

RCT0017 WB Tuner/Quad Converter



The RCT0017 WB Tuner/Quad Converter is a high performance Microwave Tuner covering the frequency range of 2.0 to 18.0 GHz. It was designed from the start to provide the highest dynamic range, the lowest phase noise, and the widest instantaneous bandwidth of any Tuner on the market today.

Fitting into a 2 slot 6U VME chassis, the RCT0017 contains a 1st microwave conversion to 2.2 to 5.3 GHz, built-in synthesizer, and four 2nd conversions with four IF outputs centered at 750 MHz with 375 MHz bandwidth, providing a total instantaneous output bandwidth of 1.5 GHz.

The RCT0017 is functionally partitioned into RF surface mount assemblies, designed using the highest dynamic range parts available, and connectorized components, providing the best combined performance available in the industry. With many functional assemblies interconnected by cabling, re-configuration for new and upcoming applications can be accomplished with minimal design changes.



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Typical Performance:

- Frequency Coverage: 2-18 GHz
- First IF's: 2.2-3.8 GHz, 3.8-5.3 GHz, available simultaneously
- Second IF's: 4 outputs at 750 MHz, 375 MHz wide, providing 1.5 GHz instantaneous bandwidth across the First IF's
- Input 1 dB Compression Point: $>+6$ dBm
- Noise Figure: <21 dB
- Input Dynamic Range: -60 to $+2$ dBm
- Gain: 10 dB average
- Tuning Speed <1 uSec
- Frequency Step Size: 375 MHz
- Phase Noise: <-150 dBc/Hz @ 10-20 MHz Offset
- Form Factor: VME 6U 2 Slot Design
- Control and Status: VME A24 D32
- Designed to follow an Low Noise Front End with Approximately 30 dB ENR
- Designed to drive 1 GHz Digitizers linearly up to $+12$ dBm



Applications:

- Front End Down Conversion for Software Radio Platforms
- Test Equipment: Front End Converter for ultra wideband digitizers or digital scopes
- ELINT, EW platforms
- Any receiver system with remote or separate RF pre-amplification

Output Status Monitoring:

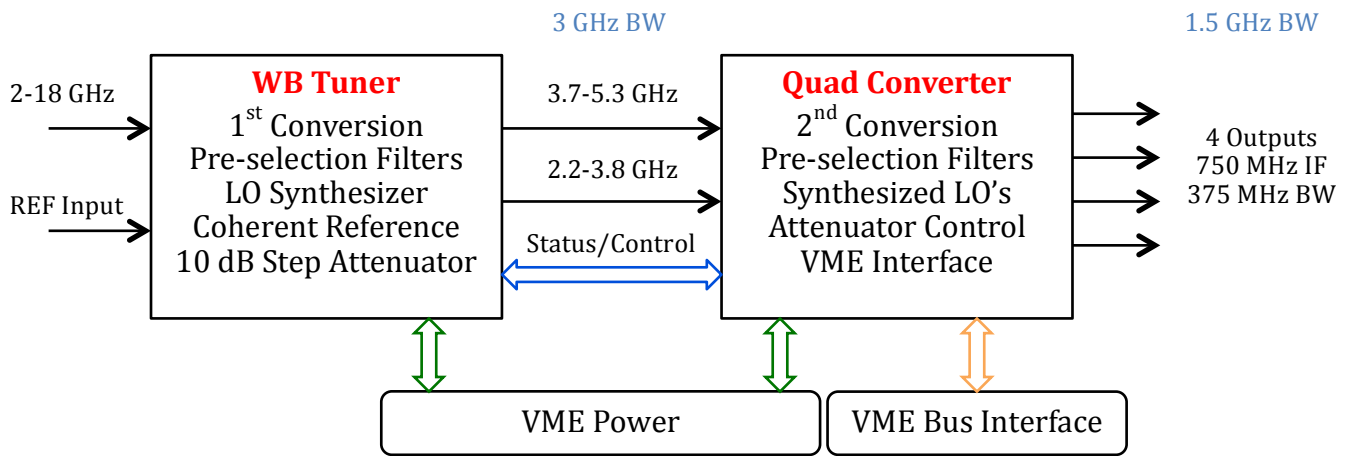
- Built in Test (BIT) Detectors
- Phase Lock Indicators
- Temperature Sensors
- Voltage Shutdown available

Designed for Flexibility:

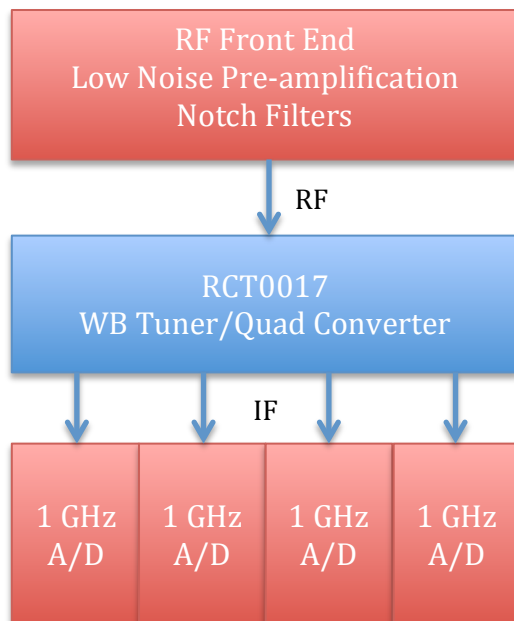
- Internal references of 100 MHz +/-1.333 MHz built-in
- Can be phase locked to an external reference of 100 MHz +/-1.333 MHz
- Input 10 dB step attenuator for extended input dynamic range
- 0-15.5 dB attenuator at each of the 4 IF outputs
- Tuning States with attenuator calibrations can be stored in EEPROM
- FPGA interface between VME interface and Digital I/O allows re-configuration without hardware design changes
- SMA connectors for durability

Dynamic Range: To compare against other Tuners, use the following calculation:

- Dynamic Range = 1 dB Pin - (-114 + Noise Figure) = 99 dB (1 MHz BW)



RCT0017 Functional Diagram



RCT0017 Typical Application

For more information, contact:

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