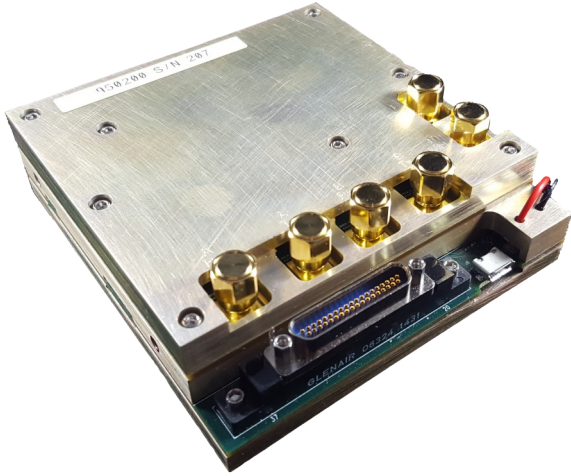


## S2DR 1000 Dual-Transceiver Space SDR



### Overview

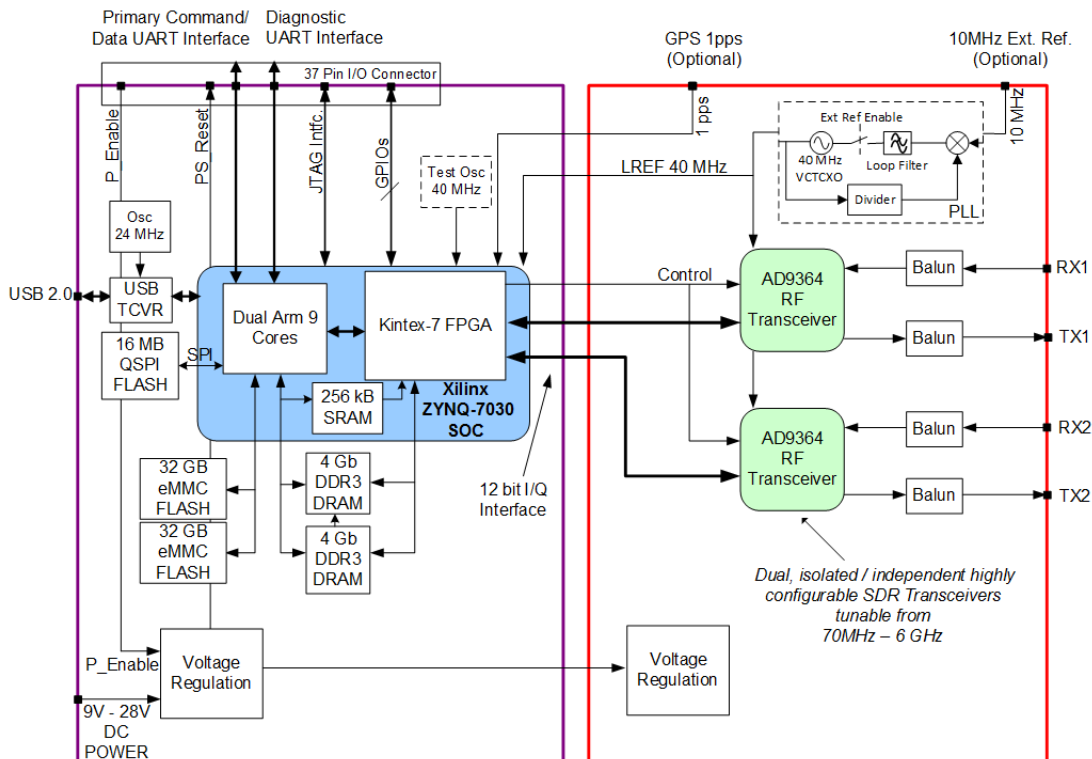
The S2DR 1000 is a software defined radio hardware and software solution providing rapid development of powerful and flexible small satellite payloads. The SDR1000 provides dual software defined high performance RF transceivers which can be customized to the unique mission requirements of scientific and military missions for LEO CubeSat deployment.

### Key Features

- Space-optimized SDR payload based on the popular Xilinx Zynq® and Analog Devices AD9364 RF Transceiver SoC
- Dual independent and isolated wideband programmable transceivers supporting 70MHz—6GHz
- Xilinx Zynq 7030 FPGA + dual-core ARM®-9 processors for demanding custom signal processing applications
- Redundant 32GB eMMC FLASH memory for reliable mission data storage
- CubeSat / Nanosat compatible SWaP in a fully shielded, ruggedized enclosure

### Applications

- Space-based RF sensor platforms
- Tactical radio space-based repeaters
- Precision time and frequency applications
- Multi-channel / Multiprotocol radio communications
- Flexible / Reprogrammable mission data transponders



## S2DR 1000 Dual-Transceiver Space SDR

### Specifications

#### Processing:

- Xilinx ZYNQ® 7030 SOC processor (dual ARM® 9 cores, Kintex® 7 FPGA)
- Memory: 16 MB serial FLASH, 2 x 32 GB eMMC FLASH, 1 GB DDR3 DRAM

#### RF:

- Dual independent, isolated Tx/Rx RF paths, AD9364 transceivers, 70MHz - 6 GHz
- RX: Dual 12 bit ADCs, programmable FIR and decimating filters, output sample rates to 65MSps support 54MHz BW
- TX: Dual programmable high performance transmit paths with adjustable level control and monitoring
- Clocks: 40 MHz VCTCXO, locks to external 10 MHz freq. reference and 1PPS time reference. ZYNQ clock 180 MHz

#### Interfaces:

- 37 pin I/O: four UARTs for flight computer, debug, and auxiliary control, JTAG, discrete control, GPIO
- Micro USB 2.0 (Test)
- 6 SMA RF Connectors (10MHz, 1PPS, TX-A, RX-A, TX-B, RX-B)

#### Power:

- 9 – 28 VDC input, supports small satellite unregulated bus power
- 3.6W min—7W max power consumption (processing dependent)

#### Physical:

- Two 12 layer circuit cards in three piece reliable clamshell enclosure
- Dimensions: 9.0 x 9.6 x 2.7 cm
- Weight: 0.435 kg

### Development and Customization

- Available with Augustus Aerospace Payload Management Software providing CCSDS-compatible flight computer messaging, sensor data file system, in-flight reconfiguration, and fault management.
- Augustus Aerospace Payload Test Application provides an environment for bench test excitation and data collection from a PC prior to flight computer integration.
- Develop your own signal processing IP (FPGA code and embedded software) using standard Xilinx Vivado® and SDK tool development flows.
- Hardware customization and custom HW peripherals available from Augustus Aerospace, including precision time and frequency references, RF front ends, and PAs
- Augustus Aerospace-developed high performance signal processing and software IP developed to your unique requirements.

**Contact Augustus Aerospace to learn more:**

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(719) 548-1040