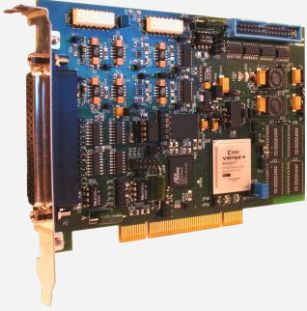


# HPx-100

## Radar Acquisition



### Features

- PCI Radar Acquisition Card
- Dual analogue video inputs
- Trigger input
- ACP/ARP or parallel azimuth
- 50 MHz sample rate
- 8-bit Digital inputs
- Programmable mixing
- Loss of signal detection
- High-speed DMA transfers
- Expandable processing in FPGA
- Supported under Windows and Linux
- Processing library
- Optional processing library for dynamic Thresholding Filtering, STC, FTC, Clutter suppression
- Test pattern generator
- Integrated into SPx software for Radar Scan conversion and Radar Recording



The HPx-100 is a highly cost-effective PCI-based radar acquisition card that captures and processes one or two analogue or digital radar video signals. When used with the SPx radar processing library it is possible to build radar distribution servers and integrated display solutions rapidly and cost-effectively.

### Radar Capture

The HPx-100 interfaces to analogue or digital radar signals, and provides a flexible mixing capability to allow a combination of the inputs to be captured. The dual analogue input videos are captured at up to a 50 MHz sample rate using high-precision analogue to digital converters at 10 bits resolution. The captured video can be optionally down-sampled to reduce the data rate before transfer across the PCI bus using high-speed DMA. On the host computer, the compatible SPx driver for Windows or Linux (other operating systems supported on request) is coupled into the SPx processing library to provide a full complement of radar processing functions.

An on-board Virtex-4 FPGA provides data processing and control and offers capability for expanding the data processing functions for customised applications.

### Input Signals

The HPx-100 accepts radar video, trigger and azimuth signals in the form of ACP/ARP or parallel data. A wide variety of signal types and input voltages are supported and customised versions of the interface are available on request. The card also provides a capability to detect missing signals to provide software alarms for loss of triggers or azimuth data.

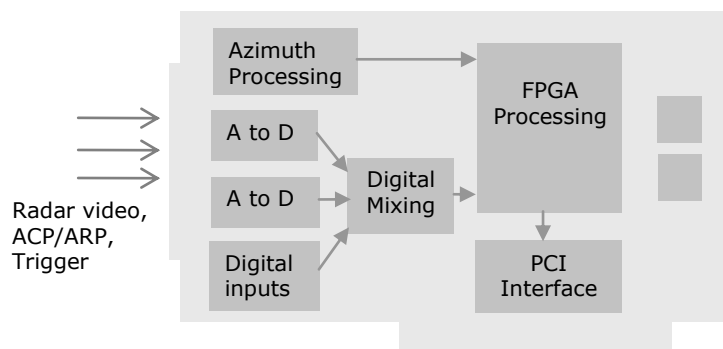
### SPx Signal Processing

The optional SPx signal processing library is an extensible toolkit of radar-specific functions that can be linked together to form a processing chain. Using this library, radar video can be processed using the host computer to remove clutter, interference and enhance gain prior to network distribution or scan-conversion. Custom functions are easily incorporated into the processing chain.

### SPx Distribution and Scan Conversion

The captured video may be compressed, distributed or displayed with the optional SPx library software. A complete server application, optionally incorporating radar recording and scenario generation, is built from just a few function calls into the SPx library.

For integrated display solutions, the SPx scan-converter is easily connected to HPx-100 driver to provide real-time radar video updates in Windows or Linux/X11.



## HPx-100 Radar Acquisition Card Specification

### Architecture

Form factor:	PCI (half-length)
Interface:	PCI Bus, 32-bit, 33 MHz
Programming:	C/C++ software library
Platform:	Windows (XP/Vista), Linux/X11R6 For other OSs consult factory
Processor:	x86

### Functional

Radar Video:	2 x Analogue (-5v to 5v), 75 Ohms. 8 x Digital (RS422) with clock
Azimuth Data:	ACP/ARP or parallel azimuth ACP/ARP: RS422 or discrete single ended (configurable for 3 to 30 V operation) Link selectable 75 Ohm or unterminated input
Trigger:	RS422 or discrete single ended (configurable for 3V to 30V operation) Link selectable 75 Ohm or unterminated input
Video Combiner:	Programmable mix of analogue and digital inputs using LUT
Test Generation:	Built-in test generator Detects missing trigger and ACP/ARP signals
Output:	Radar returns onto PCI bus
Radar Capture:	Programmable range zero trigger Programmable return length up to 64k Staggered prfs supported 10-bit A-to-D.
General Purpose IO:	4 general purpose outputs 4 general purpose inputs

### Connectors

Radar Input:	37W D Connector
PCI	Standard PCI connector (32 bit interface)

### Processing with SPx Library

Correlation	Range and azimuth correlation
Gain Control	Gain/level adjustment STC, FTC controls
Clutter	Clutter suppression Interference suppression
Processing Area	Sector and Range blanking

### Performance

Sample Frequency:	50 MHz
Maximum input BW:	25 MHz
PRF:	0 to 10 kHz
Samples per return:	Up to 64k
Returns per scan:	Up to 16k
Data transfer rate:	25 Mbytes/sec

### Environmental

Cooling:	Forced air cooling
Temperature:	0 to 55C

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