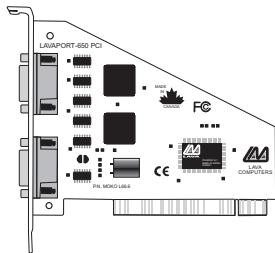


LavaPort-PCI Installation Manual



Rev. B01

Congratulations on your purchase of the LavaPort-PCI Com Port Accelerator for 56K and ISDN external modems, and other high-speed serial peripherals.

Included with your package, you should have the following:

1. The LavaPort-PCI printed circuit board
2. One software installation diskette
3. This user's manual

If any of the above items are missing, please contact the reseller where you purchased this product.



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Note: Instructions for installing the LavaPort-PCI under DOS or Windows 3.x may be found at <http://www.lavalink.com> or on the Driver Installation Diskette.

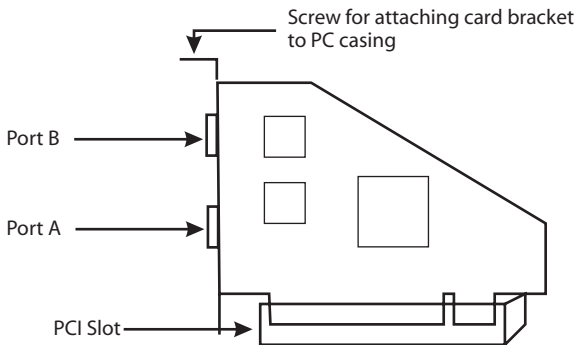
Quick Install

Windows 95/98/ME/2000/XP

1. With the power off, insert the LavaPort-PCI card into any free PCI slot.
2. Launch Windows – new hardware will be found.
3. When prompted, insert the LavaPort-650 installation diskette point Windows to look at the floppy's root directory.
4. After Windows has booted, Click the Start button, then Settings, Control Panel, System, Device Manager, Ports. The LavaPort-PCI ports will be listed as two of your Com Ports. Click "Properties" to change the default settings as desired.
- 5a. If desired, install the Lava Com Port Redirect and Lava Modem Speed Set utilities to change the Com numbers of your ports, and to automate modem speed settings.
- 5b. For Windows 2000/XP, you can redirect your Com ports by Right Clicking My Computer > Properties > Hardware > Device Manager > double click the Lava Port you want to change > Port Settings > Advanced and under Com Port Number, you can change the port number from the drop down menu.

Hardware Installation

1. Before opening the casing of your computer, make sure that all power is off.
2. Locate an unused PCI slot and insert the LavaPort-PCI into it. Ensure that it is well seated.
3. Screw the metal backplane of the LavaPort-PCI board to your PC's casing and replace the machine's cover.
4. Connect your modem cable to the whichever port on the LavaPort-PCI that you would like to use first and turn the PC on.



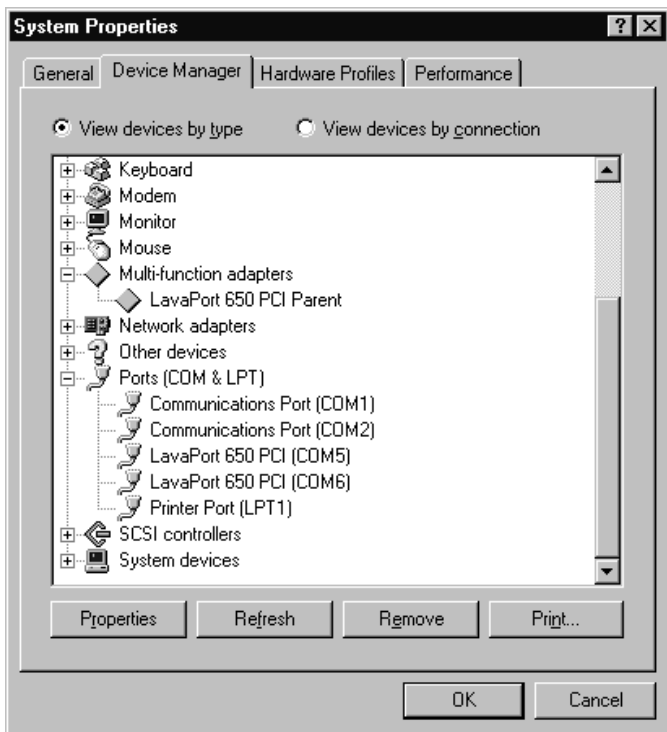
Windows Installation

Note: Make sure that you are installing the correct LavaPort PCI drivers for the appropriate operating system.
DO NOT install NT or Windows 3.x drivers under other versions of Windows.

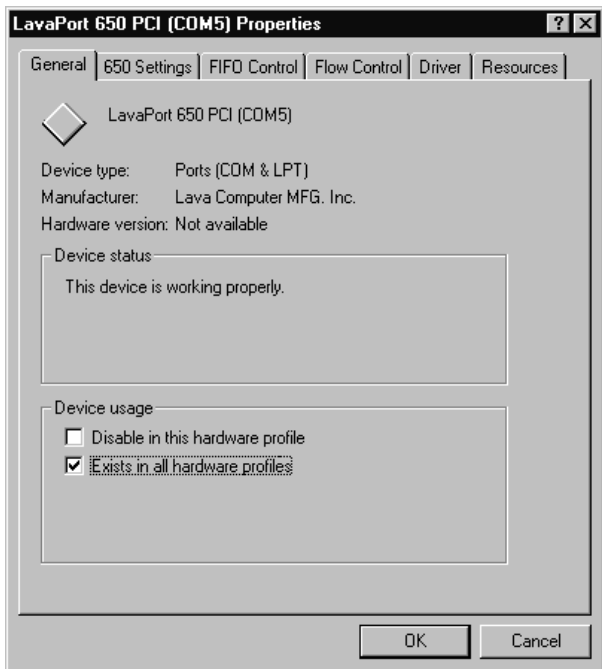
Windows Driver Installation

1. Once the LavaPort-PCI is installed in your PC, turn on your computer. Windows will automatically detect the LavaPort-PCI as a new PCI Serial Controller and ask you to insert the LavaPort Installation diskette. The installation files are located in either the root or the Win95 subdirectory of this disk. On some PC's you may have to manually type A:\WIN95 when prompted for the LavaPort Installation diskette.
2. After the necessary files have been copied, Windows will complete the full installation of the LavaPort-PCI. During this process, a LavaPort Parent will be created in Device Manager under Multi-Function Adapters, and two child ports will be created in Device Manager/Ports. The following describes how you may custom configure these ports for your personal needs.

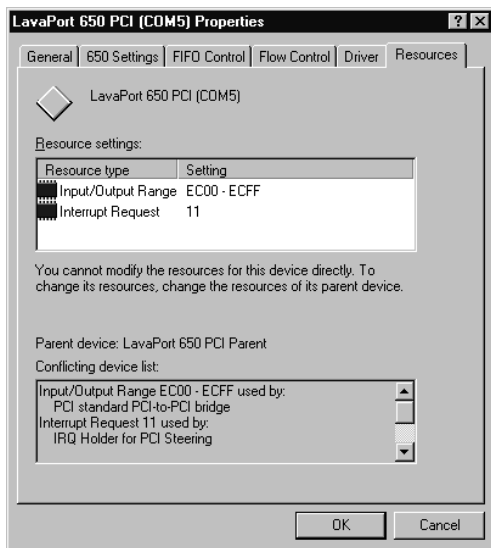
3. Click on the Start button, then choose Settings, Control Panel, System, Device Manager. You should see a window that is similar to the following:



- Click on Ports and select one of the ports listed under the heading LavaPort-PCI.
- Click Properties. The following screen will appear:



6. Click the Resources tab. A screen similar to the following will appear:



Note: Do not be alarmed if Windows reports an I/O Range or IRQ conflict between the LavaPort-PCI and some other device in your PC. The LavaPort-PCI is a fully compliant PCI device, and therefore allows for the sharing of IRQ and I/O Resources between devices.

The LavaPort-PCI hardware appears in Device Manager in two places: under the Multi-function Adapters tree and as part of the Ports tree.

Please note that the Resources (I/O Address & IRQ) used by the LavaPort-PCI can only be modified through the LavaPort Parent device - listed under Multi-function Adapters. Modifying I/O Address and IRQ Resources is NOT recommended.

If you wish to change the Com number of either one of the ports on the LavaPort-PCI (e.g. Assign Port 1 to be Com 3 instead of the default Com 6), please use the Lava Com Port Redirector Utility. This program will allow you to change the numbering of your ports without changing I/O address resources.

Interrupt Resources may be modified for the LavaPort Parent device (see Device Manager - Multi-function Adapters), but not for individual ports because both ports on the LavaPort-PCI share one IRQ. Please note that interrupt changes require a reboot to take effect.

Changing the Com numbering of your Ports

Windows 95/98/ME

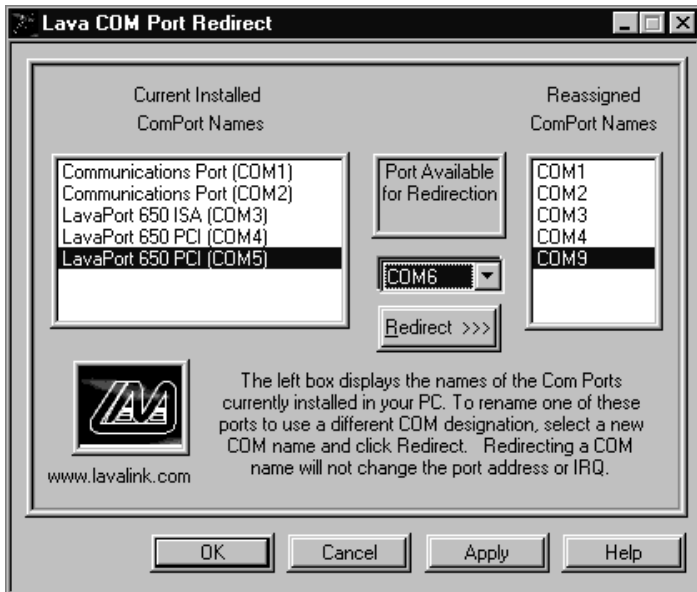
The LavaPort-PCI takes advantage of the inherent support of Windows for a multitude of Com Ports, and allows the user to add one or more ports beyond the traditional Com 4. Indeed because the LavaPort-PCI is a PCI device, Windows will always configure its ports using Com designations with higher numbers than Com 4.

Unfortunately many communications application programs do not recognize Port designations beyond Com 4. It therefore may be necessary to rename one or more of the Ports in your PC to use different Com numbers. This may be accomplished using the Lava Port Redirect utility found in the Utils subdirectory of your LavaPort-PCI diskette. This utility may be run from the diskette or installed onto your hard drive by using the Setup.exe program in the Utils subdirectory.

To install the Lava Port Redirect utility on your hard drive, insert the LavaPort diskette into your floppy drive, click Start, Run and type A:\Utils\Setup.

Windows 2000/XP

Windows2000/XP has its own port changing ability built-in. You can do this by Right Clicking My Computer > Properties > Hardware > Device Manager > double click the Lava Port you want to change > Port Settings > Advanced and under Com Port Number, you can change the port number from the drop down menu.



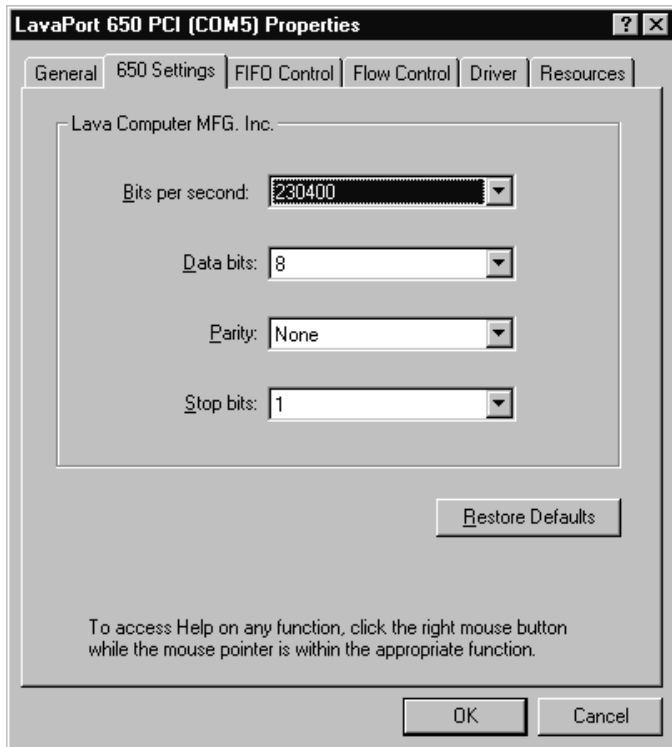
Setting LavaPort Data Rates in Windows

The data rate of the LavaPort may be set using the Bits per Second pull down menu.

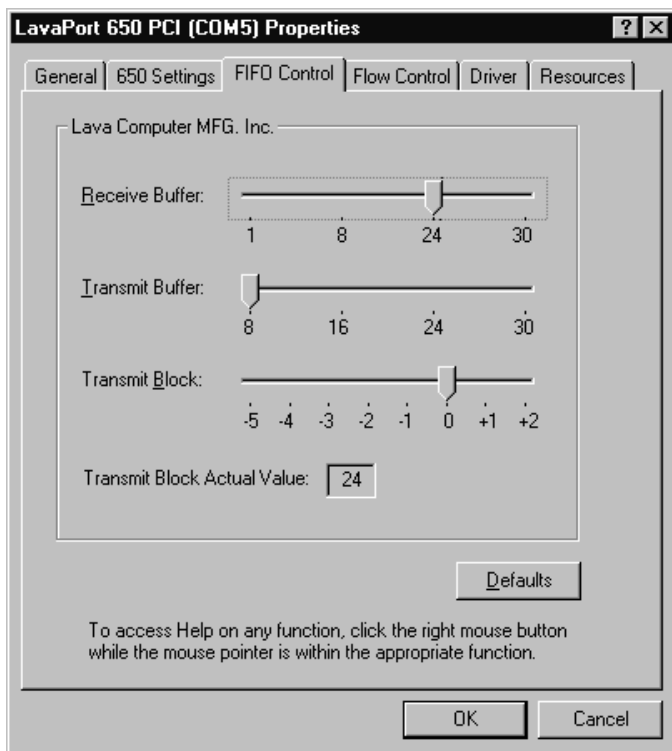
Please note that this menu will also appear when setting the “Port Properties” in any communications application, and may have to be set independently of your Control Panel settings. Control Panel settings may not necessarily be linked to those of your Communications Application. For example, Port speeds in Dial-Up Networking are controlled independently of speed settings in Device Manager.

For optimum performance, always verify that your LavaPort is set to the maximum speed supported by your modem, and that both speed settings are the same in every application.

Please note that the setting of Communications Port Data Rates is often the most confusing of tasks encountered by modem users. For this reason, Lava has included the Lava Modem Speed Set utility in the Utils subdirectory of your LavaPort diskette. Lava strongly recommends using this utility for all LavaPort-to-modem connections.



Setting LavaPort FIFO Control in Windows



Each of the the LavaPort-PCI's two ports incorporates a 32-byte FIFO (first-in-first-out) buffer.

The FIFO control tabs set the buffer "trigger" levels. When the buffer is filled to its trigger level with the selected number of bytes, the CPU will be interrupted and asked to either reload the buffer (for transmission), or retrieve data from the buffer (for reception).

Most efficient data transmission occurs when the CPU is interrupted infrequently. For each interrupt, the CPU can then service the buffer with larger data blocks: during transmission, it can place a large burst of data into the buffer, and during reception it can retrieve a large block from the buffer and then continue multi-tasking.

Ideally therefore, Receive triggers should be set as high as possible and Transmit triggers as low as possible.

However, if the Transmit trigger levels are set too low, or Receive triggers too high, and the CPU is busy when an interrupt is called by the LavaPort, a short period of inactivity may occur between the port and the modem. This will reduce effective transmission/reception speeds.

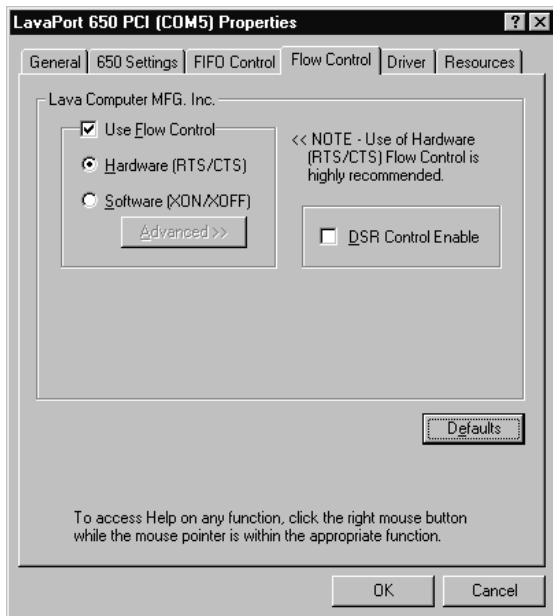
Optimum buffer settings are dependent on your modem speed, your CPU speed, and the amount of multi-tasking that occurs while online. For a fast modem and fast CPU performing few multi-tasking functions, set transmit triggers low and receive triggers high. If multi-tasking while online, set transmit triggers higher and receive triggers lower.

Setting LavaPort Flow Control in Windows

Flow Control refers to the type of signaling that is used between the modem and the LavaPort.

If you are connecting the LavaPort to a modem or ISDN terminal adapter, use the default setting of Hardware (RTS/CTS) flow control.

Software Flow Control (Xon/Xoff) is used only for connecting the LavaPort to a non-modem serial device (e.g. Using a null-modem cable to connect to another Com Port).



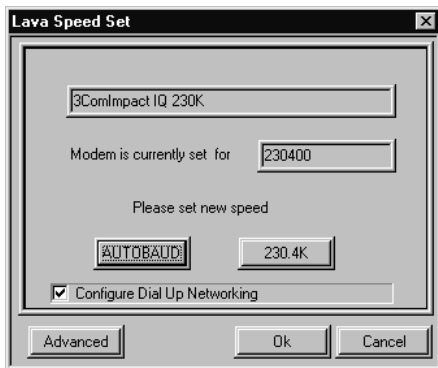
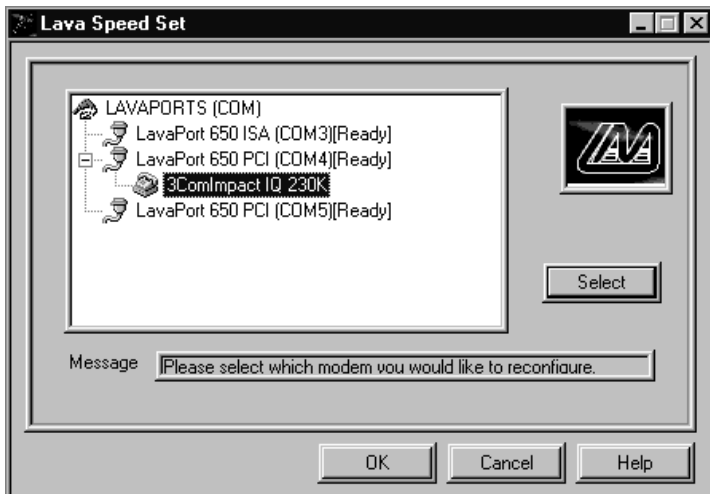
Lava Modem Speed Set for Windows

The LavaPort-PCI supports data rates up to 460.8 kbps, including 115.2 kbps and 230.4 kbps. However, not all modems support Com Port rates above 115.2 kbps.

If your modem does not support higher data rates and you select a higher data rate in the LavaPort Properties, Windows will automatically default to the slowest supported rate in the chain.

Some modems do support higher data rates but require special settings (AT Commands) and INF files for configuration. Lava has included a software utility called "Lava Modem Speed Set" which automates these functions and allows for easy speed reconfiguration. This utility may be found in the Utils subdirectory of your LavaPort diskette, and is constantly being updated to support more modems. Please check the Lava Web site for details: www.lavalink.com

To install the Lava Modem Speed Set utility on your hard drive, insert the LavaPort diskette into your floppy drive, click Start, Run and type A:\Utils\Setup.

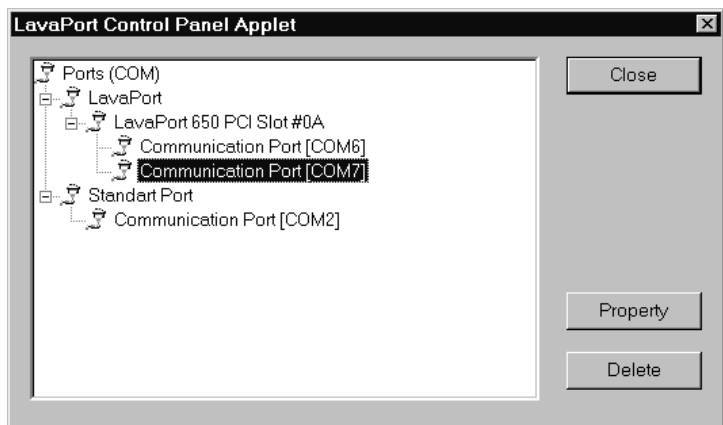


Windows NT 4.0 Installation

Note: Make sure that you are installing the correct LavaPort-PCI drivers for the appropriate operating system.
DO NOT install drivers for other versions of Windows under Windows NT

Windows NT Driver Installation

1. Once the LavaPort-PCI is installed in your PC, turn on your computer and start NT.
2. Place the LavaPort-PCI installation diskette into your floppy drive and select Run from the Start Menu. When prompted type:
A:\NT4.0\Setup.
3. After the necessary files have been copied, select My Computer and start Control Panel. A new icon will appear called "LavaPort". This applet should now be used to configure ALL Com Ports in your PC - not just LavaPorts.



Please note that Com 1 may not appear in this applet if you have your mouse attached to Com 1.

Setting a 230.4 kbps Data Rate

The LavaPort-PCI supports data rates up to 460.8 kbps, including 115.2 kbps and 230.4 kbps. However, not all modems support Com Port rates above 115.2 kbps.

If your modem does not support higher data rates and you select a higher data rate in the LavaPort Properties, Windows will automatically default to the slowest supported rate in the chain.

Some modems do support higher data rates but require special settings (AT Commands) and setup files for configuration. Contact your modem manufacturer for details.

NOTE: Lava's technical support department has tested the LavaPort-PCI with several modems, and we have posted instructions on configuring such modems for higher speed data rates on our web site. Please check www.lavalink.com, Tech Support, FAQ for details.

Lava Technical Support

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Lava Computer MFG Inc.



This device complies with part 15 of the FCC Rules. Operation is subject to the following conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

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