

1/2 ATR, 3U OpenVPX Chassis Platform

Air Transport, Rugged



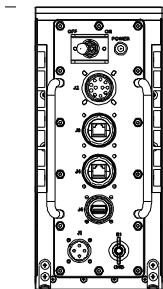
FEATURES:

- 1/2 ATR, conduction-convection cooled
- Advanced airflow design distributes air across external fins in sidewalls
- 6 Slot, 3U OpenVPX (VITA 65) backplane, 1" pitch
- Meets ARINC 404A and ANSI/VITA 48.2
- Aluminum dip-brazed design to meet rugged environments
- Low weight, ideal for weight critical applications
- Accommodates fix mount or plug-in 28VDC power supplies
- Optimized power supply and line filter combination to meet MIL-STD 461E
- Also available with 3U cPCI and MicroTCA backplanes

SCOPE OF SUPPLY

The all-aluminum ATR incorporates Mil-grade components like Mil-38999 connector, integrated sensors, line filters, on/off and reset switches, LEDs, fuses, breakers etc. EMC shielding compliant to MIL-STD 461E. Fan options include the use of a Mil-grade high altitude fan tray which can operate under extremely harsh temperature conditions. Depending on specific applications, either commercial, industrial, or Mil-grade power supplies are available.

ORDERING INFORMATION



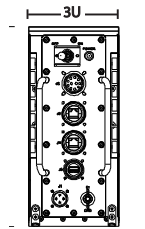
Description	Order Number
<ul style="list-style-type: none"> ■ 1/2 ATR Tall, Short ■ Holds 6, 6U x160mm conduction cooled cards (1") ■ Customized front I/O panel (TBD) ■ 6-slot oVPX backplane (O2N-11)* ■ No Device Mounting ■ 2 x 12VDC fans @51 CFM each ■ 400W fixed mount 28VDC power supply 	<p>ATRATS061VNFTNC4</p> <p>OpenVPX</p>

OPTIONAL COMPUTING PRODUCTS

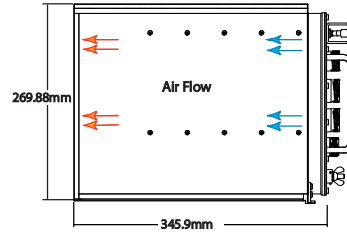
- 3U and 6U VPX and OpenVPX™ compliant single board computers.
- Storage solutions; Secure, Rugged, NAS, RAID.
- Blade level networking boards (fabric switches)
- FPGA configurable I/O solutions
- Ruggedization programs



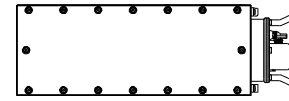
LINE DRAWINGS



Front View



Side View



Top View

ENVIRONMENTAL

	Operating	Storage / Transit
Temperature:	-40°C to +70°C, -55°C to +85°C optional	-20°C to +70°C
Altitude:	30000 ft. (1,829m)	50,000 ft. (15,240m)
Humidity:	0% to 95% Non condensing	5% to 95% Non condensing
Shock:	30 Gs @ 11ms	15 Gs @ 11ms (per ASTM 0775)
Vibration:	1.0 G ² /Hz (RMS 12G) @ 15 to 2000 Hz	1.0 G ² /Hz (RMS 12G) @ 15 to 2000 Hz
Agencies:	Designed to meet MIL-STD 810F, MIL-STD 461E, & MIL-STD 901D	
Weight:	Approx: 12.5lbs	

CUSTOM CONFIGURATIONS



┌ WIDTH
A = ½ (123.95mm)
Z = Custom

┌ HEIGHT
T = Tall (1269.88mm)
Z = Custom

┌ DEPTH
L = Long (498mm)
S = Short (320.5mm)
Z = Custom

┌ NUMBER OF SLOTS
00-20: Single BP; AY-YA: Split
Example 7 slot = 07
Example 12 + 9 = LI

┌ BP BARE BOARD
A = oVPX, 6U, 1" (VITA 65)
B = oVPX, 3U, 1" (VITA 65)
C = oVPX, 6U, .8" (VITA 65)
D = oVPX, 3U, .8" (VITA 65)
H = oVPX, 6U, 1" + .8" (VITA 65)
I = oVPX, 3U, 1" + .8" (VITA 65)
L = VXS Dual Star
M = V64, J12 mono, 3 row
N = VME64x, 6U
O = VME64x, 7U
P = VPX, 6U (VITA 46)
W = VPX, 3U (VITA 46)
S = VXS Star
T = VXS (Mesh)
U = CPCI Express, 3U
X = No BP Installed
Z = Custom

┌ BP CONNECTOR
(CONFIGURATION J1/J2/PO)
L = 5 row, RT-2 PO & SW
M = 3 row, J1 flush, J2 13mm
O = 5 row, w/o PO
P = 5 row, w/ PO
S = RT-2 (J0-J6) 6U
U = RT-2 (J0-J2) 3U
V = RT-2 (J0-J6) 6U, RTM
W = RT-2 (J0-J2) 3U, RTM
X = No Connectors
Y = Hybrid
Z = Custom

┌ DRIVES
Y = Yes
N = No

┌ DEVICE MOUNTING
F = Fixed mount devices
I = Shock isolated devices
x = No mounting

┌ CARD ORIENTATION
V = Vertical
H = Horizontal
T = Top Load

┌ PSU INPUT
C = 90-230VAC (Fixed)
N = 28VDC (Fixed)
Q = MIL-STD 704D, 28VDC
R = MIL-STD 704D, 90-230VAC (47-500Hz)
X = No PSU

┌ PSU OUTPUT
(NOT ALL PSU COMBINATIONS AVAILABLE)
1 = 100 - 199 watts (w/o 3.3V)
2 = 200 - 299 watts (w/o 3.3V)
3 = 300 - 399 watts (w/o 3.3V)
4 = 400 - 499 watts (w/o 3.3V)
5 = 500 - 599 watts (w/o 3.3V)
A = 100 - 199 watts (w 3.3V)
B = 200 - 299 watts (w 3.3V)
C = 300 - 399 watts (w 3.3V)
D = 400 - 499 watts (w 3.3V)
X = Not Installed

┌ SHIELDING LEVEL
4 = MIL-STD 461
X = Not Installed

XPedite7470

Intel® Core™i7 Processor-Based 3U Conduction- or Air-Cooled VPX-REDI Module

- › Intel® next generation embedded Sandy Bridge processor
- › Dual- or quad-core processor with hyper-threading technology
- › 3U VPX (VITA 46) module
- › OpenVPX™ standards based
- › Ruggedized Enhanced Design Implementation (REDI) per VITA 48
- › Conduction or air cooling
- › Up to 8 GB of DDR3-1333 ECC SDRAM in two channels
- › 32 MB NOR boot flash
- › Up to 16 GB of NAND flash
- › PrPMC/XMC interface with rear and front panel I/O support
- › Two Gen2 Fat Pipe P1 fabric interconnects
- › Two optional 10/100/1000BASE-T or 1000BASE-BX Ethernet ports
- › Two optional rear-panel USB 2.0 high-speed ports
- › Two optional rear-panel SATA 3.0 Gb/s ports
- › Two rear-panel RS-232/RS-422/RS-485 serial ports
- › Two rear-panel DVI graphics ports
- › Linux BSP
- › Wind River VxWorks BSP
- › QNX Neutrino BSP
- › Green Hills INTEGRITY BSP
- › Windows drivers



XPedite7470

The XPedite7470 is a high-performance, low-power 3U VPX-REDI single-board computer based on the Intel® Core™i7 processor (Sandy Bridge) and Intel QM67 (Cougar Point) chipset. With two PCI Express Fat Pipe P1 interconnects and two Gigabit Ethernet ports, the XPedite7470 is ideal for the high-bandwidth and processing intensive applications of today's military and avionics applications. Floating-point intensive applications such as radar, image processing, and signals intelligence will benefit from the performance boost provided by the Intel® Advanced Vector Extensions (Intel® AVX) incorporated into the Intel Core™i7 processor.

The XPedite7470 accommodates up to 8 GB of DDR3 ECC SDRAM on two channels to support memory-intensive applications. The XPedite7470 also hosts numerous I/O ports including Gigabit Ethernet, USB 2.0, SATA, graphics, and RS-232/RS-422/RS-485 through the backplane connectors.

The XPedite7470 can be used in either the system slot or peripheral slot of a VPX backplane. Wind River VxWorks, QNX Neutrino, Green Hills INTEGRITY, and Linux Board Support Packages (BSPs) are available, as well as Windows drivers.

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 Phone: 608.833.1155 • Fax: 608.827.6171
 sales@xes-inc.com • http://www.xes-inc.com

Processor

- Intel® Core™ i7 dual- or quad-core processor
- Hyper-threading technology
- Dual channel integrated memory controller
- Integrated graphics controller

Memory

- Up to 8 GB of DDR3-1333 ECC SDRAM on two channels
- 32 MB NOR boot flash
- Up to 16 GB of NAND flash

Graphics

- Integrated high performance 3D graphics controller
- Two DVI-D or dual-mode DisplayPort

VPX (VITA 46) P0 I/O

- PC port

VPX (VITA 46) P1 I/O

- x4 PCI Express Fat Pipe interface to P1.A
- x4 PCI Express Fat Pipe interface to P1.B
- Two 1000BASE-BX Gigabit Ethernet ports (or one 10/100/1000BASE-T port to P1 and one port to P2)
- X12d XMC P16 I/O

VPX (VITA 46) P2 I/O

- One 10/100/1000-Mbps Gigabit Ethernet port (optional)
- Two SATA ports (optional)
- Two USB 2.0 ports (optional)
- Up to two RS-232/RS-422/RS-485 serial ports
- 3.3V GPIO signals (optional)
- Two DVI graphics ports (optional)

PrPMC/XMC Site

- 32-bit, 33-MHz PCI bus (PMC interface)
- x4 PCIe port (XMC interface)
- Two 6.0 Gb/s SATA ports (XMC interface)
- X12d P16 I/O support

Software Support

- Linux BSP
- Wind River VxWorks BSP
- QNX Neutrino BSP
- Green Hills INTEGRITY BSP
- Windows drivers

Physical Characteristics

- 3U VPX-REDI conduction- or air-cooled form factor
- Dimensions: 100 mm x 160 mm
- 0.8-in. pitch without solder side cover
- 0.85 and 1.0-in. pitch with solder side cover

Environmental Requirements

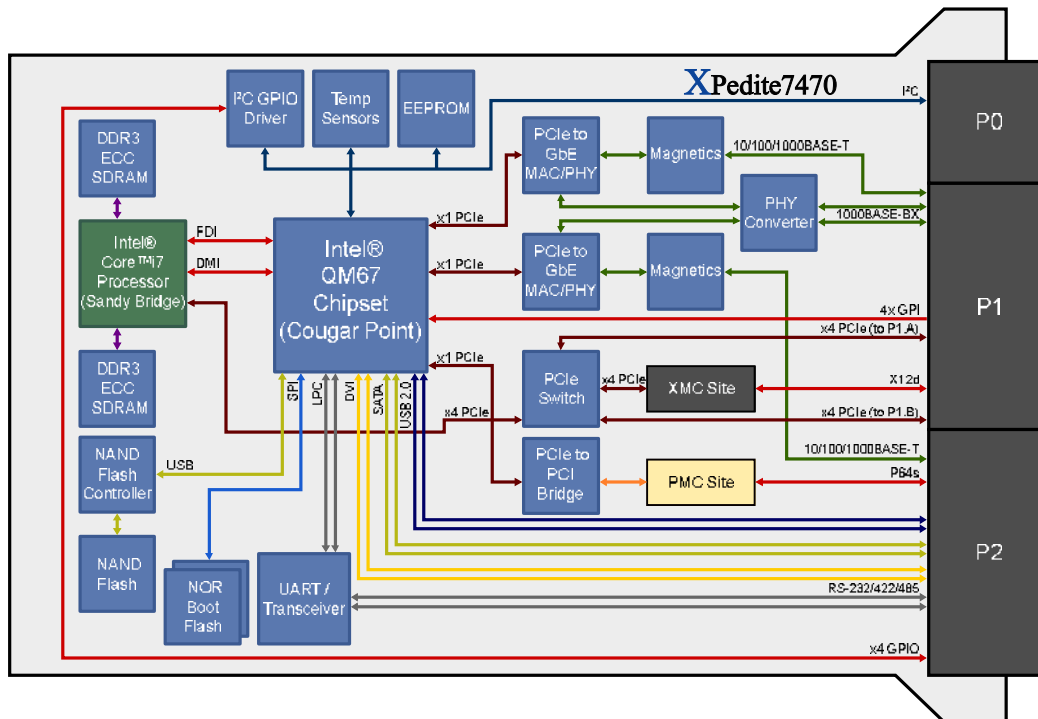
Contact factory for appropriate board configuration based on environmental requirements.

- Supported ruggedization levels (see chart below): 1, 3, 5
- Conformal coating available as an ordering option

Power Requirements

Power will vary based on CPU frequency and application. Please consult factory.

Supported Ruggedization Level	Level 1	Level 3	Level 5
Cooling Method	Standard Air-Cooled	Rugged Air-Cooled	Conduction-Cooled
Operating Temperature	0 to +55 °C ambient (300 LFM)	-40 to +70 °C (600 LFM)	-40 to +85 °C (board rail surface)
Storage Temperature	0 to +85 °C ambient	-40 to +105 °C ambient	-55 to +105 °C ambient
Vibration	0.002 g ² /Hz, 5 to 2000 Hz	0.04 g ² /Hz (maximum), 5 to 2000 Hz	0.1 g ² /Hz (maximum), 5 to 2000 Hz
Shock	20 g, 11 ms sawtooth	30 g, 11 ms sawtooth	40 g, 11 ms sawtooth
Humidity	0% to 95% non-condensing	0% to 95% non-condensing	0% to 95% non-condensing



XPort6103

XMC Solid State Drive (SSD) Storage Solution

- › XMC PCIe x1 interface
- › XMC SATA interface (optional)
- › Up to 512 GB capacity (appears as two 256 GB drives)
- › 256-bit AES encryption (optional)
- › Declassification via hardware or software control
- › ATA Secure Erase support
- › 120 MB/s write performance (no encryption)
- › 200 MB/s read performance (no encryption)
- › Based on reliable SLC NAND flash technology
- › 100,000 program/erase cycles
- › Designed for rugged environments



XPort6103

The XPort6103 XMC module has been designed to meet the storage requirements of the most demanding applications. By utilizing solid-state NAND flash technology, the XPort6103 provides a high-performance, high-density, reliable memory solution. The XPort6103 is capable of operating within the demanding environments of MIL-STD-810F as well as severe shock and vibration conditions.

The XPort6103 has the option to provide 256-bit AES encryption. The encryption chip is NIST and CSE certified. The key can be loaded from an on-board EEPROM or from an off-board secured device using the SATA API. The XPort6103 supports enhanced erases, meeting both DOD NISPOM 5220.22 and NSA/CSS 9-12 specifications. Declassification can be achieved via hardware or software control.

The use of SLC NAND flash components allows the XPort6103 to support at least 100,000 program/erase cycles. The card supports global wear leveling and bad block management, further prolonging the life and reliability of the memory. The XPort6103 provides best in class performance with up to 200 MB/s sustained sequential read and 120 MB/s sustained sequential write. The XPort6103 supports two 256 GB drives, making for an impressive total of 512 GBs of solid-state storage.

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P15 XMC Interface

- x1 PCI Express port

P16 XMC Interface

- Optional external SATA interface

Security

- 256-bit AES Encryption (not supported on 512 GB configurations)
- CBC block cipher mode
- Declassification via hardware or software control (optional)
- ATA Secure Erase support

Key Management

- SATA API
- EEPROM

Storage Characteristics

- Serial ATA (SATA) 3 Gb/s
- SLC technology
- Up to 512 GB total
- 120 MB/s write (no encryption)
- 200 MB/s read (no encryption)
- Write protection

Physical Characteristics

- XMC conduction- or air-cooled form factor
- Dimensions: 143.75 mm x 74 mm

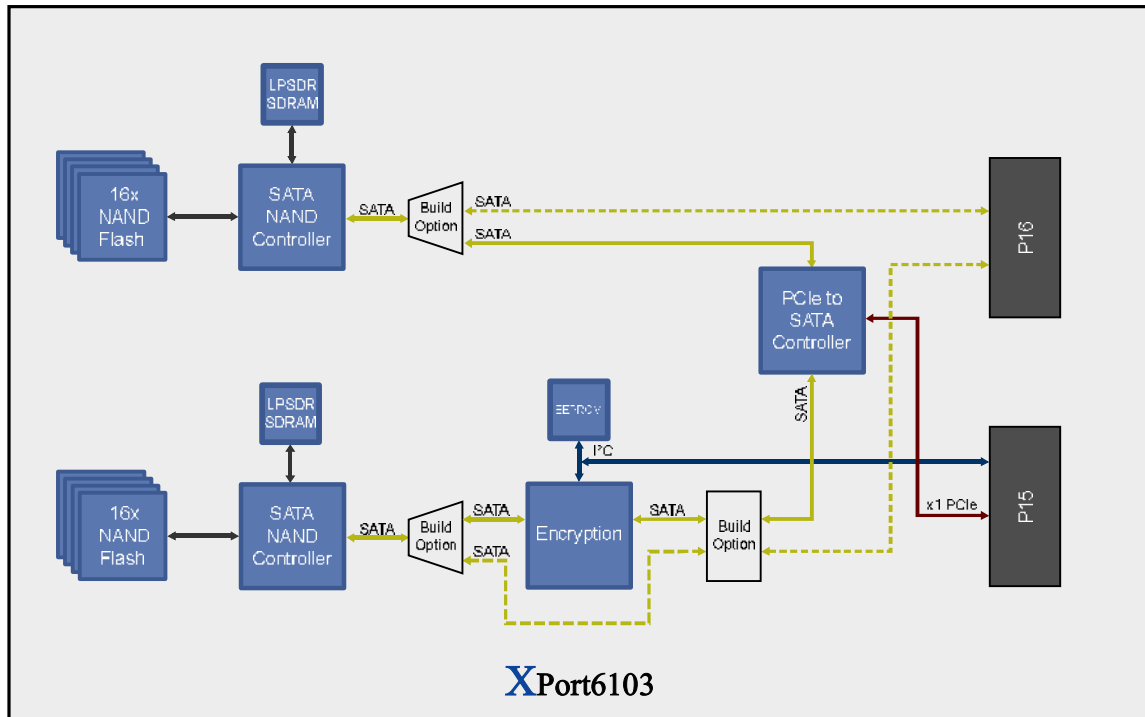
Environmental Requirements

- Contact factory for appropriate board configuration based on environmental requirements.
- Supported ruggedization levels (see chart below): 1, 3, 5
 - Conformal coating available as an ordering option

Power Requirements

- 5 W (64 GB, no encryption)

Supported Ruggedization Level	Level 1	Level 3	Level 5
Cooling Method	Standard Air-Cooled	Rugged Air-Cooled	Conduction-Cooled
Operating Temperature	0 to +55 °C ambient (300 LFM)	-40 to +70 °C (600 LFM)	-40 to +85 °C (board rail surface)
Storage Temperature	0 to +85 °C ambient	-40 to +105 °C ambient	-55 to +105 °C ambient
Vibration	0.002 g ² /Hz, 5 to 2000 Hz	0.04 g ² /Hz (maximum), 5 to 2000 Hz	0.1 g ² /Hz (maximum), 5 to 2000 Hz
Shock	20 g, 11 ms sawtooth	30 g, 11 ms sawtooth	40 g, 11 ms sawtooth
Humidity	0% to 95% non-condensing	0% to 95% non-condensing	0% to 95% non-condensing



XPm2020

MIL-STD-704 28V Input to $\pm 12V$, 5V, and 3.3V Output 3U VITA 62.0 VPX Power Supply with Integrated MIL-STD-461E Filtering

- ▶ MIL-STD-704 28V-DC input voltage
- ▶ MIL-STD-461E EMI filtering
- ▶ VITA 62.0-compliant power supply
- ▶ Up to 300 W output on 3.3V, 5V, and $\pm 12V$
- ▶ On-card hold-up capacitor for up to 75 ms (at 120 W) of hold-up time (optional)
- ▶ Up to 90% efficient
- ▶ -40°C to 85°C conduction cooled operating temperature (at the thermal interface)
- ▶ Two-level maintenance support
- ▶ Load sharing support with another XPm2020
- ▶ IPMI controller for on-card voltage monitoring and control



XPm2020

The XPm2020 is a VITA 62-compliant 3U VPX power supply that takes in a MIL-STD-704 28V-DC input voltage and provides up to 300 W on 3.3V, 5V, and $\pm 12V$ at up to 90% efficiency. The XPm2020 also provides on card MIL-STD-461E EMI filtering and optional on card hold-up capacitance, which provides 75 ms of hold-up time (at 120 W output).

The XPm2020 fits in a VITA 62-compliant 3U VPX 1.0- or 0.8-inch slot. Up to 8.3 A on 12V, 2 A on -12V, 22 A on 5V, 27 A on 3.3V, and 4 A on 3.3V Auxiliary can be supported on each rail, separately. The XPm2020 can provide up to a combined 300 W of total output power at maximum operating temperature. The XPm2020 can also be paired with another XPm2020 for load sharing.

The XPm2020 also features an Intelligent Platform Management Interface (IPMI) controller which monitors board voltages and temperatures. In addition, the IPMI controller can turn off output power.

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Input Power

- MIL-STD-704 28V-DC
- MIL-STD-461E EMI filtering

Output Power

- Up to 90% efficient
- Supports up to 300 W in total combined power output
- 3.3V at up to 25 A
- 5V at up to 22 A
- 12V at up to 8.3 A
- -12V at up to 2 A
- 3.3V Auxiliary at up to 4 A
- Can be paired with another XPm2020 for load sharing

Hold-up

- On-card hold-up capacitor for up to 75 ms (at 120 W) of hold-up time (optional)

Physical Characteristics

Contact X-ES for CAD model if desired

- 3U form factor
- 0.8-in. pitch
- 1.45 lbs. (with on-card hold-up capacitor)
- 1.1 lbs. (without on-card hold-up capacitor)

IPMI Controller

- Monitors voltages
- Monitors temperature sensors
- Controls output power
- Connects to backplane via system management bus (I²C)

Environmental Requirements

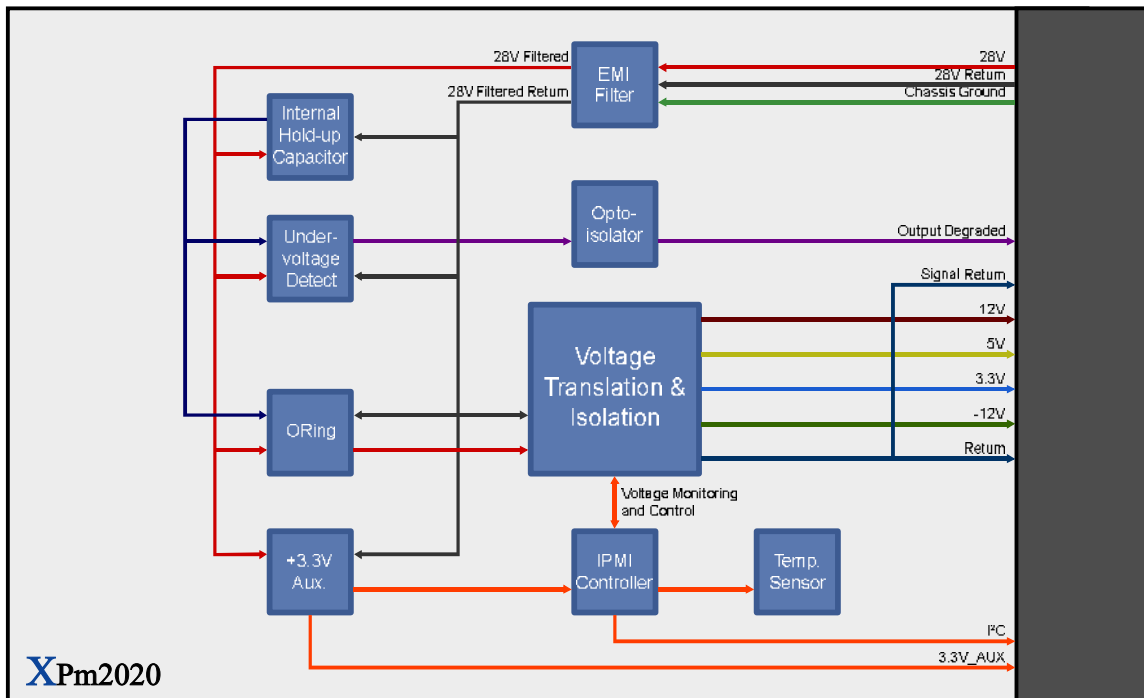
Contact X-ES for appropriate board configuration based on environmental requirements.

- Supported ruggedization levels (see chart below): 5
- Conformal coating available as an ordering option

Supported Ruggedization Level

Level 5

Cooling Method	Conduction-Cooled
Operating Temperature	-40 to +85 °C (board rail surface)
Storage Temperature	-55 to +105 °C ambient
Vibration	0.1 g ² /Hz (maximum), 5 to 2000 Hz
Shock	40 g, 11 ms sawtooth
Humidity	0% to 95% non-condensing



XPm2020





Condor 3000x

High Performance XMC graphics with GPGPU capability

Condor 3000x Features

- 1 GB frame buffer
- XMC form factor
- 2D/3D graphics compatibility
- OpenGL 4.1/DirectX 11
- OpenCL (GPGPU computing)
- Front/Rear Outputs (DVI, VGA, Dual Mode Display port)
- Up to 1920 x 1200 resolution with Single-Link configuration and 2560 x 1600 with Dual-Link
- Long term product availability
- Comprehensive customer care
- Ideal for embedded applications

Markets

- Military
- Avionics
- Industrial
- Embedded Systems

Platforms

- Windows/Linux based Single Board Computers
- VME, VPX, CPCI, ATCA,
- Other Platforms, as required

Condor 3000x is a leading edge XMC form factor graphics/video card for use in applications that require very high-end graphics and computation. Based on AMD's Radeon 6760 GPU, the Condor 3000 product line offers exceptional performance with immersive desktop-level 3D graphics and outstanding multimedia features. It's built-in video decoder enables dual HD decoding of H.264, VC-1, MPEG4 and MPEG2 compressed video streams.

The product is offered in various levels of ruggedization and has digital (DVI/LVDS/Display Port) and analog (VGA) video outputs available from the front panel (face plate) of the card or through rear PMC/XMC connectors. Conduction cooled versions are available.

Delivering 576 GFLOPs of peak single precision floating point performance, the Condor 3000 graphics processor is ideal for general purpose graphics processing unit (GPGPU) applications such as ultrasound, radar and video surveillance. Supported by the industry standard OpenCL™ programming language,

GPGPU application software development is accelerated with the AMD Stream Software Development Kit (SDK). The SDK includes developer tools such as compiler, debugger, code profiler and math libraries.

The product comes with Tech Source's commitment of availability for up to 7 years. This along with the legendary support from Tech Source's support team, where an experienced support team is available for immediate assistance to troubleshoot and resolve any issues.

While Windows/Linux drivers are available by default, other real time operating systems (RTOS) such as VxWorks, Integrity and LynxOS may be supported as per customer requirements.

Tech Source has provided graphics solutions for over 22 years and has always met customer needs—long term commitment and support.

Tech Source
An EIZO Group Company

Condor 3000x Technical Specifications

Condor 3000x

**XMC form factor video graphics adapter, up to 2560x1600 or 2048x2048 resolution with Dual-Link configuration or 1920x1200 for Single-Link.
1 GB frame buffer, multiple video outputs in front and rear.**

Specifications

Graphics Processor	Radeon 6760 GPU supporting OpenGL 4.1 and DirectX 11
Interface	XMC form factor, 8 Lane, PCI Express 2.1
Graphics Memory	128-bit wide, 1GB GDDR5 memory
Maximum Video Resolution	1920 x 1200 for Single-Link DVI Configuration and 2560 x 1600 for Dual-Link DVI
Floating Point Performance (single precision, peak)	576 GFLOPS, 480 shaders
Shader Model	5.0
OpenCL/GPGPU computing	OpenCL 1.1, DirectCompute 11
Unified Video Decoder (UVD)	UVD3 for H.264, VC-1, MPEG-2, MPEG-4 part 2 decode
Video Outputs	(Front Panel) Single-Link DVI-I (VGA or Single-Link DVI) and Dual Mode Display Port
	(Rear) Single-Link DVI-I (VGA or Single-Link DVI), Single-Link DVI-D and Two Dual Mode DisplayPort (Note: two Single-Link DVI can be converted to one Dual-Link DVI) (Note : One DVI output can be converted to LVDS)
Power Rating	40 Watts (Can be configured to be as low as 20W)
Operating Temperature	0°C to 55°C (Commercial)
	-40°C to 70°C (Rugged)
	-40°C to 85°C (TBD)
Humidity	90% without condensation
Software/Platform Support	Windows or Linux
	RTOS (As needed)
	X86, PowerPC

Tech Source

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