



AV 127

Wideband communication
Phased Array Radar

3U VPX
Kintex UltraScale FPGA
Up to 1000 Gbps Optical
Links interfaces
Conduction or Air-Cooled



Applications

- Wideband Communication
- Phased Array Radar
- Electronic Warfare

Features

- 12, 24 or 36 full duplex Fiber interfaces
- Up to 14 Gbps per fiber from 0°C to 55°C (-AS version)
- Up to 10 Gbps per fiber from -40°C to +85°C (-AR, -CA and -CR versions)
- Three independent low jitter clock synthesizers
- User programmable Xilinx® Kintex® Ultrascale™ KU115 FPGA
- 800 MHz 2x 256M64 DDR3 SDRAM
- 3U OpenVPX standard compliant
- Air cooled and Conduction cooled rugged versions

Specifications

Optical Links

- 0, 12, 24 or 36 Optical Transceivers
- 850 nm VCSEL array technology
- 14 Gbps from 0°C to +55°C (-AS)
- Total data throughput up to 1008 Gbps
- 10 Gbps from -40°C to +85°C (-AR, -CS, -CR)
- Total data throughput up to 720 Gbps
- Connectors: MTP adapter

Reference Clocks

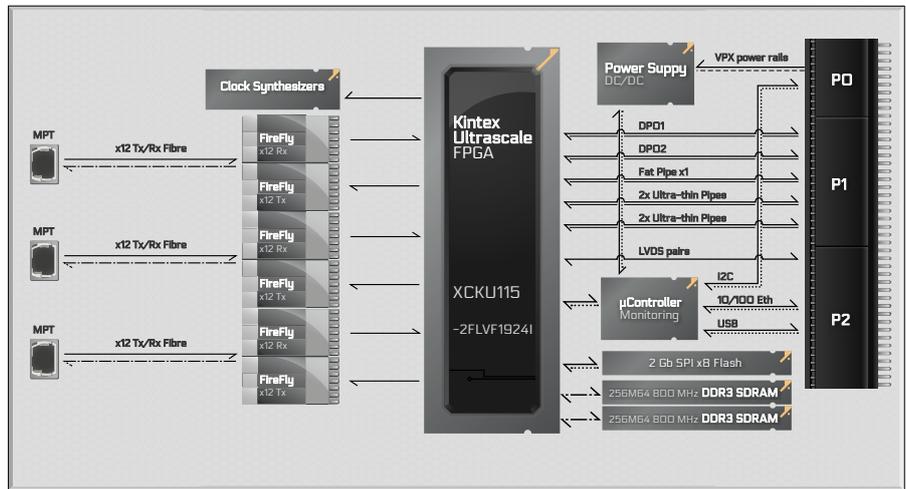
- Internal 25 MHz reference or 100 MHz PCIe reference clock
- Three independent clock synthesizers with two clock outputs Frequency: 60 MHz to 820 MHz

FPGA

- FPGA: Xilinx Kintex Ultrascale
- XCKU115-2FLVF1924

Memory

- Two banks 256M64 DDR3 SDRAM, 800 MHz clock
- Two 1 Gbit QSPI FLASH memory



VPX interface

- P1:
 - Data plane: two fat pipes
 - Expansion plane: one fat pipe
 - Control plane: 2 ultra-thin pipes
 - 2 user-defined ultra-thin pipes
- P2:
 - USB2.0 and 10/100 Ethernet
 - 28 single ended LVCMOS33
 - 8 single ended LVCMOS18

Software support

- Software Drivers:
 - Windows 10
 - Linux
- Application example:
 - Windows and Linux

Firmware support

- VHDL cores for all hardware resources
- Base design
- Supported by Xilinx VIVADO 2016.2

Ruggedization

- As per VITA 47:
 - Air cooled : EAC4 and EAC6
 - Conduction cooled : ECC3 and ECC4

Power dissipation

- 12V: 6.2 A max (75W)
- +5V: 3.0 A max (15W)
- +3.3V: 3.0 A max (10W)
- +3.3VAUX: 0.6 A max (2.0W)

Weight

- Air cooled : 550g
- Conduction cooled : 650g

Ruggedization levels	AS Air flow, Standard (VITA 47 EAC4)	AR Air flow, Rugged (VITA 47 EAC6)	CS Conduction Standard CS (VITA 47 ECC3)	CR Conduction Rugged (VITA47 ECC4)
Operating Temperature	0°C to +55°C (8 CFM airflow at sea level)	-40°C to +70°C (8 CFM airflow at sea level)	-40°C to +70°C (Card Edge)	-40°C to +85°C (Card Edge)
Non Operating Temperature	-40°C to +85°C	-50°C to +100°C	-50°C to +100°C	-55°C to +105°C
Operating Vibration (Random)	5Hz - 100Hz +3 dB/octave 100Hz - 1kHz = 0.04 g ² /Hz 1kHz - 2kHz -6 dB/octave	5Hz - 100Hz +3 dB/octave 100Hz - 1kHz = 0.04 g ² /Hz 1kHz - 2kHz -6 dB/octave	5Hz - 100Hz +3 dB/octave 100Hz - 1kHz = 0.04 g ² /Hz 1kHz - 2kHz -6 dB/octave	5Hz - 100Hz +3 dB/octave 100Hz - 1kHz = 0.1 g ² /Hz 1kHz - 2kHz -6 dB/octave
Operating Shock	20g, 11 millisecond, half-sine	20g, 11 millisecond, half-sine	40g, 11 millisecond, half-sine	40g, 11 millisecond, half-sine
Operating Relative Humidity	0% to 95% non-condensing	0% to 95% non-condensing	0% to 95% non-condensing	0% to 95% non-condensing
Operating Attitude	@ 0 to 10,000 ft with adequate airflow	@ 0 to 30,000 ft with adequate airflow	@ 0 to 60,000 ft	@ 0 to 60,000 ft
Conformal Coating	No	Optional (acrylic AVR80)	Yes (default acrylic AVR80)	Yes (default acrylic AVR80)

Reference to ANSI-VITA standard 47 for the listed parameters only.

Ordering information

Part Number		AV127	-	rr	a	b
Ruggedization level	Air Standard	-	AS	-	-	-
	Air Rugged	-	AR	-	-	-
	Conduction Standard	-	CS	-	-	-
	Conduction Rugged	-	CR	-	-	-
Option 1	FPGA Kintex Ultrascale KU115	-	-	1	-	-
Option 2	No Optical Links	-	-	-	0	-
	12 Optical Links	-	-	-	1	-
	24 Optical Links	-	-	-	2	-
	36 Optical Links	-	-	-	3	-

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