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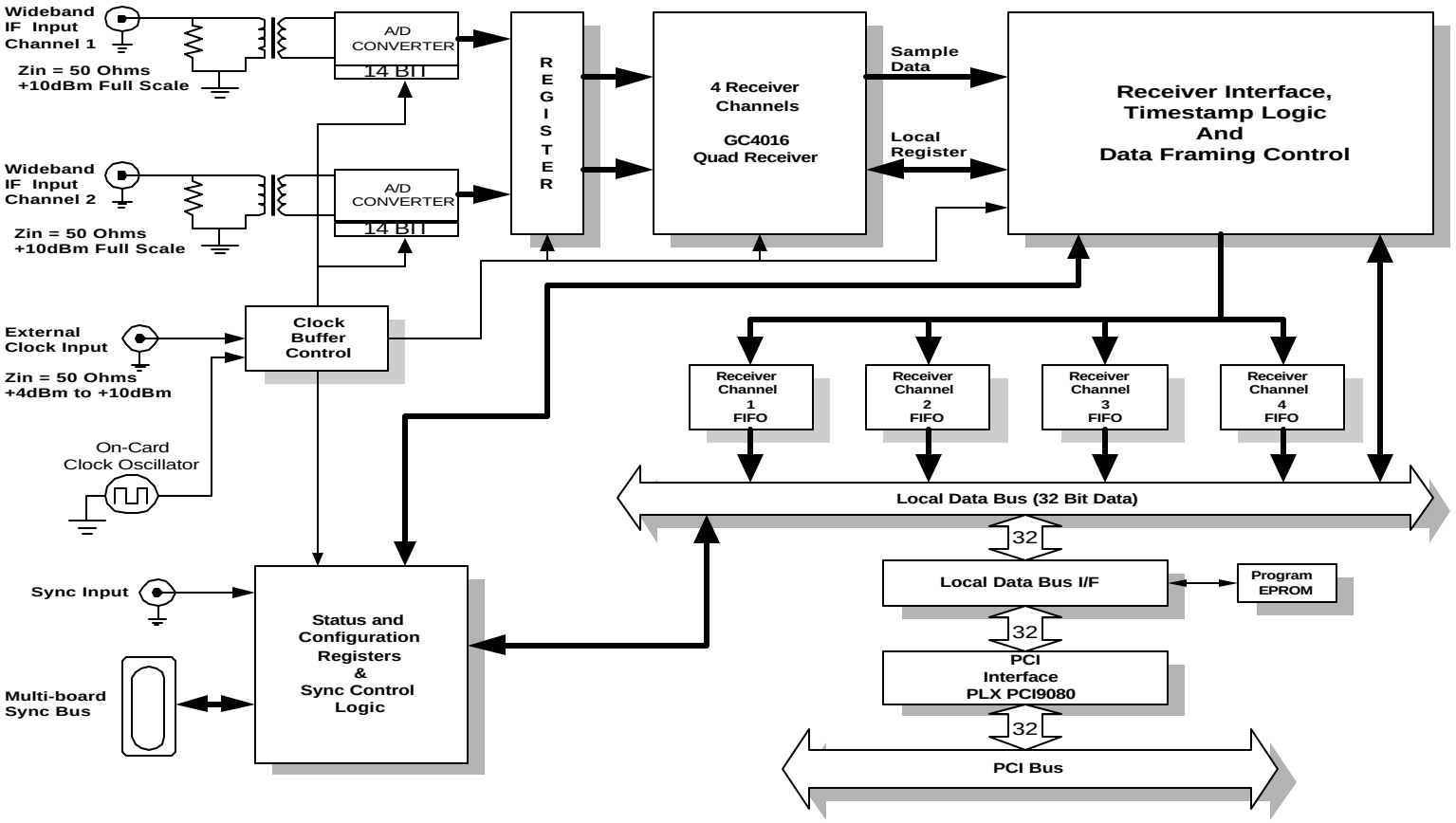
FOUR CHANNEL WIDEBAND DIGITAL RECEIVER WITH INTEGRATED ANALOG INPUT - PCI BOARD ECDR-GC214-PCI/TS



FEATURES

* FOUR DIGITAL RECEIVER CHANNELS ON A PCI SHORT CARD.
* TWO ANALOG INPUTS AT IF'S > 200 MHz. USES AD6644/45 (14 BIT, 65/80 MHz) ANALOG/DIGITAL CONVERTERS.
* RECEIVER CHANNELS CAN BE COMBINED FOR WIDER BANDWIDTH
* SYNCHRONIZATION CONTROL OF MULTIPLE RECEIVER AND TRANSMITTER BOARDS.
* PCI SHORT CARD.
* PCI BUS REVISION 2.1 COMPLIANT.
* EXTERNAL CLOCK INPUT AND OPTIONAL ON-BOARD OSCILLATOR.
* FIFO DEPTH SELECTABLE FROM 4K COMPLEX SAMPLES TO 128K COMPLEX SAMPLES PER RECEIVER CHANNEL.
* DECIMATION RANGE:
  32 TO 16384 INDIVIDUAL-CHANNEL MODE
  16 TO 8192 PAIRED-CHANNEL MODE
  8 TO 4096 QUAD-CHANNEL MODE
* ON-BOARD RESAMPLER
* 16 OR 20 BIT OUTPUT MODES

ECDR-GC214-PCI/TS BLOCK DIAGRAM



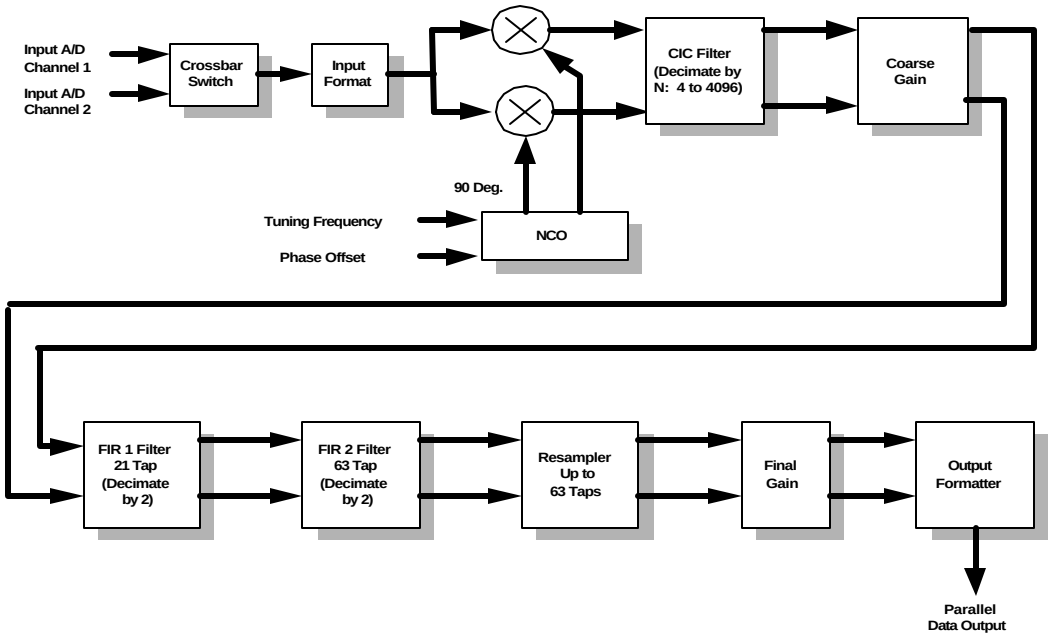
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ECDR-GC214-PCI/TS
FUNCTIONAL DESCRIPTION

The ECDR-GC214-PCI/TS module combines high speed and resolution analog to digital conversion with digital receiver processing suitable for wideband and narrowband down conversion and filtering on a PCI short card. The ECDR-GC214-PCI/TS processing chain consists of the following elements:

1. I.F. Inputs - Two I.F. Input Channels at frequencies > 200 MHz are digitized using 14 bit 80 MHz A/D converters (Analog Devices AD6644/45) having typical SFDR's in excess of 90 dBFS. Inputs may be up to 2 real inputs or a single quadrature input.

2. Receiver Channels - The digitizer outputs from the two A/D converters interface to the input crossbar switch on the Graychip GC4016 multi-standard quad digital down converter chip. A receiver channel block diagram is shown below for clarity - the Graychip GC4016 contains four such channels.



The ECDR-GC214-PCI/TS supports the various channel combination configurations allowed by the Graychip 4016, that is:

a. No channels combined; 4 narrowband outputs from the Graychip 4016. In this mode, each channel supports decimations from 32 to 16384.
b. Channel pair combinations - two output channels from the Graychip GC4016; supports decimations of 16 to 8192 in each channel pair while in this mode.
c. Four channel combination resulting in one wideband output channel; supports decimations of 8 to 4096 while in this mode.

3. Data Buffering - Each channel's data is stored in a FIFO buffer. Four FIFO chips (16K x 32 standard) are provided with one interfaced to each receiver channel. When receiver channels are combined to form one or two channels via receiver channel combination, then only one or two FIFO's are utilized. The ECDR-GC214-PMC supports both 16 and 20 bit output resolution in both real and complex data modes.

4. Synchronization Control - Synchronization of multiple ECDR-GC214-PCI/TS's and ECTR-GC214-PCI/TS's is accomplished by one front panel Sync Input, and one Multi-board LVDS Synchronization Bus. This bus is a ribbon-cable bus which is located on the top of the PCI card such that it will not be accessible except by opening the computer housing. There are two Sync signals which are transmitted on the Multi-board Sync bus. Either of these signals may be routed to any synchronizable function on the ECDR-GC214-PCI/TS's and/or the ECTR-GC214-PCI/TS's (companion transmitter board).

5. PCI Interface - The FIFO's are interfaced to a PLX9080, 32 bit, 33 MHz PCI interface chip. Two on-board DMA controllers are provided via the PLX 9080 PCI to local bus bridge for transfer of receiver data via the PCI Bus. DMA chaining is supported via "linked list" using PCI memory. All set-up and control registers are accessible via the PCI interface.

Software device drivers and test code are available for VxWorks and Windows NT Operating Systems.

Ordering Information

Model	Part Number	Ruggedization	Options
ECDR-GC214-PCI/TS	12-0043NR/CC314	Commercial	16K FIFO, 65 MHz Osc., 65 MHz A/D
ECDR-GC214-PCI/TS	12-0043/CC356	Commercial	128K FIFO, 65 MHz Osc., 65 MHz A/D, Graychip evaluation header
ECDR-GC214-PCI/TS	12-0043/CC398	Commercial	128K FIFO, 65 MHz Osc., 65 MHz A/D
ECDR-GC214-PCI/TS-80	12-0043/CC456	Commercial	128K FIFO, 65 MHz Osc., 80 MHz A/D
ECDR-GC214-PCI/TS-80	12-0043/CC517	Commercial	16K FIFO, 65 MHz Osc., 80 MHz A/D

Ruggedization Levels	Operating Temp (°C)	Storage Temp (°C)	Vibration	Shock	Humidity	Notes
Commercial	0 to +55°C with 300ft./min. airflow	-50 to +85°C	0.002g2/Hz from 10 to 2000Hz random and 2g sinusidal from 5 to 500 Hz	20g peak sawtooth, 11mS duration	Up to 95% RH	Commercial Grade, cooled by blown air, for use in benign environments and software development applications

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