



NDR364

20 MHz to 6 GHz High Performance SDR

A 4 CHANNEL SUPER-HETERODYNE DOWNCONVERTER

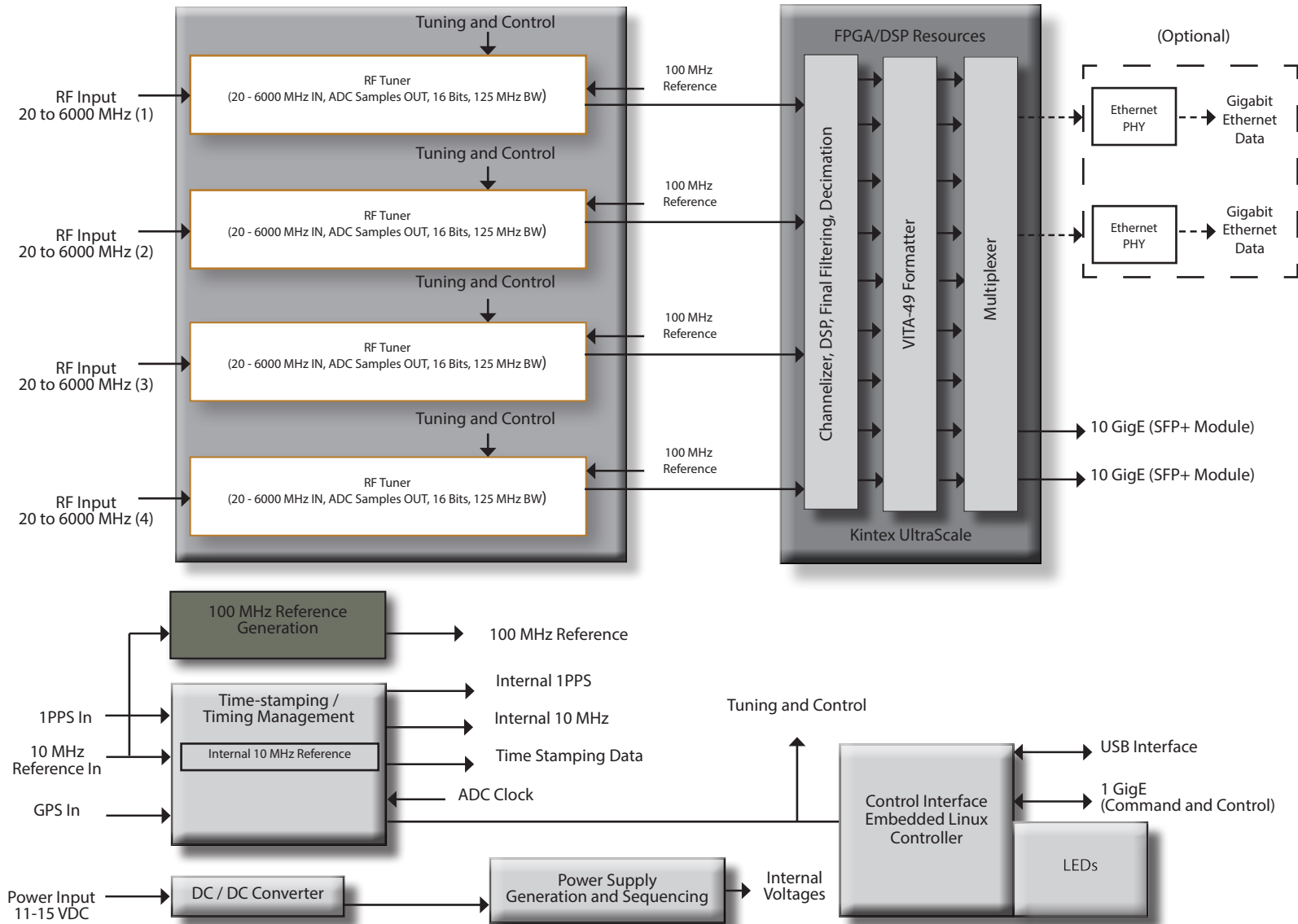
The NDR364 high performance SDR is a 4-channel, super-heterodyne downconverter that covers RF signals from 20 MHz to 6 GHz. Integrated high dynamic range 16-bit Analog-to-Digital converters (ADC's) are utilized to digitize a 125 MHz wide IF at 368 Msps sample rate. The NDR364 includes a built-in GPS receiver and accepts a 1PPS input to support precision timing applications. Command and control of the SDR are via a Gigabit Ethernet interface and power is derived from a DC external power supply input. Total power consumption is 38 Watts. An on-board Kintex UltraScale series FPGA is used for the channelizer, selectable decimation stages, VITA-49 formatter, data multiplexer and 10 Gigabit Ethernet Digital IF data interfaces.

The two 10 Gigabit Ethernet Digital IF output interfaces provide full bandwidth Digital IF data from all four channels. For lower data rate requirements, the NDR364 can (as an option) be delivered with two Gigabit Ethernet data interfaces (in place of the two 10 Gigabit Ethernet Data interfaces). An ARM A8 microprocessor running embedded Linux is used for command and control. The unit is packaged in a 5.7"W x 8.4"D x 1.6"H rugged aluminum chassis that provides RF shielding, thermal management, and protection suitable for harsh environments.

KEY HIGHLIGHTS

- 4 Channel High Performance SDR
- 20 MHz to 6 GHz RF Coverage
- 125 MHz BW
- Independent and Phase Coherent Tuning
- 16-bit internal ADC, 368 Msps
- Internal FPGA-based Signal Processing with Variable Rate DDCs
- Full Bandwidth Digital IF Output over 10 GigE
- Time-tagged Digital IF output (based on 1PPS input or GPS antenna input)
- Built-in GPS Receiver
- Ethernet Command and Control
- 38W Power Consumption

BLOCK DIAGRAM



Specifications subject to change without notice.

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SPECIFICATIONS

Specification	Value	Comments
Number of RF Channels	4	
Frequency Coverage	20 MHz to 6 GHz	
Bandwidth	125 MHz	
Tuning Resolution	1 MHz	1 Hz tuning resolution provided by internal DDCs
LO Switching Speed	100 microseconds	After processing of command to within 1 kHz of final frequency
Size	5.7"W x 8.4"D x 1.6"H	
Weight	3.5 lbs.	
Power	38 Watts	
IIP3	+3 dBm, typ	Specification is referenced to the SDR's RF input. The measurement is made on the digital IF output data at the tuner's maximum gain setting and with both measurement tones inside the IF passband.
Noise Figure	14 dB, typ	
SSB Phase Noise (typical)		
1 kHz	-95 dBc/Hz	
10 kHz	-100 dBc/Hz	
100 kHz	-100 dBc/Hz	
1 MHz	-115 dBc/Hz	
10 MHz	-125 dBc/Hz	
Internal Spurious 20 MHz to 6 GHz	-105 dBm input equivalent level, typ	
RF Input		
Impedance	50 Ohms	
Connector Type	SMA (field replaceable)	
Maximum input without damage	+20 dBm max	
Input Level for full scale	-20 dBm nominal	
Manual Gain Control Range	40 dB in 1 dB steps	

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SPECIFICATIONS CONTINUED

Specification	Value	Comments
Internal Reference		
Frequency	100 MHz	
Temperature stability	+/- 0.1 ppm over 0 to +50°C	
External reference	10 MHz	
External input level (50 Ohms)	-3 dBm minimum	
Control Interface	Gigabit Ethernet	Embedded LINUX OS
Digital IF Interface	10 Gigabit Ethernet (2 Interfaces)	Supports full bandwidth (125 MHz) data streaming from all four channels simultaneously. For lower bandwidth requirements, the 10 Gigabit Ethernet interfaces can be optionally replaced by Gigabit Ethernet interfaces.
Digital IF Data Format	16-bit complex I&Q or Real VITA-49 compliant format	
Selectable Digital IF Bandwidths	125 MHz at 147.2 Msps complex 62.5 MHz at 73.6 Msps complex 31.2 MHz at 36.8 Msps complex 15.6 MHz at 18.4 Msps complex	email sales@cyberradiosolutions.com for additional available bandwidths and FPGA loads* *optional 512 DDC FPGA load available
Supply Voltage	+11 to 15 VDC	
Operating Temp Range	-20°C to +60°C Ambient (<10,000 ft.)	
Humidity	5 to 95% non-condensing	
Vibration	Suitable for airborne environment	

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