

VPX706

Processor VPX, Layerscape
LX2160A with PCIe/40G/10G/1G

Key Features

- Processor VPX with Layerscape LX2160A (16-core)
- Two banks of 64-bit DDR4 memory (32 GB total) with ECC
- P1 PCIe x8 or dual x4
- P1 eight reconfigurable SERDES that can be configured with PCIe, 40GbE, 10GbE and/or GbE
- USB3.0/2.0
- SDHC Socket and 64GB of Flash
- 1TB NVMe
- GbE 1000Base-T
- 2x RS-232 and 2x RS422/485
- Dual XMC module with PCIe Gen3 x4
- I/O to the XMC J16/J4 per VITA46.9
- Secure boot

Benefits

- 16 ARM Cortex-A72 CPU cores, running up to 2.2 GHz
- 8 MB cache/on-chip memory
- Design utilizes proven VadaTech subcomponents and engineering techniques
- Electrical, mechanical, software, and system-level expertise in house
- Full system supply from industry leader
- AS9100 and ISO9001 certified company



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VPX706

The VPX706 is a Layerscape Processor in 6U form factor based on the NXP LX2160A (16-core) processor. The module provides PCIe Gen3 x8 or Dual PCIe Gen3 x4 on P1 connector ports 0-7. Also, on the P1 connector the module has eight reconfigurable SERDES that are routed to ports 8-15. Below are some examples of the available SERDES configurations:

- Dual PCIe Gen3 x4
- 4x GbE with PCIe Gen3 x4
- 4x 10GBASE-KR with PCIe Gen3 x4
- 8x GbE
- PCIe Gen3 x4 with 4x 10GBASE-KR
- 4x 10GBASE-KR with 4x GbE
- 8x 10GBASE-KR
- PCIe Gen3 x4 with PCIe Gen3 x2 with 2x GbE
- 2x 40GBASE-KR4

The module includes 32 GB of DDR4 memory with ECC, SDHC Socket, 64 MB SPI flash, 512 KB I2C flash, 8 GB of eMMC, and 1TB NVMe storage.

The VPX706 can host two XMC modules which interfaces to the host processor via PCIe Gen3 x4. The XMC I/Os are routed to the backplane per VITA 46.9 as P3w1-P64s+P4w1-X12d+X8d and P5w1-P64s+P6w1-X12d+X8d. The module also routes RS-232 from management, dual RS-232, dual RS-422 from host, a USB 3.0/2.0 and 1000Base-T to the front panel and P2 connector. The RS485/RS422 termination and slew rates are software configurable.

The CPU has Secure Boot capabilities from power-on and hard reset.

This unit is also available for rugged conduction-cooled applications, see ordering options.

Block Diagram

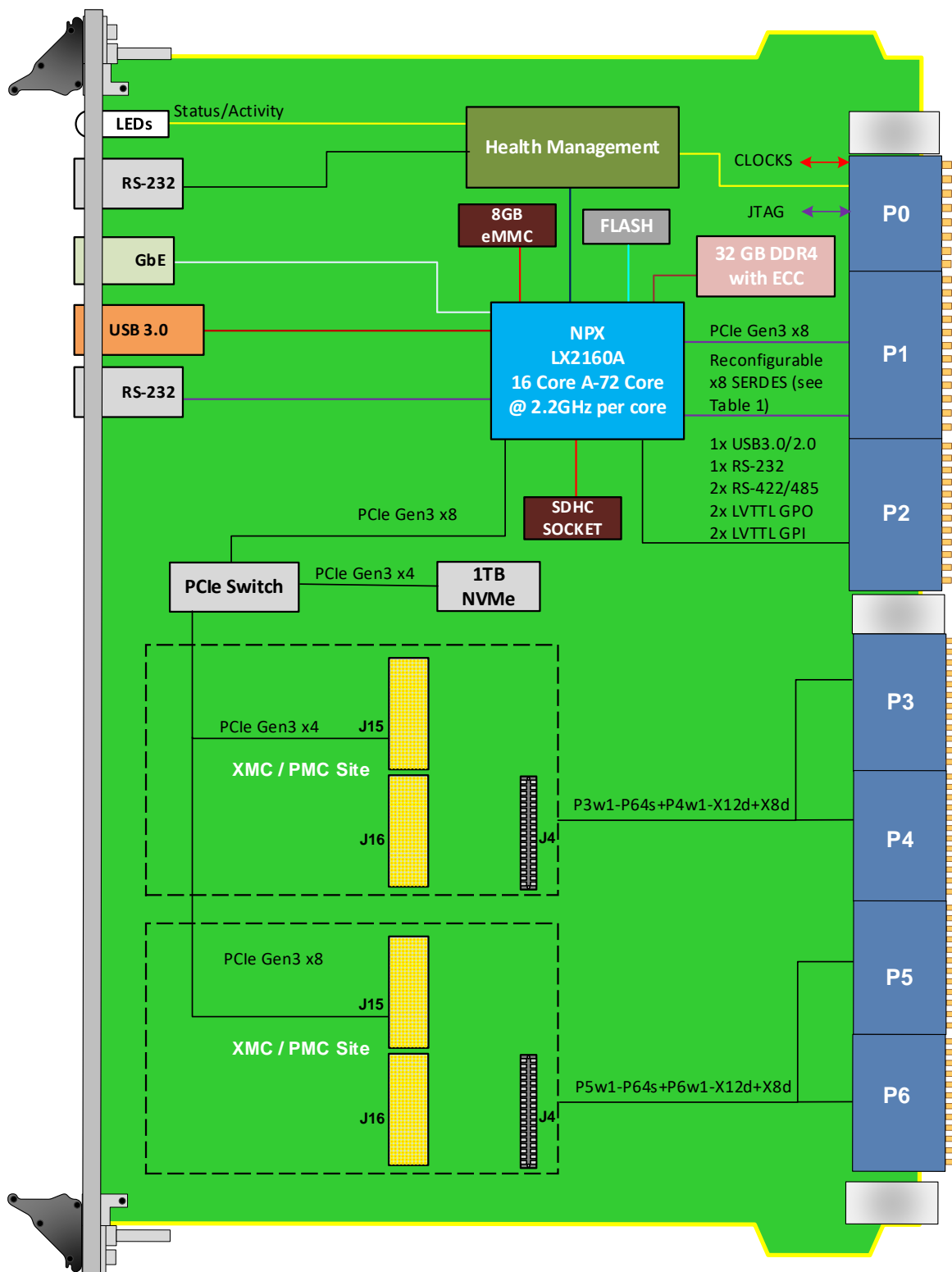


Figure 1: VPX706 Functional Block Diagram

| Option F = | Configuration for the 8x reconfigurable SERDES |
|------------|--|
| 0 | Dual PCIe Gen3 x4 |
| 1 | 4x GbE with PCIe Gen3 x4 |
| 2 | 4x 10GBASE-KR with PCIe Gen3 x4 |
| 3 | 8x GbE |
| 4 | PCIe Gen3 x4 with 4x 10GBASE-KR |
| 5 | 4x 10GBASE-KR with 4x GbE |
| 6 | 8x 10GBASE-KR |
| 7 | PCIe Gen3 x4 with PCIe Gen2 x2 with 2x GbE |
| 8 | 2x 40GBASE-KR4 |
| 9 | Reserved (other options are possible, please contact VadaTech Sales) |

Table 1: Ordering Option F for reconfigurable x8 SERDES

Specifications

| | | |
|--------------------------|--|--|
| Architecture | | |
| Physical | Dimensions | 6U, 5HP (1" Pitch), VITA 48.1 |
| Type | VPX Processor | LX2160A (16-core) processor |
| Standards | | |
| VPX | Type | VPX VITA 46 |
| Module Management | IPMI | IPMI v2.0 Tier Two support |
| PCIe | Lanes | P1 Ports 0-7 per option F |
| Configuration | | |
| Power | VPX706 | ~30W (not including the XMC module) |
| Environmental | See Profile | See Ordering Options |
| | Relative Humidity | 5 to 95% non-condensing |
| Front Panel | Interface Connectors | XMC I/O if any |
| | LEDs | IPMI management control Activity/Link user LEDs |
| Software Support | Operating System | Linux (default) and VxWorks |
| Other | | |
| MTBF | MIL Hand book 217-F@ TBD hrs | |
| Certifications | Designed to meet FCC, CE and UL certifications, where applicable | |
| Standards | VadaTech is certified to both the ISO9001:2015 and AS9100D standards | |
| Warranty | Two (2) years, see VadaTech Terms and Conditions | |

INTEGRATION SERVICES AND APPLICATION-READY PLATFORMS

VadaTech has a full ecosystem of OpenVPX, ATCA and MTCA products including chassis platforms, shelf managers, AMC modules, Switch and Payload Boards, Rear Transition Modules (RTMs), Power Modules, and more. The company also offers integration services as well as pre-configured Application-Ready Platforms. Please contact VadaTech Sales for more information.

Ordering Options

VPX706 – ABC-DEF-GHJ

| A = Processor Option | D = XMC Connectors** | G = Applicable Slot Profile |
|---|--|---|
| 0 = Reserved 1 = Reserved 2 = LX2160A, 2.2 GHz with Security Engine | 0 = VITA 42 (10mm) 1 = VITA 61 (10mm) 2 = VITA 42 (12mm) 3 = VITA 61 (12mm) | 0 = 5 HP, VITA 48.1 |
| B = DDR4 Memory | E = P1 Ports 0-7 Configuration | H = Environmental |
| 0 = Reserved 1 = Reserved 2 = 32 GB | 0 = Not connected 1 = Dual PCIe x4 2 = Single PCIe x8 | See Environmental Specification |
| C = VPX Connector Type | F = P1 Ports 8-15 Configuration | J = Conformal Coating |
| 0 = Standard 50u Gold Rugged 1 = KVPX | Per Table 1 | 0 = No coating 1 = Humiseal 1A33 Polyurethane 2 = Humiseal 1B31 Acrylic |

Notes:

*Other options available pls consult VadaTech Sales

** VadaTech recommends for non-conduction cool XMC the height to be 12mm so the XMC/PMC has better cooling

Environmental Specification

| Option H | Air Cooled | | Conduction Cooled | | |
|-----------------------|----------------------|-----------------------|----------------------|-----------------------|-----------------------|
| | H = 0 | H = 1 | H = 2 | H = 3 | H = 4 |
| Operating Temperature | AC1* (0°C to +55°C) | AC3* (-40°C to +70°C) | CC1* (0°C to +55°C) | CC3* (-40°C to +70°C) | CC4* (-40°C to +85°C) |
| Storage Temperature | C1* (-40°C to +85°C) | C3* (-50°C to +100°C) | C1* (-40°C to +85°C) | C3* (-50°C to +100°C) | C3* (-50°C to +100°C) |
| Operating Vibration | V2* (0.04 g2/Hz max) | V2* (0.04 g2/Hz max) | V3* (0.1 g2/Hz max) | V3* (0.1 g2/Hz max) | V3 (0.1 g2/Hz max) |
| Storage Vibration | OS1* (20g) | OS1* (20g) | OS2* (40g) | OS2* (40g) | OS2* (40g) |
| Humidity | 95% non-condensing | 95% non-condensing | 95% non-condensing | 95% non-condensing | 95% non-condensing |

Notes:

*Nomenclature per ANSI/VITA 47. Contact local sales office for conduction cooled (H = 2, 3, 4).

Related Products

VPX004



- Unified 1 GHz quad-core CPU for, Shelf Manager, and Fabric management
- Automatic fail-over with redundant VPX004
- 1GbE base switch with dual 100/1000/10G uplink

VPX599



- 6U FPGA Dual ADC and Dual DAC per VITA 46
- Xilinx Kintex UltraScale™ XCKU115 FPGA
- Dual ADC 12-bit @ 6.4 GSPS or quad ADC at 3.2 GSPS with TI ADC12DJ3200

VTX870



- Open VPX benchtop development platform
- Dedicated Switch/management slot
- Up to five 6U VPX payload slots

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