RAVEN™ SDR

A High-Bandwidth, Adaptive, High-Resilience Software Defined Radio

Description

RAVEN represents the next generation of Tethers Unlimited, Inc. Software Defined Radios (SDRs). With incredible throughput, speed, and flexibility, RAVEN is the future of communication products. RAVEN can readily accept third-party applications to provide a tailored solution. With a wide array of electrical interfaces and AES encryption, RAVEN provides high resiliency (Uptime) combined with high bandwidth on an adaptive platform that is easily customized to suit your needs.

Local Application Support:
Easily customized, Linux-based

Optional GNUradio, Redhawk, or Custom Waveform Support:
Create and test third-party waveforms

Sophisticated Security:
Optional NSA T1 or AES256;
Zero Trust Blockchain™

Optional Swift Linq:
Mesh networking

Why RAVEN™?

Blazing Speeds
1Gbps up and down

Low SWaP-C
All in a ~1.5U CubeSat footprint

Configurable
True SDR provides many options
Configurable on-orbit

Run your own Algorithms
Two cores available to run your own algorithms or custom waveforms

Specifications

Modem	Specification	Total (2 channels per radio)
Center Intermediate Frequency	75 MHz to 6 GHz	
Large Signal Bandwidth	Up to 200 MHz	Up to 400 MHz
Throughput	Up to 166 Msym/s per channel	Up to 333 Msym/s
Data Throughput	1+ Gbps per channel	2+ Gbps
Physical Channels	2 independent channels	
IF Output Power	Up to +5 dBm	
Max IF Input Power	-10 dBm (Protect up to +20 dBm)	
Modulation	BPSK, QPSK, OQPSK, 8PSK, 16APSK, 32APSK, DVB-S2X, SGLS, USB	
Coding	Convolutional Coding, Reed Solomon, LDPC, BCH	

Wideband RF Front-End	Specification	Total (2 channels per radio)
Operating Frequency	1.5 to 18 GHz	
Instantaneous Bandwidth	Up to 200 MHz per channel	Up to 400 MHz
Output Power	+30 dBm	
Rx Dynamic Range	-120 to -30 dBm	
Implementation Loss	- 1.5 dB	

Millimeter Wave RF Front-End	Specification	Total (2 channels per radio)
Operating Frequency	18 to 44 GHz	
Instantaneous Bandwidth	Up to 200 MHz per channel	Up to 400 MHz
Output Power	+30 dBm	
Rx Dynamic Range	-120 to -30 dBm	
Implementation Loss	- 1.5 dB	

Hardware	Specification
Housing	
Dimensions	(L) 150 x (W) 100 x (H) 47 mm
Mass	< 1 kg
Interfaces	
Ethernet	2x GbE Ethernet
RS-422	2x Full duplex, up to 20 Mbps
LVDS	5x pairs, up to 500 Mbps
Power	
Input Voltage	22-34.6 VDC
Operating	59 W
Standby	14 W

Hardware	Specification
Environmental	
Operating Temp	-30°C to 60°
Lifetime	5 Years LEO @ 100% Duty Cycle
Vibration	GEVS compliant
Radiation	40 Krad TID, 200 MeV non-destructive latch-up, rad-hard flash

Features
CCSDS TM/TC/AOS, Gryphon Framing, DVB-S2X
Ranging, one-way and two-way
Coherent and non-coherent
AES-256 Encryption, compatible with NSA T1 devices KI-55, KI-103, Iron Fortress (KI-18 for both channels)

CONNECT THE UNIVERSE

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