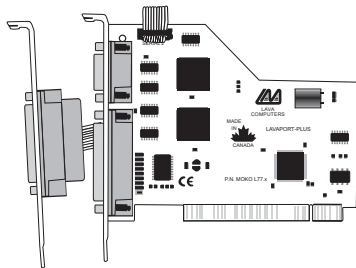


LavaPort-Plus Installation Manual



Rev. B00

Congratulations on your purchase of the LavaPort-Plus Com Port Accelerator and EPP parallel port for 56K and ISDN external modems, printers, and other high-speed serial and parallel 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-Plus under DOS, Windows 3.x, or Windows NT 4.0 may be found in the ReadMe file of the appropriate subdirectory of your LavaPort-Plus diskette.

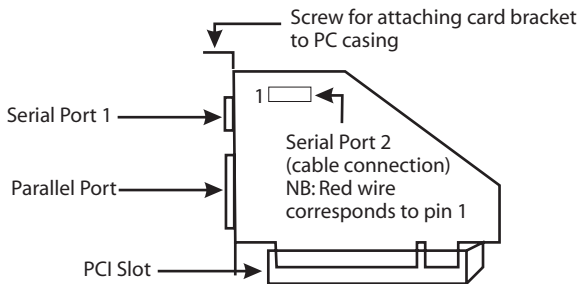
Quick Install

Windows (versions other than 3.x and NT)

1. With the power off, insert the LavaPort-Plus card into any free PCI slot.
2. Launch Windows - new hardware will be detected.
3. When prompted, insert the LavaPort-Plus installation diskette and select the file "Lava.inf" in either the root or the Win95 subdirectory. (If the diskette is not found you may have to type "A:\WIN95\").
4. After Windows has booted, click the Start button, then Settings, Control Panel, System, Device Manager, Ports. The LavaPort-Plus ports will be listed as two of your Com Ports and the Parallel Port will appear with an appropriate LPT number. Click "Properties" to change the default settings as desired.
5. If desired, install the Lava Com Port Redirect and Lava Modem Speed Set utilities to change the Com numbers of your serial ports, and to automate modem speed settings.

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-Plus into it. Ensure that it is well seated. Locate an unused backplane on your PC casing and insert the second serial cable bracket into it.
3. Screw the metal backplane of the LavaPort-Plus board to your PC's casing and replace the machine's cover.
4. Connect your external peripheral cables to the appropriate port on the LavaPort-Plus and turn the PC on.



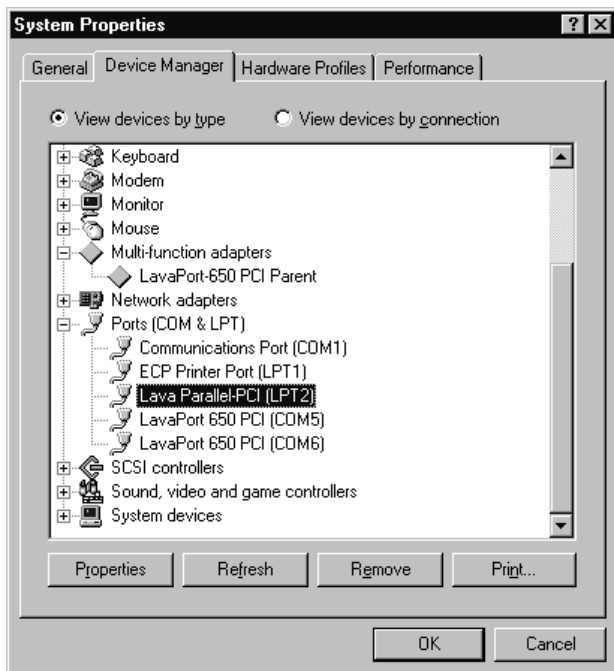
Windows Installation

Windows Driver Installation

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

1. Once the LavaPort-Plus is installed in your PC, start your computer. Windows will automatically detect the LavaPort-Plus as a new PCI 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 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-Plus. During this process, a LavaPort Parent will be created in Device Manager under Multi-Function Adapters, and two child serial ports and one parallel port will be created in Device Manager/Ports. The following describes how you may customize these ports for your personal needs.

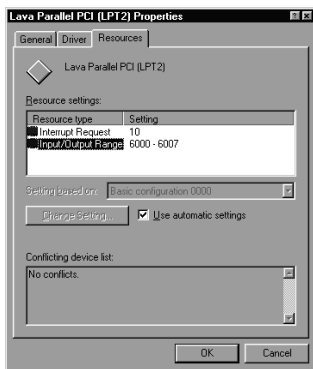
3. Click on the Start button, then choose Settings, Control Panel, System, Device Manager. You should see a window that is similar to the following:



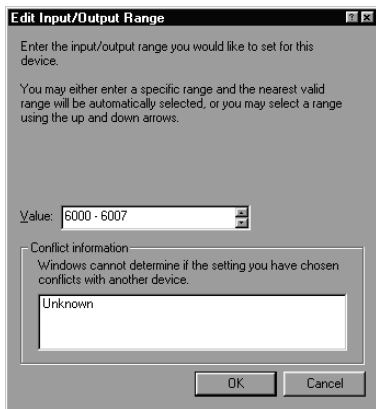
Configuring the LavaPort-Plus Parallel Port

Note: Most printers will not require customization of the LavaPort-Plus parallel port. However, some parallel port devices (e.g. External drives) require parallel ports that use standard (legacy) ISA LPT addresses (0278h or 0378h). Because the Lava-Plus is a fully compliant PCI device, the default address (Input/Output Range) of its parallel port is beyond the standard range of ISA I/O addresses. In order to connect such a peripheral to the LavaPort-Plus, the I/O address range of the parallel port must therefore be changed manually. The following section will describe how this is done.

1. Open Control Panel\System|Device Manager and find the Lava Parallel PCI listing under Ports. Click Properties, and proceed to the Resources tab. The following screen will appear (Note: the Input/Output Range and Interrupt of your particular configuration may differ from the one below).



2. Remove the check mark from the Use Automatic Settings box.
3. Double-click on the words Input/Output Range. The following screen will appear:



4. Use the up/down arrows to scroll to one of the following two range settings, or type them in manually:

0278 - 027F
0378 - 037F
5. After one of these has been entered, click OK. Windows will verify whether you would like to force this particular configuration rather than the automatic one that it had previously chosen. Click Yes.
6. Confirm that there are no conflicts with other parallel ports already in your PC. If no conflicts are found, restart Windows.

Optimizing the Parallel Port for use with Iomega Zip Drives

1. Connect your Zip Drive to the Lava-Plus parallel port, and install the drive as instructed by Iomega. On the Iomega installation diskette, you will find a utility called "Parallel Port Accelerator". After the drive is installed, run this utility.
2. Open Control Panel | System | Device Manager and find the Iomega Parallel Port Zip Interface listing under SCSI Controllers. Click Properties and go to the Settings tab. The following screen will appear:



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

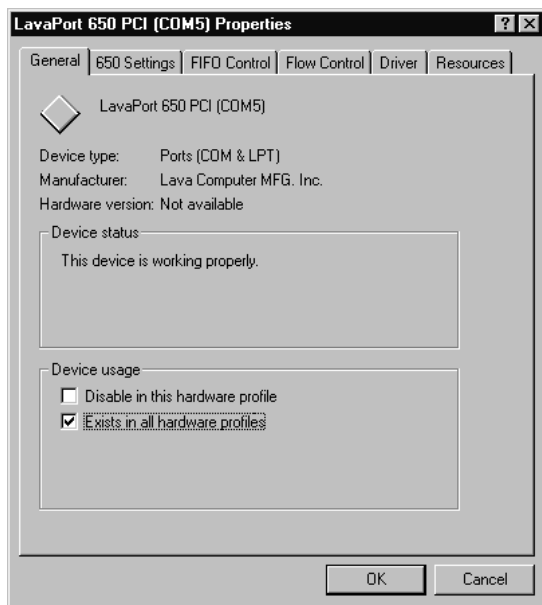
/mode:bdir

Change this string to read: /mode:epi

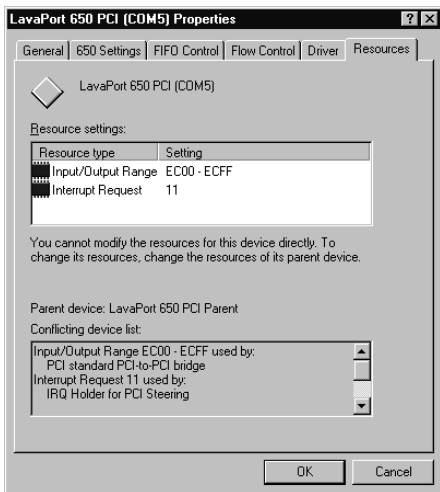
NOTE: Do NOT change the spacing or the order of the text in the string. Doing so may result in the Zip Drive not being recognized.

Customizing the LavaPort-Plus Serial Ports

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



3. 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-Plus and some other device in your PC. The LavaPort-Plus is a fully compliant PCI device, and therefore allows for the sharing of IRQ and I/O Resources between devices.

The LavaPort-Plus serial port 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-Plus can only be modified through the LavaPort Parent device - listed under Multi-function Adapters.

If you wish to change the Com number of either one of the serial ports on the LavaPort-Plus (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.

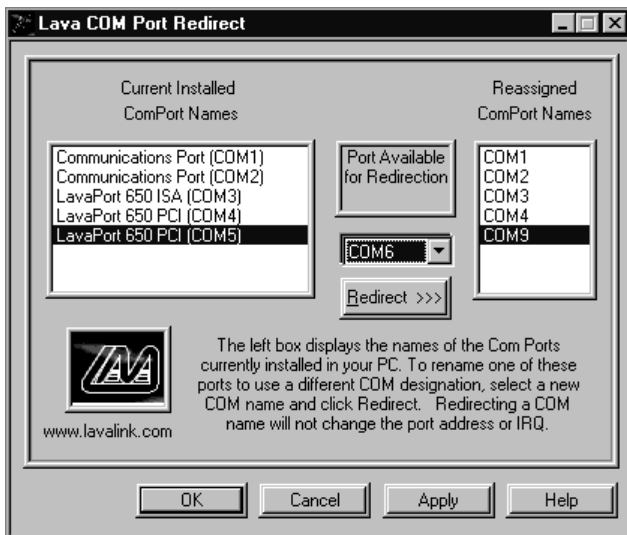
Interrupt Resources may be modified for the LavaPort Parent device (see Device Manager - Multi-function Adapters), but not for individual ports because both serial ports on the LavaPort-Plus share one IRQ. Please note that interrupt changes require a reboot to take effect.

Changing the Com numbering of your Ports

The LavaPort-Plus 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-Plus is a PCI device, Windows will always configure its serial 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-Plus 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.



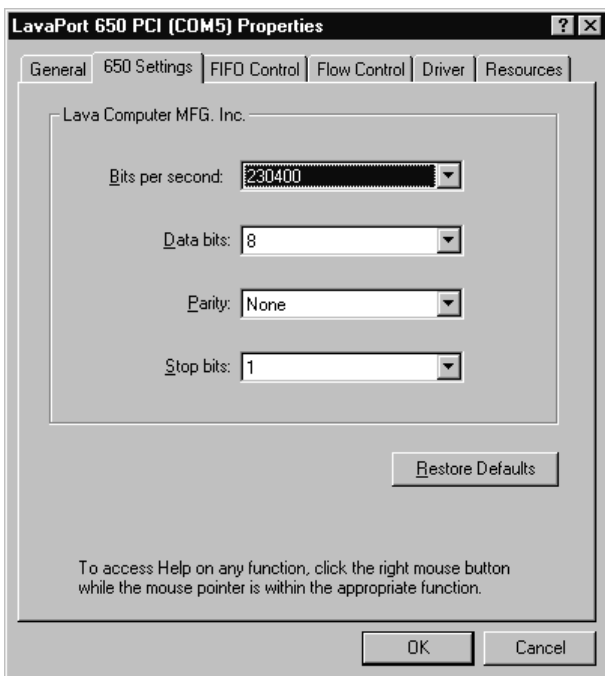
Setting LavaPort Data Rates in Windows

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

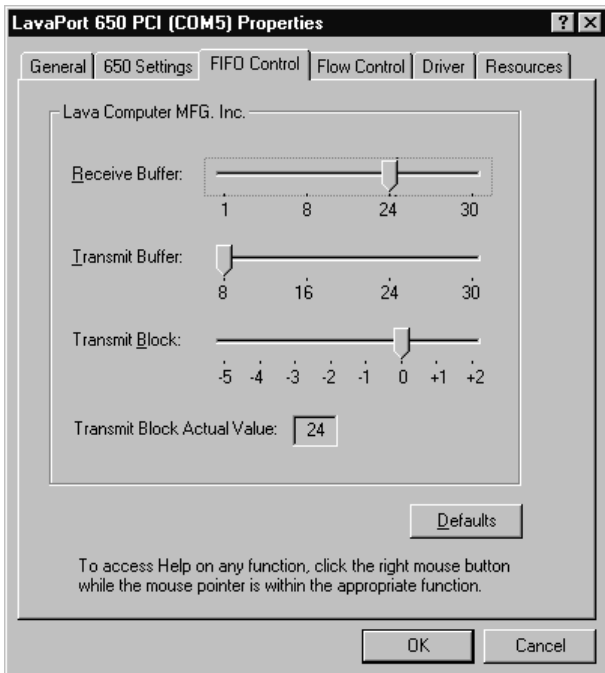
Please note that this menu will also appear when setting the “Port Properties” in any communications application, and may have to be set independently of your Control Panel settings. Control Panel settings may not necessarily be linked to those of your Communications Application. For example, Port speeds 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 all 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 LavaPort-Plus's two serial 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.

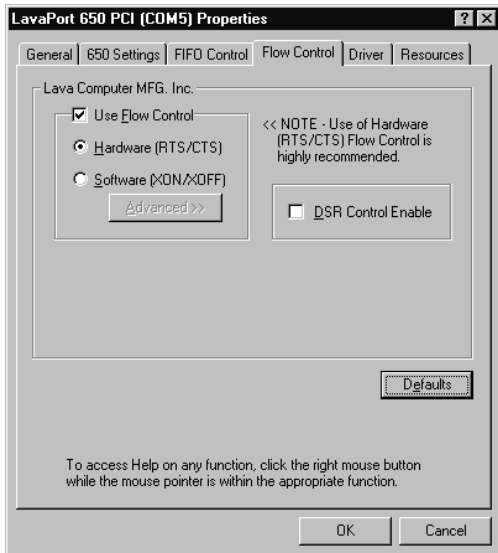
Optimum buffer settings are dependent on your modem speed, your CPU speed, and the amount of multi-tasking that occurs while online. For a fast modem and fast CPU performing few multi-tasking functions, set transmit triggers low and receive triggers high. If multi-tasking while online, set transmit triggers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



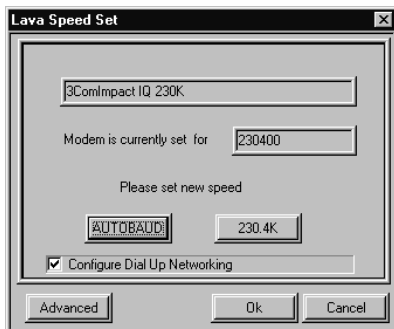
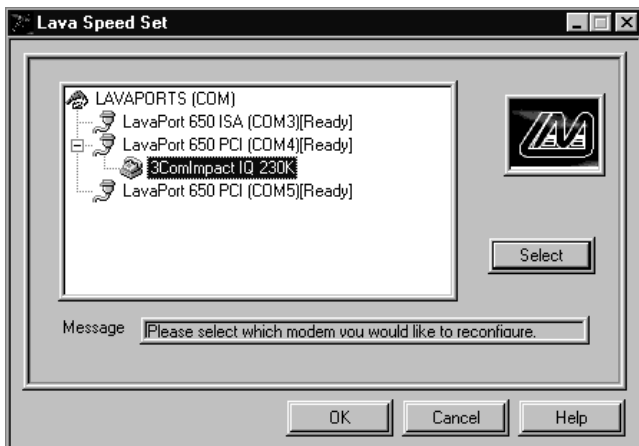
Lava Modem Speed Set for Windows

The LavaPort-Plus serial ports support 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.



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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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