PCM-3664 PC/104 Jumperless 10Base-T Ethernet Module

Startup Manual

Introduction

The PCM-3664 is a high performance 16-bit jumperless Ethernet interface module that attaches to the PC/104 connector on your CPU card or PC/104 CPU module. The module automatically senses whether it is connected to an 8-bit or 16-bit PC/104 system. The PCM-3664 fully complies with IEEE 802.3 10 Mbps CSMA/CD standards and is 100% Novell NE2000 compatible.

The modlule includes a built-in 10Base-T transceiver and RJ-45 connector. An onboard BNC connector supports 10Base-2. Two diagnostic LEDs indicate the operating status of the module and the network.

The 5 V 10Base-2 transceiver supports IEEE 802.3, allowing connections of up to 185 m with this coaxial cable.

The PCM-3664 comes with drivers for a wide variety of networks and operating systems. An optional boot ROM lets you remotely boot a PC/104 station automatically from a server, making hard or floppy disks unnecessary.

Packing List

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

• 1 PCM-3664 PC/104 Ethernet module

• 1 Start-up manual

• CD-ROM or Disks for utility, drivers, and manual (in PDF format)

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

Note 1: *For detailed contents of the PCM-3664, please refer to the enclosed CD-ROM or disk (in PDF format).*

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.)*

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This manual is for the PCM-3664 series Rev.A1

Features

PCM-3664 PC/104 Ethernet module

• Conforms to IEEE 802.3 Ethernet standards, CSMA/CD protocol for 10 Mbps data transfer

• Hardware and software compatible with Novell NE2000 adaptor

• Automatically detects 8-bit and 16-bit data bus

• Remote boot ROM socket for diskless operation

• Built-in 10Base-T transceiver for unshielded twisted pair cabling up to 100 m

• Two diagnostic LEDs indicate network status

• Onboard 32 K memory for high-performance multipackage buffer

• Software drivers for most popular network environments

Onboard BNC LAN Connector

• Conforms to IEEE 802.3 10Base-2 standard

• Supports up to 185 m connections on RG-58 thin coaxial cable

Specifications

Hardware

• **PC/104 form-factor:** 90 x 96 mm (3.6" x 3.8")

• **I/O address:** 200, 220, 240, 260, 280, 2A0, 2C0, 300,320, 340, 380 or 3A0

• **Interrupt levels:** IRQ3, 4, 5, 9, 10, 11, 12 or 15

• **Boot ROM address:** C0000, C8000, D0000 or D8000H

• **Data bus:** 8-bit or 16-bit, auto-sensing

• **Connectors:** 16-bit PC/104 stackthrough connector RJ45 connector for 10Base-T, BNC connector for 10Base-2

Software drivers support

• Lantasti 4.x/5.x driver

• NDIS 2.x driver

• Packet driver

• SCO UNIX driver

- Netware ODI driver

- NDIS 3.0 miniport driver for Windows NT 3.1, Windows NT 3.5 and Windows 95, NDIS 4.0 miniport driver for Windows 98

- OS2 driver

- Netware server driver

Standards

- PC/104 8-bit and 16-bit compatible

- Built-in IEEE 802.3 10 Mbps CSMA/CD 10Base-T, 10Base-2
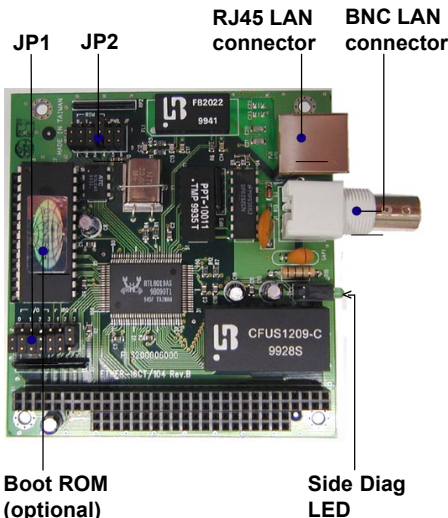
General

- **Power:** +5 V 400 mA max.

- **Temperature:** 0 to 70° C (operating)

  -15 to 80° C (storage)

- **Humidity:** 10 to 90 % (operating)

  -15 to 90 % (storage)

Onboard BNC LAN connector

- **Standard:** IEEE 802.3 10Base-2 medium

- BNC connector for T-connection to 10Base-2 thin cable

Installation

Locating components

JP1 JP2
RJ45 LAN connector
BNC LAN connector
Boot ROM (optional)
Side Diag LED
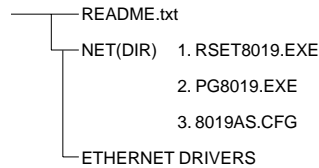
Initial Network test

This test verifies that the network cable is connected and the adaptor can transmit and receive data.

The test requires two computers. One computer, configured as the Master, generates and sends test messages. The other computer, configured as the Slave, received messages and transmits them back to the master. Results can be viewed on both the Master and Slave computers. A screen menu provides you with the instructions needed to conduct the test.

Note: Run the card initialization and Test before running the Advanced Network Test to ensure the adaptor's basic functions are working properly.

Software configuration for PCM-3664

The PCM-3664 module is supplied with a software utility disk. This disk contains files necessary for setting up the ethernet controller. Directories and files on the disk are as follows:

```
┌── README.txt
├── NET(DIR)    1. RSET8019.EXE
│                2. PG8019.EXE
│                3. 8019AS.CFG
└── ETHERNET DRIVERS
```

1. RSET8019.EXE

This program enables you to view the current Ethernet configuration, reconfigure the ethernet interface (medium type, etc.) and execute useful diagnostic functions.

2. PG8019.EXE

The PCM-3664 is initially set up at the factory using this program. When you receive your card, use RSET8019.EXE to configure it for the working environment. If by chance the EPROM becomes corrupted, the PG8019.EXE program allows you to configure the card.

3. 8019AS.CFG

When you run PG8019.EXE, it will read the configuration parameters stored in this file.

Ethernet Interface configuration

The PCM-3664 onboard ethernet interface supports all major network operating systems. I/O address and interrupts are easily configured via the RSET8019.EXE program included on the utility disk.

The RSET8019.EXE program provides two ways to configure the Ethernet interface. Configuration can be done automatically when you choose PNP (Plug and Play). When you choose jumperless configuration, the following IRQ and I/O address setttings are available.

Table 1-1 PCM-3664 Ethernet settings

IRQ option	I/O address range
Jumperless 3,4,5,9,10,11,12,15	200-3FFH
Configuration	

*Default Settings: IRQ=5, Address=300H

Note:

1. You can select an IRQ from the options shown in table 1.1, but be certain that your selection does not conflict with other I/O devices.

2. When Boot ROM is installed, the RSET8019.EXE program does not support PNP mode configuration.

To execute the configuration, to view the current configuration, or to run diagnostics, do the following:

1. Power the PCM-3664 on. Ensure that the RSET8019.EXE file is located in the working directory.

2. At the prompt, type RSET8019.EXE and press <ENTER>. The ethernet configuration program will then be displayed.

3. A simple screen displays the available options for the ethernet interface. Highlight the option you wish to change using the up and down keys. To change a selected item, press <ENTER>, and a window will appear with the available options. Highlight your selection and press <ENTER>. Each highlighted option has a helpful message guide displayed at the bottom of the screen for additional information.

4. After you have made your selections and you are sure that this is the confiruration you want, press <ESC>. A prompt will appear asking if you want to save the configuration. Press Y if you want to save.

The Ethernet Setup Menu also offers three very useful diagnostic functions, which include:

1. Run EEPROM test.

2. Run diagnostics on board.

3. Run diagnostics on Network.

Each option has its own display screen which shows the format and result of any diagnostic tests undertaken.

Remote boot ROM

A boot ROM allows you to boot the workstation directly from the server, avoiding the need for local hard or floppy disks. Install the boot ROM as shown below. Make sure that you align the notch on the ROM chip with the notch on the socket.
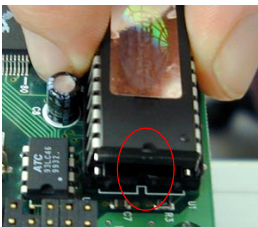
Be sure to align marks correctly

Hardware Installation

The following instructions tell how to install the PCM-3664 module on a CPU card. The process is similar with PC/104 CPU modules. Make sure you have properly configured the module's jumpers and attached a boot ROM if necessary.

Warning! Turn Off your PC power supply whenever you install or remove the PCM-3664 or connect or disconnect cables.
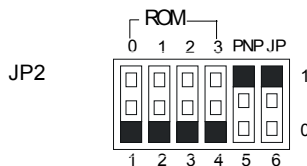
1. Turn the PC's power off. Turn the power off to any peripheral devices such as printers and monitors.

2. Disconnect the power cord and any other cables from the back of the computer.

3. Remove the system unit cover (see users' guide for your chassis if necessary).

4. Remove the CPU card from the chassis (if necessary) to gain access to the card's PC/104 connector.

5. Screw the brass spacer (included with the module) into the threaded hole on the CPU card. Do not tighten too much, or threads could be damaged.

6. Carefully align the connector pins of the PCM-3664 with the PC/104 connecotr. Slide the module into the connector. The module pins may not slide all the way into the connector; do not push to hard or the module could be damaged. If the CPU card has only an 8-bit bus, make sure the pins on the 16-bit bus connector do not touch anything.

7. Secure the module to the CPU card to the threaded hole in the CPU card using the included screw.

8. Reinstall the CPU card and replace the system unit cover. Reconnect the cables you removed in step 2. Turn the power on.

This completes the hardware installation. Install the software drivers according to the instructions for your operating system.
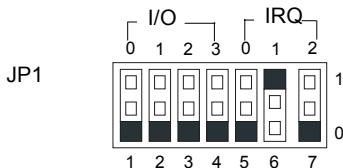

PC/104
Mounting Support

Female

Male

PCM-3346

PC/104 module

JP2

ROM
0 1 2 3 PNP JP
1 2 3 4 5 6
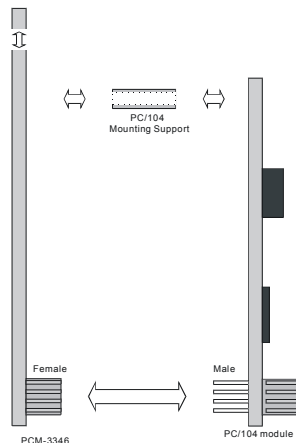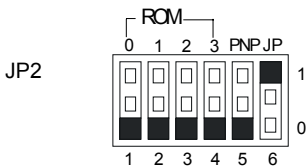
Setting for PNP mode

RJ-45 Jack

8 ——— 1

JP2

ROM
0 1 2 3 PNP JP
1 2 3 4 5 6

Setting for Jumperless mode

JP1

I/O
0 1 2 3
IRQ
0 1 2
1 2 3 4 5 6 7

JP1 I/O and IRQ Address Select

Ethernet connection specifications

The following table shows the network specifications for each ethernet

Ethernet type	Data Transfer rate	Topology	Cable type	Segment length
10Base-2	10 Mbps	Bus	50 ohm ethernet thin (RG-58)	185 m (607 ft.) max
10Base-T	10 Mbps	Bus	100 ohm unshielded twisted pair	100 m (328 ft.) max

Pin Assignments

RJ-45 connector

Pin	Signal	Description
1	TD+	Output transmit data (+)
2	TD-	Output transmit data (-)
3	RD+	Input receive data (+)
4		Not connected
5		Not connected
6	RD-	Input receive data (-)
7		Not connected
8		Not connected

LED indicators

LED	on	Flashing	off
LED(upper)	-	traffic	No traffic
LED(lower)	Link OK	-	Link failure

JP1: IRQ Settings

JP1 Pin #	1	2	3	4	5	6	7
IRQ2/9					0	0	0
IRQ3					0	0	1
IRQ4	Disregard I/O				0	1	1
IRQ5					0	1	1
IRQ10*					1	0	0
IRQ11					1	0	1
IRQ12					1	1	0
IRQ15					1	1	1

JP1: I/O Address Settings

JP1 Pin #	1	2	3	4	5	6	7
300H*	0	0	0	0			
320H	0	0	0	1			
340H	0	0	1	0			
360H	0	0	1	1			
380H	1	0	0	0			
3A0H	1	0	0	1			
3C0H	1	0	1	0			
3E0H	1	0	1	1	IRQ		
200H	0	1	0	0			
220H	0	1	0	1			
240H	0	1	1	0			
260H	0	1	1	1			
280H	1	1	0	0			
2A0H	1	1	0	1			
2C0H	1	1	1	0			
2E0H	1	1	1	1			

*Default settings