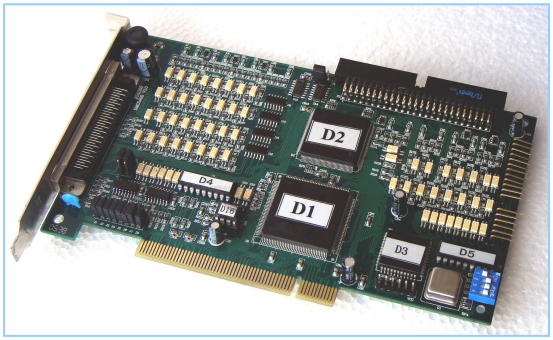
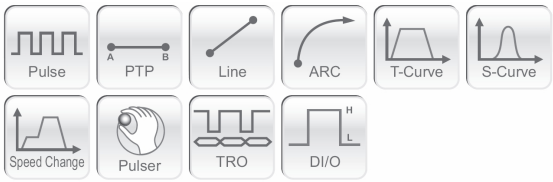
DMC5400

Advanced 4-axis Stepping & Servo Motion Control Card





Introduction

Advanced 4 axes Motion Controller
Leadshine DMC5400 is an advanced 4-axis motion control card for stepping and digital servo control application. Compared with the DMC1000 and DMC3400 series, DMC5400 offers better linear and circular interpolation capability and continuous contouring performance for advanced pulse output motion control solutions.

Velocity or Position Override
The DMC5400 provides powerful position or speed changing function while axis is moving. After motion begins, target of speed or position can be changed on the fly at the user's discretion.

Linear & Circular Interpolation
In multi-axis operation, the DMC5400 provides linear interpolation by any 2, any 3, or even all-4 axes. And any 2 axes can perform circular interpolation.

Continuous Contouring
The pre-register architecture of DMC5400 offers the feature to build the continuous interpolation function. The 2nd motion may follow previous motion instantly without latency. Thus perfect velocity continuity can be established.

Position Latch
The latch function is to capture the instant counter value of one or more axis when the latch signal activates. The LTC channel is used to receive the latch pulse. The latch function is implemented with hardware at very high speed.

13 Home Return Modes
To fit into various mechanical design and operating restrictions, the DMC5400 provides 13 home moving modes for users to choose as their best convenience.

Simultaneous Start/Stop
By using software program or external input signal, the DMC5400 can perform simultaneously start/stop function on multi-axis in one card or multi-axis in multi-card. Also, the simultaneous stop function is selectable to be active when some axes are abnormally stopped.

Features

- **32-bit PCI bus, Rev. 2.2, 33MHz**
- **Pulse output r rate up to 5MHz**
- **6 Pulse/dir output modes: Pulse /DIR, CW/CCW etc**
- **2~4 axes linear interpolation**
- **2 axes circular interpolation**
- **Multi-axis continuous interpolation**
- **Position/speed change on-the-fly**
- **13 home return modes and auto home search**
- **4 axes incremental encoders input with 28-bit up/down counter**
- **Hardware position compare and trigger with auto-loading FIFO**
- **High speed position latch function**
- **32 General-Purposed I/O**
- **Manual pulser input interface**
- **Programmable acceleration and deceleration time**
- **Trapezoidal and S-curve velocity profiles**
- **Multi-axis, simultaneous start/stop**
- **Programmable interrupt sources**
- **Supports up to 5 cards in one system (20 axes)**
- **Hardware backlash compensator**
- **Software limit function**
- **Easy interface to any stepping and digital servo systems**

Software Support

Windows Platform

Driver and DLL supports for Windows XP/2K/NT/98.
VB/VC++/BCB are recommended programming tools.

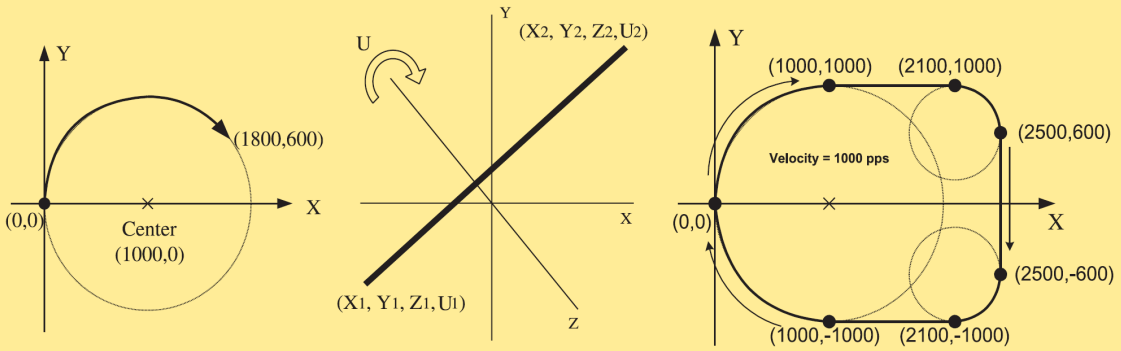
MOTION5400

MOTION5400 assists the motion system developer in testing motion functions, and overcome the difficulty of system configuration before programming.

Applications

- **Electronic assembly, measurement**
- **Semiconductor, LCD manufacturing**
- **Laboratory automation**
- **Vision & photocomposition automation**
- **Biotech sampling and handing**
- **Robotic**
- **Special CNC machine**

Various Interpolation Modes of DMC 5400



Circular Interpolation | 4 axes Linear Interpolation | Continuous Interpolation

Specifications

Motion

- Number of controllable axes: 4
- Max. number of cards in one system: 5
- Up to 5MHz pulse output
- Pulse output is programmable to be: Pulse /DIR or CW/CCW
- Position range: (28-bit), -134217728 ~ +134217728 pulses
- 28-bit Up/Down counter for encoder feed-back signals
- 4 axes encoder Input Frequency: 1MHz (before 4×)

Motion Interface I/O Signals

- Position latch input pin: LTC
- Incremental encoder signals input pins: EA and EB
- Encoder index signal input: EZ
- Mechanical limit switch signal input pins: ± EL, SD and ORG
- Servomotor interface I/O pins: INP, ALM, ERC; SVON(use a general DO), RDY(use a general DI)
- Pulser signal input: PA and PB
- Simultaneous Start/Stop Signal I/O Pins: STA and STP

General-Purposed I/O

- 16 DI with opto-isolated
- 16 DO of open collector

Ordering Information

*** Needed mostly for 4-axis applications.**

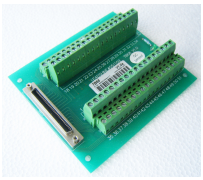
DMC5400	Advanced 4 axes motion control card
CABLE68-2.0	2m length Cable with 68 pin connectors
TB68	Termination Board with 68 pin connector
EB50 *	Extension bracket with 50 pin connectors
CABLE50-2.0 *	2m length Cable with 50 pin connectors
TB50 *	Termination Board with 50 pin connector
PC68/PC50	PCB carrier of TB68 or TB50 for DIN rail

Accessories

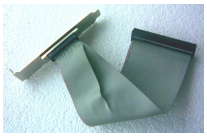
CABLE68-2.0 :



TB68 :



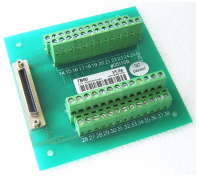
EB50* :



CABLE50-2.0* :



TB50* :



PC68/PC50:



DMC5400 connectors

68 Pin SISC connector

PUL1+	1	35	EL1+
PUL1-	2	36	EL1-
DIR1+	3	37	SD1
DIR1-	4	38	ORG1
EA1+	5	39	ALM1
EA1-	6	40	INP1
EB1+	7	41	LTC1
EB1-	8	42	PCS1
EZ1+	9	43	INPUT1
EZ1-	10	44	INPUT2
OUT1	11	45	INPUT3
OUT2	12	46	INPUT4
OUT3	13	47	INPUT5
OUT4	14	48	INPUT6
OUT5	15	49	INPUT7
OUT6	16	50	INPUT8
OUT7	17	51	OUT8
OUT9	18	52	OUT11
OUT10	19	53	OUT12
ERC2	20	54	ERC1
PUL2+	21	55	PUL3+
PUL2-	22	56	PUL3-
DIR2+	23	57	DIR3+
DIR2-	24	58	DIR3-
ALM2	25	59	ALM3
INP2	26	60	INP3
EL2+	27	61	EL3+
EL2-	28	62	EL3-
SD2	29	63	SD3
ORG2	30	64	ORG3
PCS2	31	65	PCS3
VDD1	32	66	EXGND
+5V	33	67	VDD
GND1	34	68	EMG

IDC 50 Pin connector *

PUL4+	1	26	EL4+
PUL4-	2	27	EL4-
DIR4+	3	28	SD4
DIR4-	4	29	ORG4
EA4+	5	30	ALM4
EA4-	6	31	INP4
EB4+	7	32	LTC4
EB4-	8	33	PCS4
EZ4+	9	34	INPUT16
EZ4-	10	35	INPUT15
OUT16	11	36	INPUT14
OUT15	12	37	INPUT13
OUT14	13	38	OUT13
ERC4	14	39	ERC3
EA2+	15	40	EA3+
EA2-	16	41	EA3-
EB2+	17	42	EB3+
EB2-	18	43	EB3-
EZ2+	19	44	EZ3+
EZ2-	20	45	EZ3-
LTC2	21	46	LTC3
INPUT9	22	47	INPUT11
INPUT10	23	48	INPUT12
EXGND	24	49	EXGND
VDD	25	50	EXGND