AcPC730 Multi-function I/O

- Analog Input
- Analog Output
- Digital I/O
- Counter/Timer

AcPC730 I/O boards provide a variety of I/O functions on a single card. These new high-density boards perform both high-speed and high-resolution A/D and D/A conversion and also handle digital I/O plus counter/timer functions.

Now you can conserve your precious card slots and still get all the I/O functionality you need. The AcPC730 is designed for extreme versatility with many deluxe features to meet most applications. However, the AcPC730 is still very budget-friendly.

Features

Analogue Inputs
- 16 differential or 32 single-ended inputs (±3.3V, ±5V, ±10V, 0-5V, and 0-10V ranges)
- 16-bit ADC with 512 sample RAM
- 10µs conversion time (100kHz)
- Interrupt upon ADC memory threshold condition (user-programmable data sample threshold)
- User-programmable interval timer

Analogue Outputs
- Eight analog output channels (±10V range)
- Individual 16-bit DACs per channel
- 1024 sample FIFO for waveform generation
- 12.375µs settling time (80.8kHz throughput)
- Interrupt on user-programmable FIFO threshold

Digital I/O
- 16 TTL bidirectional input/outputs

Counter/Timer
- One 32-bit counter/timer

The AcPC730 combines analog I/O, digital I/O, and counter/timer functions on a single high-density module to save PCI slots.

Specifications

**Analog Input**
- Input configuration: 16 differential or 32 single-ended channels multiplexed to a single A/D converter.
- A/D resolution: 16 bits.
- Input ranges: ±3.3V, ±5V, ±10V, 0-5V, and 0-10V.
- Maximum throughput rate:
  - One channel updated at a time: 1 channel (maximum): 10µs
  - 16 channels (maximum): 160µs
  - 32 channels (maximum): 320µs
- Data sample memory: 512 samples shared by all channels.
- A/D trigger: Internal timer, external source, software.
- On-board timer: One user-programmable timer for analog input acquisition control.
- System accuracy: ±3 LSB typ. (SW calib., gain=1, 25°C).
- Data format: Straight binary or binary two’s complement.
- Input overvoltage protection: -40 to 55V power off.
- Common mode rejection ratio (60Hz): 96dB typical.
- Channel-to-channel rejection ratio (60Hz): 96dB typical.

**Analog Output**
- Output configuration: 8 single-ended channels, each controlled by its own independent D/A converter.
- D/A resolution: 16 bits.
- Output range: ±10V.
- Maximum throughput rate:
  - Outputs updated simultaneously or individually:
    - 1 channel: 12.375µs
    - 8 different channels: 12.375µs
- DAC programming: Via independent channel registers or through shared FIFO.
- Data sample memory: 1024 sample FIFO shared by all channels.
- D/A trigger: Internal timer, external source, software.
- On-board timer: One user-programmable timer for analog output control.
- System accuracy: 0.0076% of 20V span max. error corrected (i.e. calibrated) at 25°C with output unloaded.
- Data format: Straight binary.
- Output at reset: 0V.

**Digital I/O**
- I/O channel configuration: 16 TTL transceivers, input/output direction selectable on an 8-channel basis.
- Digital Input
  - Input voltage range: 0 to 5V DC.
  - Input signal threshold:
    - Low to high: 2.0V typical.
    - High to low: 0.8V typical.
- Input response time: 250 nanoseconds.
- Interrupts: 16 channels of interrupts for high-to-low, low-to-high, or any change-of-state event types.
- Debounce: Individual debounce selectable on each channel. User-selectable (4µS, 64µS, 1mS, or 8mS).

**Digital Output**
- Output voltage range: 0 to 5V DC.
- Output ON current range: -15 to 64mA.
- Output pullups: 4.7K ohm socketed resistors.

**Counter/Timers**
- Counter/timer configuration: one 32-bit counter (requires use of channels 2 through 5 of digital I/O section).
  - Functions:
    - Watchdog timer, event counting, pulse measurement, period measurement, output waveform generation (pulselwidth modulation, continuous pulse, single pulse, continuous waveform).
  - Internal clock: Programmable 1, 4, 8MHz.
  - External clock: 3.4MHz.
- Input voltage range: 0 to 5V DC.
- Output voltage range: 0 to 5V with 4.7 ohm pull-up.
- Maximum of 0 to 35V with external supply.

Continued on the next page.
Specifications (continued)

CompactPCI bus Compliance
Meets PCI spec. V2.1 and PICMG 2.0, R3.0.
Data transfer bus: Slave with 32-bit, 16-bit, and 8-bit data transfer operation 32-bit read/write accesses are implemented as two 16-bit transfers.
Interrupts (INTA#): Interrupt A is used to request an interrupt.
Plug-and-Play: The system maps the base address into the PCI bus 32-bit memory space.

Environmental
Operating temperature: 0 to 70°C (E version -40 to 85°C)
Storage temperature: -40 to 85°C.
Relative humidity: 5 to 95% non-condensing.
Power: 245mA at +5V (290mA maximum).
MTBF: Consult factory.

Ordering Information
I/O Boards
AcPC730
Multi-function I/O board
AcPC730E
Same as AcPC730 plus extended temperature range

Software
PMCSW-API-VXW
VxWorks’ software support package
PCISW-API-WIN32
32-bit Windows’ DLI Driver software package
PCISW-API-WIN64
64-bit Windows’ DLI Driver software package
PCISW-API-LNX
Linux™ support (website download only)

Accessories
5025-288
Termination panel, SCSI-3 connector, 68 screw terminals
5028-432
Cable, shielded, SCSI-3 connector at both ends

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