Osiris
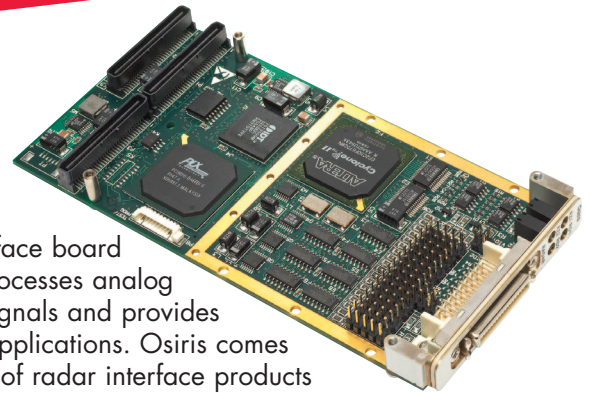## PMC/PCI High-performance, Dual-channel Radar Interface

- Dual-channel, dual-trigger radar interface card
- PMC or half-length PCI form factor
- Two analog inputs (four on Osiris B)
- Eight digital input bits
- Dual azimuth inputs (ACP/ARP, RADDS, synchro, other formats)
- Sampling up to 50 MHz per channel
- Correlation in range and azimuth
- Gain and offset control as a function of range
- Radar range up to 500 NM with up to 16 k samples per return

Osiris is a high-performance, dual-channel radar interface board that accepts and processes analog and digital radar signals and provides a PCI interface to applications. Osiris comes from a long history of radar interface products at Curtiss-Wright Controls Embedded Computing with interfaces to support many legacy and modern radar types. With an onboard FPGA and high-speed PCI interface, Osiris offers high-performance with two independent channels on a half-length PCI or PMC mezzanine format.

Osiris can generate two streams of radar video onto the PCI bus. Each of the two streams can process data from a combination of the analog and digital inputs, using one of two sets of trigger and turning data. This allows the card to process a pair of radar videos derived from a single set of azimuth turning data and triggers, or else to process two separate videos derived from two independent radars with their own trigger and turning data.

In range the card samples video at up to 50 MHz, while in azimuth the card can be programmed to either output every return, or else to combine returns to output a set number per scan. This typically would use a highest-wins combiner to get the correct number of output azimuths.

Osiris is available with a board-support library for integration into custom applications, or else can be supplied with Curtiss-Wright's own Radar Video Processor (RVP) as part of a radar acquisition, processing, distribution or tracking application.

Osiris

Specifications

Functional

- Digitisation and processing of radar video
- Sample frequency up to 50 MHz on each channel
- Time-stamped radar returns
- Up to 16 k samples per return
- Range and inter-return processing by highest-wins or lowest-wins

Radar Input

- Two analog video inputs (differential or single-ended) or four analog inputs on Osiris B
- -1.5 V to +6.5 V range
- 25 MHz bandwidth with programmable digital filtering
- 8 digital inputs

Dual-sync (Trigger) Inputs

- Differential or single-ended
- Programmable delay from trigger to range zero

Turning Data

- ACP/ARP
- RADDS I and II formats (MIL-STD-751B)
- For AN/UYQ-21, AN/UYA-4 and other serial and parallel formats, consult factory for further information'

Radar Data Output

- PCI interface to host processor
- Standard PCI v2.2 interface (32-bit/64-bit,33 MHz/66 MHz)
- Maximum channel output rate of 50 MB/s on each channel

Software, O/S and Host Support

- Board support library available (Windows®, Linux®/x86)
- Compatible with RVP for radar network distribution and target tracking

Physical and Mechanical

- PMC: Size 149 x 74 mm IEEE P1386.1
- PCI: Size 174 x 106 mm

Environmental

Available in the following Curtiss-Wright environmental grades:

- Air-cooled Level 0
  - Operating temperature 0 to +50°C
  - Storage temperature -40 to +85°C
- Air-cooled Level 50
  - Operating temperature -20 to +65°C
  - Storage temperature -40 to +85°C

For further details please see the Curtiss-Wright Ruggedization Table at http://www.cwembedded.com/ruggedization

Figure 1: Osiris Block Diagram