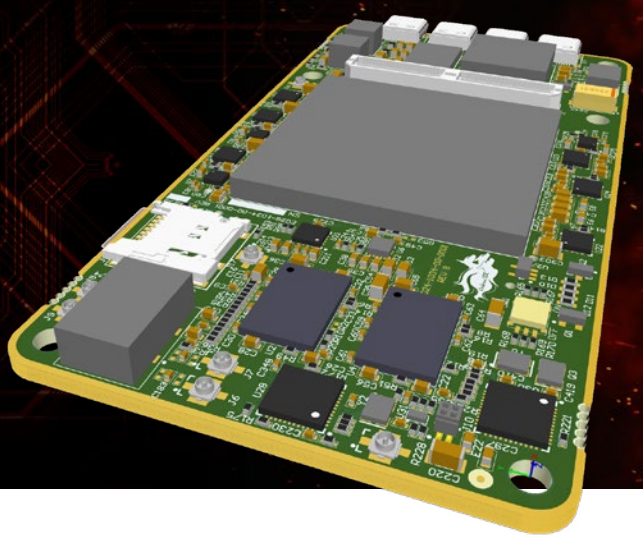
ipsolon RESEARCH

Cerberus Radio

16 TX/RX Channels, Smallest Footprint Software Defined Radio/RADAR



DIGITAL SIGNAL PROCESSING HORSEPOWER

Multi-processor Subsystem

Xilinx 16nm FinFET RFSoC XCZU29

Quad core 1.2 GHz ARM Cortex-A53 64b with L1/L2, MMU, DMA

Dual 500MHz R5 real time processor, power manager & secure boot

4GB DDR4, Micro SD memory

Range of IO including UARTs, 1G Ethernet, USB3.0

Massive parallel AXI IO between PS and FPGA fabric

FPGA Resources

930+ system logic cells (K), 16 32g SERDES

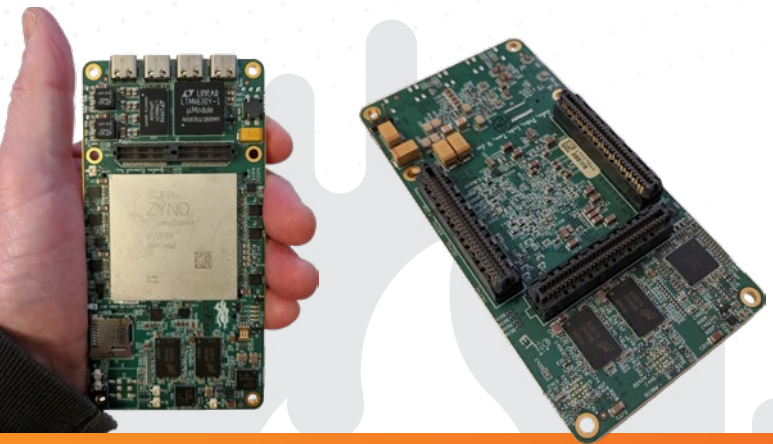
4,272 DSP slices, 2.13 TMACs @ 500 Mhz

MADE FOR SMALL FORM FACTOR AIRBORNE RADIO

Small Form Factor 122mm X 62mm x 10mm envelope

6V-16V input voltage

Typical power ~38W, depends on software & DSP work load



RF TRANSCEIVER FRONT END

RF Front End

TX and RX RF range 0 to 4 GHz (frontend analog bandwidth)

16 Differential 12-bit ADC Channels up to 2 GSPS (1GHz BW)

16 Differential 14-bit DAC Channels up to 6 GSPS

Phase Coherent Clocking Scheme

Clock Subsystem Supports Multiple Cerberus Phase Synchronization

Digital Front End

Digital Bandpass Filter per Channel

Quadrature Error Correction for TX & RX paths (gain/phase/offset)

48-bit Fractional-N digital NCO & mixer per converter

Expandable and Scalable

Board to board expansion connector with up to 32GB data transfer

2 Cerberus modules plugs into Hydra 400GbE (4 x 100GbE optical links)

Future GNU RADAR Tiling adapter, 5.8GHz RF, and flat panel antenna

Clock Distribution Subsystem

122.88MHz VCXO, custom reference clocks available

External Inputs: clock reference & 1PPS & SYSREF (phase sync)

Generates all ADC/DAC/Synth clocks & SYSREF

Ipsolon Research specializes in ultra-small form factor high performance Software Defined Radios. Our specialty is wideband radios with substantial signal processing resources for demanding SDR application. All radios have at least two TX and RX antennas and have clocking subsystems designed to support high performance phase coherent radio channels and expansion of coherency across multiple radio modules.

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