

cPCI-8168

6U CompactPCI 8-Axis Motion Control Card

Features

- 6U CompactPCI Form factor, 32-bit CompactPCI compliant (PICMG 2.0 Rev2.1)
- Pulse output rate up to 6.5 MHz
- Pulse output options: OUT/DIR, CW/CCW
- 2-4 axes linear interpolation
- 2 axes circular interpolation
- Multi-axis continuous interpolation
- Programmable acceleration and deceleration time
- Trapezoidal and S-curve velocity profiles
- Easy interface to any stepping, AC servo motors
- 28-bit up/down counter for incremental encoder
- All digital input or output signals are 2500 V_{RMS} isolated
- Change speed/position on-the-fly
- Simultaneously start/stop on multiple axes
- Supports up to 6 cards in one system (48 axes)
- High speed position compare and trigger output
- 4 single-ended 16-bit DA outputs
- 4 single-ended 12-bit AD inputs
- High speed remote I/O interface: scan 1000 points per 1 ms
- Programmable interrupt source
- 13 home return modes including auto searching



Introduction

6U CompactPCI Interface

The cPCI-8168 is an 8 axes motion control cards based on CompactPCI bus. The CompactPCI interface provides plug-and-play feature that is the key to easy maintenance. The maximum number of cards in one system is 6 cards with capability of controlling 48 motors.

Motion Control Principle

The cPCI-8168 can generate high frequency pulse train. The frequency of the pulse train controls the motor speed; the number of pulse controls the motor position. The differential input/output signals reduce noise interference. The command output options, including DIR/OUT mode and CW/CCW mode, provide an easy access to various stepper or servo motor drivers.

Velocity Profile

The motion control ASIC performs versatile trajectory planning ability. The acceleration and deceleration time are programmable. The S-curve helps to avoid mechanism vibration. The hardware linear interpolation between two axes is powerful to reduce software computation effort.

Operation Modes

Various operation modes are available, such as continuous motion, absolute move, relative move, simultaneous move, change speed on the fly, linear interpolation, and home return.

Encoder Interface

Incremental encoder interface is used for position feedback. The encoder counters provides the position information to correct the position error generated by inaccurate mechanical transmissions. The differential-type encoder feedback avoids noise interference. The 28-bit counters cover the position range for most applications.

Mechanism Interface

The pre-defined limit switch sensors on table are widely used to protect the mechanism. The dedicated I/O interface for end-limit and origin is very useful for system integration.

Servo Drive Interface & GPIO

Some servo motor drivers provide interfacing signals such as in-position (INP), alarm (ALM), error counter clear (ERC), servo ready signals. These signal interfaces are supported. General purpose digital Input/Output for each axis is provided.

Interrupt Events

Many hardware status can be used as interrupt events, such as limit switch, alarm, moving home ready, one movement finished, and so on.

Analog Inputs, Analog outputs

Data Acquisition functions are widely used in system integration for machine automation. 4 analog inputs and 4 analog outputs channels are provided.

High Speed Remote I/O function

One HSL (High Speed Link) module is equipped in cPCI-8168. Through the RJ45 connector, users can send/collect 1000 output/input points within 1 mini-second.

Applications

- Electric assembly
- Semiconductor machinery

Software Support

Windows DLL

The software drivers support VC++/VB programming on Windows 98/NT/2000 platform with DLL.