



# Sidekiq™ M.2 and Mini PCIe

Wideband RF transceiver + FPGA in a tiny, production-ready module

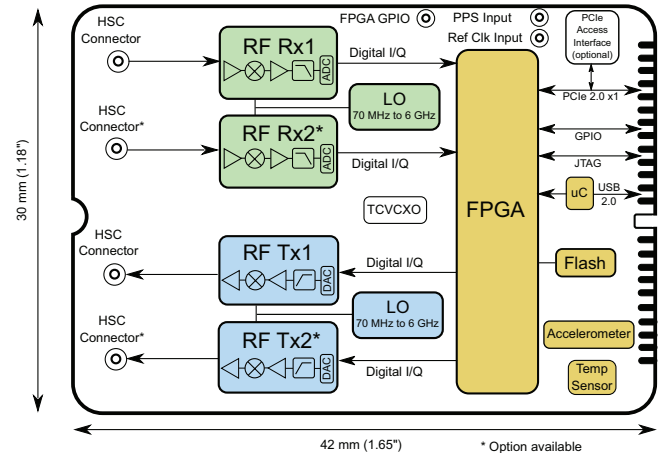
## TINY SDRs FOR WHEN SMALL MATTERS

### READY TO INTEGRATE IN LOW SWAP APPLICATIONS

The Sidekiq M.2 and Mini PCIe cards lighten the load when it comes to adding RF to mission critical applications. These embeddable SDR transceiver solutions are ready for integration into systems that support either M.2 or Mini PCIe card form factors and feature RF tuning ranges of 70 MHz to 6 GHz, programmable logic, and typical power consumption of 2.1 watts. Millions of host devices (laptops, tablet computers, embedded computers, etc.) can immediately be transformed into RF processing powerhouses with the addition of a Sidekiq M.2 or Mini PCIe.

#### SIDEKIQ PLATFORM DEVELOPMENT KIT (PDK)

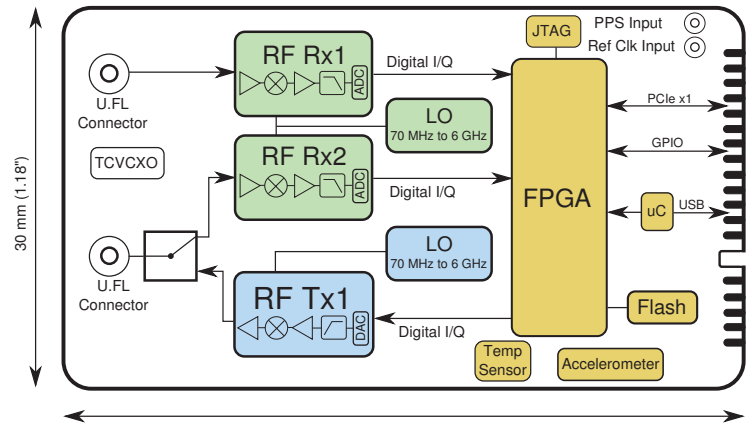
Advanced users needing to customize their solutions can leverage Sidekiq's PDK. It provides users with access to both a software API for interfacing to the card, as well as the source code for the FPGA reference design for customization. The software API provides an easy-to-use interface for configuring the RF transceivers and streaming data between the host and Sidekiq over the PCIe interface. Advanced users can add their own processing blocks to the FPGA to radically increase the signal processing capabilities of the system.



Sidekiq M.2

\* Option available in 2x2 MIMO version

### BLOCK DIAGRAMS



Sidekiq Mini PCIe

## TARGET APPLICATIONS / ANY FLEXIBLE, INTEROPERABLE RADIO TERMINAL

### CUBE-SAT / DATA LINK

Use field proven hardware to meet mission critical requirements

### EMBEDDED / RF TEST

Create portable and powerful RF analysis tools without reinventing the wheel

### UAV / REMOTE RF SENSOR

Meet your challenging SWaP requirements for UAVs, remote sensors, or portable systems

## DIGITAL SPECIFICATION

### FPGA

Sidekiq Mini PCIe

- Xilinx Spartan 6 LX45T FPGA with x1 PCIe interface to host

Sidekiq M.2

- Xilinx Artix 7 XC7A50T FPGA with x1 Gen2 PCIe interface to host

### USB

- Cypress FX2 micro controller with USB 2.0 interface to host

### FPGA REPROGRAMMING

- Over USB or PCIe

### GPIO

- Available for custom I/O

### TEMPERATURE SENSOR

- -55 deg C to +125 deg C (+/- 2 deg C)

### ACCELEROMETER

- 3-axis

## PHYSICAL SPECIFICATION

### FORM FACTOR

Sidekiq Mini PCIe

- Mini PCIe card with x1 PCIe and USB 2.0 interfaces

Sidekiq M.2

- M.2 (3042-D3-B-M) card with x1 PCIe Gen2 and USB 2.0 interfaces

### DIMENSIONS

Sidekiq Mini PCIe

- 30mm x 51mm x 5mm

Sidekiq M.2

- 30mm x 42mm x 4mm

### WEIGHT

Sidekiq Mini PCIe

- 8 grams

Sidekiq M.2

- 6 grams

### TYPICAL POWER CONSUMPTION

- 2W

## RF SPECIFICATION

### FLEXIBLE RF FRONT END SUPPORTS TWO OPERATING MODES

Sidekiq Mini PCIe

- Two phase coherent RF receivers (common LO)
- One RF receiver + one RF transmitter (separate LOs)

Sidekiq M.2

- Two RF receiver + two RF transmitter (2x2 MIMO)
- One RF receiver + one RF transmitter (separate LOs)

### RF TUNING RANGE

- 70 MHz to 6 GHz

### RF CHANNEL BANDWIDTH

- Up to 50 MHz

### TYPICAL RX NOISE FIGURE

- < 8 dB

### TYPICAL RX IIP3

- -10 dBm

### RX SAMPLE RATE RANGE

- 233 Ksamples/sec to 61.44 Msamples/sec

### TX SAMPLE RATE RANGE

- 233 Ksamples/sec to 61.44 Msamples/sec

### A/D AND D/A CONVERTER SAMPLE WIDTH

- 12-bits

### RX GAIN RANGE

- 0-76 dB, 1 dB steps

### TX GAIN RANGE

- 0-89 dB, 1 dB steps

### TYPICAL TX OUTPUT POWER

- +10 dBm (+13 dBm < 2 GHz)

*Specifications subject to change without notice.*

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

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



Rev 1.0