

APC464 Digital I/O (TTL) and Counter/Timers

The APC464 provides 64 TTL digital input/output channels and four 16-bit multi-function counter/timers.

All 64 I/O channels, when set as inputs, support configuration for interrupts on either a change-of-state or on a high-to-low or low-to-high transition. A debounce timer is selectable to help filter out false transitions.

Four 16-bit multifunction counters/timers are configurable for pulse width modulated output, watchdog timer, event counter, frequency measurement, pulse width measurement, period measurement, or one shot pulse output. The four 16-bit counters can also be configured into two 32-bit counter/timers.

Features

Digital I/O

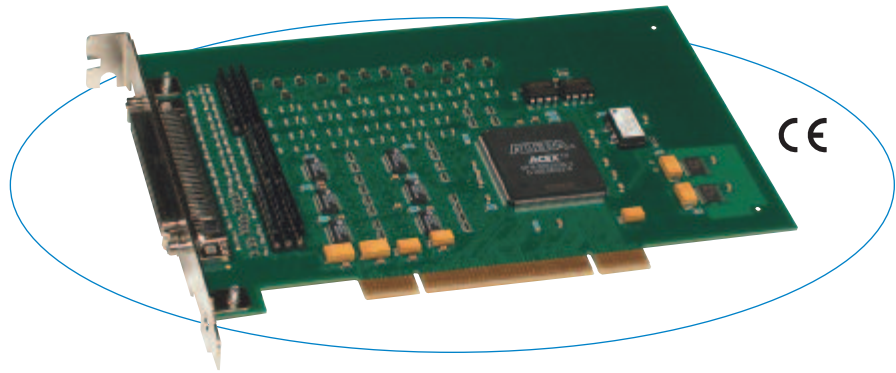
- 64 TTL digital input/output channels:
 - 16 individually programmable channels
 - 48 channels configured on an 8-bit port basis
- Programmable change of state/level interrupts
- Input signal filtering debounce logic

Counter/Timer

- Four 16-bit or two 32-bit counter/timer channels (control lines shared with 16 TTL I/O channels)
- Six operating modes:
 - Pulse width modulation
 - Watchdog timer
 - Event counter
 - Frequency measurement
 - Pulse width or period measurement
 - One-shot and repetitive one-shot
- TTL-compatible thresholds
- Power-up and system reset is failsafe

Approvals

- CE marked, FCC Part 15, Class B



This module saves money and PCI slots by combining TTL I/O and counter/timer functions on one card.

Specifications

Digital I/O

I/O channel configuration:

64 bidirectional TTL transceivers.

Channels 0-47: Direction controlled on a port basis.

Channels 48-63: Direction controlled independently (shared as counter/timer control signals).

Reset/power-up condition: All channels default to input.

Digital Input

Input voltage range: 0 to 5V DC.

Input signal threshold (channels 0-47):

Low to high: 2.0V typical.

High to low: 0.8V typical.

Input signal threshold (channels 48-63):

Low to high: 3.5V typical.

High to low: 1.5V typical.

Interrupts: 64 channels of interrupts for high-to-low, low-to-high, or any change-of-state event types.

Debounce: Selectable for each channel. User-selectable (5.6µS, 50.4µS, 408.8µS, or 3.276mS).

Digital Output

Output voltage range: 0 to 5V DC.

Output ON current range (channels 0-47): -15 to 64mA.

Output ON current range (channels 48-63): -32 to 32mA.

Output pullups: 4.7K ohm socketed resistors.

Counter/Timers

Counter/timer configuration: Four 16-bit counters can be configured into two 32-bit counters.

Functions: Pulse width modulation, watchdog timer, event counting, frequency measurement, period measurement, pulse width measurement, and one-shot/repetitive.

Counter input: Each counter has an IN_A , IN_B , and IN_C port. These TTL input signals control start/stop, reload, event input, external clock, trigger, and up/down operations.

Counter output: Each counter has one output signal. The TTL output is used for waveform output, watchdog active indicator, or 1.6µS pulse upon counter function completion. Programmable as active high or low.

Counter clock frequencies: Selectable for 20MHz, 10MHz, 5MHz, 2.5MHz, 1.25MHz or external up to 8MHz.

Minimum I/P event: 100nS (debounce disabled).

Minimum pulse measurement: 100nS (debounce disabled).

Minimum period measurement: 200nS (debounce disabled).

Minimum gate/trigger pulse: 100nS (debounce disabled).

PCI Bus Compliance

This device meets or exceeds all written PCI local bus specifications per rev. 2.2 dated December 1998.

System base address: This board operates in memory space. It consumes 4K of memory space.

Data transfer bus: Slave with 32, 16, and 8-bit data transfer operation.

Interrupts (INTA#): Interrupts requested on Interrupt A.

Environmental

Operating temperature: 0 to 70°C (APC464) or -40 to 85°C (APC464E)

Storage temperature: -55 to 125°C.

Relative humidity: 5 to 95% non-condensing.

MTBF: Consult factory.

Power: 160mA at +5V, typical.

Ordering Information

PCI Boards

APC464: Digital I/O and counter/timer module

APC464E: Same as APC464 plus extended temp. 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 software support

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 both ends

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