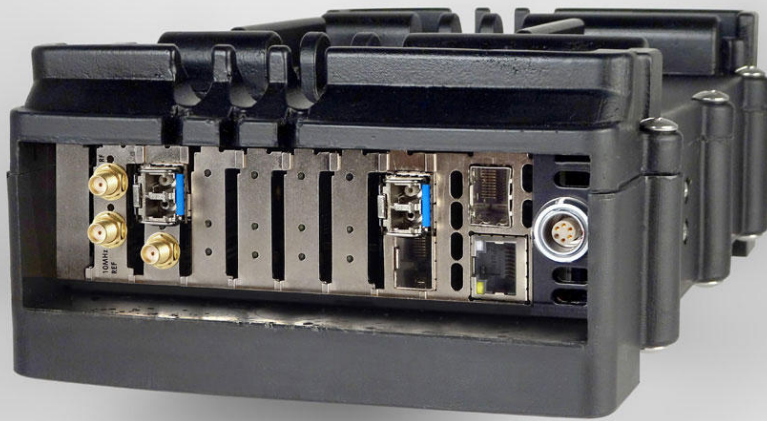# WBX Recorder
Wideband RF digitizer and recording system

*Shown with optional ruggedized enclosure.

Description

The WBX Recorder is a single channel RF digitizer and recording system with a 2.6 GHz input bandwidth and 12 TB of signal storage.

The system has one RF input, a 10 MHz reference and 1 pps input or output, and a 10 GbE output port. Signal processing functions include automatic gain control (AGC), and real to complex conversion. The 12 TB of signal storage accommodates just over a half hour of collection while digitizing the full input bandwidth (assuming 8-bit samples are stored).

Raw complex input data can be stored on the SSD blades and files can be played out the 10 GbE port.

The open system is powered by an AMD G-series processor (x/86 architecture) running Linux with 256 GB system storage with 8 GB DDR3 SDRAM.

System control is via multiple Ethernet ports. Command and control operations are exposed via a RESTful interface for easy tool integration.

Features

1 RF input for wideband analog signals

12 Terabytes (TB) of high speed SSD signal storage

Frequency range 0.03–5.2 GHz, with signal bandwidths up to 2.6 GHz

Analog to digital converter with 12-bit resolution

Signal processing functions include automatic gain control (AGC) and real to complex conversion

10 GbE optical output

1 pps I/O and 10 MHz reference I/O via separate SMA connectors

COTS Linux open system running on AMD G-series processor (2 or 4 cores)

120 or 240 GB SSD system storage and 4 or 8 GB DDR3 SDRAM system memory

Applications

Signal surveillance

Wideband signal acquisition and analysis

Software-defined radio

Specifications

Data Format(s)	RF input stored as 8-bit I/Q data	
Signal Storage	NVMe SSD	12 TB
FPGA Resources	Xilinx UltraScale+	XCKU11P
Radio	RF Bandwidth	2.6 GHz
	RF Input	SMA
	Maximum input power without damage	19 dBm
	Input frequency range	0.03–5.2 GHz
	Input impedance	50 Ω
	NF	< TBD (typical)
	VSWR	< TBD (typical)
	IIP3	≥ TBD*† with 10 MHz tone spacing
	P1dB	> TBD
	IMD2 / IMD3	≥ TBD / TBD dBc*
	SFDR	≥ TBD dBc* (AGC on)
	* Over input frequency range. † AGC off; AGC on enables higher values.	
ADC	Resolution	12 bits
System Interfaces	System control, 1 GbE	RJ45
	System control, 1 GbE	SFP
	System control, USB 2.0 x2	microUSB
	System display	MiniDP (HDMI, DVI with conversion cable)
	10 MHz reference I/0	SMA
	1 pps I/0	SMA
	Ethernet, 10 GbE	SFP+

System Processor	Device (x86-based)	Cores	Clock rate	Shared L2 cache	GPU clock rate
	AMD GX-210HA (default)	2 (10 W total)	1.0 GHz	1 MB	300 MHz
	AMD GX-420CA (optional)	4 (25 W total)	2.0 GHz	2 MB	600 MHz

Power	Input voltage range	10–50 VDC, 6-pin Lemo connector
	Consumption	TBD (dependent on configuration)
	Control	100 MbE, RJ45 connector
Physical	Weight	TBD - about 3.5 lbs.
	Dimensions	9.60 x 5.75 x 1.61 in. (including connectors)
Environmental	Temperature (operating / non-operating)	0° to 55° C / -40° to 70° C (ambient)
	Humidity (operating / non-operating)	1% to 90%, non-condensing at 40° C / 95%, non-condensing at 45° C
System and Software	System comes preloaded with Linux and EDT software. For versions, see edt.com.	

Ordering Options

General
- System processor: **2** / 4 cores
- System memory (DDR3 SDRAM): **4** / 8 GB
- System storage (SSD): **120** / 240 GB
- Ruggedized enclosure: **0** / 1

Bold is default. **Ask** about custom options.