

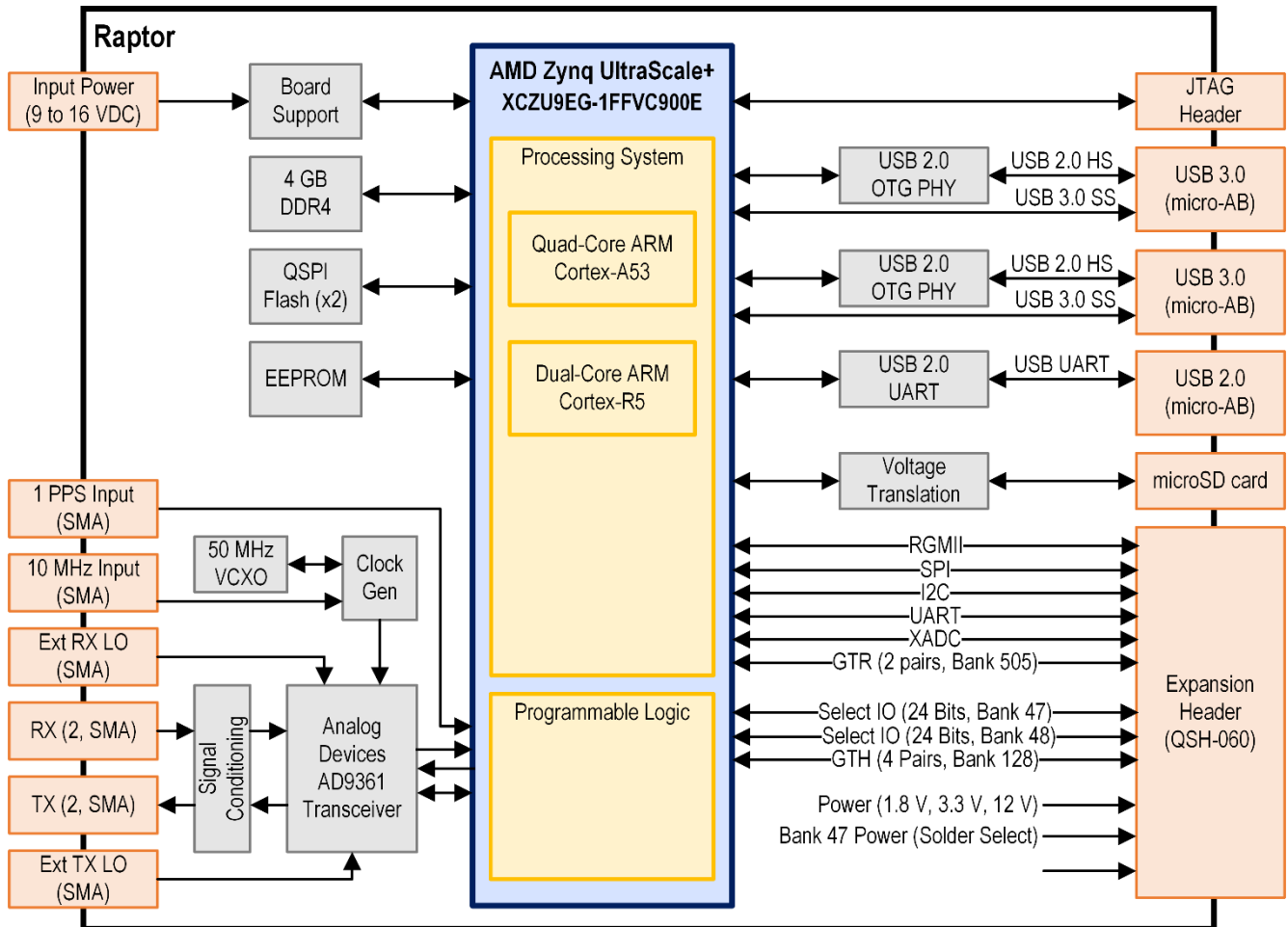
RAPTOR
ZYNQ ULTRASCALE & MPSOC SDR DEVELOPMENT KIT

THE RAPTOR SDR DEVELOPMENT KIT combines the latest-generation FPGA SoC technology with a MIMO-capable RF transceiver. The kit includes an RF shield, heatsinks, USB cables, standoffs, and a power supply to make it easy to get started. The open-source BSP, available on GitLab, includes support for streaming data to Gnu Radio and MATLAB so you can launch your ideas right out of the box.

THE RAPTOR'S RF TRANSCEIVER IS MIMO-CAPABLE from 70 Mhz to 6 Ghz. The configurable transmit path supports 70 MHz to 6 GHz and includes a 2.4-GHz, 500-mv power amplifier. Receiver performance is enhanced by a four-band preselector and wideband low-noise amplifier (LNA).



BLOCK DIAGRAM



SPECIFICATIONS

PROCESSING

SoC	AMD Zynq UltraScale+ XCZU9EG-1FFVC900E FPGA
FPGA	600 logic cells (K) 2,520 DSP slices
Application	Quad-core ARM Cortex-A53
Processor	1.2 GHz, 64 bits
Memory	4 GB of DDR4
USB	2x USB 3.0 micro-AB
Storage	MicroSD card and quad serial peripheral interface (QSPI) flash
Timing Signals	1PPS, 10-MHz reference, IRIG-B (requires Expansion Mezzanine)

DOCUMENTATION

User Guide	raptor.rincon.com
GitLab	gitlab.com/rinconresearch/raptor

RF

Transceiver	Analog Devices AD9361
Tuning	70 MHz to 6 GHz
Range	Accepts optional external local oscillators (LOs)
Bandwidth	Up to 56 MHz 61.44 MSPS complex 12-bit resolution
Receive Path	Onboard LNA and four-band preselector
Transmit Path	Low-power, full tuning range path and high-power 500-mW 2.4-GHz PA path
Connectors	All RF connectors are subminiature version A (SMA)

EXPANSION MEZZANINE*

Ethernet	Dual SFP+ 10 Gb 10/100/1000 BASE-T
Storage	M.2 SATA connector (80 mm)
Video	Mini Display Port interface
SerDes	FireFly connector, 2-GTH pairs
I/O Header	I2C, SPI, UART GPIO: 16 bits, FPGA attached Analog: 8-channel ADC/DAC/GPIO
IRIG-B	Accepts AM or DC level shift

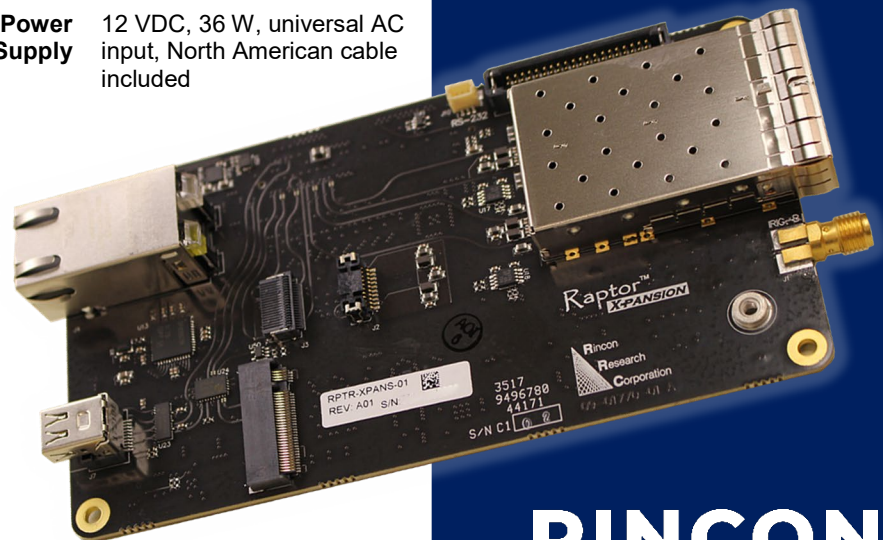
* Mezzanine Card sold separately

MECHANICAL

Dimensions	L x W: 5" x 2.675" (127 mm x 68 mm) H: 0.681" (17.3 mm) (Raptor only) H: 1.5" (38 mm) (with Expansion Mezzanine)
Mass	Raptor with heatsinks: 115 g Raptor, board only: 85 g Raptor, Expansion Mezzanine, heatsinks: 175 g (no SSD, SFP+)

INCLUDED ACCESSORIES

Cables	USB 3.0, USB 2.0 (UART), JTAG adapter cable for AMD USB 2.0
Heatsinks	SoC and RF Pas
Power Supply	12 VDC, 36 W, universal AC input, North American cable included



RAPTOR

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