

XCalibur5300

Intel® Core™ Ultra (Series 3) Processor-Based 6U CompactPCI Module with 64 GB of LPDDR5 and Microchip PolarFire™ SoC FPGA

- ▶ Supports Intel® Core™ Ultra processors (Series 3) (formerly Panther Lake)
- ▶ Designed with SecureCOTS™ technology to support enhanced security and trusted computing
- ▶ Microchip PolarFire™ SoC FPGA with 256 MB SPI NOR flash
- ▶ Air-cooled 6U CompactPCI module
- ▶ Complies with PICMG 2.1, 2.3, 2.9, 2.16
- ▶ Up to 64 GB of LPDDR5 SDRAM with in-band ECC
- ▶ Up to 512 GB of onboard NVMe storage
- ▶ Two XMC/PMC interfaces
- ▶ 33/66 MHz 32-bit PCI interface
- ▶ One M.2 site to support one x2 PCI Express Gen4-capable interface (optional)
- ▶ Up to five 10/100/1000BASE-T Ethernet ports
- ▶ Up to six USB 2.0 ports
- ▶ Four RS-232 or two RS-422/485 serial ports
- ▶ One DisplayPort++ interface and one DisplayPort interface
- ▶ Wind River VxWorks BSP
- ▶ X-ES Enterprise Linux (XEL) BSP
- ▶ Linux Yocto BSP
- ▶ Contact factory for availability of Microsoft Windows drivers and other operating systems



COMING SOON

XCalibur5300

The XCalibur5300 is a secure, high-performance 6U CompactPCI single board computer based on the Intel® Core™ Ultra processor (Series 3) (formerly Panther Lake). Ideal for ruggedized systems requiring high-bandwidth processing and low power consumption, the XCalibur5300 delivers superior performance and efficiency for today's network information processing and high performance embedded computing applications.

The XCalibur5300 integrates SecureCOTS™ technology with a Microchip PolarFire™ System-on-Chip (SoC) FPGA for hosting custom functions to protect data from being modified or observed and provides an ideal solution when stringent security capabilities are required.

The XCalibur5300 supports up to 64 GB of LPDDR5 SDRAM with in-band ECC in eight channels and up to 512 GB of onboard NVMe storage. The XCalibur5300 also provides fast and efficient I/O, including 10/100/1000BASE-T Ethernet, USB 2.0, PCI, DisplayPort and DisplayPort++, and RS-232 or RS-422/485 serial ports through the backplane connectors. An optional M.2 site is also available.

Wind River VxWorks, X-ES Enterprise Linux (XEL), and Linux Yocto Board Support Packages (BSPs) are available.



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Embedded Solutions”*

Extreme Engineering Solutions

9901 Silicon Prairie Parkway • Verona, WI 53593
Phone: 608.833.1155 • Fax: 608.827.6171
sales@xes-inc.com • <https://www.xes-inc.com>

Processor

- Supports Intel® Core™ Ultra processors (Series 3) (formerly Panther Lake)

Memory

- Up to 64 GB of LPDDR5 SDRAM with in-band ECC
- Up to 512 GB of onboard NVMe storage
- 64 MB NOR boot flash
- 64 kB EEPROM

Security and Management

- Microchip PolarFire™ SoC FPGA with 256 MB SPI NOR flash
- Designed with SecureCOTST™ technology to support enhanced security and trusted computing
- System voltage monitor, power-on/reset control, non-volatile write-protection control
- Trusted Platform Module (TPM) 2.0

Additional Features

- Non-volatile memory write protection
- DS1339 I²C Real-Time Clock (RTC) powered via VBAT or optional battery

cPCI

- 33/66 MHz 32-bit PCI interface to J1 and J2
- PICMG 2.1 (Hot Swap support)
- PICMG 2.3 (PMC I/O to J3 and J5)
- PICMG 2.9 (dedicated IPMI controller)
- PICMG 2.16 (two 10/100/1000BASE-T Ethernet ports)

XMC/PMC

- 33/66 MHz 32-bit PCI interface to PMC connectors
- x4 PCI Express Gen4-capable interface to J15
- x8 PCI Express Gen4-capable interface to J25

Front Panel I/O

- One 10/100/1000BASE-T Ethernet interface (standard)
- Two additional 10/100/1000BASE-T Ethernet interfaces (optional, mutually exclusive placement with XMC/PMC 0)
- Two USB 2.0 ports (standard)
- Two additional USB 2.0 ports (optional, mutually exclusive placement with XMC/PMC 0)
- One DisplayPort++ interface

Rear Panel I/O

- Two 10/100/1000BASE-T Ethernet ports
- Two USB 2.0 ports
- Two RS-232/422/485 serial ports
- 3.3 V GPIO signals
- One DisplayPort interface

Internal I/O

- One M.2 site to support one x2 PCI Express Gen4-capable interface (optional, mutually exclusive placement with XMC/PMC 0)

Software Support

- UEFI firmware
- Wind River VxWorks BSP
- X-ES Enterprise Linux (XEL) BSP
- Linux Yocto BSP
- Contact factory for availability of Microsoft Windows drivers and other operating systems

Physical Characteristics

- 6U CompactPCI air-cooled form factor
- Dimensions: 233 mm x 160 mm

Environmental Requirements

Contact factory for appropriate board configuration based on environmental requirements. Additional ruggedization levels may also be possible to support.

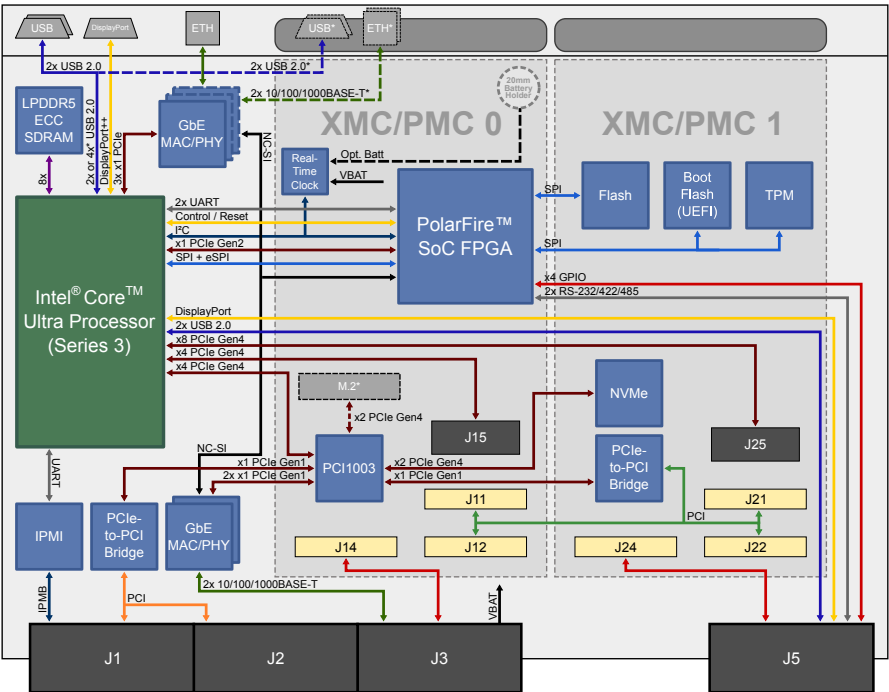
- Supported ruggedization levels (see chart below): 1
- All components support junction temperatures of -40°C to +85°C or greater
- Conformal coating available as an ordering option
- Thermal performance will vary based on CPU frequency and application

Power Requirements

- Power will vary based on configuration and usage. Please consult factory.

Ruggedization Level	Level 1
Cooling Method	Standard Air-Cooled
Operating Temperature	0 to +55°C ambient †
Storage Temperature	-40 to +85°C ambient
Vibration	0.002 g²/Hz (maximum), 5 to 2000 Hz
Shock	20 g, 11 ms sawtooth
Humidity	Up to 95% non-condensing

† Contact factory for airflow rate details.



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* Dotted front-panel interfaces and M.2 site available only in configurations where XMC/PMC 0 site connectors are not populated.