High-Speed Parallel PCI PC Plus Adapter

FEDERAL COMMUNICATIONS COMMISSION AND CANADIAN DEPARTMENT OF COMMUNICATIONS RADIO FREQUENCY INTERFERENCE STATEMENTS

Class B Digital Device. This equipment has been tested and found to comply with the limits for a Class B computing device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. This equipment generates, uses, and can radiate radio frequency energy, and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. If this equipment does cause harmful interference to radio or telephone reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.

- Increase the separation between the equipment and receiver.

- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

- Consult an experienced radio/TV technician for help.

Caution:

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

To meet FCC requirements, shielded cables are required to connect this device to other Class B certified devices.

This digital apparatus does not exceed the Class B limits for radio noise emission from digital apparatus set out in the Radio Interference Regulation of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de classe B prescrites dans le Règlement sur le brouillage radioélectrique publié par le ministère des Communications du Canada.

NORMAS OFICIALES MEXICANAS (NOM)
ELECTRICAL SAFETY STATEMENT

INSTRUCCIONES DE SEGURIDAD

1. Todas las instrucciones de seguridad y operación deberán ser leídas antes de que el aparato eléctrico sea operado.

2. Las instrucciones de seguridad y operación deberán ser guardadas para referencia futura.

3. Todas las advertencias en el aparato eléctrico y en sus instrucciones de operación deben ser respetadas.

4. Todas las instrucciones de operación y uso deben ser seguidas.

5. El aparato eléctrico no deberá ser usado cerca del agua—por ejemplo, cerca de la tina de baño, lavabo, sótano mojado o cerca de una alberca, etc..

6. El aparato eléctrico debe ser usado únicamente con carritos o pedestales que sean recomendados por el fabricante.

7. El aparato eléctrico debe ser montado a la pared o al techo sólo como sea recomendado por el fabricante.

8. Servicio—El usuario no debe intentar dar servicio al equipo eléctrico más allá a lo descrito en las instrucciones de operación. Todo otro servicio deberá ser referido a personal de servicio calificado.

9. El aparato eléctrico debe ser situado de tal manera que su posición no interfiera su uso. La colocación del aparato eléctrico sobre una cama, sofá, alfombra o superficie similar puede bloquea la ventilación, no se debe colocar en libreros o gabinetes que impidan el flujo de aire por los orificios de ventilación.

10. El equipo eléctrico deber ser situado fuera del alcance de fuentes de calor como radiadores, registros de calor, estufas u otros aparatos (incluyendo amplificadores) que producen calor.

11. El aparato eléctrico deberá ser connectado a una fuente de poder sólo del tipo descrito en el instructivo de operación, o como se indique en el aparato.

12. Precaución debe ser tomada de tal manera que la tierra fisica y la polarización del equipo no sea eliminada.

13. Los cables de la fuente de poder deben ser guiados de tal manera que no sean pisados ni pellizcados por objetos colocados sobre o contra ellos, poniendo particular atención a los contactos y receptáculos donde salen del aparato.

14. El equipo eléctrico debe ser limpiado únicamente de acuerdo a las recomendaciones del fabricante.

15. En caso de existir, una antena externa deberá ser localizada lejos de las lineas de energia.

16. El cable de corriente deberá ser desconectado del cuando el equipo no sea usado por un largo periodo de tiempo.

17. Cuidado debe ser tomado de tal manera que objectos liquidos no sean derramados sobre la cubierta u orificios de ventilación.

18. Servicio por personal calificado deberá ser provisto cuando:

   A: El cable de poder o el contacto ha sido dañado; u

   B: Objectos han caído o líquido ha sido derramado dentro del aparato; o

   C: El aparato ha sido expuesto a la lluvia; o

   D: El aparato parece no operar normalmente o muestra un cambio en su desempeño; o

   E: El aparato ha sido tirado o su cubierta ha sido dañada.

Contents

1. Specifications

**System Hardware
Required —**   IBM PC compatible computer with at
least one available PCI slot

**Operating System
Required —**   DOS, Microsoft Windows 3.x,
Windows NT, Windows 95, 98, Me,
2000, or XP

NOTE

For instructions for using DOS and Windows 3.x, refer to
the installation diskette.

Bus Used —   PCI

Port Used —   Single LPT port

**Other Hardware
Used —**   Plug-and-Play compatible;
automatically self-configures
interrupt, I/O address, BIOS
address, etc.

Compliance —   CE; FCC Part 15, Subpart J, Class B;
DOC Class/MDC classe B

Standard —   PCI 2.1

HIGH-SPEED PARALLEL PCI PC PLUS ADAPTER

Interface —	IEEE-1284 EPP (Enhanced Parallel Port)
Data Rate —	Up to 7.2 Mbps (~900 Kcps)
Clock Skew —	±2 ns
Maximum Distance —	20 ft. (6.1 m) from Adapter to device
User Controls —	Software drivers (included)
Connector —	(1) DB25 female
Power —	From the PC's PCI bus: Input: +5 ±0.25 VDC at 15 mA max.; Consumption: 75 mW maximum
Temperature Tolerance —	Operating: 32 to 158˚ F (0 to 70˚ C); Storage: –85 to 302˚ F (–65 to 150˚ C)

NOTE

The electronic circuitry in the High-Speed Parallel PCI PC Plus Adapter is capable of withstanding these temperatures, but many of your PC's other components will probably fail if you try to operate or store the host PC at temperatures at the extremes of the Adapter's tolerance range.

**Humidity
Tolerance —**   Up to 90% noncondensing at standard
                   temperature and pressure

Size —   Three-quarter-card;
                   Height (at tallest points):
                       Seated (not including goldfingers or
                           bracket): 2.6" (6.6 cm);
                       Unseated (including goldfingers but
                           not bracket): 2.9" (7.4 cm);
                       Total (including bracket):
                           4.7" (12 cm);
                   Width: 0.8" (2 cm);
                   Depth:
                       Not incl. bracket: 4.7" (12 cm);
                       Including bracket: 5" (12.6 cm)

Weight —   Net: 2.1 oz. (60 g);
                   Shipping: 3.9 oz. (112 g)

2. Introduction

Thank you for purchasing a High-Speed Parallel PCI PC Plus Adapter. We hope you find that it adds speed and power to your parallel data communication.

Here are some of the useful features of the Adapter:

- **IEEE-1284 compliant.** Adds a PCI-bus DB25 female Enhanced Parallel Port (EPP) to your system, occupying a single LPT port.

- **Plug-and-Play compatible.** Automatically selects one available IRQ and one available PCI I/O address—just plug it into the motherboard and go!

- **PCI compliant.** Fully compliant with the PCI 2.1 specification.

- **Compatible with all standard parallel peripherals.** 100% compatible with any standard parallel-port device, including laser, inkjet, bubble-jet, and dot-matrix printers, parallel removable-storage devices, and parallel scanners.

- **Can be set to ISA parallel addresses.** Configurable to the standard ISA parallel-port addresses (0278 and 0378 hex) for compatibility with legacy peripherals such as Iomega® Zip™ drives.

- **Blistering speed.** Up to three times faster than standard ISA parallel ports and motherboard-mounted EPP ports.

- **Lifetime warranty.** If the Adapter ever goes bad due to a defect or a spontaneous component failure, we'll fix or replace it. Call Black Box Technical Support for more details.

The remaining chapters of this manual describe how to install, configure, operate, and troubleshoot the Adapter.

3. Hardware Installation

Take these steps to install a High-Speed Parallel PCI
PC Plus Adapter in your computer:

1. Making sure that your PC is turned OFF and
   unplugged, open its cover. (If you are unsure how
   to do this, consult the PC's manual.)

2. Locate an unused 32-bit PCI slot on the PC's
   motherboard. (PCI slots are usually white and are
   shorter than ISA or EISA slots. If you are unsure
   which of your PC's slots are PCI type, consult the
   PC's manual.) Insert the Adapter in the slot,
   making sure it is well seated, as shown in
   Figure 3-1 below.

Screw for attaching Adapter's bracket to PC's housing

Parallel
Port
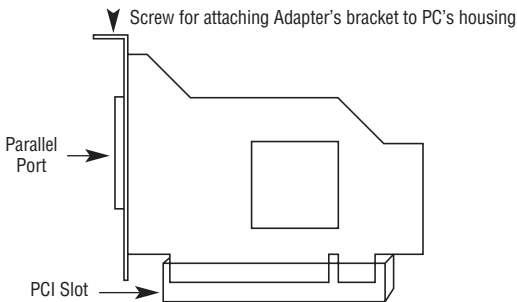
PCI Slot

Figure 3-1. The Adapter seated in a PCI slot.

3. Screw the metal backplane of the Adapter to your PC's housing and replace the machine's cover.

4. Run a parallel cable from the Adapter's DB25 female parallel port to your printer or other parallel device.

Now install the Adapter's driver software; refer to the diskette if you are running DOS or Windows 3.x, or to **Chapter 4** if you are running Windows 95, 98, Me, 2000, or XP, or Windows NT 4.0.

NOTES

Because the Parallel PCI PC Plus Adapter uses PCI (not ISA) I/O address ranges, it will never be seen by your BIOS at boot-up as a standard parallel port (occupying 0278h or 0378h), even if the address has been changed in Windows. This is normal, and does not indicate a fault in your Parallel PCI Adapter.

The Parallel PCI PC Plus Adapter will not work at address 0278h or 0378h if it is installed in a PCI slot that is behind a PCI-to-PCI bridge. If you have trouble installing the adapter, try seating it in a different slot.

In standard installations of Windows 2000/XP, the I/O address cannot be changed to a legacy address.

Some devices (like external CD writers) default to "word mode" (that is, 16-bit data transfer) for fastest performance. Such devices need to operate in "byte mode" (8-bit data transfer) to work with the adapter. Look in your device software for a "byte mode" setting, and enable it.

4. Software Installation

4.1 Windows 95/98/Me/2000/XP

Take these steps to install the driver for the High-Speed Parallel PCI PC Plus Adapter if your computer is running Microsoft Windows 95, 98, Me, 2000, or XP:

1. Turn the PC on. When Windows starts, it will find the Adapter, which it will identify as a "Parallel PCI Controller." It will ask you for a driver for this device; when it does, insert the included driver diskette into your floppy drive. After copying the necessary files from the diskette, Windows will restart your PC in order to complete the installation of the Adapter. If you've attached a Plug-and-Play printer to the Adapter, the printer will now be detected and "installed" also.

2. Double-click on this sequence of elements: "My Computer," "Control Panels," "System," "Device Manager," "Ports." The Adapter will appear in the Ports list as an entry similar to the one shown in Figure 4-1 on the next page. If you need to customize the Adapter's settings, you can do so by clicking on its Ports-list entry and then clicking on Properties. (You won't normally have to do this if

you've connected the Adapter to a printer—the Adapter's factory-default settings should work—but you probably will have to customize the Adapter if you've connected it to a non-printer peripheral; see the next chapter.)
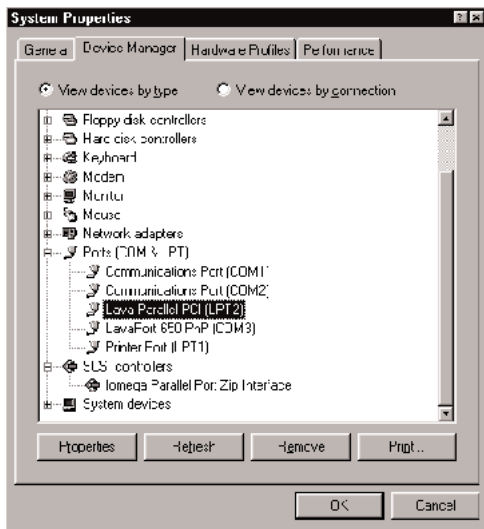

Figure 4-1. How the Adapter might appear in the Ports list.

Your High-Speed Parallel PCI PC Plus Adapter should now be ready for continuous operation.

4.2 Windows NT 4.0

Follow these steps:

1. Shut down the system and place the High-Speed Parallel PCI Plus Adapter in a free (unused) PCI slot, as described in **Chapter 3**.

2. Boot into Windows NT 4.0, log on as Adminstrator, and place the Installation and Utilities diskette into the floppy drive.

3. Run setup.exe in the NT 4.0 directory on the floppy.

4. Assign the address. If you are connecting a printer to the Adapter, choose the PCI bus assigned address. If you are installing a non-printer peripheral such as a scanner or external drive, choose either 0278 – 027F or 0378 – 037F. Make sure that you do not assign the Adapter to an address used by your on-board parallel port. To find the address of your on-board parallel port, look in Start→Programs→Administrative Tools→Windows NT diagnostics. Go to the

Resources tab, then click the Devices button. Double-click Parport. This will list the parallel port address assignment. You can also verify the successful installation of the Adapter here.

5. Reboot Windows NT 4.0.

CAUTION

The following devices are NOT compatible with Windows NT 4.0:

IOMega ZIP drive

SyQuest SPARQ

5. Reconfiguration for Use with Non-Printer Devices (Windows 95/98/Me only)

If you've run cable from the High-Speed Parallel PCI PC Plus Adapter to a non-printer device such as an external drive or parallel scanner, you might need to reconfigure the Adapter, because some parallel devices require parallel ports that use the standard (legacy) ISA LPT addresses 0278 to 027F hex or 0378 to 037F hex. (Because the Adapter is a fully compliant PCI device, its default I/O-address range is beyond the standard range for ISA I/O addresses.)

In order to connect a peripheral device with ISA address requirements to the Adapter, you'll have to change the Adapter's I/O address range manually. Take these steps:

1. Double-click on this sequence of elements: "My Computer," "Control Panels," "System," "Device Manager," "Ports." Find the Adapter's entry in the Ports list. Click on "Properties," then on the "Resources" tab. A screen like the one shown in Figure 5-1 on the next page will appear. (Your Adapter's Input/Output Range and Interrupt
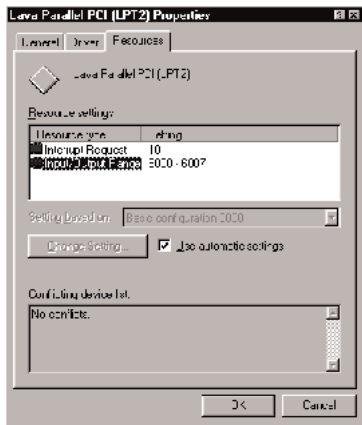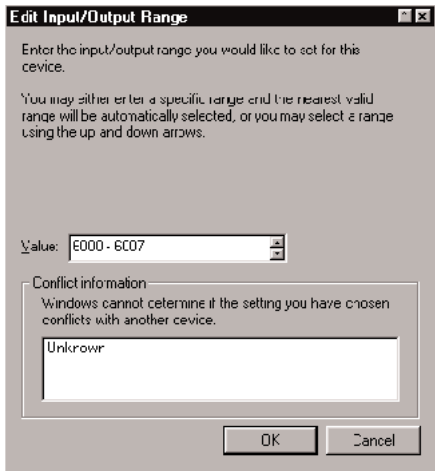
Request might differ from those shown.)

Figure 5-1. How the Adapter's Resources-list entry might appear.

2. Click on the "Use Automatic Settings" box to turn it OFF (to make the check mark disappear).

3. Double-click on the words "Input/Output Range." A screen like the one shown in Figure 5-2 on the next page will appear.

Figure 5-2. Editing the Adapter's I/O-address range.

4. Use the up/down arrows to scroll to one of the two ISA-standard parallel I/O-address settings—"0278-027F" or "0378-037F"—or type one of these address ranges in manually.

5. Click on "OK." Windows will ask you if you want to force this particular configuration rather than the automatic one that it had previously chosen. Click on "Yes."

6. Make sure that choosing the new address hasn't created any conflicts with any other parallel ports or other devices in your system. (Conflicts will be indicated by yellow balloons with exclamation points that appear in the "Device" list next to the icons of the affected devices.) If no conflicts are apparent, restart Windows.

6. Optimization for Use with Iomega Zip Drives

If you've run cable from the High-Speed Parallel PCI PC Plus Adapter to an Iomega Zip removable-storage drive, you'll need to do a few more things to make sure the Adapter works well with the drive. Take these steps:

1. If you haven't done so already, run parallel cable from your Zip drive to the Adapter, and install the drive as instructed in its Iomega documentation.

2. Run the "Parallel Port Accelerator" utility that should have been included on your Zip drive's installation diskette. (If this utility is not on your drive's diskette, contact Iomega.)

3. For maximum speed and performance, we recommend that, after you run the Parallel Port Accelerator, you double-click on this sequence of elements: My Computer," "Control Panels," "System," "Device Manager," "SCSI Controllers." Click on "Iomega Parallel Port Zip Interface," then on "Properties," then on the "Settings" tab. A screen like the one shown in Figure 6-1 on the next page should appear.
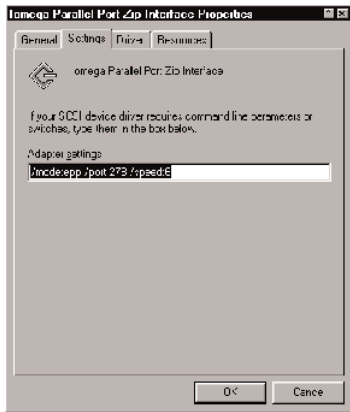
Figure 6-1. Editing the Zip drive's command-line switches.

The Parallel Port Accelerator utility should have inserted a text string into the area shown on this screen. The first part of this string will read:

```
/mode: bdir
```

Change this string to read:

```
/mode:epp
```

NOTE

Do *not* change the spacing or order of the text in the string.
Doing so may result in the Zip drive's not functioning at all.

7. Troubleshooting

7.1 Common Difficulties

If you are having a problem installing or configuring the High-Speed Parallel PCI PC Plus Adapter, keep these things in mind:

- Because the Adapter uses PCI rather than ISA I/O address ranges, it will never be seen by your BIOS at boot-up as a standard parallel port occupying 0278 hex or 0378 hex, even if you've selected one of these addresses for it in Windows using the procedure descibed in **Chapter 5**. This is normal, and does not indicate a fault in your Adapter.

- The Adapter will not work at address 0278 hex or 0378 hex if it is installed in a PCI slot that is behind a PCI-to-PCI bridge. If you have trouble installing the Adapter, try seating it in a different slot.

7.2 Calling Black Box

If your High-Speed Parallel PCI PC Plus Adapter seems to be malfunctioning, *do not attempt to alter or repair it.* It has no user-serviceable components. Call Black Box Technical Support at 724-746-5500; the problem might be solvable over the phone.

Before you call, make a record of the history of the problem. We will be able to provide more efficient and accurate assistance if you have a complete description, including:

- the nature and duration of the problem.

- when the problem occurs.

- the components involved in the problem.

- any particular application that, when used, appears to create the problem or make it worse.

- the results of any testing you've already done.

7.3 Shipping and Packaging

If you need to transport or ship your High-Speed
Parallel PCI PC Plus Adapter:

- Package it carefully. We recommend that you use
  the original container.

- If you are returning the Adapter, include
  everything you received with the it. If you are
  returning the Adapter or shipping it for repair,
  contact Black Box to get a Return Authorization
  (RA) number before you ship.

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