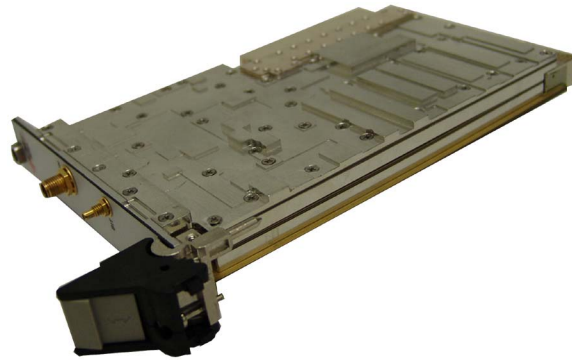


# DRT

Digital Receiver Technology, Inc.



## DRT4011- Wideband Tuner

*Signal Reception for Software Defined Radio*

### DESCRIPTION

The DRT4011, a member of the DRT4001 Software Defined Radio (SDR) family, is a high dynamic range digital tuner that covers the frequency range of 20 MHz to 3 GHz. The 4011 outputs an 30 MHz-bandwidth spectrum with 80 dB of instantaneous dynamic range with 14 bits. The DRT4011 occupies 3U size CompactPCI slot, consuming less than 22 watts. Optionally, the digitized IF output(s) may be replaced by a single, high-level analog output drive an external A/D conversion board.

- 20 MHz to 3 GHz frequency coverage
- 80 dB dynamic range
- Controlled via standard 32-bit CompactPCI interface
- Multiple tuners can be ganged together to perform a variety of communication applications
- Single-wide 3U CompactPCI form factor and control interface
- Wideband architecture allows for multiple channels to be simultaneously received
- Wide range of tuning for arbitrary re-configuration and application flexibility for supporting a Software Defined Radio (SDR) system

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## SPECIFICATIONS

### RF Input

- VSWR 2.5 to 1 max
- RF Input Frequency Range: 20 to 3000 MHz
- Final IF Bandwidth 30 MHz
- LO Radiation -90 dBm max,  $f > 10$  GHz  
-110 dBm max,  $f \leq 10$  GHz
- Input Damage Level RF Input: +17 dBm

### Digital IF Output

- Bandwidth 30 MHz
- Resolution 14 Bits
- Sample Rate 70 Msps
- Spectral Sense Noninverted

### In-Band Dynamic Range

- Full-Scale Input Level (single tone) -35 dBm
- Noise Figure

Preamp Bypassed		Preamp Engaged	
Typ	Max	Typ	Max
			$f < 25$ GHz $f > 25$ GHz
13.5 dB	15 dB	5.5 dB	7 dB      8 dB

- Signal-Related Spurs < -80 dBc relative to full-scale single tone input  
(-34 dBm) of two-tone signal (-40 dBm each)
- Gain Control (manual or AGC)

Gain Control Range	Max Single-Tone Input Signal before A/D Converter clips	Max Two-Tone Input Signal (each) for 75-dB Dynamic Range
50 dB	+10 dBm	-15 dBm

- LO Sideband Spurs < -110 dBc offsets  $\geq 15$  MHz  
< -80 dBc offsets < 15 MHz  
< -60 dBc offsets < 500 Hz (AC line related)
- Self-Generated Spurs < -80 dBc relative to full-scale received signal  
(< -120 dBm relative to full-scale RF input)
- Channel-to-Channel Isolation > 90 dB tuners operating coherently (shared tuning)  
> 90 dB tuners operating independently

### Out of Band Dynamic Range

- Input 2nd-Order Intercept Point, IIP2 +50 dBm
- Input 3rd-Order Intercept Point, IIP3 outside preselector filter: +40 dBm  
outside 1st IF filter: +13 dBm  
outside final IF filter: +10 dBm
- Image Rejection > 90 dB
- IF Rejection > 90 dB

### Physical

- Operating Temperature Range -20 to +60°C (-4 to +140°F)
- Size Single-slot 3U CompactPCI  
approximately 0.8" wide x 4" high x 7" deep  
(20.3 cm wide x 10.16 cm high x 17.78 cm deep)
- Weight 1.4 lbs. (635 g)
- Power Consumption 22 W maximum, less in sleep and other modes

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