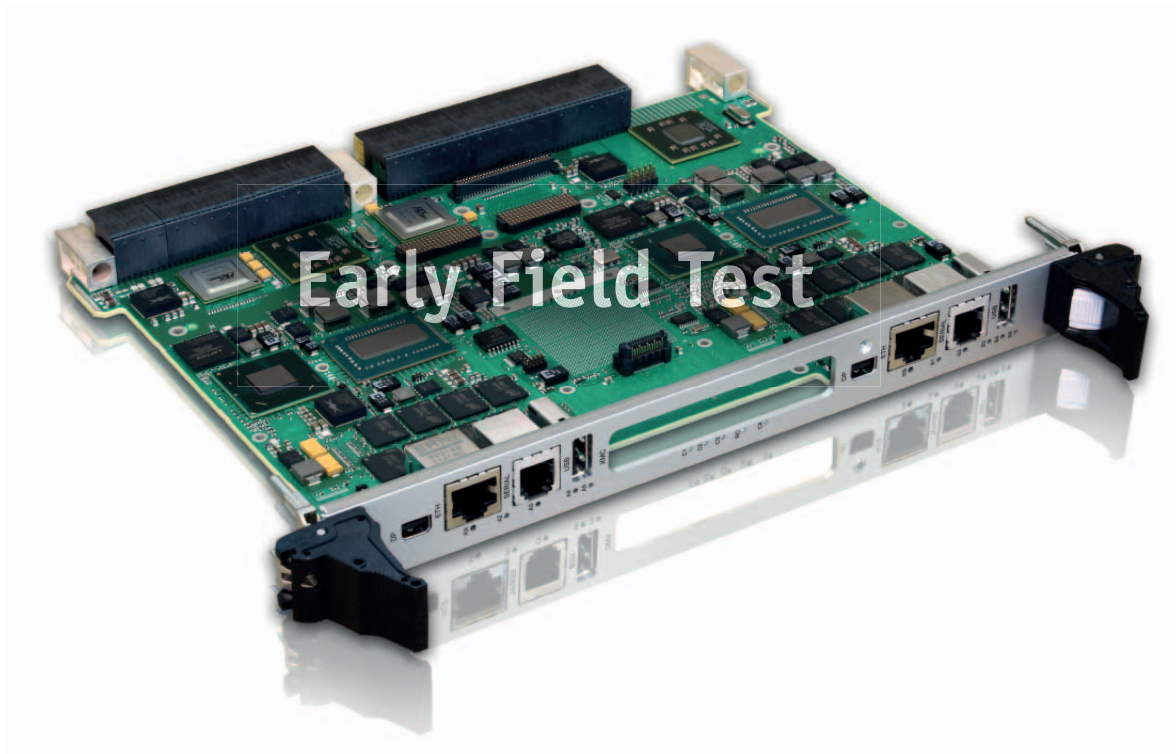


» VX6080 «



6U VPX Multi-Processing Board

For Imaging, UAV Radar, Rugged Multi-Display, Mainstream

- » Performance: Double 3rd Gen Intel Core™ i7 Quad Core™
- » Connectivity: Onboard Ethernet Switch, multiple 10G/1G Ports
- » PMC/XMC Site
- » PCI Express Gen 3.0 with Kontron VXFabric™
- » Up to 16 GB DDR3 with ECC per CPU, 32 GB SATA NAND Flash
- » Extended Life Cycle, Air-Cooled and Conduction-Cooled Versions

Product Overview

Utilizing a pair of quad-core processors, the VX6080 is the most powerful multi-processing board of the Kontron VPX ecosystem.

VX6080 is the Kontron 6U VPX Computer Node based on Intel's intensive processing. The highly integrated Core i7 3rd Generation and the brand new architecture, with 10 Geth and PCIe 3.0, high speed - high capacity memories and integrated graphics, provide the SBC an unmatched level of performance and I/O Bandwidth. Available in Air Cooled and Rugged Conduction-Cooled, the VX6080 offers the ultimate performance, for digital signal processing in Military, Avionics and Rail markets.

Supported by Kontron Long Term Supply (LTS) services, VX6080 offers the best feature set:

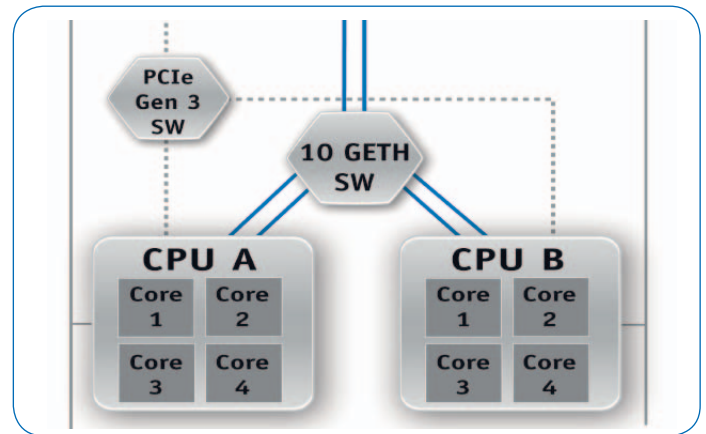
- » Two processors Intel Core™ i7-3612QE - Quad Core
- » Processor performance: up to 269 GFLOPs
- » Four Cores per processors with Hyperthreading (8 threads total) @ 2.1 GHz, offering a performance of 196 GFlops FFT (Max)
- » Support for up to 16 GB SDRAM on 2 Channels, per CPU, DDR3 1600 MHz, with ECC.
- » Up to 32 GB Soldered SATA NAND Flash and optional Flash mezzanine socket for SATA NAND Flash modules
- » Dual Ethernet 10G or 1G per CPU to the 10 Gethernet switch
- » Three Giga Ethernet links 1000BASE-T
- » x8 PCIe Gen 3.0 to VPX Backplane
- » One XMC Site with x8 PCIe Interface
- » Air-Cooled and Conduction-Cooled Versions

Implementation

The VX6080 SBC is part of the Kontron Extended Life Cycle product family, which offers more than 15-years life cycle organization on top of Intel embedded product line silicon life cycle. Available in Kontron 6U VPX development systems, the VX6080 is the ideal candidate for long term programs.

Implemented as two independent computing nodes and attached to a powerful Ethernet and PCIe infrastructure, VX6080 is the ideal building block for high performance parallel computing solutions.

Any number of VX6080 can be used together in distributed or switched OpenVPX environments.



Target Applications

6U VPX: high performance embedded computing and multi-processor systems for:

- » Radar, sonar
- » Imaging systems
- » Airborne fighter and UAV radar

Standalone:

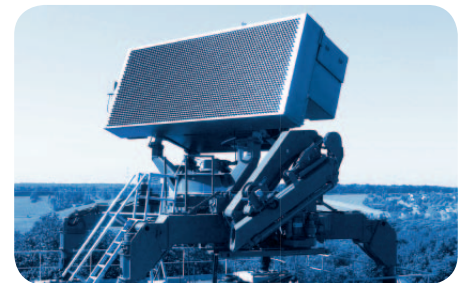
- » Dual processor module in 6U form factor.
- » Rugged multi-display console
- » Mainstream SBC

Compatibility: Validated Solution

VX6080 boards is 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 (VX6060 SBCs).

Write the code once; run on all the product line. VX6080 is proposed with Kontron VXFabric™ technology which implements TCP/IP protocol over the PCI Express infrastructure. With 8x PCIe 3.0, running at 8GB/s (theoretical), applications developed previously with VXFabric™ will enjoy a TCP/IP on PCIe bandwidth exceeding 4GB/s (measured) without any code change.

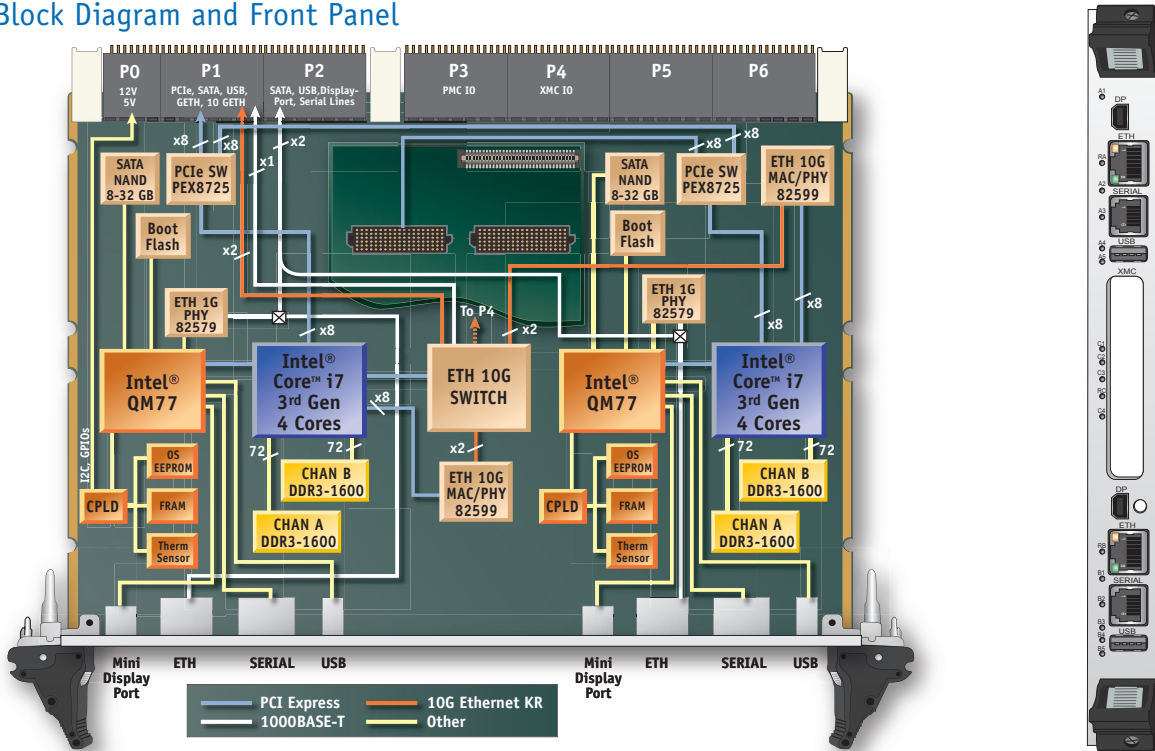
Example of Target Applications



Technical Information

Processor	Third Generation Intel® Core™ i7 processor (22-nanometer silicon technology): » Intel® Core™ i7-3612QE Processor (6M cache, 4 execution cores, 8 threads) » Two Quad Core, 35W/2.1 GHz » Integrated Graphics Core, Intel® HD graphics 4000
Onboard Controller	
Platform Controller Hub	Mobile Intel® QM77 Express Chipset: » Up to 6 Gb/s integrated Serial ATA host controllers » USB 2.0 & 3.0 host interface
Graphics	Integrated Graphics Core, Intel® HD graphics 4000 Up to 5 simultaneous graphics heads: » Two mini DisplayPort on front panel » Four DisplayPorts available on VPX backplane » One optional VGA or HDMI available on VPX Backplane (TBD P4 to P6)
Gigabit Ethernet	» One 10/1 Gigabit Controller connecting two SerDes links (10GBASE-KR or 1000BASE-BX) on VPX backplane » 10GBASE-KR links can be used for backplane board interconnect and/or for SFP+rear cage according SFI specification (redriver recommended for out of the box links) » Two 1000BASE-T, coming from i82579 PHY, connected on front panel or on VPX backplane P2 (user selection) » One 1000BASE-T coming from Eth Switch, connected on VPX backplane (P1)
Watchdog	PLD-based, timeout ranging from 2 µs to 510s, IRQ, Reset, dual-stage
System CPLD	Two CPLD Board controller for power sequencing, reset handling, monitoring, failure detection, VPX I2C communication. Provides configuration/status registers on LPC interface
RTC	Separated low power RTC with optional onboard battery
SIO	SIO1028 provides four serial lines
Memory	
System Memory	Up to 16 GB dual channel DDR3 SDRAM running at 1600 MHz, with ECC, soldered
Flash (uEFI BIOS)	8 MB FLASH, with recovery image and uEFI BIOS settings
EEPROM	One serial 256 Kbit EEPROM dedicated to system data One serial 256 Kbit EEPROM dedicated to application data
NAND Flash Option	Up to 32 GB SATA Nand Flash storage and optional Flash mezzanine socket for SATA NAND Flash modules (Up to 32 GB)
Front Interfaces 4HP (0,8") or 5HP (1")	
Graphics	2x mini DisplayPort connector
USB	2x USB 2.0 ports, 4-pin standard USB connectors
Gigabit Ethernet	2x RJ-45 connectors: Ethernet 1000BASE-T Note: This port is configurable from the BIOS to be routed to the VPX P1 connector instead of the front connector
Serial	2x RJ-12 connector: EIA-232/EIA-485 UART interface for CPU
LEDs	10 LEDs (5 per Core) reporting the board CPU health status and activity
Reset	2 Reset push button
Onboard Interfaces	
CPU Debug Interface	XDP port for CPU extended debug port connection (only available on a debug connector and need additional test board for XDP access)
XMC/PMC Slot	One 8x PCIe to the XMC or PMC slot
VPX Interface	
Slot Profiles	
Rear I/O via P0/P1/P2	The VX6080 supports: » PCIe gen3 x8 (1 x8 , 2 x4 or 4 x2) at 8 Gbits/s, non transparent capability, on P1 » 1x1 additional PCIe interface, gen2, on P2 » 2 SATA 3 links on P1 2 additional SATA 2 links on P2 » 2 USB 2.0 and 1 USB 3.0 links on P1 2 additional USB 2.0 links on P2 » 2x SerDes 10GBASE-KR (SFP+/SFI) or 2x 1000BASE-BX on P1 » 1x 1000BASE-T on P1, 2x 1000BASE-T on P2 and 2x 1000BASE-BX on P4 » 3 User GPIOs on P1, including OpenVPX GDISCRETE1, and MASKABLE RESET and 3 additional GPIOs on P0 » 2 DisplayPort on P2 and 1 on P5
Supervisory Functions	» Non Maskable RESET, » NVMRO, SMB 0 and SMB 1 interfaces for Status, Start , Reset. Compatible with Kontron CMB (Monitoring Board), temperature and voltage sensors on the board » PCIe optional use of common reference clock feature
Power Supplies	On P0: VS1=12V, VS3=5V, 3.3V_AUX optional, -12V_AUX
Environmental Specification	Air-cooled and conduction-cooled class CC3 (-40°C to +71°C) Class CC4 (-40°C to +85°C) available upon request. Specific conditions may apply. Please contact us

VX6080 Block Diagram and Front Panel



Environmental Specification

	SA - Standard Commercial (1" single height passive module heat sink, forced air)	RA - Rugged Air-Cooled (Optional)	RC - Rugged Conduction-Cooled (Depending on processor frequency)
Conformal Coating	Optional	Standard	Standard
Airflow	26 cfm	TBD	NA
Temperature	VITA 47-Class AC1	VITA 47-Class AC3	VITA 47-Class CC3, CC4 option
Cooling Method	Convection	Convection	Conduction
Operating	0° to +55°C	-40° to +71°C	-40° to +71°C, +85°C option
Storage	-45° to +85°C	-45° to +100°C	-45° to +100°C
Vibration Sine (Operating)	20-500 Hz - 2g	5-2,000 Hz - 3g	20-2,000 Hz - 5g
Random	VITA 47-Class V1	VITA 47-Class V2	VITA 47-Class V3
Shock (Operating)	20g/11 ms Half Sine	40g/11 ms Half Sine	40g/11ms Half Sine
Altitude (Operating)	-1,500 to 60,000 ft	-1,500 to 60,000ft	-1,500 to 60,000 ft
Relative Humidity	90% without condensation	95% without condensation	95% without condensation

Ordering Information

Article	Order Code	Description
VX6080	VX6080-SA8F-0010000	Variant for evaluation. With 16 GB RAM, 5HP, standard front panel, XMC slot. Not equipped: onboard switch function, flash, REDI (VITA 48), TPM
VX6080	Quantity Orders	Please contact us for your series selection of double-quadcore blades

CORPORATE OFFICES

Europe, Middle East & Africa

Lise-Meitner-Str. 3-5
86156 Augsburg
Germany

Tel.: + 49 821 4086-0
Fax: + 49 821 4086-111
info@kontron.com

North America

14118 Stowe Drive
Poway, CA 92064-7147
USA

Tel.: +1 888 294 4558
Fax: +1 858 677 0898
info@us.kontron.com

Asia Pacific

17 Building,Block #1, ABP.
188 Southern West 4th Ring Road
Beijing 100070, P.R.China

Tel.: +86 10 63751188
Fax: +86 10 83682438
info@kontron.cn

