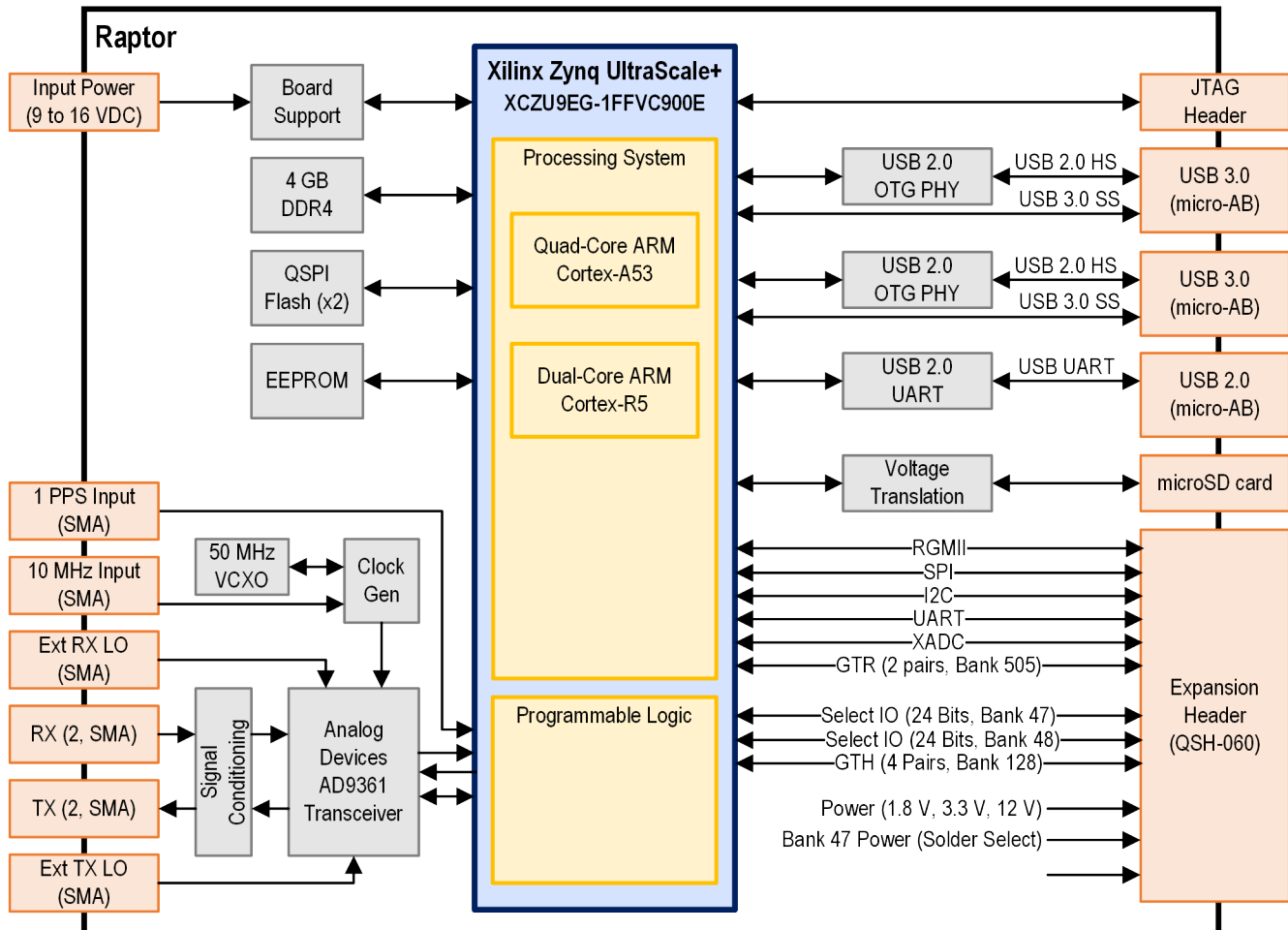




THE RAPTOR SDR DEVELOPMENT KIT COMBINES THE LATEST-GENERATION FPGA SOC TECHNOLOGY WITH A MIMO-CAPABLE RF TRANSCEIVER. The kit includes an RF shield, heatsinks, USB cables, standoffs, and a power supply to make it easy to get started. The open-source BSP, available on GitLab, includes support for streaming 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 LNA.

BLOCK DIAGRAM



SPECIFICATIONS

PROCESSING

System-on-Chip	Xilinx 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 bit
Memory	4 GB of DDR4
USB	2x USB 3.0 micro-AB
Storage	MicroSD card and QSPI flash
Timing Signals	1 PPS, 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 LOs
Bandwidth	Up to 56 MHz 61.44 MSPS complex 12 bit resolution
Receive Path	On-board 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 SMA

EXPANSION MEZZANINE*

Ethernet	Dual SFP+ 10 Gb 10/100/1000 BASE-T
Storage	M.2 SATA connector (80 mm)
Video	Mini DisplayPort 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

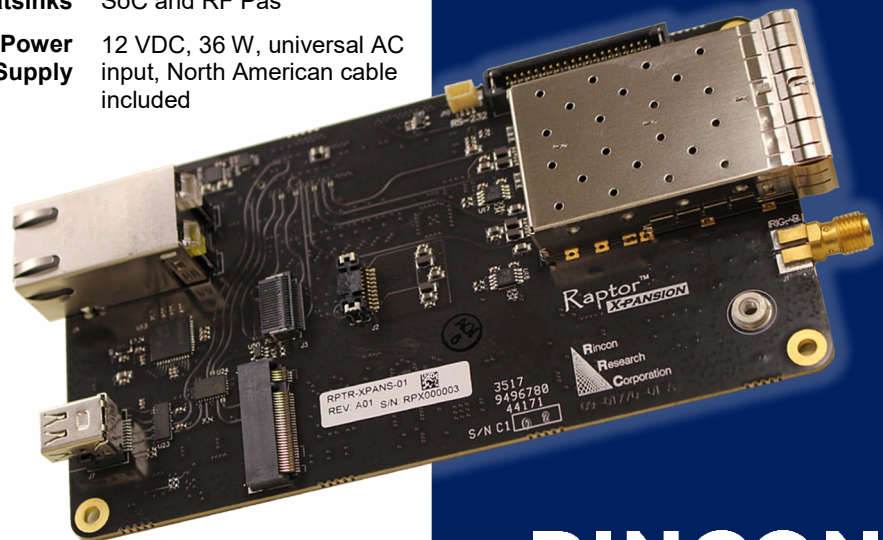
* Mezzanine Card sold separately

MECHANICAL

Dimensions	L x W: 5" x 2.675" (127 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 Xilinx 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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