

PCM-3680

Dual Port CAN Interface Module

Packing List

Before installation, please make sure that you have:

- PCM-3680
- C Driver and DataMonitor Utility Diskette
- Startup Manual

If anything is missing or damaged, contact your distributor or sales representative immediately.

Declaration of Conformity

FCC Class A

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause interference in which case the user is required to correct interference at his expense.

CE

This product has passed the CE test for environmental specifications when shielded cables are used for external wiring. We recommend the use of shielded cables. This kind of cable is available from Advantech. Please contact your local supplier for ordering information.

Overview

PCM-3680 is a special purpose communication card that brings the Control Area Network to your PC. With the built-in CAN controller, the PCM-3680 provides bus arbitration and error detection with automatic transmission repeat function. The on-board CAN controllers are located at different positions in the memory. You can run both CAN controllers at the same time, independently. The PCM-3680 operates at baud rates up to 1 Mbps and can be installed directly into the expansion slot of your PC.

Notes

For more information on this and other Advantech products, please visit our websites at:

<http://www.advantech.com/eAutomation>

For technical support and service:

<http://www.advantech.com/support/>

This startup manual is for PCM-3680.

Part No. 2000368000

2nd Edition

November 2008

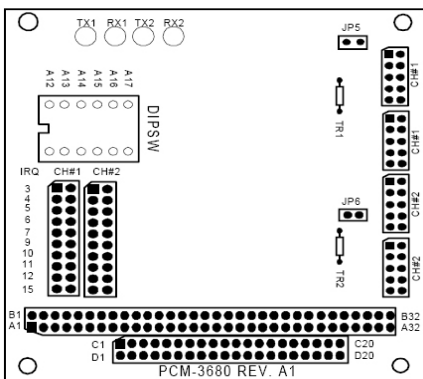
Features

- Operates 2 CAN networks simultaneously
- High speed transmission (up to 500 kbps)
- 16 MHz CAN controller frequency
- 4 KB address space, 40 base address adjustable in steps from C800H up to EF00H
- Optical isolation protection of 1000 VDC
- Wide IRQ selection for each port includes:
IRQ 3, 4, 5, 6, 7, 9, 10, 11, 12, 15
- LED indicates transmit/receive status on each port
- Direct memory mapping enables speedy access
- C library and examples included

Specifications

- **Ports:** 2
- **CAN Controller:** SJA-1000
- **CAN Transceiver:** 82C250
- **Signal Support:** CAN-L, CAN-H
- **Memory Address:** From C800H to EF00H
- **IRQ:** 3, 4, 5, 6, 7, 9, 10, 11, 12, 15
- **Isolation Voltage:** 1000 VDC
- **Power Consumption:** +5 V @ 400 mA typical, 950 mA max.
- **Connectors:** Dual DB-9 male connectors
- **Operating Temperature:** 32~122° F (0~50° C)
- **PC/104 Form Factor:** 3.6" x 3.8" (90 x 96 mm)
- **Shipping Weight:** 0.9 lb (0.4 kg)

Jumper & Switch Locations



Installation

Card Configuration

The PCM-3680 has two ports, each with one jumper. The jumpers set the IRQ for the ports, which can be configured separately. A DIP switch sets the memory base address for each port. The following chart shows the function of the jumper and the switch (see the previous page for jumper and switch locations).

Switch and Jumper Functions

IRQ Setup	
JP1	Port 1
JP2	Port 2
Memory base address	
SW1	Port 1, Port 2

Default Settings

- Port 1 is set for COM1 (IRQ=12, Memory address = DA00:0000).
- Port 2 is set for COM2 (IRQ=15, Memory address = DA00:0200).

If you need to change these settings, see the following sections. Otherwise, you can simply install the card. Note that you will need to disable your CPU card's on-board COM ports, if any, or set them to alternate addresses/IRQs.

Jumpers and Switches

Jumpers JP1 and JP2 set the interrupts for Port 1 and Port 2, respectively. You can choose any IRQ from 3 to 15, except 8, 13 and 14. When you choose IRQs, make sure they are not used for other cards in the system. The following figures show the card's default settings.

JP1: Port 1 IRQ Default

IRQ	Ch. 1
3	<input type="radio"/>
4	<input type="radio"/>
5	<input type="radio"/>
6	<input type="radio"/>
7	<input type="radio"/>
9	<input type="radio"/>
10	<input type="radio"/>
11	<input type="radio"/>
12	<input checked="" type="radio"/>
15	<input type="radio"/>

JP2: Port 2 IRQ Default

IRQ	Ch. 2
3	<input type="radio"/>
4	<input type="radio"/>
5	<input type="radio"/>
6	<input type="radio"/>
7	<input type="radio"/>
9	<input type="radio"/>
10	<input type="radio"/>
11	<input type="radio"/>
12	<input type="radio"/>
15	<input checked="" type="radio"/>

Memory Base Address (SW1)

The memory base address for the PCM-3680, which requires 4 KB of address space, is made up of the memory segment and its associated offset. The address for the memory segment is set through SW1, a six-position DIP switch. You can choose any base address from C800 to EF00. The following table shows the DIP switch settings and the corresponding base addresses.

Memory Address Configuration (SW1)

Address/ DIP Switch	A12	A13	A14	A15	A16	A17
C800H	on	on	on	off	on	on
C900H	off	on	on	off	on	on
CA00H	on	off	on	off	on	on
CB00H	off	off	on	off	on	on
CC00H	on	on	off	off	on	on
CD00H	off	on	off	off	on	on
CE00H	on	off	off	off	on	on
CF00H	off	off	off	off	on	on
D000H	on	on	on	on	off	on
D100H	off	on	on	on	off	on
D200H	on	off	on	on	off	on
D300H	off	off	on	on	off	on
D400H	on	on	off	on	off	on
D500H	off	on	off	on	off	on
D600H	on	off	off	on	off	on
D700H	off	off	off	on	off	on
D800H	on	on	on	off	off	on
D900H	off	on	on	off	off	on
DA00H	on	off	on	off	off	on
DB00H	off	off	on	off	off	on
DC00H	on	on	off	off	off	on
DD00H	off	on	off	off	off	on
DE00H	on	off	off	off	off	on
DF00H	off	off	off	off	off	on
E000H	on	on	on	on	on	off
E100H	off	on	on	on	on	off
E200H	on	off	on	on	on	off
E300H	off	off	on	on	on	off
E400H	on	on	off	on	on	off
E500H	off	on	off	on	on	off
E600H	on	off	off	on	on	off
E700H	off	off	off	on	on	off
E800H	on	on	on	off	on	off
E900H	off	on	on	off	on	off
EA00H	on	off	on	off	on	off
EB00H	off	off	on	off	on	off
EC00H	on	on	off	off	on	off
ED00H	off	on	off	off	on	off
EE00H	on	off	off	off	on	off
EF00H	off	off	off	off	on	off

Memory Area

Once the memory segment for the base address is selected, the offset will be automatically assigned for Port 1, Port 2, and hardware reset. The following table shows the base addresses of the CAN controllers.

Base address (hex)	CAN Controller
base:0000h - base:00FFh	Basic- Port 1
base:0100h - base:01FFh	HW reset Basic - Port 1
base:0200h - base:02FFh	Basic- Port 2
base:0300h - base:03FFh	HW reset Basic - Port 2
base:0400h - base:0FFFh	Not used

DataMonitor Utility

Software Overview

The PCM-3680 comes with a utility disk with the following software capabilities:

- CAN controller configuration
- CAN transmission monitoring
- Terminal emulation

Main Menu

Run DataMonitor at the DOS prompt. DataMonitor's main menu screen will appear as shown below



The main screen consists of:

- Menu bar:** Lists the available functions. From the main menu you can select Configuration, Monitoring, and Terminal.
- Monitor screen:** Shows monitored data, including message index, CAN device ID, data length, and data.
- Status fields:** Display the status of the two ports and the status register of the CAN controllers.
- Online help/message bar:** Shows various key commands and states the function of the currently highlighted item.

Configuration

Before you transmit a CAN object, you must configure the CAN controller by selecting the <Config> menu with the cursor keys and pressing <Enter>. The Configuration function determines the ports to be used and their communication parameters.

The port configuration window is shown below.



The parameters below need to be configured for each CAN controller:

Address segment: The base address (address segment) is normally adjusted during the installation process. The selection of the address segment needs to be the same as that of the hardware configuration.

Port: Select the port you want to configure.

Baud rate: The baud rate must be coordinated with the CAN network. Choose the appropriate one from the list of baud rates.

Acceptance code: Specifies the value of the 8 most significant bits of the identifier (ID10 ... ID 3)

Acceptance mask: Specifies the bit positions which are "relevant" for acceptance filtering.

Note: The acceptance code and acceptance mask are configured through eight digits (1 digit per bit) using 0 or 1.

Value	Definition
0	This bit position will accept only a "relevant" message
1	This bit position will not screen messages.

Example: Acc Code = 11111111
Acc Mask = 11111111

The shown acceptance filter will accept every received message.

Interrupt: Sets the interrupt for each port. Be sure that this setting matches the IRQ already selected for the PCM-3860, which accepts values between IRQ3 to IRQ15, except 8 and 13.

Running mode: During the normal configuration and communication process, select Normal Mode. When the system fails, you can hit <Enter> to reset the CAN controller. Hit <Enter> again to further execute your configuration.

Monitor: Select the port to be monitored from the <Monitor> pull-down menu. Press F3 to start and stop the monitoring process.