

PCM-3643 PC/104 8-Port RS-232 Module



Startup Manual

Introduction

EMAC, Inc. introduced its new PC/104-compatible communication module with eight individually configurable RS-232 ports, PCM-3643. Targeting embedded system customers with a need for high-speed and shared IRQ ports, high-performance PCM-3643 is especially suitable for multitasking environments. The PCM-3643 provides versatile function settings to meet users needs. These function settings include Standard/Enhance setting, Independent/Shared IRQ setting and Speed setting. Standard/Enhance setting can help users to flexibly use base address. Especially in Enhance setting, different base addresses can be set according to the application. In Shared IRQ setting, all eight interrupt ports can be specified to one. This solves IRQ insufficiency problems within the embedded system. In Speed setting, the PCM-3643 allows transmission rate up to 921.6 kbps. It improves the performance of the system.

Packing List

Before you begin installing your card, please make sure that the following materials have been shipped:

- 1 PCM-3643 PC/104 Multi COM Port module
- 1 Start-up manual
- 1 CD-ROM or Disks for utility, drivers, and manual (in PDF format)
- COM Port Cable= (1 COM Port cable for PCM-3643-4, and 2 COM Port cables for PCM-3643-8)

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

Note 1: For detailed contents of the PCM-3643, please refer to the enclosed CD-ROM or disk (in PDF format).

For more information on this and other EMAC products, please visit our website at:

<http://www.emacinc.com>

For technical support and service, please visit our support website at:

http://www.emacinc.com/technical_support.htm

This manual is for the PCM-3643 Rev.A1

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Note 2: Acrobat Reader is required to view any PDF file. Acrobat Reader can be downloaded at: www.adobe.com/Prodindex/acrobat/readstep.html (Acrobat is a trademark of Adobe.)

Features

PCM-3643 PC/104 8-port RS-232 Module

- Chipset: Standard 16550, 16650 or 16750 compatible chipsets for serial ports
- Channel: 4/8 port RS-232 support
- IRQ: 3, 4, 5, 7, 9, 10, 11, 12
- Baud rate: 50 ~ 921.6 kbps
- Charter length: 5, 6, 7 or 8 bits
- Stop bits: 1, 1.5, 2
- Parity: none, even, odd
- Data signals: TxD, RxD, RTS, CTS, DTR, DSR, DCD, RI, GND

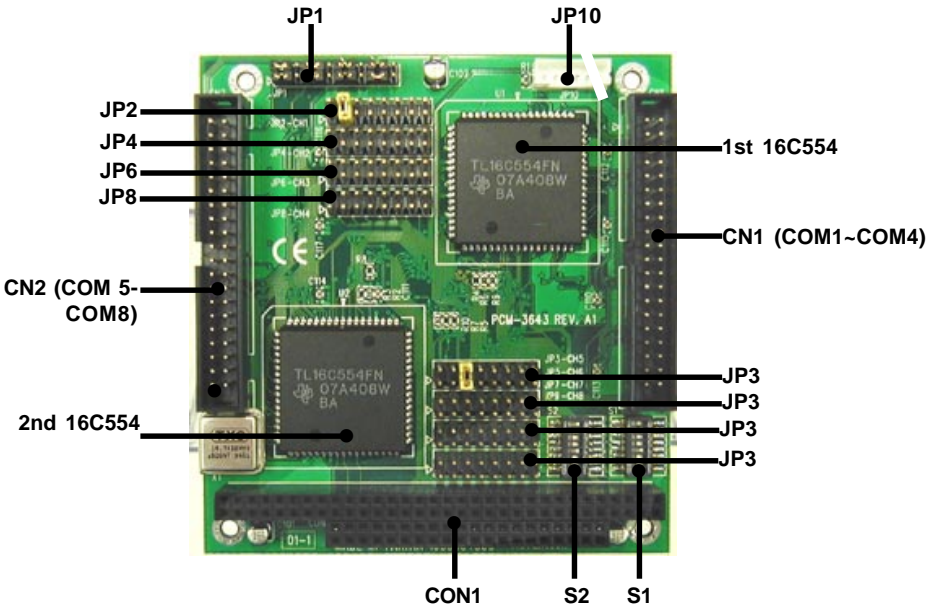
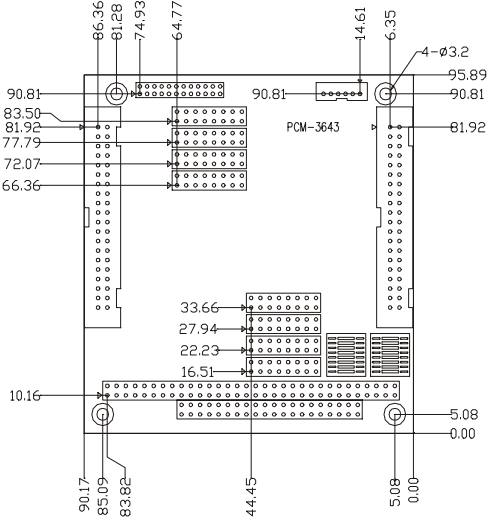
Mechanical and Environment

- Power consumption: +5 V @ 400 mA (typical)
- Power requirement: +5 V @ ± 5% tolerance on power supply
- Size/Weight: 96 mm x 90 mm (3.8" x 3.5"), .084 kg (.185lb)
- Operating Temperature.: 0 ~ 60° C (32 ~ 140°F)
- Storage Temperature: -40 ~ 85° C (-40 ~ 185°F)
- Operating humidity: 0 ~ 90% Rel Humd., noncondensing

Installation

Connectors and jumpers

CN1:	1st 4 COM port connector
CN2:	2nd 4 COM port connector
CON1:	PC/104 connector
JP1:	(Reserve)
JP2,4,6,8:	IRQ setting for 1st 4 COM port
JP3,5,7,9:	IRQ setting for 2nd 4 COM port
S1:	Interrupt vector address setting
S2:	COM port base I/O address setting



Jumper Setting

(1) S1: Interrupt vector address setting/ I/O addressing mode/ IRQ sharing mode

S1 (switch 1 ~ switch 5): Interrupt vector address setting



Default Setting:

Interrupt vector address= 280H
 I/O Addressing mode= Enhance mode
 IRQ sharing mode= 4 COM share one IRQ

Switch 5	Switch 4	Switch 3	Switch 2	Switch 1	Interrupt Register
ON	ON	ON	ON	ON	200H
ON	ON	ON	ON	OFF	210H
ON	ON	ON	OFF	ON	220H
ON	ON	ON	OFF	OFF	230H
ON	ON	OFF	ON	ON	240H
ON	ON	OFF	ON	OFF	250H
ON	ON	OFF	OFF	ON	260H
ON	ON	OFF	OFF	OFF	270H
ON	OFF	ON	ON	ON	280H*
ON	OFF	ON	ON	OFF	290H
ON	OFF	ON	OFF	ON	2A0H
ON	OFF	ON	OFF	OFF	2B0H
ON	OFF	OFF	ON	ON	2C0H
ON	OFF	OFF	ON	OFF	2D0H
ON	OFF	OFF	OFF	ON	2E0H
ON	OFF	OFF	OFF	OFF	2F0H
OFF	ON	ON	ON	ON	300H
OFF	ON	ON	ON	OFF	310H
OFF	ON	ON	OFF	ON	320H
OFF	ON	ON	OFF	OFF	330H
OFF	ON	OFF	ON	ON	340H
OFF	ON	OFF	ON	OFF	350H

*Default setting

OFF	ON	OFF	OFF	ON	360H
OFF	ON	OFF	OFF	OFF	370H
OFF	OFF	ON	ON	ON	380H
OFF	OFF	ON	ON	OFF	390H
OFF	OFF	ON	OFF	ON	3A0H
OFF	OFF	ON	OFF	OFF	3B0H
OFF	OFF	OFF	ON	ON	3C0H
OFF	OFF	OFF	ON	OFF	3D0H
OFF	OFF	OFF	OFF	ON	3E0H
OFF	OFF	OFF	OFF	OFF	3F0H

S1 (switch 6): I/O addressing mode

ON	Standard mode (3F8, 2F8, 3E8, 2E8, 240, 248, 250, 258)
OFF*	Enhance mode (use S2 select base address)

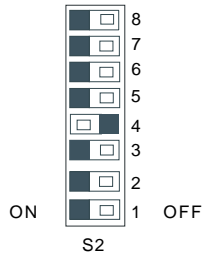
*Default setting

S1 (switch 7, switch 8): IRQ sharing mode select

Switch 8	Switch 7	Mode
ON	ON	Independent IRQ Mode
ON	OFF	COM 1 ~ COM 8 share 1 IRQ assigned by JP2
OFF*	ON*	COM 1 ~ COM 4 share 1 IRQ assigned by JP2 COM 5 ~ COM 8 share 1 IRQ assigned by JP3
OFF	OFF	COM 1 and COM 2 share 1 IRQ assigned by JP2 COM 3 and COM 4 share 1 IRQ assigned by JP6 COM 5 and COM 6 share 1 IRQ assigned by JP3 COM 7 and COM 8 share 1 IRQ assigned by JP7

*Default setting

(2) S2: Base I/O address setting / Speed selection / Operation system select



Default setting:

I/O Address= 240H
 Speed= Normal
 Operation system= 98/NT

S2 (switch 1 ~ switch 6): COM Port base I/O address setting

Switch 1	Switch 2	Switch 3	Switch 4	Switch 5	Switch 6	Base Address
8h	10h	20h	40h	80h	100h	
0	0	0	0	0	0	200h
1	0	0	0	0	0	208h
		..				
0	0	0	1	0	0	240h*
		...				
0	0	0	0	0	1	300h
0	0	0	1	1	1	3C0h

** 0 = ON, 1 = OFF

*Default Settings

Base address = 200h + 8h (switch 1) + 10h (switch 2) + 20h (switch 3) + 40h (switch 4) + 80h (switch 5) + 100h (switch 6)

For example: Base address 240h = 200h + 8h (0) + 10h (0) + 20h (0) + 40h (1) + 80h (0) + 100h (0)

COM Port	I/O address
COM 1	Base Address + 00H
COM 2	Base Address + 08H
COM 3	Base + 10H
COM 4	Base + 18H
COM 5	Base + 20H
COM 6	Base + 28H
COM 7	Base + 30H
COM 8	Base + 38H

S2 (switch 7): Speed selection

ON*	Normal speed
OFF	High speed

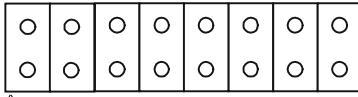
*Default setting

S2 (switch 8): Operation system select

ON*	98/NT
OFF	DOS

*Default setting

(3) JP2 ~ JP9: IRQ Select



IRQ 3 4 5 7 9 10 11 12

JP2,4,6,8; JP3,5,7,9-----IRQ Select

Bit1 - IRQ3

Bit2 - IRQ4

Bit3 - IRQ5

Bit4 - IRQ7

Bit5 - IRQ9

Bit6 - IRQ10

Bit7 - IRQ11

Bit8 - IRQ12

Note: The right jumper is Bit8 and the left is Bit1.

Note: Share mode recommended 4 COM Share 1 IRQ.

The EMAC PCM-3643 PC/104 Serial Port Module is flexible in that it can use multiple configurations of jumpers JP2 to JP9 to control IRQ sharing. Here are the choices:

1. Can use 1 COM port with 1 IRQ, so

JP2 controls	COM1
JP4 controls	COM2
JP6 controls	COM3
JP8 controls	COM4
JP3 controls	COM5
JP5 controls	COM6
JP7 controls	COM7
JP9 controls	COM8

2. Can use 2 COM ports shared on 1 IRQ

JP2 controls	COM1 and COM2
JP4-inactive	
JP6	COM3 and COM4
JP8-inactive	
JP3	COM5 and COM6
JP5-inactive	
JP7	COM7 and COM8
JP9-inactive	

3. Can use 4 COM ports shared on 1 IRQ (Default setting)

JP2 controls	COM1,COM2,COM3,COM4
JP4-inactive	
JP6-inactive	
JP8-inactive	
JP3 controls	COM5,COM6,COM7,COM8
JP5-inactive	
JP7-inactive	
JP9-inactive	

4. Can use 8 COM ports shared on 1 IRQ

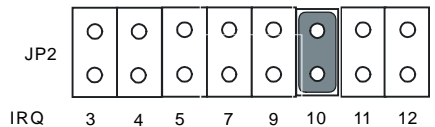
JP2 controls	COM1,COM2,COM3,COM4,COM5,COM6,COM7,COM8
JP4-inactive	
JP6-inactive	
JP8-inactive	
JP3-inactive	
JP5-inactive	
JP7-inactive	
JP9-inactive	

Example: Lets use the default for example. 4 COM ports (COM1, COM2, COM3, COM4) are controlled by JP2 (jumped), so, JP4, JP6, JP8 are ignored.

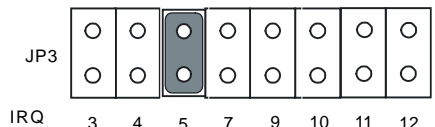
Note: You can't use the same IRQ at the same time.

So, in our example above, since IRQ3 is being used by COM1, COM2, COM3, COM4 (default setting), you can't use IRQ3 again by jumping JP3 to use COM5, COM6, COM7, COM8. You have to use a different IRQ.

Default setting: 4 COM ports share 1 1 IRQ, JP2 set to IRQ5, JP3 set to IRQ10



IRQ 3 4 5 7 9 10 11 12



IRQ 3 4 5 7 9 10 11 12