

# PCI-8164 / PXI-8164

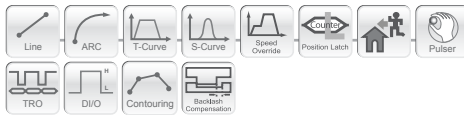
Advanced 4-axis Servo & Stepper Motion Controllers with High-Speed Triggering



PCI-8164



PXI-8164



## Features

- 32-bit PCI/PXI bus, Rev. 2.2, 33 MHz
- 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
- Position/Speed change override
- 13 home return modes and auto home search
- Hardware position compare and trigger with auto-loading FIFO as a buffer
- High-speed position latch function
- Programmable acceleration and deceleration time
- Trapezoidal and S-curve velocity profiles
- 28-bit up/down counter for incremental encoder
- Multi-axis, simultaneous start/stop
- Programmable interrupt sources
- Supports up to 12 cards in one system
- Hardware backlash compensator
- Softwares limit function
- Easy interface to any stepping motors, AC or DC servo, linear or rotary motors
- All digital inputs and outputs are 2500 V<sub>RMS</sub> isolated
- Manual pulser input interface
- More than 250 thread safe API functions

## Software Support

- Windows® Platform**
  - Available for Windows 7/Vista (32-bit)/XP/2000
  - Recommended programming environments: VB/VC++/BCB/Delphi
  - Various sample programs with source codes
  - Customized API functions are possible
- RTX ( Windows Real Time Extension)**
  - RTX 5.x/6.x/8.1a
- Linux Platform**
  - Redhat 9, kernel 2.4.x
  - Fedora Core 3, kernel 2.6.9
  - Fedora Core 4, kernel 2.6.11
  - Fedora Core 5, kernel 2.6.15
  - FC 6, kernel 2.6.18
- MotionCreatorPro™**
  - MotionCreatorPro™ assists motion system developers in debugging any cabling problems and resolving complex system configuration before programming.

## Specifications

### Pulse Type Motion Control

|                            |  |
|----------------------------|--|
| Number of Axes             | 4  |
| Pulse Output Rate          | 0.01 pps to 6.5 Mpps                         |
| Max. Acceleration Rate     | 245 Mpps <sup>2</sup>                        |
| 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

|  |   |
|--|---|
| Position Latch Input Pin                 | LTC   |
| Position Compare Output Pin              | CMP (15 kHz for continuous triggering)                    |
| I/O Pin                                  | Differential and 2500 V <sub>RMS</sub> optically isolated |
| Incremental Encoder Signals Input Pin    | EA and EB   |
| Encoder Index Signal Input               | EZ  |
| Mechanical Limit Switch Signal Input Pin | ±EL, SD, and ORG  |
| Servomotor Interface I/O Pin             | INP, ALM, ERC, RDY, SVON                                  |
| General DO Pin                           | SVON  |
| General DI Pin                           | RDY   |
| Pulser Signal Input                      | PA and PB   |
| Simultaneous Start/Stop Signal I/O Pin   | STA and STP   |

## Ordering Information

- PCI-8164**  
Advanced PCI 4-axis servo & stepper motion controller with high-speed triggering
- PXI-8164**  
Advanced PXI 4-axis servo & stepper motion controller with high-speed triggering

## Accessories

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

- Terminal Boards**
  - DIN-100S-01**  
Terminal board with one 100-pin SCSI-II connector and DIN-rail mounting
  - DIN-814-GP**  
Terminal board with 100-pin SCSI-II connector for general purpose
  - DIN-814M0**  
Terminal board for Mitsubishi MR-J2S-A servo amplifier
  - DIN-814M -J3A0**  
Terminal board for Mitsubishi MR-J3A servo amplifier
  - DIN-814Y0**  
Terminal board for Yaskawa Sigma II/III/V amplifiers
  - DIN-814P-A40**  
Terminal board for Panasonic MINAS A4 servo amplifier with 100-pin SCSI-II connector

### Cabling

- ACL-102100-I**  
100-pin SCSI-II cable (mating with AMP-787082-9), 1 M

## Pin Assignment

PCI-8164/PXI-8164 Pin Assignment of the 100-pin SCSI-type Connector

|       |    |     |        |
|-------|----|-----|--------|
| VPP   | 1  | 51  | VPP    |
| EGND  | 2  | 52  | EGND   |
| OUT1+ | 3  | 53  | OUT3+  |
| OUT1- | 4  | 54  | OUT3-  |
| DIR1+ | 5  | 55  | DIR3+  |
| DIR1- | 6  | 56  | DIR3-  |
| SVON1 | 7  | 57  | SVON3  |
| ERC1  | 8  | 58  | ERC3   |
| ALM1  | 9  | 59  | ALM3   |
| INP1  | 10 | 60  | INP3   |
| RDY1  | 11 | 61  | RDY3   |
| EGND  | 12 | 62  | EGND   |
| EA1+  | 13 | 63  | EA3+   |
| EA1-  | 14 | 64  | EA3-   |
| EB1+  | 15 | 65  | EB3+   |
| EB1-  | 16 | 66  | EB3-   |
| EZ1+  | 17 | 67  | EZ3+   |
| EZ1-  | 18 | 68  | EZ3-   |
| VPP   | 19 | 69  | VPP    |
| EGND  | 20 | 70  | EGND   |
| OUT2+ | 21 | 71  | OUT4+  |
| OUT2- | 22 | 72  | OUT4-  |
| DIR2+ | 23 | 73  | DIR4+  |
| DIR2- | 24 | 74  | DIR4-  |
| SVON2 | 25 | 75  | SVON4  |
| ERC2  | 26 | 76  | ERC4   |
| ALM2  | 27 | 77  | ALM4   |
| INP2  | 28 | 78  | INP4   |
| RDY2  | 29 | 79  | RDY4   |
| EGND  | 30 | 80  | EGND   |
| EA2+  | 31 | 81  | EA4+   |
| EA2-  | 32 | 82  | EA4-   |
| EB2+  | 33 | 83  | EB4+   |
| EB2-  | 34 | 84  | EB4-   |
| EZ2+  | 35 | 85  | EZ4+   |
| EZ2-  | 36 | 86  | EZ4-   |
| PEL1  | 37 | 87  | PEL3   |
| MEL1  | 38 | 88  | MEL3   |
| CMP1  | 39 | 89  | CMP3   |
| SD1   | 40 | 90  | SD3    |
| ORG1  | 41 | 91  | ORG3   |
| EGND  | 42 | 92  | EGND   |
| PEL2  | 43 | 93  | PEL4   |
| MEL2  | 44 | 94  | MEL4   |
| CMP2  | 45 | 95  | CMP4   |
| SD2   | 46 | 96  | SD4    |
| ORG2  | 47 | 97  | ORG4   |
| EGND  | 48 | 98  | EGND   |
| EGND  | 49 | 99  | EX+24V |
| EGND  | 50 | 100 | EX+24V |