matchstiq™ Z3u

Next Generation Low SWaP
Fully Integrated Software- Defined
Radio (SDR) Platform

EPIQ SOLUTIONS

approx. size

Radically Small, Industrial-Grade RF Signal Processing Platform

Reduce risk and accelerate development of mission critical RF transceiver solutions

The Matchstiq Z3u is a field-ready, complete software-defined radio (SDR) platform designed to deliver a fully integrated RF transceiver plus signal processing solution in the smallest possible form factor. Measuring just 3.64" x 2.74" x 0.75" and weighing 5.6 ounces, the Matchstiq Z3u is ideal for on-the-go signal processing applications. An integrated magnetic mount allows the platform to attach to a cell phone or other portable device, deriving power and providing communications through a single USB-C port. As a completely stand-alone platform, Matchstiq Z3u can execute signal processing applications locally on the Xilinx® Zynq® Ultrascale+ System on Chip (SoC), or interface to a host platform over USB 3.0 to execute applications on the host. The RF transceiver is based on the Analog Devices AD9361, and provides an RF tuning range for both transmit and receive from 70 MHz to 6 GHz. Peripherals include integrated Rx pre-select filters on both receive channels, GPS disciplined oscillator, external 10 MHz + PPS inputs, 128 GB of eMMC for non-volatile storage, and an externally accessible microSD card slot.

A Platform Development Kit (PDK) supported by an open API (libsidekiq) is available to support custom software/ FPGA application development.

KEY FEATURES

- Supports 2-channel phase coherent Rx or 1Tx + 1Rx (70 MHz to 6 GHz), with integrated Rx pre-select filters
- 10 MHz + PPS inputs
- GPS disciplined oscillator
- Xilinx® Zynq® Ultrascale+ SoC (XCZU3EG) with quad-core ARM CPU running Ubuntu 18.04 Linux
- 128 GB eMMC + microSD card slot
- USB 3.0 OTG interface

RF SPECIFICATION

Flexible RF front end supports variable operating modes
2-channel phase coherent Rx, or 1Tx + 1Rx

RF tuning range
70 MHz to 6 GHz

RF channel bandwidth
200 KHz up to 56 MHz

Typical Rx noise figure
< 8 dB

Typical Rx IIP3
> -10 dBm

Rx pre-select filters
Flexible bandpass filter from 150 MHz to 6 GHz on both Rx channels, with low-pass filter < 150 MHz

Tx and Rx sample rate range
233 Ksamples/sec - 61.44 Msamples/sec

A/D and D/A converter sample width
12-bits

Rx gain range
0-76 dB

Tx gain range
0-89 dB

Typical Tx output power
+13dBm below 2GHz and +10dBm above 2GHz

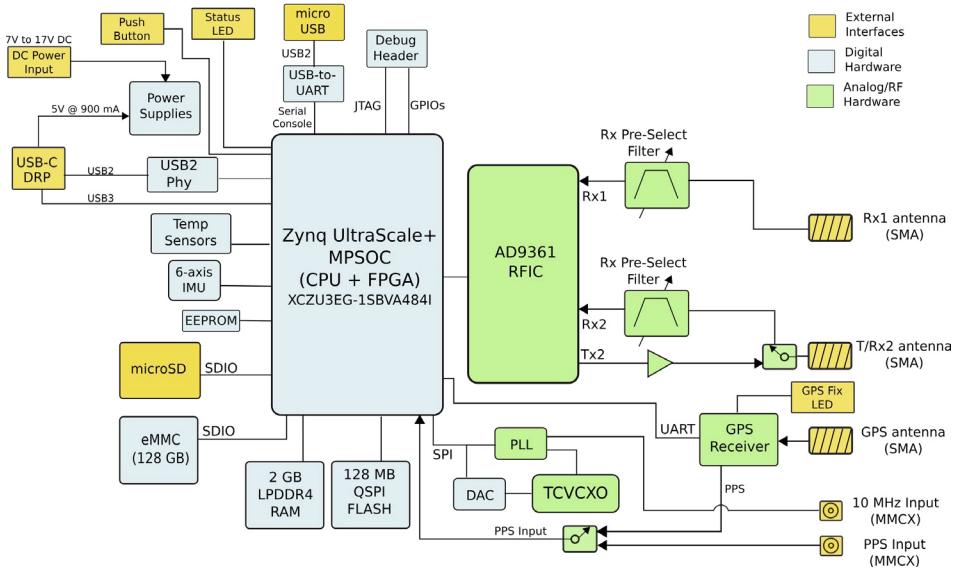
PHYSICAL SPECIFICATION

Dimensions
3.64” x 2.74” x 0.75”

Weight
5.6 oz

Power
< 4.5W
Power via USB-C connector or DC barrel jack (7-17V)

BLOCK DIAGRAM



DIGITAL SPECIFICATION

System-On-Chip (SOC)
Xilinx® Zynq® Ultrascale+ XCZU3EG
Quad-core ARM Cortex A53 CPU (64-bit)
154K logic cells
7.6 Mbits block RAM
360 DSP slices

RAM
2GB LPDDR4 SDRAM

Non-volatile storage
128 GB eMMC + microSD card slot

Operating system
Linux (Ubuntu 18.04)

USB interface
USB 3.0 OTG via USB-C

GPIO
Access via I/O header

Serial console access
Console available via microUSB

Accelerometer
6-axis IMU

JTAG
Access via I/O header

GPS RECEIVER SPECIFICATION

GPS Module
Origin Spider ORG4033

Number of channels
99 search channels, 33 simultaneous tracking channels

Cold start
< 31 seconds

Sensitivity while tracking
-165 dBm

Typical PPS accuracy
30 nS

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Specifications subject to change without notice.

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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