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
**Specifications**

**Motion**
- Number of controllable axes: 4
- Max. number of cards in one system: 5
- 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 feedback 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.

<table>
<thead>
<tr>
<th>Product</th>
<th>Description</th>
<th>Accessories</th>
<th>DMC5400 Connectors</th>
</tr>
</thead>
<tbody>
<tr>
<td>DMC5400</td>
<td>Advanced 4 axes motion control card</td>
<td>CABLE68-2.0 :</td>
<td>68 Pin SISC connector</td>
</tr>
<tr>
<td>CABLE68-2.0</td>
<td>2m length Cable with 68 pin connectors</td>
<td>TB68 :</td>
<td>PUL1+ 26 EL1+</td>
</tr>
<tr>
<td>TB68</td>
<td>Termination Board with 68 pin connector</td>
<td>EB50* :</td>
<td>PUL3+ 29 EL1</td>
</tr>
<tr>
<td>EB50*</td>
<td>Extension bracket with 50 pin connectors</td>
<td>CABLE50-2.0* :</td>
<td>PUL3+ 29 EL1</td>
</tr>
<tr>
<td>CABLE50-2.0*</td>
<td>2m length Cable with 50 pin connectors</td>
<td>TB50* :</td>
<td>PUL3+ 29 EL1</td>
</tr>
<tr>
<td>TB50*</td>
<td>Termination Board with 50 pin connector</td>
<td>PC68/PC50:</td>
<td>PUL6+ 28 EL4+</td>
</tr>
<tr>
<td>PC68/PC50</td>
<td>PCB carrier of TB68 or TB50 for DIN rail</td>
<td></td>
<td>PUL6+ 28 EL4+</td>
</tr>
</tbody>
</table>