



A Bird Technologies Group Company

# WARP

## Wideband Capture & Storage

The **WARP-6000** can continuously digitize, store and re-create up to 6000 MHz of RF spectrum. The system is uniquely suited to capturing very broad segments of RF spectrum for a wide variety of spectrum management, broadband system development and RF environment simulation applications. External RF converters are not necessary due to the high sample rates of the internal data converters. In a single recording session the WARP-6000 can provide 100% probability of intercept for all emissions from HF through portions of C-band frequencies. Using an external broadband down-converter the system can continuously capture broad segments of spectrum up to Ka-band and beyond. When combined with the WARP SigAnalyst workstation, the captured terabyte signal files can be rapidly offloaded for analysis or archive purposes. X-COM's Spectro-X analysis software allows these same terabyte size files to be easily visualized and searched to find signals of interest for extraction and off-loading to other analysis tools. Signal files are stored in an open format and conversion programs are available that allow captured signals to be further processed by third party tools including MATLAB™.



### FEATURES

- Continuous signal capture and playback up to 6000 MHz RF bandwidth
- Up to 44 minutes of continuous capture time at maximum sample rate (expandable)
- Recorded spectrum can be re-created using integral high speed digital to analog converters
- Up to 2000 markers can be added while data is being captured to mark the start of important events to facilitate post-acquisition analysis
- Simple user interface including manual start and stop, timed capture, and externally triggered captures
- Open format signal storage enables analysis by a wide variety of X-COM and third party analysis tools including MATLAB™
- Start and stop capture or playback using hardware and software triggers

### APPLICATIONS

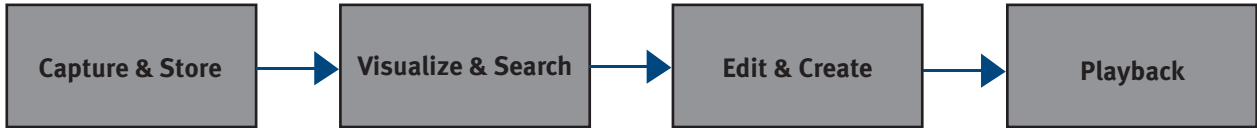
- Electronic Warfare** Visualize and post process broad segments of the battlefield spectrum to design robust communications networks.
- Spectrum Management** Monitor spectrum usage and supplement the use of spectrum snapshots and tedious power surveys with long duration, time-stamped spectral recordings.
- Radar** Capture wide bandwidths over extended time periods to analyze radar effectiveness. Create and test new waveforms to improve performance.
- Surveillance** Determine usage patterns, intercept transmissions and correlate data files to receiver locations for military, drug interdiction and homeland security applications.



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### Rapidly Visualize, Precisely Search, Easily Manipulate Spectrum



X-COM Products • IQC-2110  
• WARP

• Spectro-X  
• Spectro PDW

• RF Editor

• CPG-2110  
• 4CH-VSG2000

### SIGNAL CAPTURE

Sample rates from 1.5 to 12 GS/s - RF/IF bandwidth up to 6 GHz

<b>RF/IF Input</b>	(Front Panel) SMA (f) 2ea: 500 mV pk-pk differential; AC coupled; Common mode noise limit up to 350 mV pk-pk; may be configured as single or dual channel
<b>Reference In</b>	BNC; 10 MHz external reference)
<b>Reference Out</b>	BNC; 10 MHz internal reference output
<b>Control In/Out</b>	Gigabit Ethernet; RJ145S
<b>Trigger In</b>	SMA (f) ; User programmable
<b>Trigger Out</b>	SMA (f) ; User programmable
<b>Marker In</b>	SMA (f) ; User programmable
<b>Marker Out</b>	SMA (f) ; User programmable
<b>IRIG-B In</b>	Analog SMA (f); IRIG B122 or B123 Digital - DB15; IRIG-B ooX
<b>External Clock In</b>	SMA (f) ; Used to synchronize system internal clock with other systems
<b>Internal Clock Out</b>	SMA (f) ; Used to synchronize other systems with system internal clock
<b>Memory Interface</b>	Mini SAS; Used to link to external Datapacks. Additional datapacks can be daisy-chained from primary pack

RECORDING DURATION PER DATAPACK (MINUTES)			
Capture BW	12 TB	24 TB	32 TB
6000 MHz	17	33	44
3000 MHz	33	66	88
1500 MHz	66	132	176

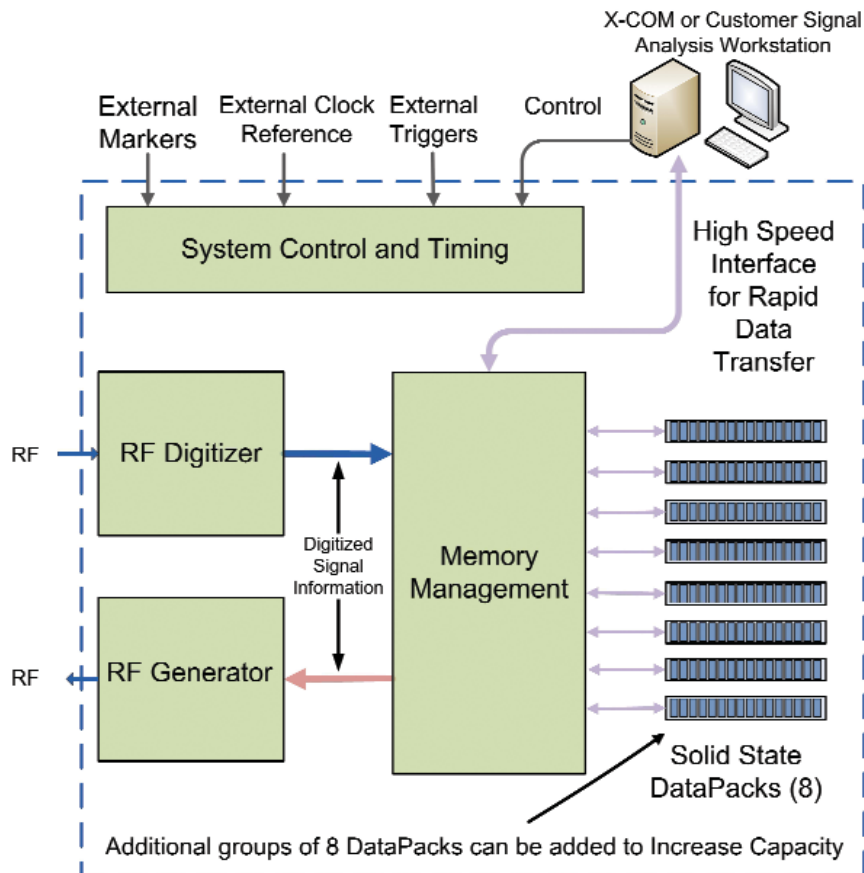


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### SIGNAL PLAYBACK

<b>RF/IF Output</b>	(Front Panel) SMA (f) (one); 500 mV pk-pk nominal; 270 mV minimum; 530 mV maximum; Used to replay recorded RF/IF signals
<b>Trigger In</b>	SMA (f) ; User programmable
<b>Trigger Out</b>	SMA (f) ; User programmable
<b>Control</b>	Remote Windows XP or Windows 7 OS PC with minimum of 50 Mbytes free disk space, 1GByte RAM, running X-COM's WARP Drive controller software. Interconnect between PC via Gigabit Ethernet, RJ-45 cable.





## ENVIRONMENTAL

### Temperature

**Operating:** +5 to +35 degrees Celsius  
**Storage:** -20 to +70 degrees Celsius

### Humidity

**Operating:** 5% to 95% non-condensing relative humidity  
**Non-operating:** 5% to 95% non-condensing relative humidity

### Effective altitude (relative to sea level)

**Operating:** -200 to +10,000 feet (-60.96 to +3,048 meters)  
**Non-operating:** -200 to +40,000 feet (-60.96 to +12,210 meters)

## ORDERING INFORMATION

<b>WARP-6000</b>	Wideband Capture, Storage and Playback System 6GHz of Acquisition bandwidth
<b>WARP-3000</b>	Wideband Capture, Storage and Playback System 3GHz of Acquisition bandwidth
<b>WARP-1500</b>	Wideband Capture, Storage and Playback System 1.5GHz of Acquisition bandwidth
<b>WARP-OPT-12TB</b>	SSD data pack for WARP system, 12TB RAIDo
<b>WARP-OPT-24TB</b>	SSD data pack for WARP system, 24TB RAIDo
<b>WARP-OPT-32TB</b>	SSD data pack for WARP system, 32TB RAIDo

## ACCESSORIES

<b>SA-DAT-AN</b>	SigAnalyst™ Data Analysis System. Quad-Core Workstation, 24GB RAM, 16TB HDD, Spectro-X, Spectro-A, RF Editor software packages
<b>Spectro-X™</b>	Advanced Signal Analysis software. Rapidly search and visualize large data sets to locate and analyze hard to find signals
<b>RF Editor</b>	Signal Generation software. Filter, shift-in-frequency and resample individual files to build valuable signal libraries

USML Category XI (a). NOTE: This Item/Technical Data is EXPORT CONTROLLED. Export is restricted by the Arms Export Control Act (Title 22, U.S.C.)  
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