Digital Receiver Technology, Inc.

The One Measure for Wireless Performance

DRT4022- Digital Modulator Unit

FEATURES

- Two High-Performance Fixed-Point Digital Signal Processors (DSP)
- 24 Multi-Standard Digital Up Converter Processor channels
- Creates up to two 14-bit, wideband digital IF data streams to a CompactPCI backplane, at 56 to 70 MHz
- Compact PCI (Rev 2.1) compliant interface
- Supports flexible boot modes, 1Mx16 onboard FLASH memory or boot over PCI Bus
- Onboard temperature measurement and built-in test capability

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DESCRIPTION

The DRT4022, a member of the DRT4001 Software Defined Radio (SDR) family, creates wideband digital IF signals from digital modulation and up-conversion of narrowband user data. The 4022 occupies one 3U-size CompactPCI slot and has the capability to accept one PMC mezzanine card.

The 4022 can process up to two channels of wideband digital IF data to send to a cPCI backplane combined from up to up to 24 narrowband IF channels using digital up converter processors. The module can also receive narrowband channel inputs via a PMC mezzanine board. In addition, the PMC module can be used to house an auxiliary peripheral such as a wireless LAN card.

The maximum bandwidth the 4022 can process in any one narrowband channel is dependent on the sample rate selected and the configuration of the Digital Transmitters. With a 70-MHz IF sample rate, the 4022 can process 24 narrowband channels at 2.188 MSps each. If a wider bandwidth is required, the 4022 can be configured to process two channels at 4.375 MSps each (70-MHz IF sample rate).

Control of the 4022 is accomplished over the PCI bus. The control processor has a built-in PCI bus interface that will support full 33-MHz, 32-bit PCI bus transfers. In addition, the 4022 contains a PCI bridge that allows the PMC mezzanine module to communicate over the PCI bus at 33 MHz, 32-bits.

Normally the 4022 will receive narrowband user data and other information through an onboard SCbus interface chip to a system wide TDM SCbus. The 4022 generates all required non-standard voltages needed. Only the standard CompactPCI voltages are needed at the backplane connectors. Various power-down modes can be implemented depending on the application and requirements.

SPECIFICATIONS

Input

- Four independent and two active 14-bit wideband digital IF buses to a CompactPCI connector. Supports clock speeds of 56 MHz to 70 MHz.
- 32-bit, 33-MHz PCI bus (standard CompactPCI)
- PCI bus extended to the PMC mezzanine connectors, depending on the internal configuration.
- Synchronization control (CompactPCI or PMC connectors)
- JTAG test/emulator port, RS-232 serial test port

Output

- Extension of 32-bit, 33-MHz PCI interface to PMC connector through a bridge chip
- One full-duplex bidirectional serial bus to the PMC connector. Supports clock speeds of up to 70 MHz.
- Eight channels of SCbus to CompactPCI and PMC connectors
- Synchronization control relay (from CompactPCI to PMC connector)
- General purpose test outputs (up to 8 bits)

Physical

- **Operating Temperature Range** 0 to +50°C (+32 to +122°F)
- **Size** Single-slot 3U CompactPCI (100mm x160mm/3.9" x 6.29")
- **Weight** ~200g without PMC module
- **Power Consumption** 10 watts maximum

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