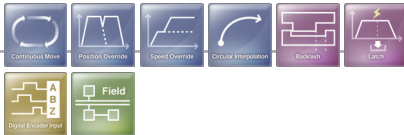
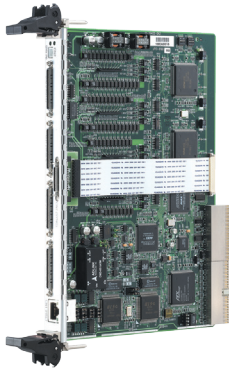


cPCI-8168

Advanced 6U CompactPCI 8-axis Motion Controller with One HSL Network



Features

- 32-bit CompactPCI, PICMG 2.0 Rev 2.1
- 6U CompactPCI Form factor
- Pulse output rates up to 6.55 MHz
- Pulse output options: OUT/DIR, CW/CCW, AB Phase
- 2 to 4 axes linear interpolation, 2 axes circular interpolation
- Multi-axis continuous interpolation
- Programmable acceleration and deceleration time
- Trapezoidal and S-curve velocity profiles
- Easily interface to any stepping motors, AC or DC servo, linear or rotary motors
- 28-bit up/down counter for incremental encoder of each axis
- All digital input or output signals are 2500 Vdc, 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/ms
- Programmable interrupt source
- 13 home return modes including auto searching
- More than 400 thread safe API functions

Software Support

- **OS Information**
 - Windows® 8/7/XP
- **Software Compatibility**
 - VB/VC++/BCB/Delphi
 - Various sample programs with source codes
- **Software Recommendations**
 - MotionCreatorPro

Ordering Information

- **cPCI-8168**
Advanced 6U CompactPCI 8-axis motion controller with one HSL network

Specifications

Pulse Type Motion Control

| | |
|------------------------------|--|
| ■ Number of Axes | 8 |
| ■ Pulse Output Rate | 0.01 pps to 6.5 Mpps |
| ■ Max. Acceleration Rate | 245 Mpps ² |
| ■ Speed Resolution | 16-bit |
| ■ Encoder Input Rate | 6.55 MHz under 4 x AB phase @ 1 M cable |
| ■ Encoder Counter Resolution | 28-bit |
| ■ Positioning Range | -134,217,728 to +134,217,727 pulses (28-bit) |
| ■ Counters | x 4 for each axis |
| ■ Comparators | x 5 for each axis |

Motion Interface I/O Signals

| | |
|--|---|
| ■ I/O Pin | Differential and 2500 VRMS optically isolated |
| ■ Incremental Encoder Signals Input Pin | EA and EB |
| ■ Encoder Index Signal Input | EZ |
| ■ Mechanical Limit Switch Signal Input Pin | ±EL and ORG |
| ■ Servomotor Interface I/O Pin | INP, ALM, ERC, SVON, RDY |
| ■ Position Compare Output Pin | CMP |

General Purpose I/O

| | |
|--------------------|--|
| ■ Digital Input | 8-CH isolated digital input |
| ■ Input Voltage | 0 to 24 V |
| ■ Input Resistance | 2.4 KΩ @ 0.5 W |
| ■ Digital Output | 8-CH isolated digital output |
| ■ Output Voltage | 5 V (min.); 35 V (max.) |
| ■ Output Type | NPN open collector Darlingtons transistors |
| ■ Current Sink | 90 mA |

Analog Input (A/D)

| | |
|-------------------|--------------------------|
| ■ Resolution | 12-bit |
| ■ Input Channel | 4 single-ended |
| ■ Input Range | ±10 V; bipolar |
| ■ Conversion Time | 8 μs |
| ■ Sampling Rate | 110 K samples/sec (max.) |
| ■ Accuracy | 0.01% of FSR ± 1 LSB |

Analog Output (D/A)

| | |
|----------------------------|--------------------------|
| ■ Converter and Resolution | 16-bit; AD1866R |
| ■ Output Channel | 4 single-ended |
| ■ Output Range | ±10 V; bipolar |
| ■ Setting Time | 2 μs (-10 V to +10 V) |
| ■ Sampling Rate | 110 K samples/sec (max.) |

HSL Speed Link (HSL) Port

| | |
|-----------------------|--|
| ■ Connector | RJ-45 |
| ■ Cable | CAT5 / CAT5E |
| ■ Wiring Distance | 200 M; multi-drop full duplex RS-485 with transformer isolation scheme |
| ■ Transmission Speed | 6 Mbps |
| ■ I/O Refreshing Rate | 30.4 μs second per slave ID |
| ■ Max Slave Index | Control maximum 63 slave I/O index |

Accessories

For more information on terminal boards & cables, please refer to page 6-31.

Terminal Boards

- **DIN-68S-01**
Terminal board with one 68-pin SCSI-II connector and DIN-rail mounting
- **DIN-68M-J2A0**
Terminal board for Mitsubishi MR-J2S-A servo amplifier
- **DIN-68M-J3A0**
Terminal board for Mitsubishi MR-J3A/J4A servo amplifiers
- **DIN-68Y-SGII0**
Terminal board for Yaskawa Sigma V servo amplifier
- **DIN-68P-A40**
Terminal board for Panasonic MINAS A4/A5 servo amplifiers

Cabling

- **ACL-I0568-I**
68-pin SCSI-VHDCI cable (mating with AMP-787082-7), 1 M

Pin Assignment

| | | | |
|--------|----|----|--------|
| VPP | 1 | 51 | VPP |
| IGND | 2 | 52 | IGND |
| OUT1+ | 3 | 53 | OUT2+ |
| OUT1- | 4 | 54 | OUT2- |
| DIR1+ | 5 | 55 | DIR2+ |
| DIR1- | 6 | 56 | DIR2- |
| SVON1 | 7 | 57 | SVON2 |
| ERC1 | 8 | 58 | ERC2 |
| ALM1 | 9 | 59 | ALM2 |
| INP1 | 10 | 60 | INP2 |
| RDY1 | 11 | 61 | RDY2 |
| EA1+ | 12 | 62 | EA2+ |
| EA1- | 13 | 63 | EA2- |
| EB1+ | 14 | 64 | EB2+ |
| EB1- | 15 | 65 | EB2- |
| EZ1+ | 16 | 66 | EZ2+ |
| EZ1- | 17 | 67 | EZ2- |
| VPP | 18 | 68 | VPP |
| IGND | 19 | 69 | IGND |
| PEL1 | 20 | 70 | PEL2 |
| MEL1 | 21 | 71 | MEL2 |
| IGND | 22 | 72 | IGND |
| IGND | 23 | 73 | IGND |
| ORG1 | 24 | 74 | ORG2 |
| AGND | 25 | 75 | AGND |
| AIN1 | 26 | 76 | AIN2 |
| AGND | 27 | 77 | AGND |
| ADOUT1 | 28 | 78 | ADOUT2 |
| DI_COM | 29 | 79 | DI_COM |
| DIN1 | 30 | 80 | DIN2 |
| DOUT1 | 31 | 81 | DOUT2 |
| IGND | 32 | 82 | IGND |
| IGND | 33 | 83 | IGND |
| E_24V | 34 | 84 | E_24V |

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