



- **HPEC and Microserver Ready**
- **Intel® Xeon® D-1500**
- **Hybrid RAM Architecture**
- **Compact Size with PCIe x16**
- **Rugged and Fanless**
- **Customizable**
- **Professional Services**

Features

HPEC and Microserver Ready - Combines computational power with a rugged design to enable High Performance applications even in-the-field

Powerful - Supports the latest generation of embedded Intel Pentium and Xeon D-1500 CPUs to deliver a server-class module

Hybrid RAM Architecture - Innovates by offering the reliability of soldered-down RAM and the expandability of SO-DIMMs

Compact Size with PCIe x16 Port - Complies with COM Express Type 6 Rev 2.1, including support for a PCIe x16 port

Rugged and Fanless - Allows robust, fanless designs thanks to 100% soldered-down components and with a range of energy efficient CPUs

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-161-18 is a COM Express module that combines a high performance and truly embedded CPU with an innovative hybrid RAM architecture that offers the ruggedness of soldered memory and the expandability of SO-DIMMs. The standard configuration provides 8GB of memory soldered directly on the PCB and supports up to 24GB DDR4 RAM with ECC error correction through a SO-DIMM slot, targeting use cases where extreme ruggedness is required, and those that need a large memory.

The CPU-161-18 can be configured with any member of the Xeon/Pentium D-1500 family; standard versions support extended temperature CPUs, such as the Pentium D-1519 and the Xeon D-1559, closing the gap between traditional embedded applications and servers.

Compatible with existing Type 6 carrier boards, the CPU-161-18 is a headless unit that provides a fast upgrade path to existing projects and that allows the creation of new high-performance ones: a notable feature of this Compact size module is the availability of a x16 PCIe Gen 3 port in addition to the x8 one, a characteristic that is more commonly found only on larger modules; other features include: Gigabit Ethernet, four SATA 3.0 ports, four USB 3.0 and seven USB 2.0 interfaces.

Supported operating systems include Yocto Linux and CentOS; moreover, the CPU-161-18 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-161-18, starting from BIOS personalization and including carrier board design, system development and production. Deep module customization, such as feature changes are also available.

Ordering code: CPU-161-18-XX

| XX | | -05 | -06 | -07 | -08 |
|-----------------------|----------------|---|---|---|-------------------------------|
| PROCESSOR | CPU | Pentium D 1519 1.50GHz, 4 Cores | Xeon D-1529 1.30GHz, 4 Cores (IEC 61508 Safety Integrity Compliant) | Xeon D-1539 1.60GHz, 8 Cores | Xeon D-1559 1.50GHz, 12 Cores |
| MEMORY | On-board | 8GB DDR4 ECC Memory Down (2133-2400MT/s) | | | |
| | On-socket | 1x DDR4 ECC SODIMM up to 16GB | | | |
| STORAGE | Embedded | 2x SPI-Flash (16MB + 32MB), 1x EEPROM (8kB) | | | |
| | SATA | 4x SATA 3.0 (up to 6Gb/s) | 2x SATA 3.0 (up to 6Gb/s) | 4x SATA 3.0 (up to 6Gb/s) | |
| | RAID | Factory Option | | | |
| I/O INTERFACES | Ethernet | 1x 10/100/1000Mbps | | | |
| | USB | 4x USB 3.0, 7x USB 2.0 (EHCI Supported) | 7x USB 2.0 (EHCI Supported) | 4x USB 3.0, 7x USB 2.0 (EHCI Supported) | |
| | Serial | 2x UART (TX/RX) | | | |
| | Digital I/O | 1x 8bit Digital I/O | | | |
| | PCI Express | 1x PCIe x16 (Gen 3), 4x PCIe x1 (Gen 2), 1x PCIe x4 (Gen 2) – Non-transparent bridge or Transparent bridge (Switchable) | 1x PCIe x16 (Gen 2) – Non-transparent bridge or Transparent bridge (Switchable) | 1x PCIe x16 (Gen 3), 4x PCIe x1 (Gen 2), 1x PCIe x4 (Gen 2) – Non-transparent bridge or Transparent bridge (Switchable) | |
| | LPC | Yes | | | |
| | I2C | Yes | | | |
| | SMBus | Yes | | | |
| OTHER | RTC | Yes | | | |
| | Watchdog | Yes | | | |
| | Security | Intel AES-NI, Intel Secure Key | | | |
| | Sensors | Temperature Sensor | | | |
| POWER | Input | 12V, 5V_SBY, 3V_RTC | | | |
| | Consumption | 25W (CPU TDP) | 20W (CPU TDP) | 35W (CPU TDP) | 45W (CPU TDP) |
| ENVIRONMENT | Operating Temp | - 40 to +85°C | | | |
| | Storage Temp | - 40 to +85°C | | | |
| | Humidity | 35% to 85% | | | |
| CERTIFICATIONS | Environmental | RoHS (2011/65/EU) | | | |
| | Compliance | PICMG COM Express R2.1, Type 6 | | | |
| MECHANICAL | Dimensions | 95x95mm (LxW) - COM Express Compact | | | |

Supported Software

| | | |
|-----------------|---------------|---|
| SOFTWARE | OS | Eurotech Everyware Linux, CentOS 7 (Professional Services: Windows 10 IoT Enterprise, Fedora, Other Linux and RTOS) |
| | IoT Framework | Everyware Software Framework (Java/OSGi) |