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

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.
- Input voltage range: 0 to 5V DC.
- Input threshold (channels 0-47): High to low: 2.0V typical.
  - Low to high: 0.8V typical.
- Input signal threshold (channels 48-63): High to low: 3.5V typical.
  - Low to high: 1.5V typical.
- Intermittents: 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 one-shot.
- Counter input: Each counter has an INA, INB, and INC 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 1μS 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 PCI local bus specifications per rev. 2.2 dated December 1998.

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
PMCSW-API-VXW: VxWorks® software support package
PCISW-API-WIN32: 32-bit Windows® DLL Driver software package
PCISW-API-WIN64: 64-bit Windows® DLL Driver software package
PCISW-API-LNX: Linux® support (website download only)

Accessories
5025-388: Termination panel, SCSI-3 connector, 68 screw terminals
5028-432: Cable, shielded, SCSI-3 conn. both ends

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