

sidekiq™ X2

High Performance Multi-Channel RF Transceiver in VITA 57.1 (FMC) Form Factor



approx. actual size

Ready to Integrate

Trusted Multi-Tuner Wideband RF Transceiver for High Performance Needs

Epiq Solutions' Sidekiq X2 provides a proven simplified integration path to achieve mission critical flexibility and performance in RF products while shortening time to market. Based on Analog Devices' AD9371, this wideband transceiver offers high performance RF in a production ready VITA 57.1 FPGA Mezzanine Card (FMC) compliant form factor. Sidekiq X2's numerous features enable laboratory or field deployed applications such as remote RF sensing, MIMO communications, and commercial wireless protocols including 2G/3G/4G/5G cellular and 802.11.

KEY FEATURES

- » VITA 57.1 FMC with high pin count (HPC) interface
- » Two phase coherent RF receivers (common LO) with third independently tunable RF receiver
- » Two phase coherent RF transmitters (common LO)
- » Continuous RF tuning range between 1 MHz and 6 GHz
- » Configurable RF channel bandwidth up to 100 MHz per channel
- » Seven band Rx pre-select filters covering 400 MHz to 6 GHz (sub-octave) on all RF receivers
- » Exceptional dynamic range with 16-bit A/D and 14-bit D/A converters
- » Integrated clock synchronization



Sidekiq X2 housed in a Thunderbolt 3 chassis

Sidekiq X2 can be integrated with a COTS FPGA carrier card that includes a GPSDO card integrated into a Thunderbolt™ 3 chassis or, for ruggedized deployments, into COTS 3U or 6U VPX carrier cards. Conduction and convection cooled options are supported. Sidekiq X2's Platform Development Kit (PDK) provides access to both a software API for interfacing to the card, as well as the source code for the FPGA reference design targeting a Xilinx Kintex® UltraScale™ XCKU060 device.

RF RECEIVER SPECIFICATION

Number of Phase Coherent Receivers

2 with SSMC interfaces

Number of Additional Independently Tunable Receivers

1 with SSMC interface

RF Tuning Range

1 MHz to 6 GHz

RF Tuning Step Size

< 5 Hz

RF Channel Bandwidth

Up to 100 MHz

Typical Rx Noise Figure

8 dB

Typical Input IP3 (at 8 dB noise figure)

+8 dBm

Max A/D Converter Sample Rate

122.88 Msamples/sec

A/D Converter Sample Width

16 bits

Rx Gain Modes

Manual or automatic (AGC)

Pre-Select Filter

Seven bandpass RF filters on each RF receiver

RF TRANSMITTER SPECIFICATION

Number of Phase Coherent Transmitters

2 with SSMC interfaces

RF Tuning Range

Tx1 - 1 MHz to 6 GHz

Tx2 - 300 MHz to 6 GHz

RF Tuning Step Size

< 5 Hz

RF Channel Bandwidth

Up to 100 MHz

Typical RF Output Power

Up to +5 dBm

Max D/A Sample Rate

122.88 Msamples/sec

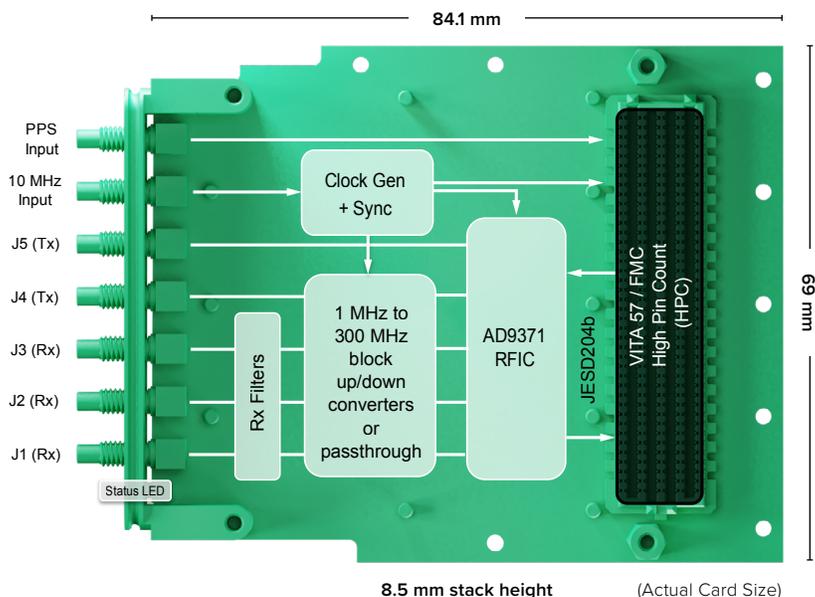
D/A Converter Sample Width

14 bits

All specifications are subject to change without notice.

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BLOCK DIAGRAM



DIGITAL SPECIFICATION

A/D and D/A interface to Host System

JESD204b

Additional I/O from Host

I2C + singled-ended GPIO

PPS Interface

SSMC

PPS Input

Direct to host system FPGA (for timestamping)

10 MHz Reference Input Interface

SSMC

10 MHz Reference Input

For phase locking card to external system

MECHANICAL SPECIFICATION

Form Factor

VITA 57.1 High Pin Count FPGA Mezzanine Card (FMC)

Thermal Management

Convection cooled (conduction option on request)

Typical Power Consumption

4-10 Watts (depending on # of channels in use)

Component Temperature Rating

-40 to +85 degrees C

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

