

VT971

FPGA High speed Digital Signal Processing utilizing Xilinx VU13P with Integrated Layer 3 Managed Switch



VT971

Key Features

- High speed DSP processing
- Xilinx Ultrascale+ VU13P FPGA
- Quad-core ARM processor at 1.4GHz per core
- Managed Layer 3 GbE/10GbE Switch
- 24xGbE + 2x10GbE Egress Ports
- Triaxial, digital gyroscope
- Rugged conduction cooled module

Benefits

- Design utilizes proven VadaTech subcomponents and engineering techniques
- Electrical, mechanical, software, and system-level expertise in house
- Full system supply from industry leader
- AS9100 and ISO9001 certified company



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VT971

The VT971 is a rugged conduction cooled module which follows the VITA specification for environmental (see ordering options). The module accepts 32 high-speed SERDES to the FPGA, which is supported by two 64-bit wide banks for DDR4 memory for the total of 16GB of memory. The FPGA is integrated with a Layer 3 Managed Gbe/10GbE Ethernet Switch, which provides 26 Egress port via front of the module. The module supports 24 GbE through RJ-45 (10/100/1000Base-T) and dual 10GbE via SFP+.

The VT971 has a quad core ARM processor utilizing four Cortex-A53 cores running at 1.4GHz. The CPU manages the layer three switch and interfaces to the FPGA via PCIe.

The VT971 is ideal for application where the signals are digitized at a remote location and processed at a different site.

The module has a Triaxial, digital gyroscope, which provides digital accelerometer, delta angle, delta velocity, angular random walk, etc.

The module comes only in conduction cool and operates with input power of 10-36V DC.



Figure 1: VT971 Front View

Chassis Layout

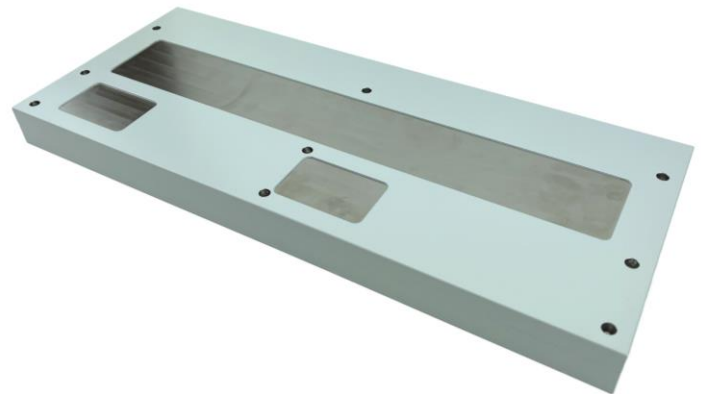


Figure 2: VT971 Multiple Views

Block Diagram

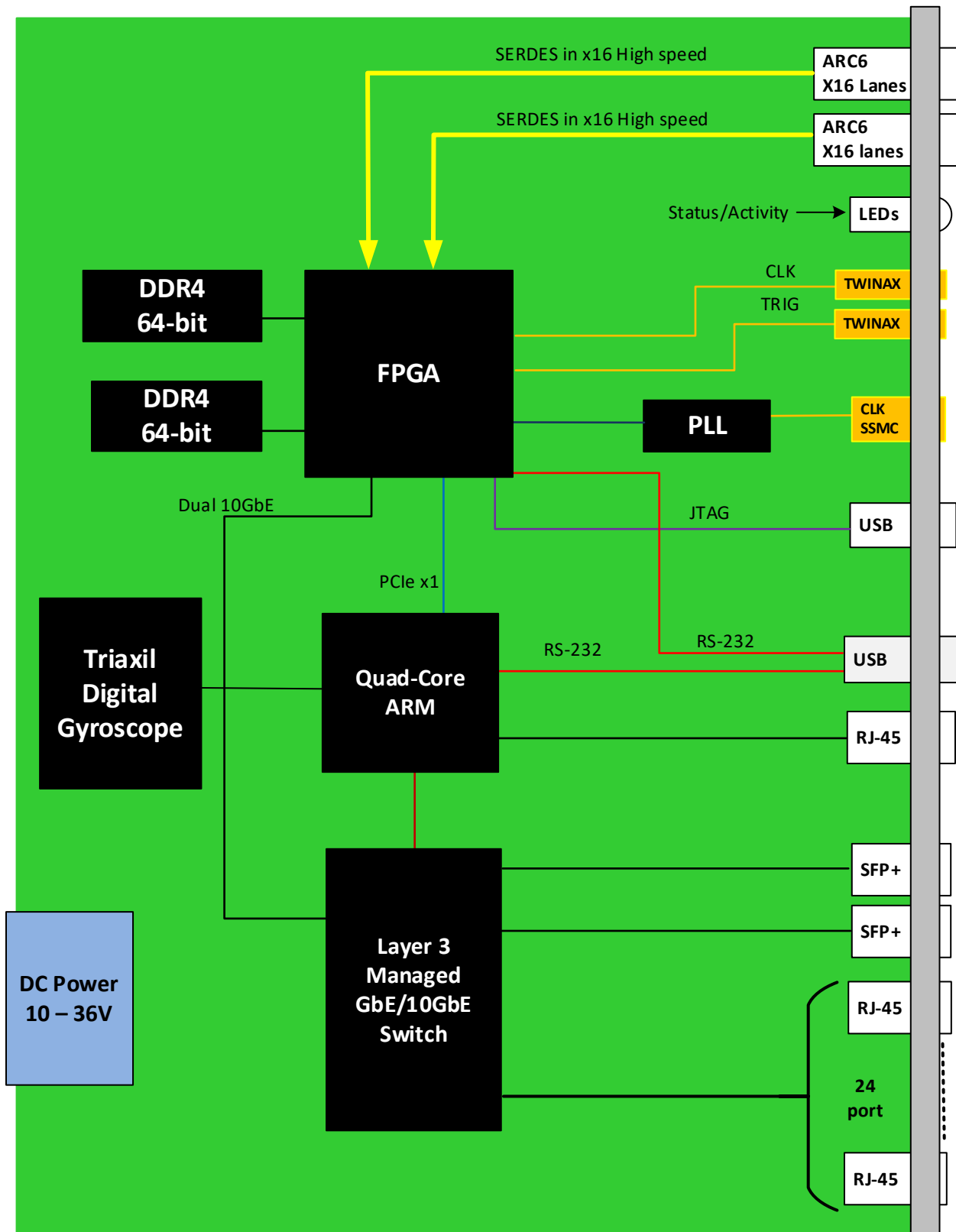


Figure 3: VT971 Functional Block Diagram

Specifications

Architecture		
Physical	Dimensions	Width: 18.5"
		Depth: 7.5"
		Height: 1.5"
Type	Conduction Cooled	Per VITA Specification for environmental
Configuration		
Power	VT971	90W FPGA dependent load (10-36V DC power input)
Environmental	Temperature	See Ordering Options
		Storage Temperature: -40° to +90°C
	Vibration	Operating 9.8 m/s ² (1G), 5 to 500 Hz on each axis
		Shock Operating 325G/2 ms, 160G/1 ms
	Relative Humidity	5 to 95% non-condensing
Front Panel	Interface Connectors	Dual ARC6-16 high-speed serial data
		24x RJ-45 for GbE
		2x SFP+ for 10GbE
		RJ-45 for ARM Mngt port
		2x Twinax for clock/trigger inputs and one SSMC for sine wave clock input to PLL
		USB for Serial and JTAG
	Mechanical	Custom conduction cool
Software Support	Operating System	Linux
Other		
MTBF		MIL Hand book 217-F@ TBD hrs
Certifications		Designed to meet FCC, CE and UL certifications, where applicable
Standards		VadaTech is certified to both the ISO9001:2015 and AS9100D standards
Warranty		One (1) year, see VadaTech Terms and Conditions

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

VT971 – A00-000-0HJ

A = SFP+ TXCVRs (two)		
0 = No TXCVRs 1 = 10GBASE-SR 2 = 10GBASE-LR (1KM) 3 = 10GBASE-LR (10KM) 4 = Copper 1000Base-TX 5 = Copper 10GBase-T		
		H = Environmental
		See Environmental Specification
		J = Conformal Coating
		0 = No coating 1 = Humiseal 1A33 Polyurethane 2 = Humiseal 1B31 Acrylic

Environmental Specification

Option H	Conduction Cooled		
	H = 2	H = 3	H = 4
Operating Temperature	CC1* (0°C to +55°C)	CC3* (-40°C to +70°C)	CC4* (-40°C to +85°C)
Storage Temperature	C1* (-40°C to +85°C)	C3* (-50°C to +100°C)	C3* (-50°C to +100°C)
Operating Vibration	V3* (0.1 g2/Hz max)	V3* (0.1 g2/Hz max)	V3 (0.1 g2/Hz max)
Storage Vibration	OS2* (40g)	OS2* (40g)	OS2* (40g)
Humidity	95% non-condensing	95% non-condensing	95% non-condensing

Notes:

* Nomenclature per ANSI/VITA 47. Contact local sales office for conduction cooled (H = 2, 3, 4).

Related Products

VT878



- Conduction cooled two-module chassis
- Compact and robust design
- Designed for bulkhead mount in ground or air vehicle

VPX007



- Versatile Layer 2 managed Ethernet switch
- Total of 24 Ports of 10GbE
- Up to eight SFP+ Ports on the front panel

VT988



- 16 ADC for synchronous capture
- Xilinx Virtex-7 XC7VX485T FPGA
- NVidia Jetson TX2 System on Module

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