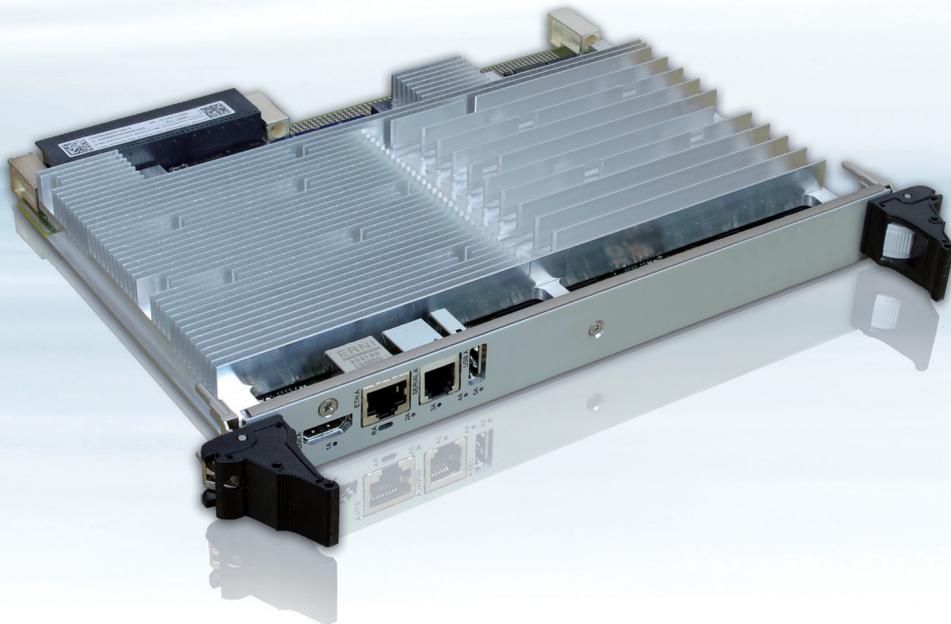


VX6058



VALUE LINE 6U VPX 8-CORE XEON-D SBC

Designed for Streaming Signal processing Applications

- ▶ 8-Core Xeon® D 64-bit SoC at 2.0 GHz
- ▶ 2D SXGA Graphics Controller
- ▶ Connectivity: Multiple 10G & 1G Ethernet Ports
- ▶ M.2 SATA III SSD Sockets
- ▶ Low Speed 17CFM Air Cooling capability
- ▶ Components from countries which accept use in Defense applications
- ▶ Extended Life Cycle and 10-year Silicon Reliability

POSSIBILITIES START HERE



VX6058- VALUE LINE 6U VPX 8-CORE XEON-D SBC

Kontron's VX6058 is a high-performance, multi-purpose Single Board Computer (SBC) suitable for a wide range of demanding embedded deployments. Based on Intel's® Xeon-D® Octo Core™ server class processor, the VX6058 combines dense processing with rich standards-based communications fabric and I/O connectivity to form an ideal, flexible platform for tough SWaP-constrained missions - equally suitable for streaming signal or image processing and embedded server-type applications.

The VX6058 is compatible with the 3U OpenVPX slot profiles SLT3-PAY-2F2U-14.2.3, SLT3-PAY-1F1F2U-14.2.4 and SLT3-PAY-1F1U-14.2.10, and thus can be connected to a low cost 3U VPX backplane.



OPTIMIZED SERVER PERFORMANCE

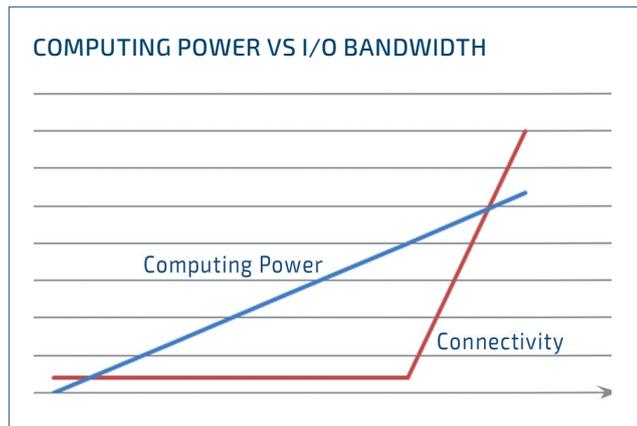
While computing power has been continuously increasing in the past, and I/O bandwidth did not, the balance of both is back again by Kontron VPX Single Board Computers featuring multiple 10G and 1G Ethernet ports and PCI-Express Gen 3 connectivity.

LONG TERM PROGRAM: HIGH AVAILABILITY, LOW TCO

Kontron is providing outstanding elements to increase reliability and to lower Total-Cost-of-Ownership (TCO) for VX6058.

Kontron provides a Long Term Supply program service (LTS) for over 15 years.

Intel Communications silicon reliability is 10 years. A comprehensive Health Management is optionally available to support easy field maintenance. All this makes the VX6058 the ideal candidate for long term programs.



10G/40G UPGRADE OF 1G ETHERNET SWITCHED SIGNAL PROCESSING SYSTEMS

The VX6058 can be cooled by the 17CFM air flow of a legacy 6U VME or cPCI chassis. Combined with the Kontron VX3920 10G Ethernet switch and a 3U VPX backplane, the VX6058 can be used for the upgrade of 1G Ethernet switched multiprocessing system with 10Gb Ethernet connectivity. The use of the VX3920 RTM provides either six 10Gb Ethernet or a dual 40Gb Ethernet optical ports.

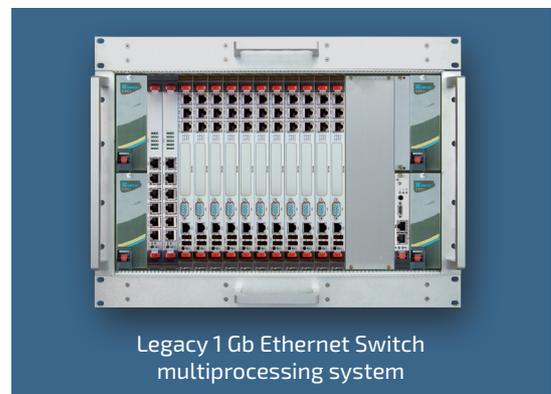
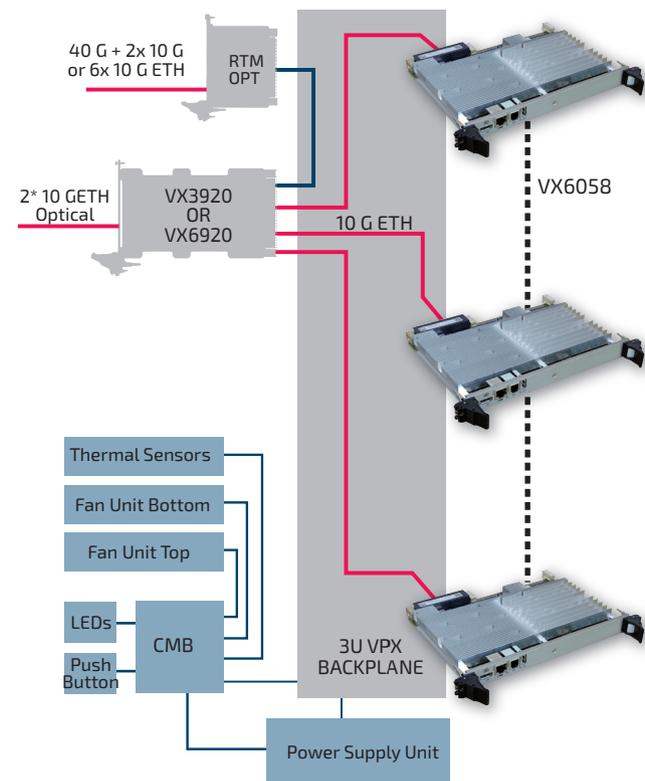
CENTRALIZED HEALTH MANAGEMENT

A shelf manager is optionally available for centralized health management. Moreover, sequenced system power-up and Temperature/Power/Performance management are available. The Power-On Built-in Test (PBIT) option is a comprehensive package for board and system diagnosis.

KONTRON VPX ECO-SYSTEM AND VALIDATED SYSTEMS

VX6058 boards are compatible with all Kontron 3U VPX and 6U VPX building blocks (payload boards, carriers, switches, backplanes, OS, and drivers) and offer backward compatibility with the previous product generations.

Reduce your time to market by starting with an already complete and validated platform, by use of StarVX turn key systems with off the shelf elements.



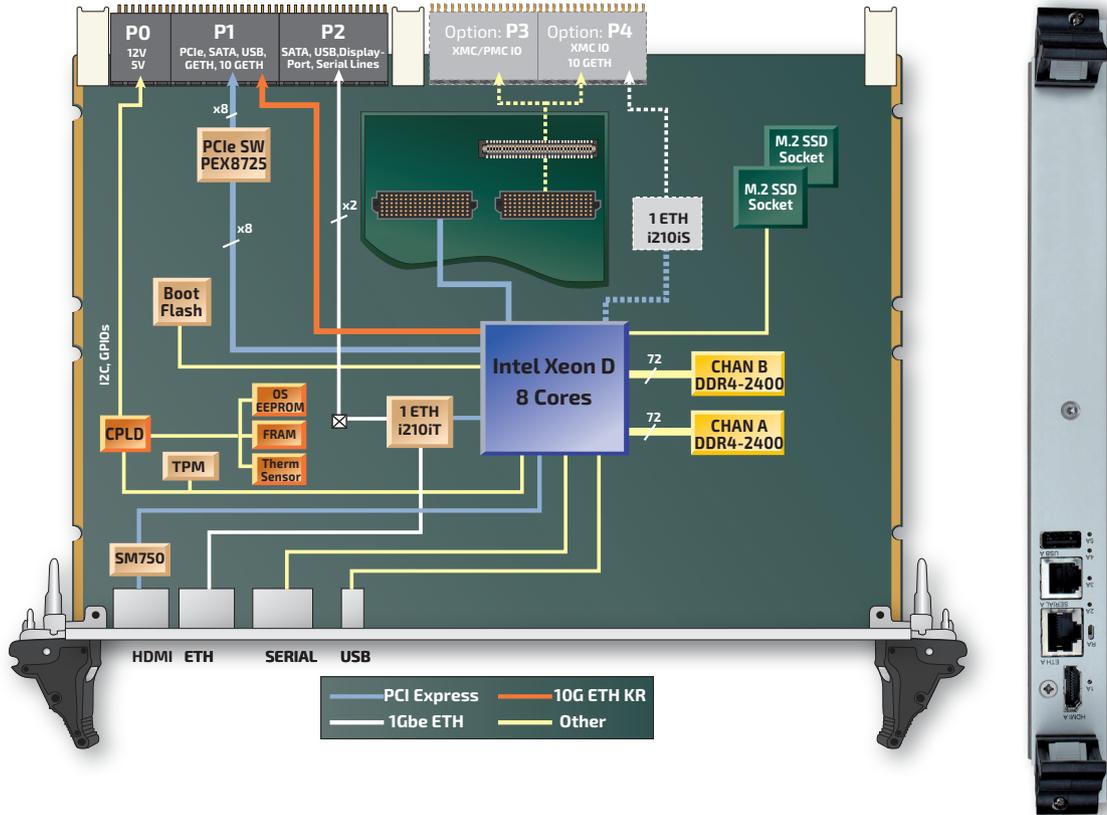
Legacy 1 Gb Ethernet Switch multiprocessing system

▶ TECHNICAL INFORMATION

ONBOARD FUNCTIONS	Processor	Intel® Xeon® D Octo Core™, 45W, 2.0 GHz (8 execution cores, 16 threads, 12 MB)
	System DDR4 memory	Soldered onboard DDR4 dual channel memory with ECC 2400 MT/s over 144 bits.
	RTC, Watchdog, Timer	<ul style="list-style-type: none"> ▶ RTC: RV8564C2 device powered by onboard battery or backplane VBAT. Connected to SoC-SMBus. ▶ Watchdog and Timer (integrated in CPLD): timeout ranging from 2 µs to 510 s, IRQ, Reset, dual-stage
	F-RAM, boot and rescue Flash Devices, VPD and OS EEPROM	<ul style="list-style-type: none"> ▶ F-RAM: 1-Mbit serial I2C device. Connected to CPLD-I2CLOC bus. ▶ Boot and rescue Flash Devices: 16-MByte devices. Connected to SoC SPI0 and SPI1 interfaces. ▶ VPD and OS EEPROM: 256k-Byte devices. Connected to CPLD-I2CLOC bus.
	System CPLD	The CPLD handles the I2C interfaces, poweron/poweroff controls and board resets, internal power-supplies sequencing and their monitoring, alerts, LEDs, GPIOs, onboard Ethernet Multiplexors control, serial lines configuration. Configuration/status registers can be accessed from SoC LPC interface.
TPM	TPM device, version 1.2, revision 116. Component SLB9660XQ1.2 FW 4.40 by Infineon. Connected to SoC LPC interface.	
ONBOARD INTERFACES	Dual M.2 socket	<ul style="list-style-type: none"> ▶ One M.2 socket H4.2 which can host 2242-D5-M or 2260-D5-M or 2280-D5-M modules. Connected to SoC interface SATA[4]. For a connection to the SoC PCI Express interface PCIe[1], contact Kontron. ▶ One M.2 socket 2242-D4-M H4.2 Connected to SoC interface SATA.
	Port 80	Provisional Port 80 on bottom side of the board. Connected to SoC LPC interface.
	XMC slot	Optional VITA 46.9 XMC2 slot. Connected to SoCB PCI Express x4 gen3 interface PE2[7:0] Stack 12 mm achieved by motherboard connectors. XMC mezzanine: 10 mm stack form factor. XMC I/Os: VITA46.9 X12d+X8d+X38s from J16 to P3/P4. PMC I/Os: P64s from J14 to P3.
FRONT PANEL	1000BASE-T port	Intel i210IT controller. 10/100/1000BASE-T protocol with Auto-Negotiation. Auto-wire switching for crossed cables (Auto-MDI/X). Connection: from SoC PCI Express interface PE1[12] (a PCI Express gen3 interface but used as PCI Express gen1 x1) to LAN switch and front RJ45 connector.
	USB2.0 port	USB2.0 port from SoC USB interface USB[3] to front panel.
	Serial port	Two full duplex EIA-232 interfaces (default) or one full duplex EIA-485. EIA-232 interface: simplified (TXD, RXD, GND), 115.200baud max, EIA-485 interface: Fast slew rate (default). Connection: from SoC UARTs, without hardware flow control, to transceivers and then to front RJ-11 connector and rear P2.
	HDMI port	HDMI (DVI) interface without audio. Connection: from SoC PCI Express gen2 interface PCIe[3] to SM750 graphic controller and front HDMI connector.
	LEDs	5 LEDs (Red/Green/Orange) reporting the board health status and activity. Handled by CPLD.
	Reset	Reset push button. Handled by CPLD.
	VPX BACKPLANE	Slot profile
PCI Express gen3 port		Optional PCI Express 3.0 link, configurable as 1x 8, 2x 4, or 4x 2. Non-transparent capability. Connection: from SoC PCI Express gen3 interface PE1[7:0] to PCI Express switch PEX8725 and P1.
PCI Express gen2 port		Provisional PCI Express 2.0 link, fixed x1 configuration. Connection: from SoCA PCI Express gen2 interface PCIe[8] to P2.
10 GbE ports		Dual 10G Ethernet controller integrated in SoC. Protocol: 10GBASE-KR, or 1000BASE-KX. Connection: from SoC interface LAN0 and LAN1 to P1.
SATA ports		SATA III, 6 Gb/s links. Connection: from SoC SATA interfaces SATA[0], SATA[1], SATA[2] to P1 and P2.
1000BASE-T port		Intel i210IT controller. 10/100/1000BASE-T protocol with Auto-Negotiation. Auto-wire switching for crossed cables (Auto-MDI/X). Connection: from SoC PCI Express gen3 interface PE1[12] (a PCI Express gen3 interface but used as PCI Express gen1 x1) to i210 controller, to LAN switch, magnetics and P1 or P2.
1000BASE-KX port		Intel i210IS controller. 1000BASE-KX protocol. Connection: from SoC PCI Express gen3 interface PE1[8] (a PCI Express gen3 interface but used as PCI Express gen1 x1) to i210 controller, then routed to P4. Provision: port ETH3 may be converted to 1000BASE-T.
USB3.0 port		One USB Super Speed 3.0. Connection: from SoCA USB 3.0 interface USB3[1] to P1.
USB 2.0 ports		Two USB 2.0 ports for each SoC. Connection: from SoC USB 2.0 interface USB2[0] and USB2[1] to P1 and P2.
GPIOs and GDISCRETE1		Five GPIOs shared by CPLD: GPIO1, GPIO2/MaskableReset*, GPIO3, GPIO4, GPIO5. OpenVPX GDISCRETE1.
Serial		Two EIA-232 or one EIA-485 interfaces. Connection: from SoC UARTs, without hardware flow control, to transceiver, front RJ11 connector and rear P2.
XMC I/O		If optional XMC is equipped: XMC I/Os: VITA46.9 X12d+X8d+X38s from J16 to P3/P4. or PMC I/Os: P64s from J14 to P3.
Supervisory functions		Open VPX MaskableReset*, NVMR0, Master/Slave SMBus interfaces for system management. Compatible with Kontron CMB (Monitoring Board), temperature and voltage sensors on the board. For PCI Express common reference clock feature, contact Kontron.
Power Supplies		On P0: VS1=12V; VS2 not used; VS3=5V not used; 3.3V_AUX not mandatory, -12V_AUX for XMC slot option only.
SOFTWARE	UEFI	UEFI BIOS from AMI.
	PBIT	Kontron PBIT test suite.
	OS SUPPORT	Contact Kontron.
FORM FACTOR	VITA 48.1 type	Type 2.
	Board outline	As per IEEE 1101.1 6U outline: Dimensions: 233.35 mm max x 170.60 mm max
	Front panel	5HP - 1 inch.
	Overall envelope dimensions	As per VITA 48.1 / 1-inch plug-in units: Plug-in unit thickness: 24.94 mm max. Primary side of PCB to outside of heatsink: 16.76 mm max. Primary side of PCB to outside of bottom cover: 7.87 mm max.

(*) Option on demand only. Contact Kontron.

VX6058 BLOCK DIAGRAM AND FRONT PANEL



► ENVIRONMENTAL SPECIFICATIONS

	SA - STANDARD COMMERCIAL	RUGGED AIR-COOLED	RC - RUGGED CONDUCTION-COOLED
CONFORMAL COATING	Optional	Standard	Standard
AIRFLOW	17 CFM	17 CFM	
COOLING METHOD	Convection	Convection	Conduction
OPERATING TEMPERATURE	0°C to +55°C	-25°C to +55°C	-40° to +71°C
STORAGE TEMPERATURE	-45°C to +85°C	-45°C to +85°C	
VIBRATION SINE (OPERATING)	5Hz to 500Hz: 2g	5Hz to 500Hz: 2g	
RANDOM	5Hz to 500Hz: PSD = 0.04g ² /Hz	5Hz to 100Hz:	
SHOCK (OPERATING)	20g, 11ms, half-sine	40g, 11ms, half-sine	
ALTITUDE (OPERATING)	-1,500 to 60,000 ft	-1,500 to 60,000 ft	-1,500 to 60,000 ft
RELATIVE HUMIDITY	90% non-condensing (95% with coating option)	95% non-condensing	95% non-condensing

► ORDERING INFORMATION

ARTICLE	ORDER CODE	DESCRIPTION
VX6058	VX6058SA8G0150010	6U VPX Single Board Computer 8-core Intel® Xeon® D processors D-1548, 2.0 GHz, TDP 45W 16-GB dualbank DDR4 per processor Standard air cooled (SA) 0°C to +55°C Switched PCI Express interface No XMC slot

For additional information, please contact sales.KFR@kontron.com

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