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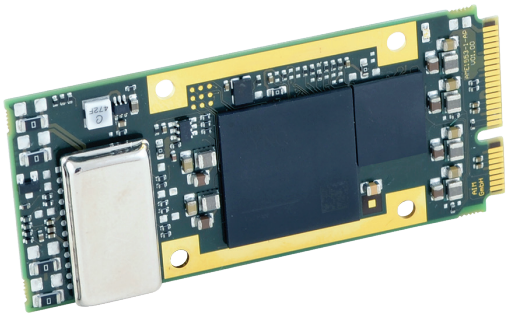
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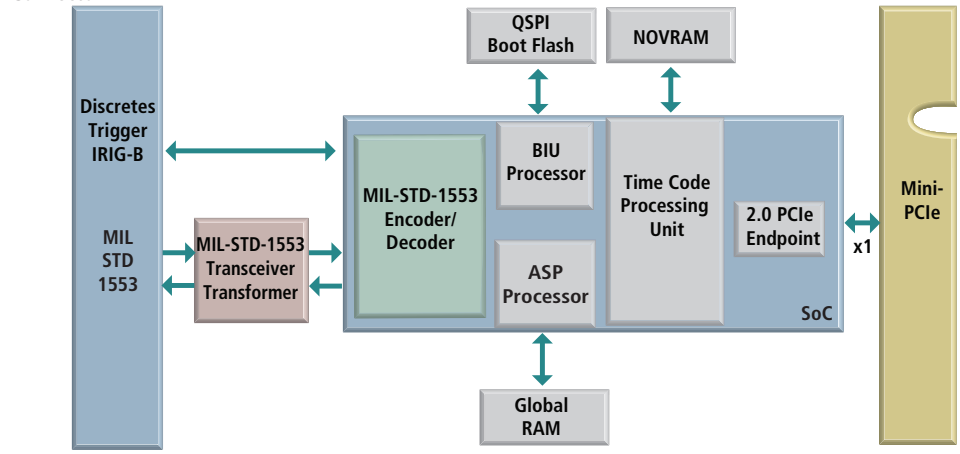
Find the *Acromag / Xembedded / Xycom AP500* at our website: *Click HERE*

# AcroPack® Modules

## AP500 Series Communication

CE 2 YEAR WARRANTY RoHS Compliant






One Dual Redundant MIL-STD-1553 Channel ◆ Extended Temperature ◆ PCIe Bus Interface

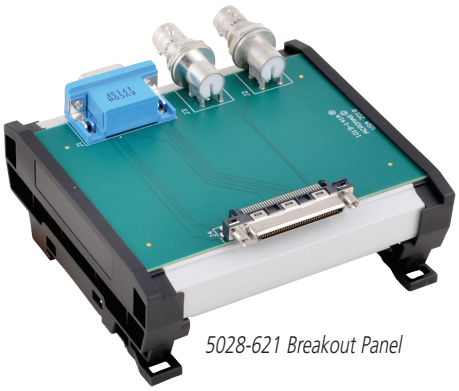
## Description

**Models**

**AP571-000:** Single function MIL-STD-1553.
**AP572-000:** Full multi-function MIL-STD-1553.

The AcroPack® product line updates our popular Industry Pack I/O modules with a PCIe interface format. This tech-refresh design offers a compact size, low-cost I/O, and a rugged form factor. Combining different AcroPack module types on one CompactPCi Serial, XMC, VPX, or PCIe carrier allows for a simplified modular approach to system assembly.

These modules provide a dual redundant MIL-STD-1553 channel with four open/ground avionics level (+35V) discrete I/O signals in addition to IRIG-B input and Trigger I/O. Hard wired RT address signal input pins are also available at the connector.



*5028-621 Breakout Panel*

This Acropack card utilizes the latest AIM Common Hardware Core derived from the field proven MIL-STD-1553 interface to deliver low power consumption and high performance for rugged environments and embedded applications.

Designed for COTS applications these avionics communication mezzanine modules deliver high-density, high-reliability, and high-performance at a low cost.

The AP570 series modules are 70mm long, which is 19.05mm longer than the full-length mini PCIe card at 50.95mm. The board's width is the same as an mPCIe board of 30mm and uses the same mPCIe standard board hold down standoff and screw keep-out areas.

A down-facing 100-pin Samtec connector mates with the carrier card. This ensures a secure connection for your I/O without the vulnerabilities of cabling.

## Key Features & Benefits

- Very small form factor at 70mm x 30mm
- One dual redundant MIL-STD-1553 channel
- Transformer or direct coupling options
- IRIG-B input
- 4 open/ground avionics level (+35V) discrete I/O
- 2 digital discrete inputs
- 1 trigger input, 1 trigger output
- RT address inputs
- 128MB global RAM onboard for data scheduling and buffering
- -40°C to +85°C operating temperature
- High performance RISC processors onboard
- Host CPU offload for low CPU utilization
- Hard real time precision and timing
- DMA engine for optimized bus transfers and low PCIe bus utilization
- Flexible & upgradeable firmware design provides full control of obsolescence and configuration management

Acromag® THE LEADER IN INDUSTRIAL I/O

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# AcroPack® Modules

ISO9001
AS9100
MADE IN USA

## Features

### BC Features

- Autonomous operation including sequencing of multiple minor and major frames.
- Support for acyclic message insertion/deletion.
- Support for instructions for synchronization to external events and timing control.
- Programmable BC retry without host interaction.
- Multi-buffering with real time data buffer updates.
- Synchronization of BC operation to external trigger inputs and outputs.
- 4µs intermessage gaps.
- Interrupt generation on BC transfer events.

### Multi-RT Features

- Programmable RT response time down to 4µs for each simulated RT.
- Programmable & intelligent response to mode codes.
- Multi-buffering with real time data buffer updates.
- Mailbox monitor mode.
- Interrupt generation on RT events.

### MT Features

- 100% data capture on 1 stream at full bus rates.
- Single shot, continuous or selective capture modes.
- Autonomous message synchronization and full error detection.
- Static/dynamic complex triggers with sequencing.
- Message filter and selective capture.
- Bus activity recording independent from trigger and capture mode.
- Time tagging: – All bus traffic to 1µs – intermessage gaps & response time to 250ns.
- External Trigger Inputs and Outputs.
- Programmable response time.

### IRIG-B Time Encoder/Decoder

- Onboard, free wheeling IRIG-B formatted time encoder/decoder for time tagging.
- Amplitude modulated sinusoidal IRIG-B output.
- Synchronization with multiple AIM modules or any IRIG-B compatible module.

### Discrete I/O

- 4 bi-directional open/ground +35V avionics discrete I/O signals.
- 2 additional LVTTL digital discrete inputs.
- 6 signals above can be used for hard-wired RT address input support.

### Driver Software Support

- Common application programming interface (API) supports C and C#.
- Drivers for 32/64-bit Linux and 32/64-bit Windows7/8/8.1/10.

## Performance Specifications

**X1 Lane PCIe Interface**
Compatible with PCI-Express Standard (Release 2.0).

**Memory**
128MB RAM.

**Processor**
SoC device with 2x 400MHz processors.

**Time Tagging**
46-bit absolute IRIG-B formatted.

**Discrete I/O**
4 open/ground avionics level discrete I/O. 2 LVTTL digital discrete inputs. 6 signals listed above can be used for RT address inputs.

**Trigger I/O**
1 BC/BM trigger Input and 1 BC/BM trigger output.

**Encoder/Decoder**
1x MIL-STD-1553 Encoder/decoder with full error detection bus support.

**Physical Bus Interface**
Transformer coupled MIL-STD-1553 bus or optional direct coupled MIL-STD-1553 bus.

**Connector**
100 pin board to board samtec connector.

**Dimensions**
70mm x 30mm.

**Operating Temperature Range**
-40°C to +85°C for conduction cooled applications measured at FPGA component case.

-40°C to +70°C for air cooled applications measured at ambient air with 200lfm airflow.

**Storage Temperature Range**
-55 to +125.

**Relative Humidity**
5 to 95% non-condensing.

**Operational Shock**
Tested to IEC 60068-2-27: 30G, 11ms half sine, 50G, 3mS half, 18 shocks at 6 orientations for both test levels.

**Sinusoidal Operating Vibration**
Tested to IEC 60068-2-6: 10-500Hz, 5G, 2 hours/axis.

**Random Operating Vibration**
Tested to IEC 60068-2-64: 10-500Hz, 5G-rms, 2 hours/axis.

## Ordering Information

### AcroPack® Modules

AP571-000
One dual redundant single function MIL-STD-1553 channel (BC + BM or multi-RT + BM operation).

AP572-000
One dual redundant full multi-function MIL-STD-1553 ch. (BC + multi-RT + BM simultaneous operation).

Options (Contact factory for ordering)

- Direct coupled MIL-STD-1553 Bus.
- Safety critial monitoring only (Tx inhibit).
- Polyurethane conformal coating.

*(Note: AcroPack modules are compatible only with the carriers listed below)*

### Accessories

5028-621
Breakout panel for AP570 series. Converts 68-pin CHAMP to two TRB jacks and one DB15 connector.

### Carrier Cards

See Acromag.com/AcroPack-Carriers for a full list of AcroPack carrier cards.

### Software *(see software documentation for details)*

See Acromag.com for board support packages

APSW-API-VXW
VxWorks® software support package.

APSW-API-WIN
Windows® DLL driver software support package.

APSW-API-LNX
Linux® support (website download only).



*AP-CC-01 Conduction-Cool Kit*

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