**Description**

**Model**

AP482E-LF: Ten 32-bit counters - TTL

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, the same functionality and memory map of the existing IP modules and a rugged form factor. Combine different AcroPack modules on one carrier for a simplified modular approach to system assembly.

Support for internal or external triggering simplifies the synchronization of operations to specific events.

Designed for COTS applications these general purpose I/O modules deliver high-speed and high resolution TTL communication.

AcroPack modules are RoHS compliant and ideal for military, defense, automation, aerospace, scientific, and development labs industries.

The AP482 module is 70mm long, this is 19.05mm longer than the full length mini PCIe card at 50.95mm. The board's width is the same as mPCIe board of 30mm and they use the same mPCIe standard board hold down standoff and screw keep out areas.

A down facing 100 pin Samtec connector will mate with the carrier card. Fifty of these signals are available as field I/O signals.

The AP482 maintains the same functionality and memory map of the existing Industry Pack modules providing a smooth transition to the AcroPack I/O modules.

**Key Features & Benefits**

- PCI Express Generation 1 interface
- Ten 32-bit counter/timers
- Mix and match countless I/O combinations in a single slot.
- Sample software and diagnostics
- 62.5MHz clock time base
- Single counter/timer modes:
  - Event counting
  - Frequency measurement
  - Period/pulse-width measurement
  - Quadrature position measurement
  - Pulse width modulated output
  - Watchdog timer
  - One shot pulse output
- Configuration is handled by a single register which minimizes programming.
- Solid-down connector I/O interface
- Wide temperature range
- PCIe, VPX and XMC carriers
- Linux®, Windows®, and VxWorks® support
Performance Specifications

■ Counter/timers
Counter/timer configuration:
AP482: Ten 32-bit counters – TTL I/O
Counter Input:
Each counter has an InA, InB, and InC input port. These TTL or RS485 input ports are used to control Start/Stop, Reload, Event Input, External Clock, Trigger, and Up/Down operations.
Clock frequency
Selectable internal clock frequencies: 1.95MHz, 3.9MHz, 7.81MHz, 15.62MHz, or 62.5MHz.
Minimum input event
32nS.
Minimum pulse measurement
32nS.
Minimum period measurement
64nS.
Minimum gate/trigger pulse
32nS.
Interrupts
Supported for watchdog timer time-out, event count complete, pulse width or periodic rate measurement complete, pulse wave complete (one-shot mode), successive waveform generation (continuous).
Triggering/gate
Programmable via register write or external trigger. Minimum pulse width 32nS. Line may be used for gating of counter.
Counter trigger
Interface for triggering counter functions. Input level is TTL digital.
Counter input
Interface for events and pulse/period measurements. Also triggers load of watchdog timer register. Level is TTL digital.
TTL compatibility
VIH = 2.0V and VIL = 0.8V. inputs are buffered and include 4.7K pull-ups to +3.3V.
Counter output
Each counter has an output port. These TTL or RS485 output ports are used for waveform output, watchdog active indicator, or 1.73 µs pulse upon counter function completion. Counter output is programmable as active high or low.

■ PCI Express Base Specification
Conforms to revision 2.1
Lanes
1 lane in each direction.
Bus Speed
2.5 Gbps (Generation 1).
Memory
4k space required. 1 base address register.

■ Environmental
Operating temperature
-40 to 70°C.
-40 to 85°C.
(requires an AcroPack heatsink conduction-cool kit)
Storage temperature
-55 to 150°C.
Relative humidity
5 to 95% non-condensing.
Power
3.3V DC ± 5. 1.6A typical, 2.0A maximum.

■ Physical
Length
70mm.
Width
30mm.

Ordering Information

AcroPack® Modules
AP482E-LF
Ten 32-bit TTL counters
(Note: AcroPack modules are compatible only with the carriers listed below)

Accessories
AP-CC-01
Conduction-cool kit

Carrier Cards
APCe7010E-LF
PCIe AcroPack carrier, holds one AcroPack module, air-cooled.
APCe7022E-LF
PCIe AcroPack carrier, holds two AcroPack modules, air-cooled.
APCe7040E-LF
PCIe AcroPack carrier, holds four AcroPack modules, air-cooled.
VPX4500E-LF
3U VPX AcroPack carrier, holds three AcroPack modules, air-cooled.
VPX4500-CC-LF
3U VPX AcroPack carrier, holds three AcroPack modules, conduction-cooled.
XMCP2020-LF
XMC AcroPack carrier; holds two AcroPack modules, 2-slots out front, air-cooled.
XMCP2021-LF
XMC AcroPack carrier; holds two AcroPack modules, 2-slots out rear, air-cooled.

Software (see software documentation for details)
APSW-API-VXW
VxWorks® software support package.
APSW-API-WIN
Windows® DLL driver software support package.
APSW-API-LNX
Linux® support (website download only).