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

Analog 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

Analog 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

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 compliment.
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.

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
  (pulse width 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 -25 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 (see software documentation for details)
PMCSW-API-VXW
VxWorks® software support package
PCISW-API-QNX
QNX® software support package
PCISW-API-WIN
Windows® DLL Driver software package
PCISW-LINUX
Linux® support (website download only)

Accessories (see accessories documentation for details)
5025-288
Termination panel, SCSI-3 connector, 68 screw terminals
5028-432
Cable, shielded, SCSI-3 connector at both ends

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