VPX3010 Series

*Rugged 3U VPX Intel® Xeon® Processor D-1500 Processor Blade*

### Features
- Intel® Xeon® Processor D-1500 SoC up to 12 cores (formerly “Broadwell-DE”)
- DDR4-2133 soldered ECC SDRAM up to 16GB
- Dual 10G-KR, up to three 1G Ethernet ports
- Up to PCIe x16 Gen3 interface supporting non-transparent bridge
- One XMC expansion slot, PCIe x8 Gen3 with Rear I/O to P2

### Specifications
- **Processor & System**
  - **CPU**
    - Intel® Xeon® D-1559 12-core, 45W TDP
    - Intel® Xeon® D-1539 8-core, 35W TDP
    - Intel® Pentium® D1519 4-core, 25W TDP
  - **RAM**
    - Dual channel DDR4-2133 ECC soldered SDRAM, up to 16GB
  - **BIOS**
    - AMI EFI on 64Mbit SPI flash
  - **VITA Specifications**
    - VITA 46.0 VPX Base Standard
    - VITA 46.4 PCI Express on VPX Fabric Connector
    - VITA 46.6 Gigabit Ethernet Control Plane on VPX
    - VITA 46.9 PMC/XMC/Ethernet Signal Mapping to 3U/6U VPX
    - VITA 46.10 Rear Transition Module on VPX
    - VITA 46.11 System Management on VPX
    - VITA 48.0 Ruggedized Enhanced Design Implementation Mechanical Base Specification
    - VITA 6S OpenVPX Architecture Framework for VPX
  - **Module Profile**
    - MOD3-PAY-2F2T-16.2.5-3
  - **Slot Profile**
    - SLT3-PAY-2F2T-14.2.5

- **Connectivity**
  - **XMC**
    - PCIe x8 Gen3 with Rear I/O to P2 X8d×X12d
  - **Ethernet**
    - Dual 10G-KR to P2
    - Two 1000BASE-T to P1 (or one 1000BASE-T and two 1000BASE-BX by BOM option)
  - **Graphics**
    - SM750 on PCIe x1
    - One VGA to P2
  - **USB**
    - One USB 3.0 to P1 and one to P2
    - One USB 2.0 to P1
  - **Serial Port**
    - One RS-232 to P1
    - One RS-232/422 to P1
  - **PCI Express**
    - PCIe x8 Gen3, configurable to 1 x8 or 2 x4 to P1, supports DMA and non-transparent bridge for peer-to-peer communication
    - PCIe x8 Gen3 to P2 (combined with PCIe x8 Gen3 to P1 for PCIe x16 Gen3, no XMC BOM option)
    - PCIe x1 Gen3 to P1 (no XMC BOM option)

- **Storage**
  - **SBC**
    - Soldered SLC NAND flash up to 64GB SATA 6Gb/s
  - **RTM**
    - One SATA 6Gb/s to P1
    - One SATA 6Gb/s to P2 (no XMC BOM option)
Specifications

- **Security Mechanism**
  - TPM
  - Atmel TPM version 1,2
  - IPMC
  - Smart Fusion A2F200 with VPX code base
  - BIOS
  - Dual BIOS mechanism

- **Operating System**
  - OS
    - Red Hat Enterprise Linux 6.5
    - Wind River VxWorks 7.0
    - Microsoft Windows 7 32/64-bit
    - Microsoft Windows 7 Embedded (Please contact ADLINK for other OS support)

- **Miscellaneous**
  - LEDs
    - Blade status LEDs on front and rear
  - Watchdog Timer
    - System reset or NMI with programmable interval
  - GPIO
    - Eight 5V tolerance GPIO to P1 and P2
  - Reset Button
    - Reset button on front panel

- **Miscellaneous**
  - Form Factor
    - 3U VPX 1.0 in. pitch
  - Operating Temp.
    - -40°C to +85°C (at wedge locks)
  - Storage Temp.
    - -50°C to +100°C
  - Relative Humidity
    - 95% non-condensing
  - Shock
    - 5Hz-2KHz, 12Grms, random, each axis, operating
  - Vibration
    - Sawtooth 40G, 11ms, each axis, operating
  - Altitude
    - 60,000 feet, operating
  - Power Consumption
    - TBD
  - Weight
    - TBD
  - Thermal Dissipation
    - Conversation and conduction

- **Safety & EMI**
  - Certifications
    - CE, FCC Class A
**VPX3010 Block Diagram**

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**Companion Production Information**

**VPX 3U Graphics Card**
- NVIDIA GeForce GT 745M GPU (Kepler refresh)
- 384 CUDA cores for maximum processing power
- Dual channel GDDR5 soldered memory, 2GB
- 16-lanes PCIe Gen3 (x16/x8/x4/x1) to P1
- Four single link DVI and One VGA to P2
- Support OpenVPX Profile:
  - MOD3-PER-2F-16.3.1-3 and MOD3-PER-1F-16.3.2-2

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**XMC Graphics Module**
- NVIDIA GeForce GT 745M GPU (Kepler refresh)
- 384 CUDA cores for maximum processing power
- Dual channel GDDR5 soldered memory, 2GB
- 16-lanes PCIe Gen3 (x16/x8/x4/x1) on P15
- Four single link DVI and One VGA ON p16

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**3U VPX Test Frame**
- Product Type: 9-slot Test Frame
- Form Factor: VPX 3U
- Dimensions: 142.6mm (H) x 209.9mm (W) x 276.28mm (D)
- Blade Support: Conduction cooled VPX 3U blades
- Backplane Support: 3-slot
- RTM Support: Yes
- Cooling: Passive fins
- Power: User define

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* Combined with PCIe x8 Gen3 to P1 and PCIe x8 to PCIe x16 Gen3, No XMC BOM option
* The data transfer rate will be limited by device specification
Ordering Information

Processor Blades

- **VPX3010/1559/M16/S32/XMC-R1**  
  3U VPX processor board with Intel® Xeon® D-1559, DDR4 16GB, SLC 32GB, dual 10G-KR, dual GbE Base-T, VGA, 2x USB 3.0, XMC slot with coating & ETT -40°C to +75°C, conduction cooled

- **VPX3010/1559/M16/S32/P16-R1**  
  3U VPX processor board with Intel® Xeon® D-1559, DDR4 16GB, SLC 32GB, PCIe x16, dual 10G-KR, 1GbE Base-T and GbE Base-BX, VGA, 2x USB 3.0, with coating & ETT -40°C to +75°C, conduction cooled

- **VPX3010/1539/M16/S32/XMC-R1**  
  3U VPX Processor Board Intel® Xeon® D-1539, DDR4 16GB, SLC 32GB, dual 10G-KR, dual GbE Base-T, VGA, 2x USB 3.0, XMC slot with coating & ETT -40°C to +75°C, conduction cooled

- **VPX3010/1539/M16/S32/P16-R1**  
  3U VPX Processor Board Intel® Xeon® D-1539, DDR4 16GB, SLC 32GB, PCIe x16, dual 10G-KR, 1GbE Base-T and GbE Base-BX, VGA, 2x USB 3.0, with coating & ETT -40°C to +75°C, conduction cooled

- **VPX3010/1559/M16/S64/XMC-R1**  
  3U VPX processor board with Intel® Xeon® D-1559, DDR4 16GB, SLC 64GB, dual 10G-KR, dual GbE Base-T, VGA, 2x USB 3.0, XMC slot with coating & ETT -40°C to +75°C, conduction cooled

- **VPX3010/1559/M16/S64/P16-R1**  
  3U VPX Processor board with Intel® Xeon® D-1559, DDR4 16GB, SLC 64GB, PCIe x16, dual 10G-KR, GbE Base-T and GbE Base-BX, VGA, 2x USB 3.0 with coating & ETT -40°C to +75°C, conduction cooled

Rear Transition Modules

- **VPX-R3010**  
  RTM for VPX3010 with GbE, SATA, USB 3.0/2.0, RS-232, GPIO

- **VPX-R3010L2**  
  RTM for VPX-R3010 with PCIe x16 slot, PCIe x1 slot

- **VPX-R3010L2-1**  
  RTM for VPX-R3010 with 10G SFP+ connector

Accessories

- **VPX3G10-R**  
  3U VPX NVIDIA GT745M GPU blade, 384 CUDA GDDR5 2GB, conduction cooled

- **XMC-G745-R**  
  XMC NVIDIA GT745M GPGPU module, 384 CUDA GDDR5 2GB, conduction cooled

- **VPX-TF3090**  
  3U VPX conduction cooled test frame with tBP-VPX3000