



# PCM-3660/3661

## PC/104 Jumperless Ethernet Module and 1 OBASE-2 Transceiver

### Introduction

The PCM-3660 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-3660 fully complies with IEEE 802.3 10 Mbps CSMA/CD standards and is 100% Novell NE2000 compatible.

The module includes a built-in 10BASE-T transceiver and RJ-45 connector. An AUI connector supports external transceivers (MAU) for 10BASE-2, 10BASE-5 10BASE-FOIRL, etc. Two diagnostic LEDs indicate the operating status of the module and the network.

The PCM-3661 5-V 10BASE-2 transceiver daughterboard connects to the PCM-3660's AUI connector. It supports IEEE 802.3, allowing connections of up to 185 m with thin coaxial cable. The daughterboard requires only 5-V input power. Surge protection circuits prevent damage from high voltages or currents on the cable.

The PCM-3660 comes with drivers for a wide variety of networks and operating systems. An optional boot ROM lets you boot a remote PC/104 station automatically from a server, making hard or floppy disks unnecessary.

### Features

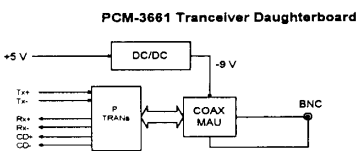
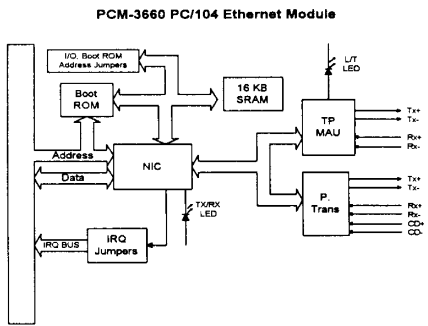
#### PCM-3660 PC/104 Ethernet module

- Conforms to IEEE 802.3 Ethernet standards, CSMA/ CD protocol for 10 Mbps data transfer
- Hardware and software compatible with Novell NE2000 adapter
- Automatically detects 8-bit or 1 6-bit data bus
- Remote boot ROM socket for diskless operation
- Built-in 1 OBASE-T transceiver for unshielded twisted £ pair cabling up to 100 m
- AUI connector supports external MAUs such as 10BASE-2, 1 OBASE-5 thick cable or 10BASE-FOIRL fiber optic cable
- Two diagnostic LEDs indicate network status
- On-board 32K memory for high-performance multi-package buffer
- Software drivers for most popular network environments

#### PCM-3661 5-V 10BASE-2 Transceiver Daughterboard

- Conforms to IEEE 802.3 10BASE-2 standard
- Requires only 5-V power (supplied by PCM-3660 board)
- Supports up to 185 m connections on RG-58 thin coaxial cable

### Block diagram



## Specification

PCM-3660 PC-104 Ethernet module

### 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, D0C00 or D8000H
- **Data bus:** 8-bit or 1 6-bit, auto-sensing
- **Connectors:** 16-bit PC/104 stackthrough connector RJ45 connector for 10BASE-T, 16-pin insulation displacement connector for AUI

### 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 31, Windows NT 35 and Windows 95
- OS2 driver
- Netware serverdriver

### Standards

- PC/104 8-bit and 1 6-bit compatible
- Built in IEEE 802.310 Mbps CSMA/CD 10BASE-T transceiver
- 10BASE-2, 1 OBASE-5 and 10 BASE-FOIRL by external transceiver

### General

- **Power:** +5 V 400 mA max.
- **Temperature:** 0 to 70°C (operating)  
-15 to 80°C (storage)
- **Humidity:** 10 to 90% (operating)  
10 to 90% (storage)

PCM-3661 5-V 10BASE-2 transceiver

**Standard:** IEEE 802.310BASE-2 medium

### Connectors:

- 1 6-pin insulation displacement connector for AUI connection to PCM-3660
- BNC connector for T-connection to 10BASE-2 thin cable

**Dimensions:** 50 mm x 62 mm (2. x 2.5')

**Power:** +5 V ~ 130 mA max.

**Temperature:** 0 to 70°C (operating), -15 to 80°C (storage)

**Humidity:** 10% to 90% (operating), 10% to 90% (storage)

## Installation

### Initial inspection

Your package should contain the following items. If they are missing, damaged or fail to meet specifications, contact your dealer/sales representative immediately.

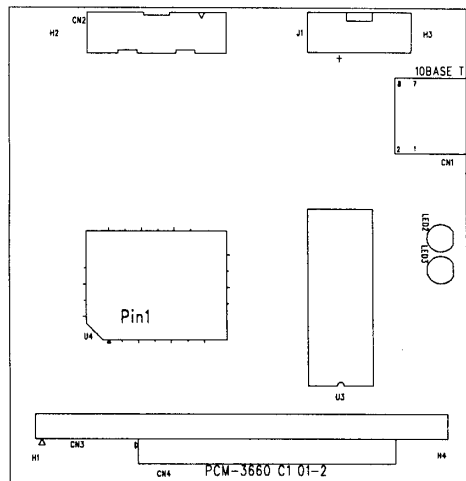
PCM-3660 PC/104 Ethernet Module

- This manual
- PCM-3660 board
- 3.5", 1.44 MB diskette with drivers

PCM-3661 5-V 10BASE-2 Transceiver  
Daughterboard (optional)

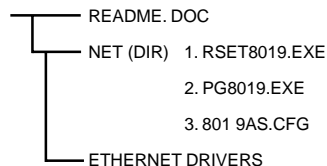
- PCM-3661 board
- 30-cm AUI cable with two 20-pin connectors
- T-connector

### Locating components



### Software Configuration for PCM-3660

The PCM-3660 module is supplied with a software utility disk. This disk contains the files necessary for setting up the Ethernet controller. Directories and files on the disk are as follows:



## 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-3660 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 EEPROM becomes corrupted, the PG8019.EXE program allows you to reconfigure 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-3660's on-board 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 settings are available.

#### PCM-3660 Ethernet Settings

	I/O option	I/O address range
Jumperless	3, 4, 5, 9, 10,	200-3FFH
Configuration	1, 1, 1, 2, 1, 5	

Default Settings: IRO=5; Address=300H

#### Note:

1. You can select an IRO from the Options shown above, 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-3660 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 which 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 configuration you want, press <ESC>. A prompt will appear asking if you want to save the configuration. Press Y if you want to save.

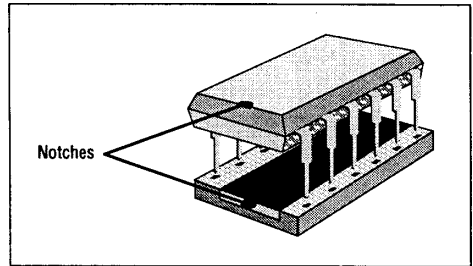
The Ethernet Setup Menu also offers three very useful diagnostic functions. These are:

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 (P/N: PCL-843-ROM)

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



### Hardware installation

The following instructions tell how to install the PCM-3660 module on a CPU card. The process is similar with PC/104 CPU modules. See the figure at the bottom of the page. Make sure that you have properly configured the module's jumpers and attached a boot ROM if necessary.

#### Warning!

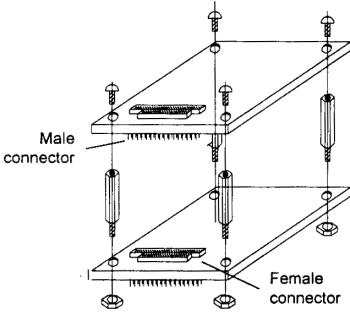
TURN OFF your PC power supply whenever you install or remove the PCM-3660 or connect and disconnect cables.

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 the user's 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 the threads may be damaged.
6. Carefully align the connector pins of the PCM-3660 (ZJ1 and ZJ2) with the PC/104 connector. Slide the module into the connector. The module pins may not slide all the way into the connector; do not push too hard or the module may be damaged. If the CPU card has only an 8-bit bus, make sure that the pins on connector ZJ1 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. Attach the flat-cable connector from the PCM-3661 10BASE-2 transceiver daughterboard (or other external MAU) to the module's AUI connector. Attach the connector so that the red or blue wire on the Hat cable 1, matches pin 1 (printed on the board)

9. 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.



### 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-5	10 Mbps	Bus	50 Ohm Ethernet thick (RG-11)	500 m (1640 ft.) max.
10BASE-T	10 Mbps	Star	100 Ohm unshielded twisted pair	100 m (328 ft.) max.

### Pin assignments

GND  
CD+  
TX+  
GND  
RX+  
GND

1	2
3	4
5	6
7	8
9	10
11	12
13	14
15	16

CD-  
TX-  
GND  
RX-  
AUI+12 V  
GND  
  
AUI+5V

### RJ-45 connector

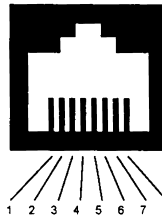
Pin	Signal	Description
1	TD+	Data transmission positive
2	TD-	Data transmission negative
3	RD+	Data reception positive
6	RD-	Data reception negative

### LED indicators

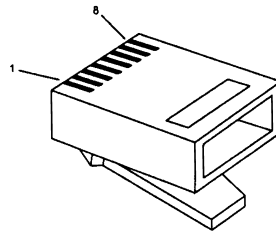
The module's two LED indicators show the status of the communication link and traffic.

LED	On	Flashing	Off
LED2	-	Traffic	No traffic
LED3	Link OK	-	Link failure

RJ-45 Jack



RJ-45 Plug



### RJ-45 Pin Assignments