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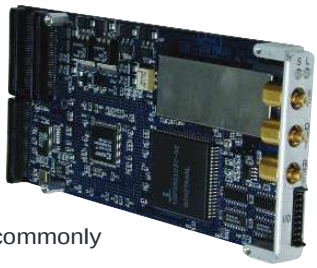
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Find the *Kratos / RT Logic RTL-DR70* at our website: *Click HERE*

DIGITAL RECEIVER (RTL-DR70)

OVERVIEW



RT Logic's Digital Receiver (RTL-DR70) supports multiple IF and baseband telemetry processing functions. The digital processing is implemented in firmware, allowing the board to be easily tailored to specific customer requirements. The RTL-DR70 provides a versatile digital receiver for satellite ground, spacecraft test, and range/flight test applications. RT Logic has developed a full range of commonly used firmware and software personalities.

APPLICATION

The RTL-DR-70 provides a reconfigurable, digital platform for IF (70 MHz) and baseband processing functions. The PCI Mezzanine Card (PMC) is designed for use in PCI, cPCI, and VME systems.

A small, shielded analog section on the board filters the IF input, provides automatic gain control, and generates 14-bit digital samples of the received signal. The signal samples are processed by multiple on-board Field-Programmable Gate Arrays (FPGAs) that provide nearly two million logic gates for the downloaded firmware. In addition to the IF input, the RTL-DR70 accepts a 5 or 10 MHz reference input, generates a baseband output, and has multiple TTL/RS-422 signal lines to support a wide variety of external interface configurations.

RT Logic provides firmware personalities for the RTL-DR70 that support PSK and PM carrier demodulation, subcarrier B/QPSK demodulation, bit synchronization, and Viterbi decoding. For example, the RTL-DR70 can simultaneously process two SGLS telemetry subcarriers modulated on the main carrier and generate the two bit synchronized data/clock outputs.

Sample application code and device drivers are available for the RTL-DR70 to support customer integration of the module.

FEATURES

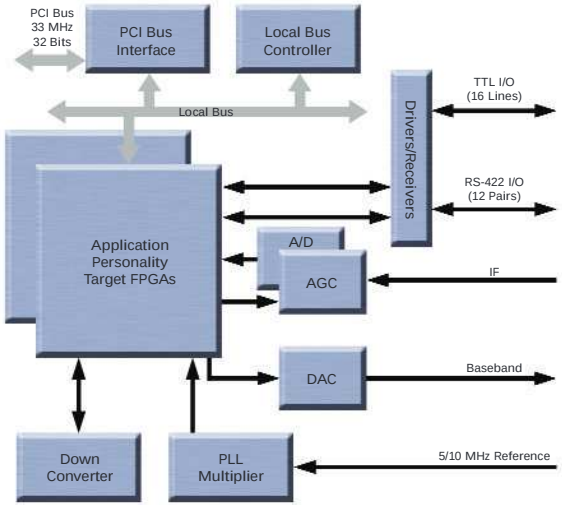
- IF Input
  - AGC with 60 dB Gain for Low Power Signals
  - Digital Shaping Filters for High Performance
- PM/PSK Carrier Demodulation
  - Symbol Rates Up to 6 Msps
- PSK Subcarrier Demodulation
  - Subcarrier Frequnecy up to 8 MHz
  - 1 or 2 Subcarriers
- Bit Synchronization
  - Rates from 10 bps to 12 Mbps
  - NRZ and Bi-Phase PCM Codes
  - Viterbi Decoder
  - Optional Frame Synchronizer
- Test Code/Device Drivers
- Full Product Documentation/Customer Support

RT Logic!
Enabling Your Solutions

DIGITAL RECEIVER

DIGITAL IMPLEMENTATION

The RTL-DR70's digital implementation eliminates the need for tuning, provides outstanding performance across the range of carrier/data rates, and eliminates device variability. The 40 Msps analog-to-digital converter allows the RTL-DR70 to support carrier PSK and PM demodulation and subcarrier demodulation. Data rates from 10 bps to 12 Mbps are supported for bit synchronization.



The RTL-DR70 is configurable with one or more of RT Logic's firmware application personalities to process telemetry downlink signals.

RT Logic can also customize firmware application personalities or develop new ones for specific customer requirements.

The RTL-DR70 module is part of RT Logic's family of Telemetrix Dynamic Digital Processors. This set of PMC modules support the full spectrum of IF/baseband processing, signal modulation, and digital front-end functions and offer the latest leading edge digital technology.

SPECIFICATIONS

- Inputs/Outputs
  - IF Input (62 to 78 MHz)
  - 5/10 MHz Reference Input, 0-13 dBm
  - Baseband Output (Up to 10 MHz)
  - PCM Clock/Data
  - 40 TTL Lines/12 RS-422 Pairs
- IF Receiver
  - Input Power Level — -60 dBm to 10 dBm
  - Acquisition Range — ±250 kHz
  - Maximum Doppler Rate — <10 kHz/sec
- PSK/PM Demodulator
  - Data Rates — up to 6 Msps
- Subcarrier Demodulator
  - BPSK, QPSK
  - Subcarrier Frequencies — 400 Hz to 8 MHz
  - Loop Bandwidth — up to 0.25%
- Bit Synchronizer
  - NRZ-L, -S, -M, Bi-Phase-L, -M, -S
  - Data Rates — up to 12 Mbps
  - Loop Bandwidth — up to 1.5%
  - Viterbi Decoder (Rate 1/2, 1/3)
  - Soft-Bit Decision
- Physical
  - Single Wide PMC Form Factor
  - Short PCI (via Carrier Board)
- Power (Typical)
  - 2A @ 5V
  - 100 mA @ +12V, 100 mA @ -12V
- Operating Environment
  - 0 to 50º C
  - 10 to 90% Relative Humidity

RT Logic!

Specifications subject to change.
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1042 Elkton Drive, Colorado Springs, CO 80907 • ph 719.598.2801 fx 719.598.2655
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