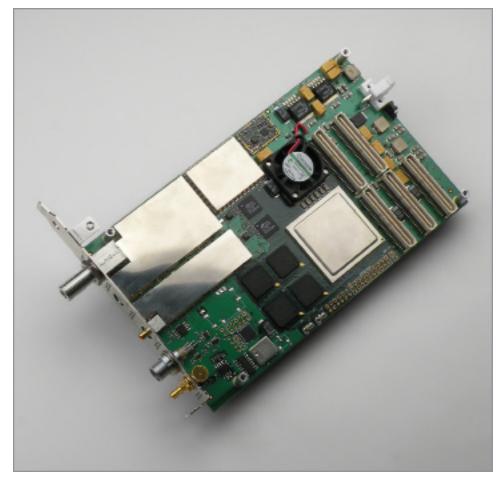


SRXL2

Signal receiver and processor for IF and L-band, v. 2



Features

Mezzanine board – pairs with an EDT main board (PCI or PCIe), which adds DMA, programmable FPGA resources, and memory

Two configurable RF ports (O and 1) with simultaneous 12-bit ADC

Port 0 – supports IF direct module (IDM) or IF mixer module (IMM):

- IDM supports input over 10 MHz, with optional 90-MHz lowpass filter
- IMM supports input of 140 or 160 MHz, mixed to center frequency of 55 MHz; bandwidth is determined by external filtering (not provided)

Port 1 – supports either module above, or L-band module (LBM) for input of 900 to 2250 MHz, mixed to center frequency of 187.5 MHz, with 1 MHz tuning resolution; bandwidth is 104 MHz

FPGA: One programmable Xilinx Virtex 4 SX XC4VSX55

Graychips: Four (TI GC4016) for a total of 16 DDCs

Sample clock: Programmable to any frequency from 10 to 250 MHz

Timebase: 10 MHz TCXO or user input

Time code input: 1 pps or IRIG-B, with user-configurable output

Description

The SRXL2 is a mezzanine board that pairs with a PCI / PCIe main board to process two simultaneous RF inputs.

Sampling rates depend upon the module used: IF direct module (IDM), IF mixer module (IMM), or L-band module (LBM). Port 0 supports either of the first two, while port 1 supports any of the three modules.

IDM supports any frequency over 10 MHz that meets Nyquist criteria. A 90-MHz lowpass filter is optional.

IMM supports 140 or 160 MHz input, mixed to 55 MHz (center). Bandpass filtering, not provided, is performed externally.

LBM supports 900 to 2250 MHz input, mixed to 187.5 MHz (center) with 1MHz tuning resolution; bandwidth is 104 MHz.

Module outputs are digitized with 12-bit precision ADCs and captured in the programmable Xilinx Virtex 4 SX FPGA. The FPGA can perform signal processing or serve as a configurable switch matrix to route data to the main board and four Graychips (GC4016), each with four digital down-converters (DDCs) for a total of sixteen DDCs.

For the timebase, you can use the 10 MHz TCXO provided, or connect your own source via the reference input. A time code input (1 pps or IRIG-B) also is included.

The main board supplies DMA, plus additional memory and programmable FPGA resources.

Applications

Satellite receiver

Software-defined radio

Surveillance / spectrum monitoring

Digital tuning

Test and measurement equipment

Product Type	Signal receiver interface (v. 2) for IF and L-band; it requires an EDT PCI / PCIe main board.				
FPGAs and Memory	One programmable FPGA (Xilinx Virtex 4 SX XC4VSX55), plus FPGA and memory resources on main board.				
Graychips	Four programmable or optional none (TI GC4016)				
Sample Clock	User-configurable & phase-locked to 10 MHz reference Tuning range = 10 to 250 MHz				
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.) One time code input is also included (1 pps, IRIG-B, or other input, with user-configurable output).				
	Frequency range / center -3 dB bandwidth Filter options Input impedance Return loss Signal level (usable / max) Typical SNR / SFDR PORT 1 Frequency range / center -3 dB bandwidth Filter options Input impedance Return loss Signal level (usable / max) Typical SNR / SFDR	1DM: IF direct module 10 MHz minimum / None Determined externally 90 MHz lowpass filter 75 or optional 50 ohms 16 dB -45 to -17 / 0 dBm 70 / 45 dB 1DM: IF direct module 10 MHz minimum / None Determined externally 90 MHz lowpass filter 75 or optional 50 ohms 16 dB -45 to -17 / 0 dBm 70 / 45 dB	IMM: IF mixer module 140 or 160 MHz / 55 MHz Determined externally n/a 75 or optional 50 ohms 16 dB -65 to -20 / 0 dBm 70 / 45 dB IMM: IF mixer module 140 or 160 MHz / 55 MHz Determined externally n/a 75 or optional 50 ohms 16 dB -65 to -20 / 0 dBm 70 / 45 dB	LBM: L-band module 900 to 2250 MHz / 187.5 104 MHz n/a 75 ohms 16 dB -35 to -4 / 0 dBm 70 / 50 dB	MHz
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				
Local Oscillators	Tuning range Tuning step size	IDM n/a n/a	IMM 215 or 195 MHz (fixed) n/a	LBM (oscillator 1) 1700-2950 MHz 1 MHz	LBM (oscillator 2) 562.5 MHz (fixed) n/a
Connectors	Time code, 7-pin Lemo; external reference, SMB 50 ohms; IDM and IMM modules, SMB 50 or 75 ohms; LBM module, F-type 75 ohms.				
Cabling	Consult EDT for purchase op To 7-pin Lemo on board, fro		Via one DB9 (for 1 pps or IRIG-B) or BNC (for IRIG-B only)		
Physical	Weight Dimensions		4.9 oz. typical 6.6 x 4.2 x 0.75 in. (with a main board)		
Environmental	Temperature (operating / non-operating) Humidity (operating / non-operating)		0° to 40° C / -40° to 70° C 1% to 90%, non-condensing at 40° C / 95%, non-condensing at 45° C		
System and Software	System requirements and E	DT-provided software driver	packages are discussed in th	e specifications for your El	OT main board.

Ordering Options

- Main board: PCI GS or PCle8 LX / FX / SX
- Ports 0 and 1: IDM / IMM / LBM (on 1 only)
- Connectors: 50 / 75 ohms (IF)
- Cabling (for time code input): DB9 / BNC

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