental	RoHS3, REACH	
	Compliance	Based on PICMG COM-HPC Client Module (J1 Only), with Proprietary Extensions	
MECHANICAL	Dimensions	95x120mm (LxW) - COM-HPC Size A	

Supported Software

SOFTWARE	OS	Everyware Linux (Professional Services: Other Linux and RTOS)
	IoT Framework	Everyware Software Framework (Java/OSGi)

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