

NDR562

20 MHz to 18 GHz Microwave SDR

A 1U RACKMOUNT SUPER-HETERODYNE DOWNCONVERTER

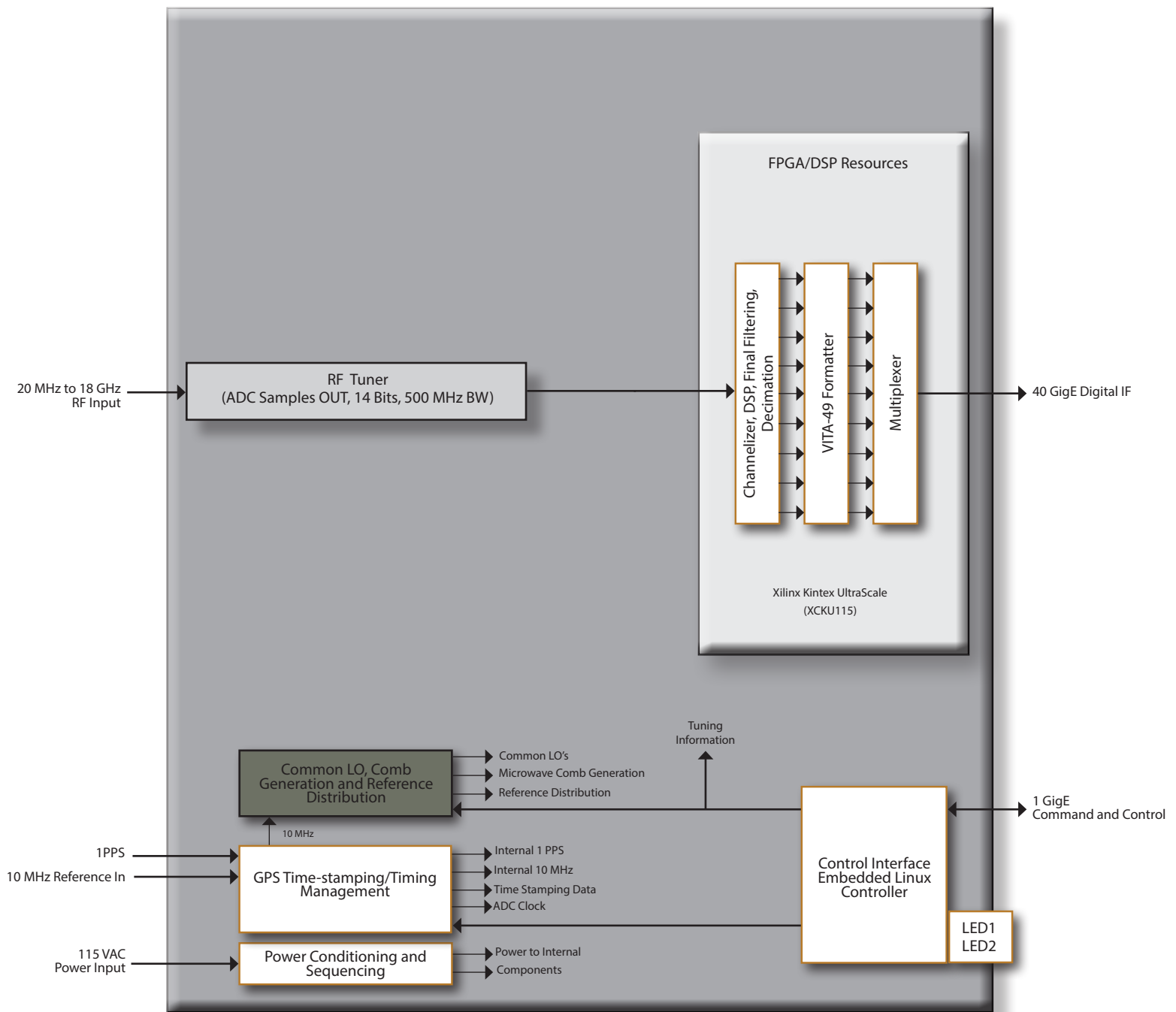
The NDR562 microwave SDR is a super-heterodyne downconverter that covers RF and Microwave signals from 20 MHz to 18 GHz. The tuner has a 1 GHz analog IF output with selectable bandwidths of 500 MHz, 320 MHz and 200 MHz. An integrated high dynamic range 14-bit Analog-to-Digital converter (ADC) is utilized to digitize a 500 MHz wide IF at a 1344 Msps sample rate. An onboard Kintex UltraScale series FPGA is used for the channelizer, the VITA-49 formatter, data multiplexer and the 40 Gigabit Ethernet Digital IF data interface. The Digital IF output supports bandwidths of 80 MHz, 100 MHz, 160 MHz, 250 MHz, 320 MHz and 500 MHz.

An internal ARM A8 microprocessor running embedded Linux is used for command/control of the unit via an Ethernet interface and power is derived from a 115 VAC external power supply input (power consumption is 100 Watts). The unit is housed in a 1U, 19 inch equipment frame with 19"x18"x1.75" overall dimensions that provides RF shielding, thermal management, and protection suitable for harsh environments..

KEY HIGHLIGHTS

- 20 MHz to 18 GHz Frequency Coverage
- 500 MHz Bandwidth
- Additional supported BWs: 320 MHz, 250 MHz, 160 MHz, 100 MHz & 80 MHz
- 14-bit Internal ADC, 1344 Msps
- 1 GHz Analog IF Output
- Full bandwidth Digital IF Output over 40 Gigabit Ethernet
- Internal FPGA-based signal processing with variable rate DDCs
- Ethernet Command and Control
- Time-tagged VITA-49 Digital IF Output (based on 1PPS input)
- 100W Power Consumption

BLOCK DIAGRAM



Specifications subject to change without notice.

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SPECIFICATIONS

Specification	Value	Comments
Frequency Coverage	20 MHz to 18 GHz	
Bandwidth	500 MHz	
Analog IF Output	1 GHz	Selectable analog bandwidths of 200 MHz, 320 MHz and 500 MHz
Tuning Resolution	1 MHz	1 Hz tuning resolution provided by internal DDCs
LO Switching Speed	100 microseconds max	
Size	19"W x 1.75"H x 18"D rack mount	1U, 19" rack mount equipment frame
Weight	22 lbs.	
Power	100 W	
IIP3	+4 dBm typ.	In-band, referenced to RF input
Noise Figure	16 dB typ.	
SSB Phase Noise (typical)		
1 kHz	-95 dBc/Hz	
10 kHz	-105 dBc/Hz	
100 kHz	-110 dBc/Hz	
1 MHz	-120 dBc/Hz	
10 MHz	-130 dBc/Hz	
Internal Spurious	-100 dBm input equivalent level, typ.	
RF Input		
Impedance	50 Ohms	
Connector Type	SMA (field replaceable)	
Maximum input without damage	+20 dBm max	
Manual Gain Control Range	45 dB in 1 dB steps	
Gain Control Settling Time	50 microseconds	From receipt of command to within +/- 10% of final amplitude

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SPECIFICATIONS CONTINUED

Specification	Value	Comments
Internal Reference		
Frequency	100 MHz	
Temperature Stability	+/- 0.1 ppm over 0 to +50degC	
External reference	10 MHz	
External input level (50 Ohms)	1 Vpp sine wave minimum	
Control Interface	Gigabit Ethernet	Embedded LINUX OS
Digital IF Interface	40 Gigabit Ethernet	Supported digital bandwidths: 80 MHz, 100 MHz, 160 MHz, 250 MHz, 320 MHz & 500 MHz
Digital IF Data Format	16-bit complex I& Q or Real VITA-49 compliant format	
Supply Voltage	115 VAC	
Operating Temp Range	-20degC to +55degC Ambient (<10,000 ft.)	
Humidity	5 to 95% non-condensing	
Vibration	Suitable for airborne environment	

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