

PCI-8372/8366

PCI Bus SSCNET 12/6 axes Motion Control Cards

Features

- ◆ 32-bit PCI bus, Rev 2.2, 33MHz
- ◆ Servo Interface: *SSCNET II protocol
- ◆ On Board DSP: TI TMS320C6711 100MHz
- ◆ Maximum control axes: 12/6 for PCI-8372/8366
- ◆ 32-bit command resolution
- ◆ On-line servo tuning and data monitoring
- ◆ Easy wiring up to 30 meters
- ◆ 2 Isolated DI/DO and 6 TTL digital outputs
- ◆ 3 external encoder/linear scale interface
- ◆ Multiple axes linear interpolation
- ◆ Any 2 axes circular interpolation
- ◆ Contour following
- ◆ On-the-fly position/velocity change
- ◆ Programmable interrupt sources
- ◆ Hardware synchronization between cards
- ◆ 2 axes analog output full-closed loop control
- ◆ 3 axes SSCNET full-closed loop control
- ◆ Easy-to-use function library
- ◆ MotionCreator utility for machine setup



Introduction

PCI Interface

The PCI-8372/66 is a 12/6 axes motion control cards based on PCI bus. The PCI interface provides plug-and-play feature that is the key to easy maintenance. The maximum number of cards in one system is 15 cards.

Motion Control Principle

The motion command is accomplished by the host PC and the DSP on PCI-8372/66. Motion profiles are split into several frames and transferred to the DSP via DPRAM. According to these frames, DSP calculates the absolute position of all axes in one control cycle and send each position to the individual driver via the *SSCNET at the same cycle. The PCI-8372/66 can also collect data from the servo driver via the SSCNET at the same cycle including servo parameter, position, speed, torque etc. Each cycle time is 0.888ms which is defined in *SSCENT protocol.

Advantages

- * Easy-wiring
- * Command synchronization
- * Easy-maintenance
- * Unlimited command frequency
- * 32-bit command resolution
- * Up to 30 meters control distance
- * Parameter setting and tuning by software

Control Modes

SSCENT open loop mode (up to 12ch); SSCNET closed loop control mode (up to 3ch); Analog output closed loop control mode (up to 2ch).

Operation Modes

Single axis motion; Linear interpolation; Circular interpolation mode; multi-axis simultaneous start motion; contour motion; change speed/position on the fly; and home return modes.

Mechanism Interface

Dedicated limit switch and origin input points for each axis.

General Purpose I/O

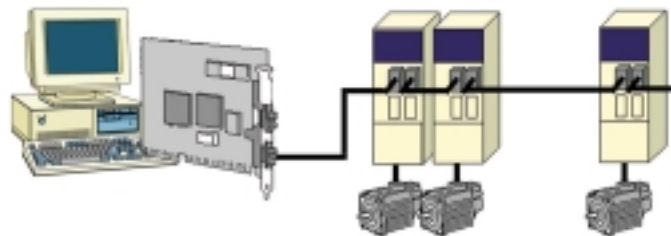
2 Isolated DI, 2 open collector output DO and 6 TTL outputs are included to provide general purpose I/O.

Interrupt Events

The hardware interrupts are transformed into software events or signals. An event driven applications under multi-tasking OS can be realized by this way.

Analog outputs

These are three modes for analog: Direct 16 bits +/-10 volts output, velocity command monitoring, analog closed loop control output.



Hardware Synchronization

The PCI-8372/66 can be synchronized via the CN4 connector between every card.

Driver/Motor Support

The PCI-8372 is designed for SSCNET Driver/Motor including MR-J2S-B and MR-J2M-B. Also it can control two analog input (speed command) type drivers.

Applications

- ◆ Electric Assembly
- ◆ LCD Test Equipment
- ◆ Semiconductor Machinery
- ◆ Machine Tools

Software Support

- ◆ Support Windows 9x/NT/2K/XP
- ◆ More than 100 functions are available
- ◆ MotionCreator utility for machine testing, parameter adjustment and gain turning without any programming efforts

MotionCreator™



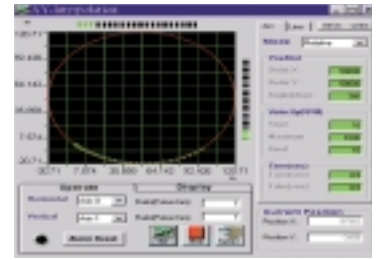
Single Axis Operation



Servo Driver Parameters



Servo Tuning



XY Move Operation

Specifications

Motion

- ◆ Motion Cycle Time: 0.888ms
- ◆ Number of controllable axes: 12/6 axes for PCI-8372/8366
- ◆ Max. number of cards in one system: 15
- ◆ 3 channels 32-bit 5 MHz Up/Down counter for encoder feedback signals

Motion Interface I/O Signals

- ◆ External encoder signals input pins: EA and EB
- ◆ Encoder index signal input: EZ
- ◆ Mechanical limit seitch and origin signal input pins: ±EL and ORG

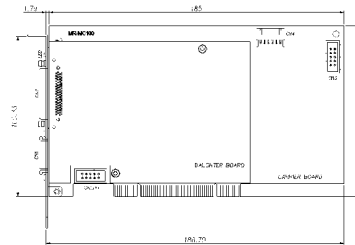
General Purpose I/O

- ◆ 2 channels isolated digital inputs
- ◆ Input Volotage: 0~24V
- ◆ Input resistance: 2.4Kohm @0.5W
- ◆ 2 channel open collector output
- ◆ Sink Current: 4mA
- ◆ Bandwidth 10KHz
- ◆ 6 channels TTL Digital outputs

Analog Output (D/A):

- ◆ Resolution: 16 bits
- ◆ Output channels: 2 Single-Ended channels
- ◆ Output range: +/-10V, Bipolar
- ◆ Setting Time: 10μ sec
- ◆ Output driving +/-5mA

Mechanical outline drawing



Software Support

Function Library

- ◆ System Functions
- ◆ Parameters Management
- ◆ Single Motion
- ◆ Home Move
- ◆ Continuous Motion
- ◆ Position Compare
- ◆ Linear Interpolation
- ◆ Circular Interpolation
- ◆ Programmable Interrupt

Ordering Information

- ◆ **PCI-8372**
PCI Bus SSCNET 12 axes motion control cards
- ◆ **PCI-8366**
PCI Bus SSCNET 6 axes motion control card
- ◆ **DIN-68S/2**
Termination Board for CN5 with 1.8M cable

*SSCNET
Servo System Control Network defined by Mitsubishi Electric Co.

CN5 Pin Assignment

A.COM	1	35	DA1
PEL1	2	36	DA2
MEL1	3	37	PEL2
ORG1	4	38	MEL2
PEL3	5	39	ORG2
MEL3	6	40	PEL4
ORG3	7	41	MEL4
PEL5	8	42	ORG4
MEL5	9	43	PEL6
ORG5	10	44	MEL6
IPT_COM	11	45	ORG6
EA1+	12	46	EA2+
EA1-	13	47	EA2-
EB1+	14	48	EB2+
EB1-	15	49	EB2-
EZ1+	16	50	EZ2+
EZ1-	17	51	EZ2-
PEL7	18	52	PEL8
MEL7	19	53	MEL8
ORG7	20	54	ORG8
PEL9	21	55	PEL10
MEL9	22	56	MEL10
ORG9	23	57	ORG10
PEL11	24	58	PEL12
MEL11	25	59	MEL12
ORG11	26	60	ORG12
IPT_COM	27	61	IPT_COM
DO_COM	28	62	D11
EA3+	29	63	D12
EA3-	30	64	EMG
EB3+	31	65	EMG_COM
EB3-	32	66	DO1
EX3+	33	67	DO2
EZ3-	34	68	DO_COM