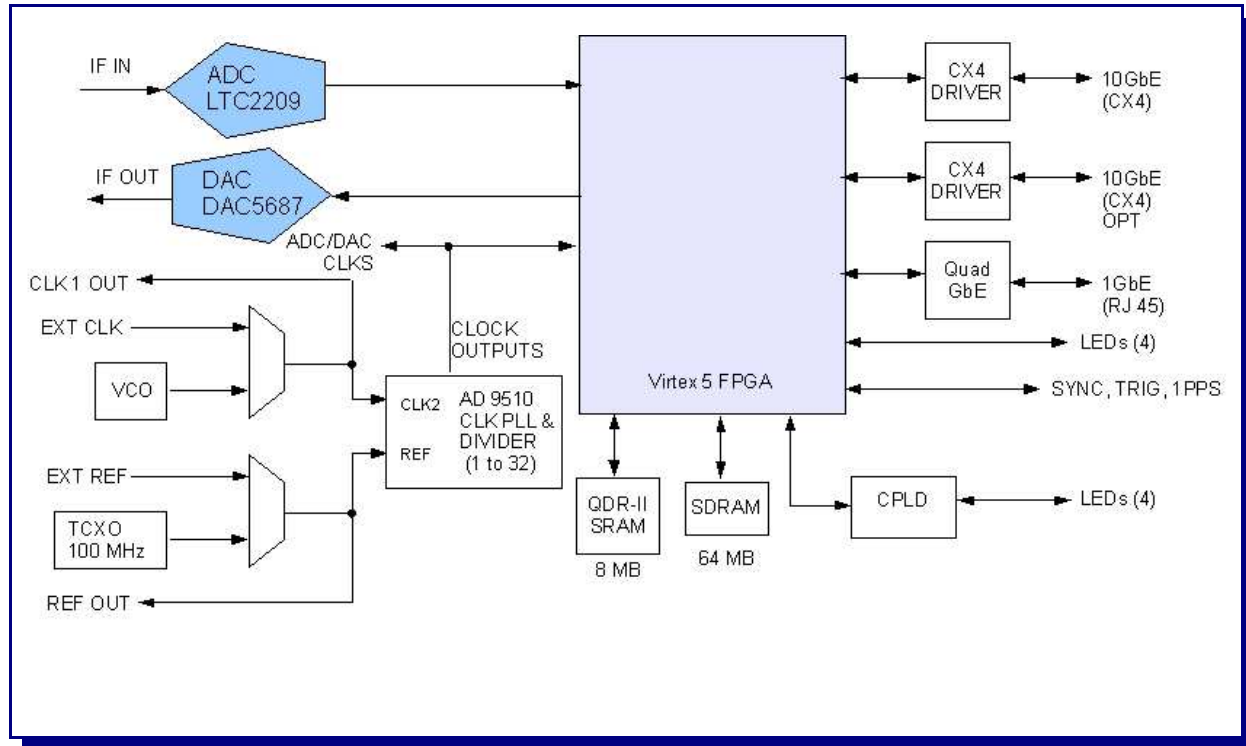


DTA-2210: 10 GbE Network Attached IF Transceiver

The single channel (antenna) low cost DTA-2210 SDR based IF transceiver platform is designed for spectral monitoring and surveillance, RF test and measurement, channel simulation; distributed TDOA, tactical radios; radar and other applications. It is a 1U form factor customer configurable system that far outperforms any other system available in the market. The system features a 16-Bit 160 MHz ADC, a 16-Bit 500 MHz DAC, external reference input for phase locking multiple units, a large user-programmable FPGA for implementing custom DSP functions; and 1GbE and 10GbE network interfaces for control and data.

The DTA-2210 directly interfaces with the DTA-3200 RF product family. Multiple DTA-2210 platforms can be easily synchronized for multi-channel operation.





A Single Channel IF SDR Platform includes the DTA-2210 and a Computer. The DTA-2210 is a self contained IF to Baseband solution that provides the best-in-class IF performance and 10GbE network interface.

Features:

- Ultra low cost IF transceiver
- 16-bit 160 MSPS ADC (LTC2209) and 16-bit, 500 MSPS DAC (TI DAC5687)
- Typical ADC dynamic range >90 dB and typical DAC dynamic range >75 dB
- External reference in for phase locking multiple units or Internal 100MHz TCXO (typical phase noise: -120dBc/Hz@ 100kHz) for stand-alone operation
- Extremely versatile clock generation scheme with VCO and built-in PLL divider with divide ratio of 1 to 32
- VCO tuning range: 375 to 415 MHz
- Large Virtex 5 User FPGA (SX50T) as standard and SX95T available as option
- 10Gbps CX-4 connector with one 10GbE MAC implementation in the FPGA
- Full duplex transceiver operation over 10GbE network
- All CX4 ports provided with drivers with equalizers capable of driving cables >15m
- Single 1GbE with MAC for command and control interface to host.
- Direct control of external RF module and external equipment via FPGA user I/O
- 8 MB of QDR-II SRAM used as DAC FIFO for real time arbitrary waveform generation
- 64 MB of SDARM
- Full source code Software Development Kit includes API and demo code
- Firmware Development Kit available for FPGA application development
- 19" enclosure, 1U high, 11" deep
- 110V/220V AC power (DC input optional)

Optional:

- Upgraded FPGA (SX95T) to support dual CX-4 with dual 10GbE MAC
- Pre configured DDC and FFT in FPGA
- User specific FPGA development
- Directly connects to the DTA-3200L, 1GHz tunable RF transceiver

The DTA-2210 is a standalone single channel (analog IF in, analog IF out) digital IF transceiver in a 1U chassis. It offers the best in class analog IF performance coupled with 10 Gigabit Ethernet interface for handling the full channel bandwidth. An extremely versatile FPGA based processing architecture allows easy application development.

The DTA-2210 joins the family of other DTA multi-channel radio platforms: DTA-2300 and DTA-3200. This allows easy migration to multi-channel operation. Multiple DTA-2210s may also be synchronized for building a co-located or distributed multi-antenna system. The DTA-2210 includes the Digital IF Processing module, an AC/DC power supply in a 19" rackmountable enclosure, which is only 11" deep. For more details, download tech notes titled "Ether to Ethernet: Common Radio Platform for Demanding Multi-Channel Applications", "Real-life Performance of D-TA Digital IF Platforms" and "Getting to know the DTA-2210" from www.d-ta.com.

- Signal Intelligence (SIGINT) and Electronic Intelligence (ELINT)
- Tactical Communication
- Software Radio Platform
- RF Test & Measurement
- Distributed (Multi unit) TDOA
- Arbitrary Waveform Generation
- Spectrum Monitoring
- ECM & EW
- Radio Head
- Sonobuoy and other transceivers

DTA-2210 Details

DTA-2210 implements the ADC, DAC and the high-speed network connectivity. It can accept an external reference signal or can use its internal 100 MHz TCXO. It has a 16-bit 160 MSPS ADC, a 16-bit 500 MSPS dual DAC and a large Virtex 5 FPGA with dual 10Gbps CX4 interfaces and quad 1GbE ports. The FPGA footprint supports factory configuration of larger FPGA devices. The standard DTA-2210 is shipped with Virtex 5 SX50T device and can support the SX95T device as a factory configured option. Other FPGA options are also supported. The DAC has built in Digital Up Converter that allows the user to supply digital IQ data and create single sideband signals. Large QDR-II SRAM and SDRAM memory connected directly to the user FPGA enable implementation of user DSP. The DTA-2210 generates the sampling clocks for the ADC and the DAC chips and implements a VCO (tuning range: 375 to 415 MHz) that can be locked to an internal or external reference clock. The VCO clock The PLL offers multi-chip synchronization to enable synchronized sampling over multiple units.

The FPGA implements a 10GbE MAC connected to one of the CX-4 ports. A second 10GbE MAC may be implemented as a user specific application. The 10GbE network can support the full bandwidth of the IF transceiver. To achieve the complete bandwidth, a high-end server class host is required. The FPGA is directly connected to user I/O signals that allow the user to bring in external signals (e.g., GPS time, antenna data etc.) that can be merged with the ADC data stream.

Full source code API and example codes are available for easy system integration.

Custom FPGA Development

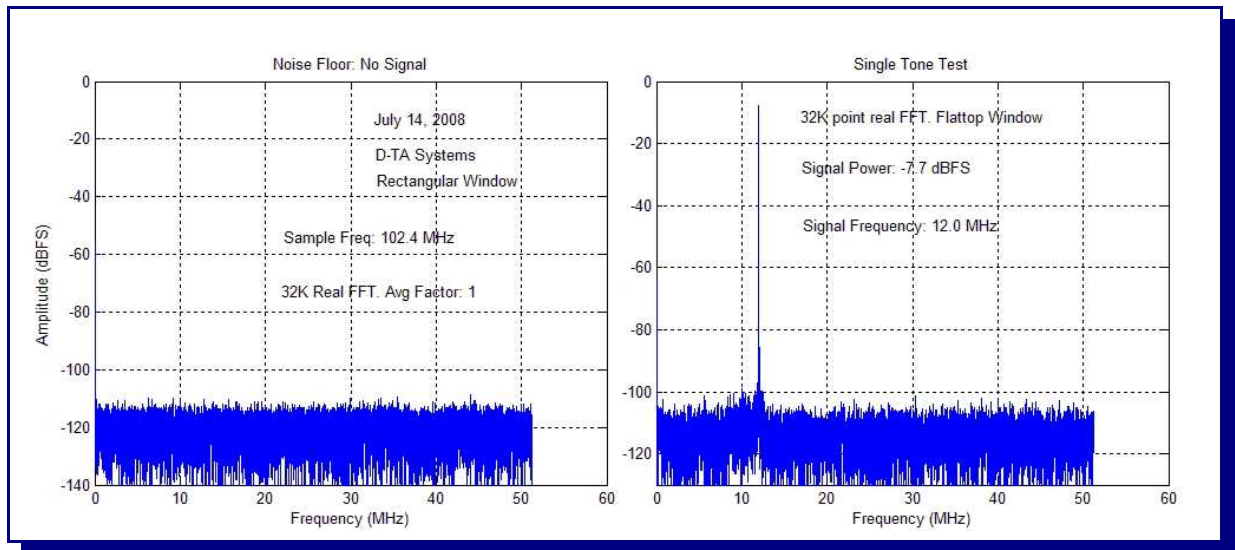
The FPGA in the Digital IP Processing module implements the logic required to implement 1Gbit Ethernet links and interfacing to the ADC/DAC devices. Users can implement their own

custom DSP functionality. D-TA Systems offers custom FPGA development services to help users speed up their system deployment. D-TA Systems offers extensive FPGA application capability including DDC/DUCs, FFTs and a whole range communication functions (like modulators, demodulators, FEC etc.). Please contact factory to discuss specific requirements.

Customized Solution

D-TA Systems can easily tailor the DTA-2210 platform for specific customer requirement. This may include a custom enclosure, upgraded FPGA, different configuration. Please contact factory (sales@d-ta.com) for more information.

DTA-2210 Performance Plots



Ordering Information

DTA-2210-SX50T: DTA-2210 with XC5V50T

DTA-2210-SX95T: DTA-2210 with XC5V95T

API-2210: API for DTA-2210

Contact factory for customization options and custom design services.

Contact Information

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