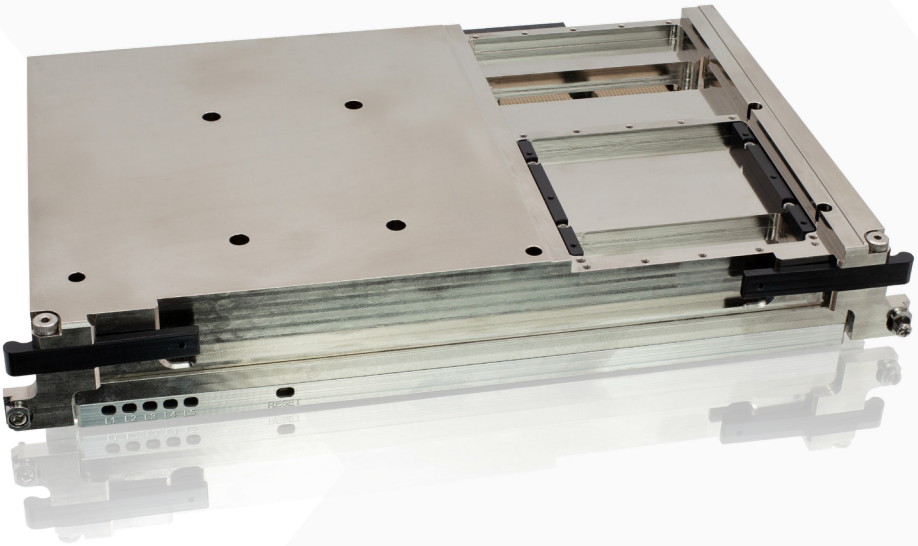
VX6096



6U VPX High End Computing Board - Designed for Imaging, Radar and Embedded Server Applications

- 16 and 20-Core™ Xeon® D-2700/2800 SoC running at 2.0 GHz
- Up to 128 GByte DDR4 memory with ECC
- 100Gb Ethernet Data Plane port
- XMC/MXM Mezzanine slots
- Designed in accordance with SOSA Standard

kontron

Product Highlights

THE INTEL® XEON® D-2700/2800 PLATFORM

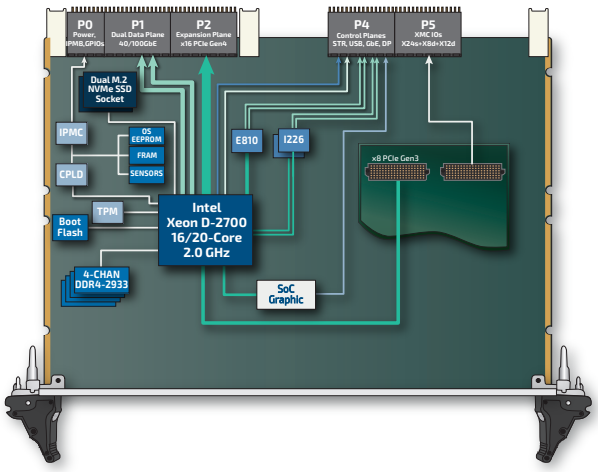
Outperforming the previous Intel® Xeon®-D 1500 SOC silicon, the 10nm Intel® Xeon® D-2700 SOC of the VX6096 targets a new generation of microserver and parallel computing node with superb performance, improved again with D-2800 processors family. Offering capabilities such as PCIe gen4, 100Gb Ethernet with ROCE V2 RDMA protocol and on chip DMA engine, VX6096 is a perfect fit for blade computing being the most powerful product ever offered. It fulfills the growing computing and I/O requirements of leading edge applications that target a minimum number of boards.

Available in 16-core and 20-core versions, these SKUs both offer extended operating temperatures and 10-year availability, the 20-core version being available until 2034.

With specialized instructions for Artificial Intelligence (VNNI), Signal Processing (AVX512) and crypto algorithms, Computer vision, media processing and crypto applications enjoy twice the performance of the previous generation of micro server SOCs.

All versions support the ROCE V2 RDMA feature at the silicon level.

VX6096 BLOCK DIAGRAM



THE SOSA™ ARCHITECTURE BOOSTER

Kontron VX6096 computing node provides an instant boost to the computing performance of existing HPEC architectures designed in accordance with SOSA™.

With the VX6096, Kontron takes this outstanding silicon architecture to the next level, in the form of a rugged single 6U VPX board server, boasting numerous innovations and extensions designed to fulfill the most demanding mission profiles.

Being developed in compliance with the SOSA standard, the module takes advantage of the profiles interoperability offered by the standard, making the VX6096 the perfect building block at system level, reducing costs and development time for integrators.

The VX6096 is available with the following slot & module profiles :

- SLT6-PAY-4F1Q1H4U1T1S1S1TU2U2T1H-10.6.3-0
- MOD6-PAY-4F1Q1H4U1T1S1S1TU2U2T1H-12.6.3-2

RELIABILITY AND ROBUSTNESS

The selected CPU SKU reliability is guaranteed for 10 years up to 100 % active usage profile.

VX6096 Rugged Conduction cooled version is a Plug-in unit according to VITA 48.2 Type 2, Secondary Side Retainer. It can sustain from -40 °C up to 70 °C card edge temperature according to VITA 47 depending on the processing load and mezzanine power. It is available with the VITA 48 REDI Two-Level Maintenance bottom cover.

VX6096 VITA48.8 Air-Flow-Through version offers improved thermal performance thanks to the thermal resistance reduction from the SoC to the ambient temperature itself. allowing for a -40°C to +55°C ambient temperature range.

Ask Kontron for CC-4 (-40/+85°C) and FC3 (-40/+70°C) support.

CYBER SECURITY, SECURE DEPLOYMENTS

VX6096 design is compatible with the Kontron SEC-Line elements and features a discrete TPM2 hardware root of trust. It supports secure boot, measured boot and hardware protection of crypto keys. The ApProtect technology protects application code both in transit and at rest, and restricts program execution solely to boards hosting a valid license. As defined per the NIST standard, the Platform Firmware Resiliency is achieved thanks to a secure CPLD thus preventing attacks on all the board's firmwares.

PB-VX6-0000 REAR TRANSITION MODULE

Development on VX6096 boards can be started before the final system backplane is available using a rear transition module and development backplanes.

The PB-VX6-0000 is available for lab use and offers connectivity:

- One Ethernet QSFP+ cage operating at 100 Gbits/s.
- Two Ethernet SFP+ cage operating at 1 or 10 Gbits/s
- Two Ethernet 1000BASE-T ports
- Four SATA III ports
- One x16 PCIe port on PCIe connector
- One x4 PCIe port on M.2 connector
- Two serial COM ports (including maintenance port)
- Two USB3 / USB2 port
- One graphic DisplayPort
- Ten GPIOs

Technical Information

PROCESSOR	CPU SYTEM MEMORY	Intel® Xeon®-D2775TE, 16-core/32 threads, 25Mbyte cache, 2.0 GHz/3.1 GHz Turbo, 100W TDP Intel® Xeon®-D2896TER, 20-core/40 threads, 30Mbyte cache, 2.0 GHz/3.2 GHz Turbo, 110W TDP 64-128 GByte quad channel DDR4 SDRAM with ECC
ONBOARD FEATURES	BOARD MANAGEMENT SYSTEM CPLD TPM NON-VOLATILE MEMORIES SENSORS	IPMI Controller for VITA46.11 support and Out-of-Band System Management The CPLD handles all the system management resources such as power supplies, monitoring, RESET, LEDs etc… TPM 2.0 device 2x 512Mb boot FLASH devices, with recovery image and uEFI BIOS settings 1Mb F-RAM 2x 512Kb User/System EEPROM Voltage, Temperature & Current sensors
EXPANSION SLOTS	XMC SLOT (DEFAULT) MXM SLOT (OPTION) M.2 SLOTS	x8 PCIe Gen4 link connected to VITA42/VITA61 XMC connectors, VITA46.9 X24s+X8d+X12d XMCIOs routing x8 PCIe Gen4 link connected to MXM Type A x4 PCIe Gen3 link connected to M.2 2242/2280 up to D3 and M Key socket x2 PCIe Gen3 link connected to M.2 2242 up to D3 and M Key socket
BACKPLANE	DATA PLANE EXPANSION PLANE CONTROL PLANES IOS	Dual 40/100GBASE-KR4 ports x16 PCIe Gen4 Dual 10GBASE-KR + dual 1000BASE-T ports Maintenance Port on RS232 or LVCMOS levels x4 PCIe Gen3 / SATAIII for storage DP++ 1.2 Graphic port Dual USB2.0 ports Dual USB3.0 ports Dual serial lines 8 GPIOs XMCIOs Dual SMB/IPMB, JTAG, Power Supplies
STANDARD PROFILE	SLOT PROFILE MODULE PROFILE	SLT6-PAY-4F1Q1H4U1T1S1S1TU2U2T1H-10.6.3-0 MOD6-PAY-4F1Q1H4U1T1S1S1TU2U2T1H-12.6.3-2
SOFTWARE	BIOS BSP POST PBIT OPTIONAL : CBIT	UEFI BIOS Linux BSP, tested with Fedora. Windows, VxWorks on demand Power-On Self Tests CMON PBIT EXPERT: BIOS Health PBIT, with system change detection (learn and compare method, no programming) CMON MONITORING: Linux health Monitoring engine. Creates Continuous flow of health data from customizable test points for remote or local use
AVAILABILITY		Up to 10 years

Environmental Specification

	AFT - RUGGED AIR-FLOW THROUGH VERSION (NO FRONT I/OS)	RC - RUGGED CONDUCTION-COOLED COMPLIANT WITH TYPE 1 PLUG-IN UNIT 2 LEVEL MAINTENANCE AS PER VITA48.0 AND VITA48.2 STANDARDS
CONFORMAL COATING	Standard	Standard
AIRFLOW	tbd	na.
COOLING METHOD	Convection	Conduction
OPERATING TEMPERATURE	-40 °C to +55 °C	-40 °C to +70 °C
STORAGE TEMPERATURE	-50 °C to +100 °C	-50 °C to +100 °C
VIBRATION SINE (OPERATING)	20-2000 Hz - 5 g	20-2000 Hz - 5 g
RANDOM	VITA 47-Class V3	VITA 47-Class V3
SHOCK (OPERATING)	40 g/11 ms Half Sine	40 g/11 ms Half Sine
ALTITUDE (OPERATING)	-1.500 to 60.000 ft	-1.500 to 60.000 ft
RELATIVE HUMIDITY	95% without condensation	95% without condensation

Ordering Information

ARTICLE	PART NO.	DESCRIPTION
VX6096-AFT216H-110N000V1Q	1073-5096	6U Compute Intensive Single slot VPX Plug-In Card 1.5" Rugged Air-Cooled 'AFT2' (-40°C to +55°C) conformal coating Intel® Xeon-D2775TE Processor (25M Cache, up to 3.10 GHz) 100W TDP, 16 cores 64 GB soldered SDRAM XMC Mezzanine on x8 PCIe (VITA61 12mm stacking, up to Gen4) VITA 48 2LM covers Slot profile : SLT6-PAY-4F1Q1H4U1T1S1S1TU2U2T1H-10.6.3-0 Module profile : MOD6-PAY-4F1Q1H4U1T1S1S1TU2U2T1H-12.6.3-2 No Front I/O connectors First 2242 M.2 slot : x4 PCIe Gen3 and M Key Second 2242 M.2 slot: x2 PCIe Gen3 and M Key RTC Power sourced from system VPX VBAT VITA 46.11 Support TPM 2.0 Secure element PBIT RT & Preloaded Linux on Eval M.2 SSD
VX6096-RC316H-110N000V1Q	1073-5097	6U Compute Intensive Single slot VPX Plug-In Card 1" Rugged Conduction-Cooled 'RC3' (-40°C to +70°C) conformal coating Intel(r) Xeon-D2775TE Processor (25M Cache, up to 3.10 GHz) 100W TDP, 16 cores 64 GB soldered SDRAM XMC Mezzanine on x8 PCIe (VITA61, up to Gen4) VITA 48 2LM covers Slot profile : SLT6-PAY-4F1Q1H4U1T1S1S1TU2U2T1H-10.6.3-0 Module profile : MOD6-PAY-4F1Q1H4U1T1S1S1TU2U2T1H-12.6.3-2 No Front I/O connectors First 2242/2280 M.2 slot (bottom) : x4 PCIe Gen3, up to D3 and M Key Second 2242 M.2 slot (bottom) : x2 PCIe Gen3, up to D3 and M Key RTC Power sourced from system VPX VBAT VITA 46.11 Support TPM 2.0 Secure element PBIT RT & Preloaded Linux on Eval M.2 SSD
VX6096-RC320I-110N000V1Q	1073-5099	6U Compute Intensive Single slot VPX Plug-In Card 1" Rugged Conduction-Cooled 'RC3' (-40 °C to +70 °C) conformal coating Intel® Xeon-D2896TER Processor (30M Cache, up to 3.10 GHz) 110W TDP, 20 cores 128 GB soldered SDRAM XMC Mezzanine on x8 PCIe (VITA61, up to Gen4) VITA 48 2LM covers Slot profile : SLT6-PAY-4F1Q1H4U1T1S1S1TU2U2T1H-10.6.3-0 Module profile : MOD6-PAY-4F1Q1H4U1T1S1S1TU2U2T1H-12.6.3-2 No Front I/O connectors First 2242/2280 M.2 slot (bottom) : x4 PCIe Gen3, up to D3 and M Key Second 2242 M.2 slot (bottom) : x2 PCIe Gen3, up to D3 and M Key RTC Power sourced from system VPX VBAT VITA 46.11 Support TPM 2.0 Secure element PBIT RT & Preloaded Linux on Eval M.2 SSD
PB-VX6-0000	1073-3260	6U single slot 5 HP (1.0") VPX Rear Transition Module providing serial lines for standard VX6096 boards. Tooling equipment for lab use.

Your Contact

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