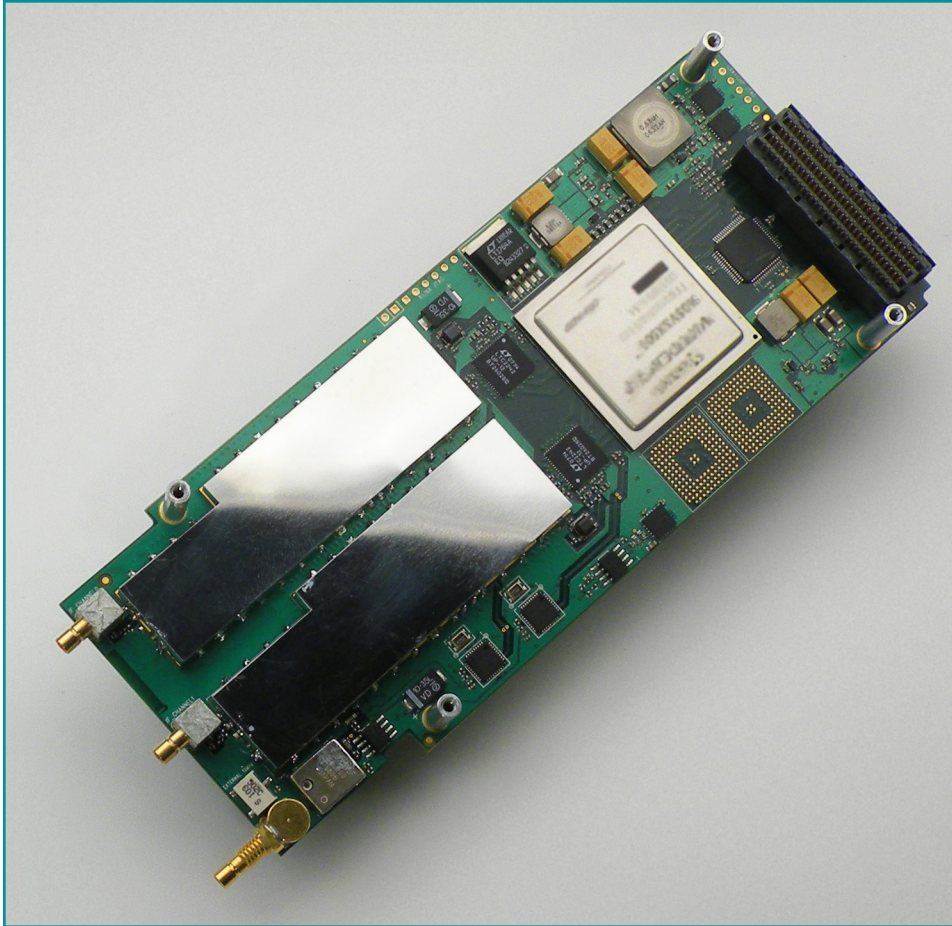


DRX

Dual receiver for IF



Description

The DRX is a mezzanine board that pairs with an AMC main board. It has two configurable IF input ports; for each port, you can choose a lowpass filter or a bandpass filter.

The lowpass filter has a -3 dB cutoff at 105 MHz and is used for IFs from 10 to 90 MHz. The bandpass filter has a center frequency of 140 MHz or 160 MHz, selected when ordering.

For each port, the filtered IF signal is digitized with 12-bit precision at a sample rate programmable to 10-250 MHz. Both ports of digital sample data are available as inputs to the Xilinx Virtex 5 SX FPGA. This FPGA connects directly to the main board FPGA through a high-speed LVDS data interface and some additional control signals. For narrowband tuning, two optional Graychips (GC4016), each with four digital down-converters, connect to the user-configurable FPGA.

For the timebase, you can use the 10 MHz TCXO provided, or connect your own source via the reference input.

The main board supplies additional memory and FPGA resources, as well as a 1 pps or IRIG-B time code input and a 1GbE interface.

Features

Mezzanine board – pairs with an EDT main board (AMC uTCA / ATCA), which adds FPGA resources, memory, and inputs for time code and GigE

Port 0: Two filters provided – one for 140 or 160 MHz bandpass (selected at time of order), and one 105 MHz lowpass

- For IF from 10 to 90 MHz, use 105 MHz lowpass filter
- For IF of 140 or 160 MHz, use sound-acoustic wave (SAW) bandpass filter

Port 1: Same specifications as port 0

FPGA: One programmable Xilinx Virtex 5 SX 50T

Graychips: Two optional (TI GC4016), each with four DDCs

ADC: Simultaneous 12-bit analog-to-digital conversion of both IF ports

Sample clock: Independently programmable for each port (10 to 250 MHz)

Timebase: 10 MHz TCXO or user input

Applications

IF receiver

Surveillance / spectrum monitoring

Digital tuning

Test and measurement

Specifications

Product Type	Dual receiver IF interface; it requires an EDT AMC main board.		
FPGAs and Memory	One programmable FPGA (Xilinx Virtex 5 SXT SX50T), plus FPGA and memory resources on main board		
Graychips	None or optional two programmable (TI GC4016)		
Sample Clock	User-configurable & phase-locked to 10 MHz reference	Tuning range = 10 to 250 MHz (independently programmable for each port)	
ADCs (one per port)	Resolution / maximum sample rate	12 bits / 250 MHz	
Data Rates	Dependent on such factors as data format, main board, and system variables.		
Data Format (I/O)	Two configurable data inputs are included, supporting the data formats shown below. (For external reference input, see next heading.) Time code input is provided by the main board.		
	PORT 0	Set filter to this... Lowpass (10-90 MHz)	Or toggle to either this... SAW bandpass (140 MHz) or this (select bandpass option when ordering) SAW bandpass (160 MHz)
	Input impedance	75 or optional 50 ohms	75 or optional 50 ohms 75 or optional 50 ohms
	Return loss	16 dB	16 dB 16 dB
	Signal level (usable / max)	-67 to -17 / -10 dBm	-60 to -17 / -10 dBm -62 to -17 / -10 dBm
	Center frequency	n/a	140 MHz 160 MHz
	-3 dB bandwidth	105 MHz	63.71 MHz 41.8 MHz
	Typical SNR / SFDR	68 / 60 dB	68 / 60 dB 68 / 60 dB
	PORT 1		
	Input impedance	75 or optional 50 ohms	75 or optional 50 ohms 75 or optional 50 ohms
	Return loss	16 dB	16 dB 16 dB
	Signal level (usable / max)	-67 to -17 / -10 dBm	-60 to -17 / -10 dBm -62 to -17 / -10 dBm
	Center frequency	n/a	140 MHz 160 MHz
	-3 dB bandwidth	105 MHz	63.71 MHz 41.8 MHz
	Typical SNR / SFDR	68 / 60 dB	68 / 60 dB 68 / 60 dB
External reference	10 MHz (input): Impedance 50 ohms; return loss 12 dB; signal level 0 to 7 dBm usable (11 dBm maximum)		
Internal reference	10 MHz (TCXO): Frequency adjustment range +/- 3 ppm; tolerance +/- 0.5 ppm at 25° C; over temperature +/- 2.5 ppm at 0° to 75° C		
Connectors	For external reference	SMB 50 ohms	
	For port 0 and port 1	SMB 50 or 75 ohms	
Cabling	Consult EDT for purchase options.		
Physical	Weight	8.6 oz. (with an AMC FX5 main board)	
	Dimensions	7.25 x 2.875 x 1.25 in. (with an AMC FX5 main board)	
Environmental	Temperature (operating / non-operating)	0° to 40° C / -40° to 70° C	
	Humidity (operating / non-operating)	1% to 90%, non-condensing at 40° C / 95%, non-condensing at 45° C	
System and Software	For details on system requirements and EDT-provided software driver packages, see specifications for your EDT main board.		

Ordering Options

- Main board: AMC FX5 (required)
- Graychips: **0** / 2
- Port 0: 140 / 160 MHz SAW bandpass filter
- Port 1: 140 / 160 MHz SAW bandpass filter
- Connectors: 50 / **75** ohms (IF)

Bold is default. For more options, see main board detail. **Ask** about custom options.