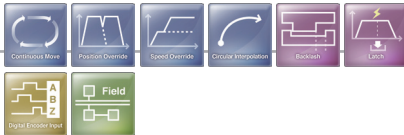
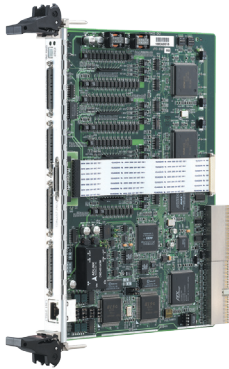


# cPCI-8168

## 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 <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

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 Darlington 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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