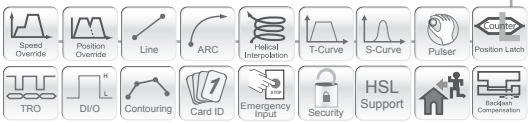
PCI-8158 / PCI-8154

Advanced 8/4-axis Stepper & Servo Motion Control Cards with Modular Design

PCI-8158

PCI-8154



Features

- 3 axes helical interpolation
- Hardware-controlled position compare and trigger (with DB-8150, up to 1 MHz)
- One HSL network support (with DB-8151)
- ECAM (Electronic CAM) control (with DB-8152)
- One Motionnet master support (with DB-8153)
- 32-bit PCI bus, Rev. 2.2, 33 MHz
- High density (200-pin) 8-axis motion controller
- Pulse output rate: up to 6.55 MHz
- Pulse output options: OUT/DIR, CW/CCW, AB Phase
- 2 to 4 axes linear interpolation
- 2 axes circular interpolation
- Helical interpolation
- Multi-axis continuous interpolation
- Position/Speed change override
- 13 home return modes and auto home search
- 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
- Hardware backlash compensator
- Manual pulser input interface
- Softwares limit function
- Hardware emergency input
- More than 100 thread safe API functions
- Security protection for user's program
- Easy interface to any stepping motors, AC or DC servo, linear or rotary motors
- All digital inputs and outputs are 2500 Vrms isolated
- Supports up to 12 cards in one system

Specifications

Pulse Type Motion Control	
Max. 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	
Position Latch Input Pin	LTC
Position Compare Output Pin	CMP
I/O Pin	Differential and 2500 Vrms optically isolated
Incremental Encoder Signals Input Pin	EA and EB
Encoder Index Signal Input	EZ
Mechanical Signal Input Pin	±EL, SD, and ORG
Servomotor Interface I/O Pin	INP, ALM, ERC, RDY, SVON
General DO Pin	DO x 8 for DO/CMP
General DI Pin	GDI x 8 for DI/LTC/PCS/SD/CLR/EMG
Pulser Signal Input	PA and PB
Simultaneous Start/Stop Signal I/O Pin	STA and STP

Software Support

- Windows® Platform
  - Available for Windows Vista (32-bit)/XP/2000
  - Recommended programming environments: VB/VC++/BCB/Delphi/VB.NET
  - 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
- MotionCreatorPro 2™

MotionCreatorPro 2 is a user-friendly Windows-based application development software package included with all distributed motion and I/O control modules.

MotionCreatorPro 2 provides simple configuration and real-time statuses of modules, in addition to precise positioning control with no effort.

(See page 1-23 for more information on MotionCreatorPro 2.)

Ordering Information

- **PCI-8158**
  Advanced 8-axis stepping & servo motion control card
- **PCI-8154**
  Advanced 4-axis stepping & servo motion control card
- **DB-8150**
  High-speed triggering daughter board
- **DB-8151**
  Single HSL master controller daughter board
- **DB-8152**
  Electronic CAM slave motion solution daughter board
- **DB-8153**
  Single Motionnet master controller daughter board

Accessories

See section 14 for more information on Accessories.

Terminal Boards

- DIN-100S-01
  Terminal board with one 100-pin SCSI-II connector and DIN-rail mounting
- DIN-814M0
  Terminal board for Mitsubishi MR-J2S-A servo amplifier
- DIN-814M -J3A0
  Terminal board for Mitsubishi MR-J3S-A amplifier
- DIN-814Y0
  Terminal board for Yaskawa Sigma II/III/V amplifier
- DIN-814P-A40
  Terminal board for Panasonic MINAS A4 amplifier
- DIN-814PA0
  Terminal board for Panasonic MINAS A servo amplifier

Cabling

- ACL-102100-1 (for PCI-8154)
  100-pin SCSI-II cable (mating with AMP-787082-9), 1 M
- SCSI-VHDCI 100P (for PCI-8158)
  100-pin SCSI-VHDCI cable, available for 2 M, 3 M

ADLINK GREEN RoHS Compliant

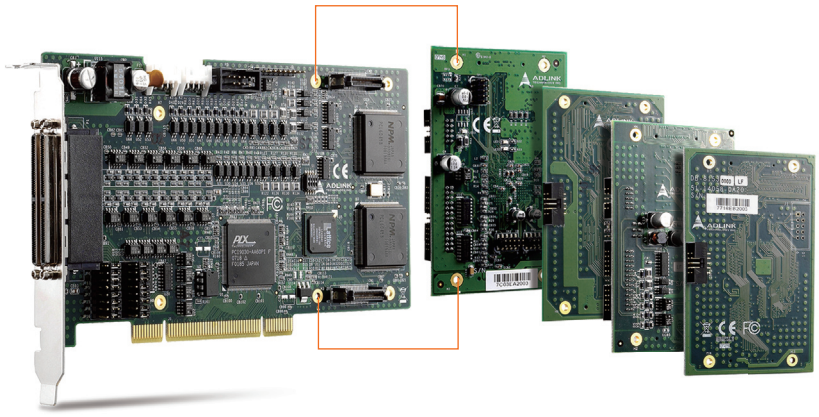
Pin Assignment

PCI-8158/PCI-8154 100-pin Mini SCSI Connector Pin Assignment

VDD	1	51	VDD
EXGND	2	52	EXGND
OUT0+	3	53	OUT2+
OUT0-	4	54	OUT2-
DIR0+	5	55	DIR2+
DIR0-	6	56	DIR2-
SVON0	7	57	SVON2
ERC0	8	58	ERC2
ALM0	9	59	ALM2
INP0	10	60	INP2
RDY0	11	61	RDY2
EXGND	12	62	EXGND
EA0+	13	63	EA2+
EA0-	14	64	EA2-
EB0+	15	65	EB2+
EB0-	16	66	EB2-
EZ0+	17	67	EZ2+
EZ0-	18	68	EZ2-
VDD	19	69	VDD
EXGND	20	70	EXGND
OUT1+	21	71	OUT3+
OUT1-	22	72	OUT3-
DIR1+	23	73	DIR3+
DIR1-	24	74	DIR3-
SVON1	25	75	SVON3
ERC1	26	76	ERC3
ALM1	27	77	ALM3
INP1	28	78	INP3
RDY1	29	79	RDY3
EXGND	30	80	EXGND
EA1+	31	81	EA3+
EB1-	32	82	EA3-
EB1+	33	83	EB3+
EB1-	34	84	EB3-
EZ1+	35	85	EZ3+
EZ1-	36	86	EZ3-
PEL0	37	87	PEL2
MEL0	38	88	MEL2
GDI0	39	89	GDI2
DO0	40	90	DO2
ORG0	41	91	ORG2
EXGND	42	92	EXGND
PEL1	43	93	PEL3
MEL1	44	94	MEL3
GDI1	45	95	GDI3
DO1	46	96	DO3
ORG1	47	97	ORG3
EXGND	48	98	EXGND
EXGND	49	99	E_24V
EXGND	50	100	E_24V

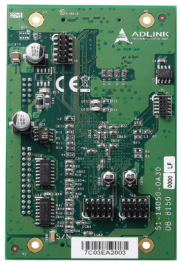
A variety of extension boards to meet your needs…

(See page 7-11 for the details)



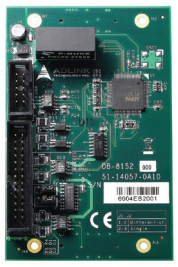
PCI-8158/PCI-8154 DB Series/Extension Modules

The PCI-8158/PCI-8154 supports these modules:



DB-8150
High-speed trigger

DB-8151
HSL bus distributed motion & I/O



DB-8152
ECAM slave motion control

DB-8153
Motionnet bus distributed motion