PMDK

PCI Bus, DSP-based Professional Motion Development Kit

Features:

- DSP-based control card with PCI interface
- Capable of 6-axis motion control
- Maximum Pulse Output Frequency: 4 Mpps
- Maximum Encoder Input Frequency: 12 Mpps
- 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:

Number of Axes	6
Slot Interface	Universal PCI bus
Maximum Pulse Output Rate	4 MHz
Command Type	Pulse command, V command
Resolution	32-bit
Servo Update Rate	User Programmable
Pulse Output Mode	CW/CCW, PULSE/DIR
Motion Relative I/O	Home, LMT+/-, NHOME, EMG, INP, ALM, SVON, ALM_RST, ERC
Position Compare Trigger	User Programmable
Encoder Interface	A/B pulse, Up/Down
Encoder Counter	32-bit
Encoder Counting Rate	12 MHz
Digital Input Channels	Expandable: 128 DI
Digital Output Channels	Expandable: 128 DO
I/O Isolation (with DN-8368)	2500 Vrms optical isolation
Connector	68-pin SCSI-II connector & 20-pin SCSI-II
Power Consumption	-
Environmental	
Operating Temperature	-20 ~ +75°C
Storage Temperature	-30 ~ +85°C
Ambient Relative Humidity	5 ~ 90% RH, non-condensing

Ordering Information/Accessories:

Model No.	Description
PMDK	PCI Bus DSP-based Professional Motion Development Kit
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.