

sidekiq™ VPX400

Antenna-to-Bits, Multi-Channel,
Phase Coherent RF Transceiver in a
Single 3U VPX Card



A Single Wideband RF Card With Multi-Receive/Multi-Transmit Capabilities

Complete Software-Defined Radio for EW, SIGINT, C5ISR and Other Mission Critical Applications

The Sidekiq VPX400 is a modular, multi-channel RF transceiver solution that enables rapid development of converged SIGINT/EW platforms while reducing slot count requirements, power consumption, and engineering-related cost. Its modularity aligns with the SOSA™ Technical Standard, providing rapid adaptability and its core software-defined radio (SDR) technology future-proofs applications by allowing quick adoption of emerging capabilities.

KEY FEATURES

- Complete antenna-to-bits, multi-channel, phase coherent solution in a single 3U VPX card
- Wide RF tuning range (up to 6 GHz)
- Supports 4-channel phase coherent operation at 200 MHz IBW, or two channel independently tunable at 400 MHz IBW (for a total of 800 MHz IBW)
- Unified open API for use across all Sidekiq products
- Typical power consumption under 30W
- Support for both PCIe and 10/40 GbE

SOSA-ALIGNED FEATURES

- MORA device layer to allow any SOSA-aligned host platform to configure and control the card
- Supports VITA 67.3 for RF I/O through the backplane
- Air-cooled solution for prototyping, conduction-cooled solution for production
- Integration with GNU Radio, Photon, MORA, REDHAWK, and other frameworks
- Conforms to OpenVPX slot profile SLT3-PAY-1FIU1S1S1U1U2FIH-14.6.11-4



GENERAL SPECIFICATIONS

Environmental Options

ECC1 conduction cooled 0° to 55° C, or
ECC3 conduction cooled, -40° to 70° C

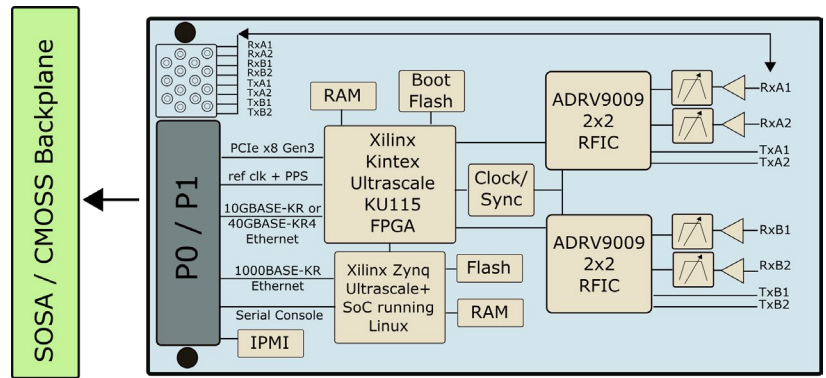
Options available for conformal coating and underfill

Options available for air cooled

PROFILE SPECIFICATION

SLT3-PAY-1F1U1S1S1U1U2F1H-14.6.11-n (“-4” for a SOSA aligned option)
SLT3-PAY-1F1U1S1S1U1U4F1J-14.6.13-n

BLOCK DIAGRAM



RF RECEIVER SPECIFICATIONS

Number of Receivers	Typical Input IP3 (at 8 dB noise figure)
Four channels as: phase coherent, two phase coherent pairs or dual high bandwidth	+8 dBm
RF Tuning Range	Max A/D Converter Sample Rate
1 MHz to 6 GHz	245.76 Msamples/sec
RF Tuning Step Size	A/D Converter Sample Width
< 5 Hz	16 bits
RF Channel Bandwidth	Rx Gain Modes
Up to 200 MHz (configurable to 400 MHz in dual high bandwidth mode)	Manual or automatic (AGC)
Typical Rx Noise Figure	Pre-Select Filter
8 dB	Seven bandpass RF filters on each RF receiver

RF TRANSMITTER SPECIFICATIONS

Number of Phase Coherent Transmitters	Typical RF Output Power
Four channels as: phase coherent or two phase coherent pairs	Up to +5 dBm
RF Tuning Range	Max D/A Sample Rate
1 MHz to 6 GHz	245.76 Msamples/sec
RF Channel Bandwidth	D/A Converter Sample Width
Up to 200 MHz	14 bits
	RF Tuning Step Size
	< 5 Hz

DIGITAL SPECIFICATIONS

System-On-Chip (SOC)

One Xilinx® Zynq® UltraScale™ MPSoC XCZU7EV
4 GB SSD, with a build option to 32 GB SSD
4 GB of DDR4 RAM

FPGA

Xilinx Kintex® UltraScale™ XCKU115 FPGA memory
5 GB DDR4 Per DDR4 x80 DRAM port(s)
256 MB BPI NOR Flash (x16 Async Parallel Flash)

FORM FACTOR SPECIFICATIONS

Dimensions

178.6 mm x 99.8 mm x 23.6 mm (includes overhang for ejector)

Weight

TBD

All specifications are subject to change without notice.

Epiq Solutions exports its products strictly in accordance with all US Export Control laws and regulations which shall apply to any purchase or order.

Epiq Solutions is a small business dedicated to advancing RF technology through products designed and manufactured in the U.S.A.



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