

DLSR2

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DSPBRIK™ L-BAND SOFTWARE-DEFINED RADIO, 2ND GENERATION

- L-band analog input, 950 MHz to 1750 MHz
- 1800 MSPS 10-bit ADC, 7.8 ENOB
- Programmable attenuator, 0dB to 31.5 dB, 0.5 dB steps
- Multiple digital downconverter (DDC) configurations provided:
 - **3180:** Up to 3 DDCs with 80/40/20/10/5/2.5 MHz bandwidth selection
 - **8140:** Up to 8 DDCs with 40/20/10/5/2.5 MHz bandwidth selection
 - **8180:** Up to 8 DDCs with 80/40/20/10/5/2.5 MHz bandwidth selection
 - **21400:** Up to 2 DDCs with 400 MHz bandwidth
 - **11240:** 1 DDC with 240 MHz bandwidth
 - **11320:** 1 DDC with 320 MHz bandwidth
 - **11650:** 1 DDC with 650 MHz bandwidth
 - **41160:** Up to 4 DDCs with 160 MHz bandwidth
 - All configurations allow independent tuning for each DDC
 - Data output via 10GbE interfaces, except when using the 8140g configuration which supports 1GbE
- High-precision data time tags provided for DDC and snapshot outputs
- Wideband (800 MHz) snapshot capability, up to 2 GB
- Command and control via dedicated Ethernet interface
- Boot from local flash storage or network file system (NFS)
- Automatic restoration of saved configuration after reset, enabling seamless operation without user intervention
- Redundant, hot-swappable power supplies

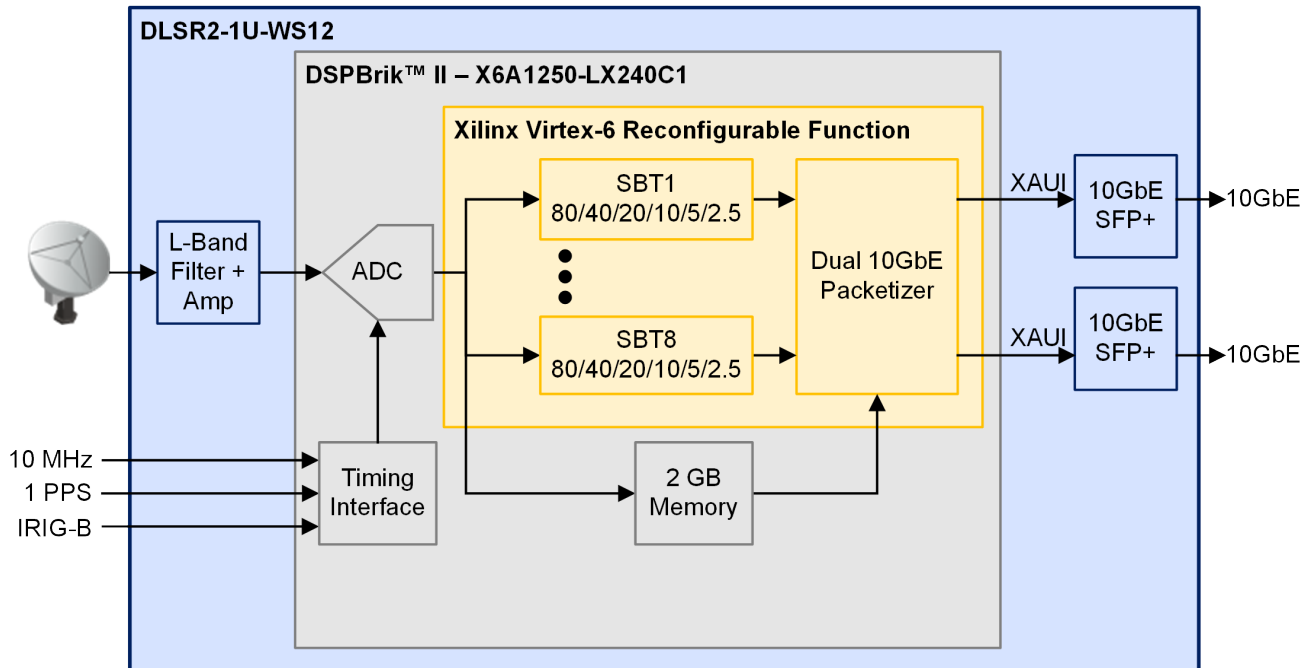
USING MULTI-RATE SIGNAL PROCESSING TECHNIQUES, the DLSR2 digitizes multiple L-band inputs and provides up to 8 independent digitally down-converted signal channels, distributed over 10 Gigabit Ethernet to individual clients or broadcast to multiple recipients.

BUILT UPON HIGH-PERFORMANCE FPGA TECHNOLOGY, the DLSR2 supports seamless in-field firmware upgrades to meet the demands of evolving requirements, making it easy to deploy and maintain hundreds of units.

HIGH-PRECISION TIME TAGGING IS A SIGNATURE FEATURE of all Rincon Research data acquisition systems. The DLSR2 continues this tradition by producing time-tagged data with sub-1ns accuracies. Through careful compensation of all algorithmic delays, we are able to maintain this level of precision for all DDC output bandwidths.

THE DLSR2'S UNIQUE WIDEBAND SNAPSHOT FEATURE provides continuous surveys of the entire digitized input signal (800 MHz wide) to support downlink evaluation and signal discovery and identification, reducing overall system cost by eliminating the need for external test equipment or for sweeping a narrow-band receiver.

BLOCK DIAGRAM



SPECIFICATIONS

GENERAL

- Power Connector: NEMA5-15
- Power: 110/220 VAC 50/60 Hz, 300 Watts (max)
- Number of Inputs: Up to 4
- Number of Outputs: Up to 8
- Command/Control: 10/100/1000 Mbit Ethernet, RJ45
- Dimensions: 1U 19" rackmount, 26" depth
- Operating Temperature: 0° C to 50° C

INPUT/OUTPUT

- Analog: -27 dBm (nom.), 50 Ω , AC-coupled, 950 MHz to 1750 MHz, SMA connector
- 10 MHz Reference: 750 mVpp to 2 Vpp (1.5 dBm to 10 dBm) 50 Ω , AC-coupled, sine or square wave, SMA connector
- 1PPS: CMOS compatible, 50 Ω , SMA connector
- Timecode:
 - IRIG-B: 0.5 Vpp to 6 Vpp, 50 Ω , 1 kHz AM, SMA
 - NMEA-0813: RS-232 signal level, LEMO connector, DB9 adapter supplied
- Data Connector: 10 Gigabit Ethernet, SFP+ modules (included) SR/LR fiber or direct attach copper
- DDC Data Format: SDDS or VITA-49, various bandwidths
- WB Snapshot: Up to 2 GB (~1 sec)

ORDERING INFORMATION

DLSR2-1U-WSvwx-yz

- v: Number of analog inputs (1 to 4)
- w: Number of 10GbE outputs (2 to 8)
- x: Customization Code, opt. (see website for codes)
- y: 10GbE media
 - L: Long-range fiber SFP+ modules, 1310 nm
 - S: Short-range fiber SFP+ modules, 850 nm
 - C: Direct-attach passive copper patch cables, Cisco, 3m
 - O: No media included
- z: Boot mode
 - None: NFS boot (flash write-protected)
 - F: Flash boot (flash write-enabled)

Call for availability and custom configurations.

ADDRESS

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INFORMATION SUBJECT TO CHANGE WITHOUT NOTICE.
PRODUCTS ARE SUBJECT TO THE RESTRICTIONS OF THE ARMS EXPORT CONTROL ACT.
VERSION 1.1.

RINCON
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ANALOG SPECIFICATIONS

Model	Standard	A	B	C
Special Features	-	Input Power Detector and Input Attenuator	Extended L-Band Filter Path	Integrated 10-Port 1GbE Switch
Input Band¹ (MHz)	950–1750	950–1750	950–1750 and 1650–2200	950–1750
Passband Flatness¹ (dB)	+/- 1.5			
Input Level^{1,2} (dBm)	-30	-25	-25	-30
SFDR³ (dBc)	48 ^{4,5}	48 ^{6, 8}	46 ^{6,7, 8, 9}	48 ^{4,5}
NPR³ (dB)	32			

NOTES

1. Typical.
2. Attenuators set to 0 dB, ADC loading about -1 dBFS.
3. Minimum, at specific test conditions.
4. Input Signal: Single tone, 1121 MHz, -30 dBm.
5. Input Signal: Dual tones, 1163 MHz, -28 dBm, 1221 MHz, -28 dBm.
6. Input Signal: Single tone, 1121 MHz, -25 dBm.
7. Input Signal: Single tone, 1871 MHz, -25 dBm.
8. Input Signal: Dual tones, 1163 MHz, -25 dBm, 1221 MHz, -25 dBm.
9. Input Signal: Dual tones, 1863 MHz, -25 dBm, 1921 MHz, -25 dBm.