

Osprey

PMC Radar Input Card

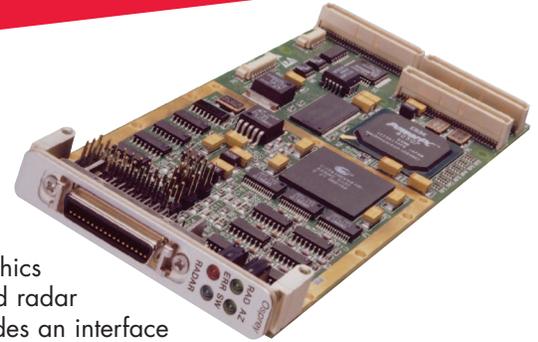


Features

- ◆ Rugged, low power design
- ◆ Radar digitisation, mixing and processing
- ◆ Three analogue inputs; eight digital inputs
- ◆ Dedicated azimuth and trigger inputs
- ◆ High-speed onboard processor
- ◆ Onboard time stamping
- ◆ Driver and API software support
- ◆ Integration with Eagle PMC
- ◆ Radar Scan Converter

Applications

- ◆ Networked radar video servers
- ◆ Naval Command and Control display consoles
- ◆ Radar Head Monitor systems
- ◆ Airborne radar display consoles



Osprey is a member of the Hawkeye PMC range of radar, video and graphics boards. It is an integrated radar capture board that provides an interface to a wide range of radar signal types in a compact, low power PMC form factor. The card can interface to a wide variety of radars by supporting ACP/ARP, parallel and RADDs azimuth inputs.

Curtiss-Wright has a proven pedigree in the design and manufacture of radar input cards and Osprey is its most compact yet flexible design yet. A wide range of PRF rates, rotation rates, and effective sampling rates can be accommodated without hardware change.

Osprey digitizes up to three synchronous analogue radar videos at 50 MHz to 10-bit precision. This data can then be converted to 8-bit or 4-bit samples using a programmable function. Mixing between the three videos and up to 8-bits of digital radar data is also possible. In "raw" mode, up to 16k samples per return can be transferred to the host. Alternatively, range gating and subsampling can be performed.

The card also supports azimuth processing such as azimuth correlation. Radar start, stop and reverse can be detected automatically as an aid to sector-scan processing. Various azimuth formats such as ACP/ARP and serial azimuth are supported on the card. A compatible synchro/resolver module is also available.

An onboard PowerPC processor provides high level control of the Osprey's functions. This processor also allows the implementation of custom radar signal processing algorithms.

The card includes special features to improve noise immunity and clutter suppression whilst ensuring that small targets are not missed. Every return is individually timestamped.

Osprey is a low power, rugged PMC design that will operate in a wide range of environments, including conditions of high temperature and vibration.

Learn More

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A broad range of software support is supplied from the card, from board support libraries, high-level API libraries and complete application programs such as RVP. A range of Unixbased operating systems and Windows is supported. To support BIT, a programmable test pattern generator is included on the card. Monitor software is also included as standard.

Specifications

Architectural & Functional

- ◆ Digitisation and processing of radar video
- ◆ 10-bit 50 MHz sampling with programmable lookup table conversion 8- or 4-bits
- ◆ Maximum output data rate: 10 MB/s (TBC)
- ◆ 10 kHz PRF at 2048 samples/return (4-bit data samples)
- ◆ Samples per return: Up to 16352
- ◆ Effective sampling rate from 12 kHz to 50 MHz in 4096 steps
- ◆ Range and inter-return processing by Highest Wins or Lowest Wins
- ◆ Azimuth processing and detection of radar start, stop and reverse
- ◆ Internal test pattern generator
- ◆ Time-stamped radar returns
- ◆ Onboard memory: 64 MB SDRAM, 4 MB Flash

Radar Inputs

- ◆ Three analogue video inputs:
 - Differential (75 or 50 Ohm terminated)
 - Independent gain and offset adjustment for each channel
 - Selectable High and Low Pass filters
 - Flexible mixing between inputs
- ◆ 8-bit digital radar video input:
 - RS-422, ECL or single ended
 - Maximum input clock rate: TBA
- ◆ Single Sync (Trigger) input:
 - RS-422, ECL, or single ended
 - Programmable threshold
- ◆ Single Azimuth input:
 - ACP/ARP, serial azimuth or 12-bit parallel

Note: Build options for ASDE-3 and RADDs are available. Support for Synchro/Resolver format is available using a separate VME converter card.

Radar Data Output

- ◆ Radar Data: Transferred to host via PCI bus

Connectors & Indicators

- ◆ Front Panel:
 - Radar input: 36-way MDR receptacle
- ◆ PMC & Onboard I/O:
 - P1, P2, P4: Standard PMC Interface (IEEE P1386 compliant)
- ◆ Indicators:
 - RAD, AZ, ERR and SW

Software, O/S & Host Support

- ◆ API Software Library: PARIS or standalone board support library
- ◆ Application Software Library: Radar Video Processor (RVP)
- ◆ Built-In Test (BIT) and Monitor Software: Supplied as standard
- ◆ O/S and Environment Support (1): Linux, Solaris and Windows 2000
- ◆ Host support (1): PowerPC, Intel x86 and SPARC

Physical & Mechanical

- ◆ Single PMC module
- ◆ Dimensions (including front panel connector): 74 mm x 155 mm (2.91 in x 6.10 in)
- ◆ Weight: approx. 0.10 kg (0.22 lbs)

Electrical

- ◆ Power consumption: 7.5 W (maximum)

Table 1: Power supply tolerance and current requirements (maximum)

Supply	Tolerance	Current
+3.3V	±5%	1.15 A
+5V	±5%	0.28 A
+12V	±10%	0.07 A
-12V	±10%	0.14 A

Environmental

- ◆ Operating Temp.:
 - 0 to +55°C
 - 20 to +65°C also available
- ◆ Storage Temp.: -50 to +100°C
- ◆ Rel. Humidity (NC): 5% to 95%
- ◆ Shock: 20g peak; sawtooth; 11 ms
- ◆ Vibration: 0.002g²/Hz; 10 to 2000 Hz
- ◆ Airflow and Altitude: Please consult factory.

Note: (1) Please consult factory to check if your particular combination of O/S and host is currently supported.