

PM-1037CS
CompactFlash and
Serial / Parallel Port
I/O Module

User Manual

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Chapter 1. Introduction

Thank you for choosing PM-1037CS CompactFlash and Serial/Parallel Port I/O module. The PM-1037CS module is an 104 form factor module, which comes equipped with CompactFlash socket and multi-mode I/O, designed for the system manufacturers, integrators, or VARs.

This module built in Compact Flash Disk for embedded applications. The Compact Flash Disk is 100% compatible to hard disk so users can use any DOS command without having to install any extra software utility.

An high performance I/O chip – TI 16C552A is used in the PM-1037CS module. Both on-chip UARTs are compatible with the NS16C550. The parallel port interface are also compatible with IBM PC/AT and XT architecture's.

1.1 Specifications

The PM-1037CS module provides the following specification:

- **Bus** : ISA bus
- **Interrupt levels** : 7
- **Chipset** : TI 16C552A
- **Two high speed Serial ports** : NS16C550 compatible UARTs, and one RS422/485 port with auto-direction function.
- **Bi-directional Parallel Port** : Configurable to LPT1,LPT2
- **CompactFlash disk** : The CompactFlash Storage Card also runs in True IDE Mode that is compatible with an IDE disk drive. It can be used with a passive adapter in a Type II socket.
- **Power Consumption** : +5V @ 2A
(Pentium/MMX-266,64MB SDRAM)
- **Operating Temperature** : 0° ~ 70 ° C (CPU needs heat sink)

1.2 Package Contents

Before you install the product, please check the following materials are included in the package:

- 1 PM-1037CS 104 module
- 1 2.5" IDE flat cable (40-pin 2.0mm pitch to 40-pin 2.54mm pitch)
- 1 combo serial port cable (2 x RS-232, RS422/485)
- 1 standard D25 connector for parallel cable

If any of these items are missing or damaged, contact your distributor or sales representative immediately.

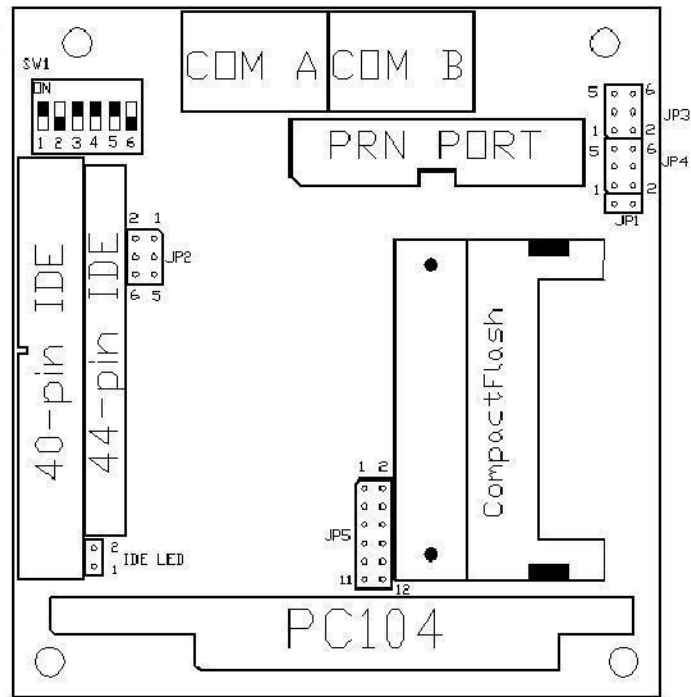
Chapter 2. Installation

This chapter describes how to install the PM-1037CS. First, the layout of PM-1037CS is shown, then comes unpacking information that you should be careful with and pay attention to is described. After that jumpers and switches settings for the PM-1037CS's configuration is illustrated.

2.1 PM-1037CS Layout & Dimension

(For layout diagram, please turn to the next page.)

- **Layout:**



2.2 Unpacking Precautions

Your PM-1037CS module contains sensitive electronic components that can be easily damaged by static electricity.

In this section, we describe the precautions you should take while unpacking, as well as during installation. It is very important to follow the instructions correctly as to avoid static damage, and to successfully install the board.

- You should be wearing an anti-static wristband, grounded at the same point as the anti-static mat.
- Inspect the cardboard carton for obvious damage. Shipping and handling may cause damage to your board. Be sure there are no shipping and handling damages on the board before processing.
- After opening the cardboard carton, take out the system board and place it only on a grounded anti-static surface component side up.
- Again inspect the board for damage. Press down on all the socket IC's to make sure that they are properly seated. Do this only with the board placed on a firm flat surface.

Note : Do Not Apply Power To The Board If It Has Been Damaged.

2.3 Compact Flash Setting (JP1)

Set the operating mode of CompactFlash disk.

•JP1 : Compact Flash Setting

Address	JP1
MASTER	CLOSE
SLAVE	OPEN

2.4 Serial Port B Mode Setting (JP2, JP3, JP4)

The serial port B can be configured as RS-232 or RS-422/485 for industrial application. Moreover when this port was set to the RS-485 mode, the onboard self-tuner IC will automatically sense the data direction to eliminate data collision. This is especially important in WINDOWS programming which do not allow the program to catch the specific control pin that your wish to set.

JP2	JP3	JP4	DESCRIPTION
1-2	3-5 4-6	3-5 4-6	RS232
3-4	1-3 2-4	1-3 2-4	RS422
5-6	1-3 2-4	NC	RS485

2.5 IRQ Setting (JP5)

The interrupt source of the serial/parallel needed to be set through jumpers.

COM A		COM B		Parallel Port	
JP5		JP5		JP5	
1-2	3-4	5-6	7-8	9-10	11-12
IRQ4	IRQ10 (IRQ11 Optional)	IRQ3	IRQ11 (IRQ10 Optional)	IRQ5	IRQ7

2.6 IO Address Setting (SW1)

SW1 is used to select the IO address of serial and parallel ports.

•SW1:



COM A		COM B		Parallel Port			
SW1		SW1		SW1			
1	2	3	4	5			
ON	OFF	3E8	ON	ON	2E8	ON	278
OFF	OFF	3F8	OFF	ON	2F8	OFF	378
ON	ON	2E8	ON	OFF	3E8		
OFF	ON	2F8	OFF	OFF	3F8		

Chapter 3. Connection

This chapter describes how to connect cables to the PM-1037CS board.

3.1 IDE Disk Drive Connector

You need to connect a cable from this connector to target system's IDE connector, so that the IDE function of PM-1037CS could be used.

- **40 pin IDE Interface Connector (2.54MM)**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	RESET#	2	GROUND
3	DATA 7	4	DATA 8
5	DATA 6	6	DATA 9
7	DATA 5	8	DATA 10
9	DATA 4	10	DATA 11
11	DATA 3	12	DATA 12
13	DATA 2	14	DATA 13
15	DATA 1	16	DATA 14
17	DATA 0	18	DATA 15
19	GROUND	20	N/C
21	N/C	22	GROUND
23	IOW#	24	GROUND
25	IOR#	26	GROUND
27	N/C	28	BALE - DEFAULT
29	N/C	30	GROUND - DEFAULT
31	INTERRUPT	32	IOCS16#-DEFAULT
33	SA1	34	N/C
35	SA0	36	SA2
37	HDC CS0#	38	HDC CS1#
39	HDD ACTIVE#	40	GROUND

• **44 pin IDE Interface Connector (2.0MM)**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	RESET#	2	GROUND
3	DATA 7	4	DATA 8
5	DATA 6	6	DATA 9
7	DATA 5	8	DATA 10
9	DATA 4	10	DATA 11
11	DATA 3	12	DATA 12
13	DATA 2	14	DATA 13
15	DATA 1	16	DATA 14
17	DATA 0	18	DATA 15
19	GROUND	20	N/C
21	N/C	22	GROUND
23	IOW#	24	GROUND
25	IOR#	26	GROUND
27	N/C	28	BALE - DEFAULT
29	N/C	30	GROUND - DEFAULT
31	INTERRUPT	32	IOCS16#-DEFAULT
33	SA1	34	N/C
35	SA0	36	SA2
37	HDC CS0#	38	HDC CS1#
39	HDD ACTIVE#	40	GROUND
41	VCC	42	VCC
43	GROUND	44	N/C

3.2 CompactFlash Socket (TYPE II)

You can attach one Compact Flash Disk to this socket. It supports both TYPE I and TYPE II modules.

• **CompactFlash Connector**

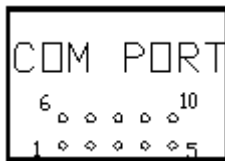
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GROUND	26	VCC-IN CHECK1
2	DATA 3	27	DATA 11
3	DATA 4	28	DATA 12
4	DATA 5	29	DATA 13
5	DATA 6	30	DATA 14

6	DATA 7	31	DATA 15
7	HDC_CS0#	32	HDC_CS1
8	N/C	33	N/C
9	GROUND	34	IOR#
10	N/C	35	IOW#
11	N/C	36	N/C
12	N/C	37	INTERRUPT
13	VCC_COM	38	VCC_COM
14	N/C	39	CSEL
15	N/C	40	N/C
16	N/C	41	HDD_RESET
17	N/C	42	IORDY
18	SA2	43	N/C
19	SA1	44	VCC_COM
20	SA0	45	HDD_ACTIVE#
21	DATA 0	46	N/C
22	DATA 1	47	DATA 8
23	DATA 2	48	DATA 9
24	N/C	49	DATA 10
25	VCC-IN CHECK2	50	GROUND

3.3 Serial Port

The PM-1037CS offers two high speed NS16C550 compatible UARTs with Read/Receive 16 byte FIFO serial ports. It also supports auto-direction RS422/RS485 interface.

- **Serial Port Connector**



• **Serial Port A/B (COM A/B)**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	Data carrier detect (DCD)	6	Data set ready (DSR)
2	Receive data (RXD)	7	Request to send (RTS)
3	Transmit data (TXD)	8	Clear to send (CTS)
4	Data terminal ready (DTR)	9	Ring indicator (RI)
5	GROUND	10	NC

• **RS422(COM_B)**

When COMB was configured as RS422, only pin 1, 2, 6 and 7 were used.

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	Transmit data- (TX-)	6	Receive data+(RX+)
2	Transmit data+(TX+)	7	Receive data-(RX-)

• **RS485(COM B)**

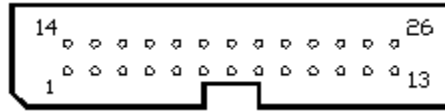
When COMB was configured as RS485, only pin 1 and 2 were used.

PIN NO.	DESCRIPTION
1	Data-
2	Data+

Notes: If you want to use the RS485 mode, just connect to TX2-,TX2+. If you want to use the RS422 mode, please connect to TX2-,TX2+,RX2+,RX2-.

3.4 Parallel Port(CN13)

This port is usually connected to a printer, The PM-1037CS includes an on-board parallel port, accessed through a 26-pin flat-cable.

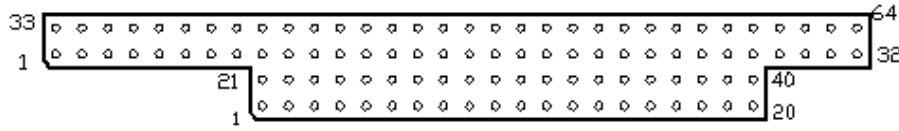


• Parallel Port Connector(2.54MM)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	STROBE#	14	AUTO FORM FEED#
2	DATA 0	15	ERROR#
3	DATA 1	16	INITIALIZE
4	DATA 2	17	PRINTER SELECT LN#
5	DATA 3	18	GROUND
6	DATA 4	19	GROUND
7	DATA 5	20	GROUND
8	DATA 6	21	GROUND
9	DATA 7	22	GROUND
10	ACKNOWLEDGE	23	GROUND
11	BUSY	24	GROUND
12	PAPER EMPTY	25	GROUND
13	PRINTER SELECT	26	NC

3.5 PC/104 Connection Bus

The PM-1037CS PC/104 expansion bus let you attach itself to the target system's PC/104 slot. The PC/104 bus has already become the industrial embedded PC bus standard, so you can easily install over thousands of PC/104 modules from hundreds of vendors in the world. There are two PC/104 connectors on this board: PC/104-64 and PC/104-40.



• PC/104-64 Connector

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	IOCHCK#	33	GND
2	SD7	34	IRSTDRV
3	SD6	35	VCC
4	SD5	36	IRQ9
5	SD4	37	-5V
6	SD3	38	N/C
7	SD2	39	-12V
8	SD1	40	ZWS
9	SD0	41	+12V
10	IOCHRDY	42	GND
11	AEN	43	SMEMW#
12	LA19	44	SMEMR#
13	LA18	45	IOW#
14	LA17	46	IOR#
15	SA16	47	DACK3#
16	SA15	48	DRQ3
17	SA14	49	DACK1#
18	SA13	50	DRQ1
19	SA12	51	REFRESH#
20	SA11	52	SYSCLK
21	SA10	53	IRQ7
22	SA9	54	N/C
23	SA8	55	IRQ5
24	SA7	56	IRQ4

25	SA6	57	IRQ3
26	SA5	58	N/C
27	SA4	59	TC
28	SA3	60	BALE
29	SA2	61	VCC
30	SA1	62	OSC
31	SA0	63	GND
32	GND	64	GND

• **PC/104-40 Connector**

PIN NO.	DESCRIPTION	PIN NO	DESCRIPTION
1	GND	21	GND
2	MCS16#	22	SBHE#
3	IOCS16#	23	LA23
4	IRQ10	24	LA22
5	IRQ11	25	LA21
6	IRQ12	26	LA20
7	IRQ15	27	LA19
8	IRQ14	28	LA18
9	DACK0#	29	AL17
10	DRQ0	30	MEMR#
11	DACK5#	31	MEMW#
12	DRQ5	32	SD8
13	DACK6#	33	SD9
14	DRQ6	34	SD10
15	DACK7#	35	SD11
16	DRQ7	36	SD12
17	VCC	37	SD13
18	MASTER#	38	SD14
19	GND	39	SD15
20	GND	40	GND