

# VT977

## Integrated Processor/FPGA (Commercial and Base Plate Cooling)

VT977



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## Key Features

- NXP LX2160A Layerscape with sixteen Arm Cortex-A72 cores
- 16GB DDR-4 Memory with ECC
- NVMe M.2 for mass storage
- Dual GbE to CPU, GbE to FPGA PS
- FPGA AMD XCZU15EG
- 8GB DDR-4 Memory to PS with ECC
- 8GB DDR-4 Memory to FPGA PL
- 8x Optical
- +28V Input typical with EMI Filtering-MIL-STD-461E
- Transient protection-MIL-STD-704A/E/F, MIL-STD-1275A/B/D
- Hold cap with input surge withstand 50V for 100 ms
- Environmental per MIL-STD-810G Methods 509.5, 508.6, 510.5, 500.5, 514.6, 501.5, 502.5, 503.5, 516.6, 512.5, 511.5
- Health Management

## Benefits

- High performance ARM processor A72 Core
- On board FPGA
- Design utilizes proven VadaTech subcomponents and engineering techniques
- Electrical, mechanical, software, and system-level expertise in house
- Full system supply from industry leader



# VT977

The VT977 is based on the NXP LX2160A CPU with sixteen Arm Cortex-A72 cores. The processor interfaces to 8 GB of DDR-4 memory with ECC. The processor interfaces to the AMD FPGA XCZU15EG via x4 PCIe lanes on the PS side and 40GbE via the PL side. The FPGA PS side interfaces to 8GB of DDR-4 memory with ECC and the PL side of the FPGA interfaces with 8 GB of DDR-4 memory.

The unit provides dual GbE to the NXP LX2160A CPU, single GbE to the PS side of the FPGA, and additional 8x optical interfaces which are protocol agnostic (protocol such as 1GbE, 10GbE, 40GbE, Aurora, etc) to the PL side of the FPGA. The module has a MIL-STD-1553B interface to the FPGA as well as providing I/O such as RS-422, discrete/isolated I/O, and 2x ARINC 429 interfaces.

The CPU utilizes an M.2 storage module for mass storage.

The VT977 operates from +28V input (16V-36V) and has an onboard filter to meet MIL-STD-461E, Transient protection MIL-STD-704A/E/F and MIL-STD-1275A/B/D.

The VT977 (based plate cooling) conforms to environmental standards MIL-STD-810G, methods 509.5, 508.6, 510.5, 500.5, 514.6, 501.5, 502.5, 503.5, 516.6, 512.5 and 511.5.

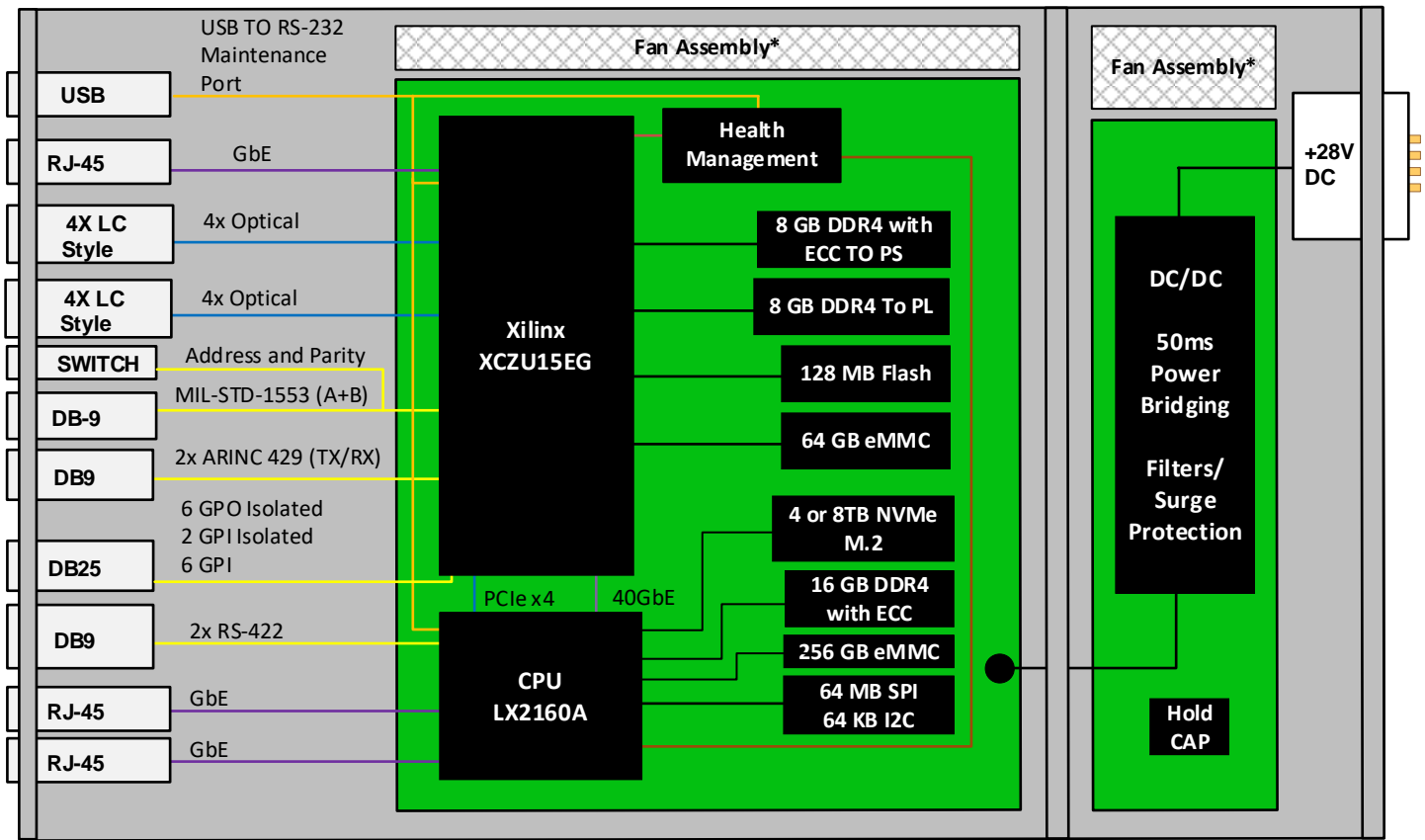
Linux OS is standard on the VT977, consult VadaTech for further options.

*Figure 1: VT977 Front View Bench Top*

*Figure 2: VT977 Rear View Bench Top*

*Figure 3: VT977 Base Plate Cooling Version*

# Block Diagram



\*For non-base plate cooling

Figure 4: VT977 Functional Block Diagram

# Chassis Layout

Figure 5: Chassis Layout – Front

Figure 6: Chassis Layout – Rear

# Specifications

Architecture	
<b>Physical</b>	<b>Dimensions</b> W TBD, D TBD" (excluding connectors), H TBD"
	<b>Based Plate Cooling</b> W TBD", D TBS", H TBD" (Excluding connectors)
<b>Type</b>	<b>Processor/FPGA</b> NXP LX2160A ARM with AMD ZYNQ Ultra scale+
Standards	
<b>Module Management</b>	<b>IPMI</b> IPMI v2.0
	MIL-STD-461E, MIL-STD-704A/E/F, MIL-STD-1275A/B/D
	MIL-STD-810G methods 509.5, 508.6, 510.5, 500.5, 501.5, 502.5, 503.5, 516.6, 512.5, 511.5
	Mil-STD-810G method 514.6 Vibration, Procedure I, Category 20, Ground Vehicles
Configuration	
<b>Power</b>	<b>VT977</b> ~80 W FPGA load dependent
<b>Environmental</b>	<b>Temperature</b> Operational -46°C Ambient MIL-STD-810G method 502.5 Low Temp Procedure II for 4 hours Storage Temperature: -60° to +90°C (MIL-STD-810G Method 501.5 procedure I)
	<b>Altitude</b> 1300 feet below to 15,000 feet above sea level and atmospheric pressure of 508 mill bars
	<b>Relative Humidity</b> 5 to 95% non-condensing
<b>Front Panel</b>	<b>Interface Connectors</b> See <a href="#">Ordering Options</a>
	<b>LEDs</b> IPMI, activity and user defined (conduction cooled has only one LED)
	<b>Mechanical</b> MIL-STD-810F (base plate cooling)
<b>Software Support</b>	<b>Operating System</b> Linux (consult VadaTech for other options)
Other	
<b>MTBF</b>	MIL Hand book 217-F@ TBD hrs
<b>Certifications</b>	Designed to meet FCC, CE and UL certifications, where applicable
<b>Standards</b>	VadaTech is certified to both the ISO9001:2000 and AS9100D:2017 standards
<b>Warranty</b>	One (1) year, see <a href="#">VadaTech Terms and Conditions</a>

## 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

## VT977 – A00--00J

<b>A = M.2 Storage</b>		
0 = None 1 = 4TB 2 = 8TB 3 = Reserved 4 = Reserved 5 = Reserved 6 = Reserved		
<b>B = Enclosure Type</b>		
0 = Air Cooled, Bench Top 1 = Base Plate Cooling		
		<b>J = Temperature Range and Coating*</b>
		0 = Commercial (–5° to +55°C), No coating 1 = Commercial (–5° to +55°C), Humiseal 1A33 Polyurethane 2 = Commercial (–5° to +55°C), Humiseal 1B31 Acrylic 3 = Industrial (–20° to +70°C), No coating 4 = Industrial (–20° to +70°C), Humiseal 1A33 Polyurethane 5 = Industrial (–20° to +70°C), Humiseal 1B31 Acrylic 6 = Extended (–40° to +85°C), Humiseal 1A33 Polyurethane 7 = Extended (–40° to +85°C), Humiseal 1B31 Acrylic

Notes: \*Base Plate Temperature must be guaranteed by customer.

## Related Products

VT873



- MTCA.3 Conduction Cooled System Platform
- 1/2 Short Air Transport Rack (ATR)
- Per ARNIC404A, with NO internal fan

VT869



- MTCA System Platform 19" x 6U x 13.62" deep
- Full redundancy with dual MicroTCA Carrier Hub (MCH)
- Dual Cooling Units and dual Power Modules

VT877



- Three mid-size single module AMC slots
- Hardened MTCA Chassis
- Conduction cooling, fan less operation

# Contact

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