

PMDK

PCI Bus, DSP-based Professional Motion Development Kit

Features

- DSP-based control card with PCI interface
- Capable of 6-axis motion control
- Pulse Output Rate: 4 MHz (Max.)
- Maximum Encoder Input Frequency: 12 MHz
- High-speed position latching and comparing functions
- Home, positive and negative limit sensors for each axis
- Manual-pulse-generator (MPG) interface
- Expandable remote I/O:
  128 DI & 128 DO via a two-wire FRnet interface

Introduction

The **PMDK** is a DSP-based PCI motion control card suitable for the development of professional motion control applications, and can be used with any IPC that has a 5 V PCI bus. A wide range of applications can be implemented thanks to the integration of a high-speed DSP (TI C672x), an FPGA (Field Programmable Gate Array), and I/O buffering circuitry. A diverse array of I/O interfaces are incorporated into the PMDK, including 6 channels for pulse I/O, 6 channels for AI/AO and a variety of DI/DO channels. The card also includes a single two-wire FRnet port that can be used to remotely control up to 128 DI and 128 DO channels, which, together with the numerous software samples that are provided, allows the rapid development of custom programs.

The **PMDK** enables users to implement a variety of cost-effective motion control functions, including multi-axis linear and circular interpolation with acceleration/deceleration processing. A variety of synchronous actions are also possible through programming. The included sample software can be used to design custom motion functions which can then be appended to the original motion command set. DSP programs are developed based on a real-time kernel (DSP/BIOS), meaning that motion status, FRnet I/O status and the status of other I/O interfaces can still be monitored while driving operations are being performed, and, as the loading on the CPU is very low, one or more motion cards can be used on a single IPC.

If the **PMDK** is to be used for signal processing, users can refer to a range of samples provided by ICP DAS illustrating how to implement FFT, FIR and IIR, together with the resources provided by TI. In the future, ICP DAS will be providing a wider library of functions and examples that will further reduce the level of programming required by users in order to implement their custom applications. In summary, the PMDK is a highly cost-effective solution for users intending to develop custom applications for motion control, process control, I/O logic control, digital processing, and applications in a wide range of other domains.

Specifications

Model	PMDK
Hardware	
Connector	68-pin SCSI-II and 20-pin SCSI-II
General	
No. of Axes	6
Servo Update Rate	User Programmable
Command Type	Pulse command, V command
Axis I/O	
Servo Interface Output	SVON, ALM_RST, ERC
Latch Input	High-Speed 5 V or 24 V NPN
Mechanical Switch Input	Home, LMT+/-, NHOME, EMG
Position Compare Output	High-Speed 5 V TTL or 24 V open collector
Servo Interface Input	INP, ALM, RDY
Encoder Input	
Mode	A/B Phase, Up/Down
Counting Rate	12 MHz
Counter Width	32-bit

Model	PMDK
Pulse Output	
Mode	CW/CCW, PULSE/DIR
Rate	4 MHz (Max.)
Digital Input	
Channels	Expandable: 128 DI
Isolation	2500 Vrms optical isolation (with DN-8368)
Digital Output	
Channels	Expandable: 128 DO
Isolation	2500 Vrms optical isolation (with DN-8368)
PC Bus	
Type	Universal PCI Bus
Power	
Consumption	1.5A
Environment	
Operating Temperature	-20 ~ +75°C
Storage Temperature	-30 ~ +85°C
Humidity	5 ~ 85% RH, Non-condensing

Ordering Information

PMDK	PCI Bus DSP-based Professional Motion Development Kit

Accessories

DN-8368UB	Photo-isolated Universal Snap-on wiring terminal board
DN-8368GB	Photo-isolated General-purpose wiring terminal board
DN-8368MB	Photo-isolated Snap-on wiring terminal board for Mitsubishi MELSERVO-J2 servo amplifier
DN-20M	Manual-Pulse-Generator (MPG) and FRnet Input Board for PISO-PS600/VS600/PMDK (RoHS)
CA-MINI68-15	68-pin VHDCI to SCSI-II Connector Cable, Length 1.5 M
CA-SCSI20-M1 / M3 / M5	SCSI-II 20-pin and 20-pin Male Connector Cable for Mitsubishi Motor, Length 1 M / 3 M / 5 M
CA-2P4C-0100	The Cable for FRnet Modules, Length 100 M

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