

**INTELLIPORT™ III DRIVER
VERSION 2.0
FOR WINDOWS NT™ 4.0**

PART NUMBER 0-13100-3

INTRODUCTION

These release notes explain how to install and use the IntelliPort III Driver version 2.0, under:

- Windows NT version 4.0
- Windows NT version 3.51.

CONTENTS

What's New?.....	2	Starting and Stopping the Driver	14
Compatibility.....	4	Troubleshooting	15
Supported Hardware	4	Event Log Viewer.....	16
NT 4.0 vs. 3.51	4	The Registry.....	17
Hardware Installation.....	6	Adding a Printer	20
Installing the Driver.....	7	Notes for Windows NT 3.51 Users.....	22
Removing the Driver	12		
Reconfiguring the Driver.....	12		
Upgrading.....	13		

WHAT'S NEW?

WHAT DOES "INTELLIPORT III" MEAN?

The IntelliPort III product line consists of all existing IntelliPort II controllers and expansion boxes, plus the new POWER RACKPORT expansion box. IntelliPort III drivers support all the IntelliPort III products, old and new. You can mix IntelliPort II expansion modules and POWER RACKPORT modules in a single installation as long as they are each connected to separate controllers. Up to four controllers may be installed.



The POWER RACKPORT expansion module, supported by this driver, uses 10-pin RJ45 connectors for full Data Set Signal support. Accordingly, their pin-out is *not* compatible with the pinout used on IntelliPort II SlimLine expansion boxes with 8-pin RJ45 connectors. POWER RACKPORT users— be sure to read the *POWER RACKPORT Hardware Reference*.

NEW FEATURES IN VERSION 2.0:

- This version fully supports the POWER RACKPORT expansion modules, allowing the maximum rate of 921,600 bps. *Note: some applications may internally limit port configuration to some arbitrary lower speed.* The POWER RACKPORT supports CTS/RTS and XON/XOFF flow control in hardware, and so avoids incoming data loss under conditions of heavy load. The newly supported rates are 153600, 230400, 307200, 460800, and 921600 bps.
- You can mix POWER RACKPORT and older expansion modules in a single system. Each POWER RACKPORT chassis supports from 16 to 64 ports, and each chassis is connected to a separate controller card. You can also install controllers with SlimLine expansion boxes in the same system, up to a maximum of four controllers in all.
- The maximum practical speed for SlimLine expansion boxes remains 115,200. If you select a higher rate for a port on one of these older boxes, the rate will default to 115,200.
- When a port is closed, the driver will check the carrier detect signal (DCD) before proceeding; if DCD is asserted, it will wait for outgoing data to drain before completing the close. If several minutes elapse and all the data has still not drained, the close will be completed anyway. If DCD is not asserted (e.g., the modem connection is lost, or there is no physical device connected) then the driver will allow the close to continue immediately, without waiting for data to drain.

BUG FIXES IN VERSION 2.0:

The following bugs in version 1.3 and earlier have been fixed in version 2.0:

- Performance problems during file transfer when used with some Galaticom BBS products.
- “Memory leaks”, causing difficulties in running various applications until Windows NT was rebooted.
- Operation on multi-processor (MP) platforms was unreliable (system crashes).
- The Ring Indicator input was not always reported correctly.
- Installing hardware with *more* ports than specified when the driver were installed could cause NT to crash.
- Interrupt conflicts with other hardware could cause NT to crash.
- Specifying a PCI controller during installation when one is not present, would cause NT to crash.

COMPATIBILITY

WHICH INTELLIPORT II CONTROLLERS ARE SUPPORTED?

This driver support all IntelliPort II ISA and PCI expandable and non-expandable controllers, including the following:

- IntelliPort II ISA-4
- IntelliPort II ISA-8
- IntelliPort II ISA-EX
- IntelliPort II PCI-EX

IntelliPort II controllers for Micro Channel and EISA buses (e.g., MC-8, MC-EX, EISA-8, and EISA-EX) are **not** supported by this driver.

WHICH EXPANSION BOXES ARE SUPPORTED?

This driver supports all SlimLine Expansion modules, including the new POWER RACKPORT expansion modules which support line speeds of up to 921,600 bps.

WHICH VERSION OF WINDOWS NT ARE YOU RUNNING?

Your installation disk contains two different versions of the setup software and driver: one for Windows NT 4.0 and another for Windows NT 3.51.

Installation under Windows NT 3.51 is almost the same as under 4.0, with two main differences:

- Windows NT 3.51 screens have a different “look” from 4.0, and the method of navigation is different. These are generic differences between the two operating systems, and not specific to the driver.
- Our setup software and driver for Windows NT 3.51 are stored in a separate subdirectory on the installation diskette. Its main directory contains the software and driver for Windows NT 4.0. When installing under 3.51, you **must** specify this subdirectory as the source of the installation software, otherwise the wrong driver will be installed, and your system will not run properly.

If you are running Windows NT 4.0, just follow the instructions in the main body of these release notes, and the proper software and driver will be installed.

If you are running Windows NT 3.51, read “Notes for Windows NT 3.51 Users” on page 22 now, so you will be aware of important differences before you start.

DOES THE EXPANSION BOX MATTER?



Many Windows NT applications rely on full Data Set Signal support: DSR and RI as well as CTS/RTS and DCD/DTR. Some IntelliPort II expansion modules support all data set signals, but others do not support the DSR and RI signals. Modules lacking these signals will not be compatible with some Windows NT applications. Although they are supported by the driver, they are not certified for Windows NT compliance.

The following IntelliPort II products support TxD, RxD, CTS, RTS, DTR, and DCD only, and are not certified to be Windows NT compliant:

- Non-expandable IntelliPort II controllers (e.g., ISA-8DB, ISA-8RJ, ISA-4RJ) using either DB25 connectors or 8-pin RJ45 jacks.
- SlimLine IntelliPort II EX expansion modules using 8-pin RJ45 jacks.

The following IntelliPort II products have full Data-Set Signal support (RI and DSR in addition to the above):

- SlimLine IntelliPort II EX expansion modules using DB25 connectors. Remember: a special pinout is used: refer to the *IntelliPort II Hardware Reference* for signal locations.
- The POWER RACKPORT expansion module (10-pin RJ45 jacks).

SYSTEM PREREQUISITES

- The driver is installed via the *Network* icon under the *Control Panel*. If the *Network* icon is missing, you have not installed the network portion of Windows NT. Install the necessary software and then install our driver.
- The examples shown assume that your Windows NT system is using a default desktop configuration. If you have customized your desktop by adding shortcuts and modifying menus, then you may reach some of the key utilities a bit differently, and your menus may look a bit different; the general procedures outlined here are the same.

HARDWARE INSTALLATION

Under Windows NT, it does not really matter whether you install the hardware before or after the software and driver. The software installation phase does not provide any information that would facilitate hardware installation later, nor does the hardware installation provide any information that would facilitate software installation.

After you install the software, you are prompted that you must shut down and restart Windows NT before the driver will be usable. Since you have to restart anyway, it might be convenient to shut down completely, power down, and install the hardware at that time as well.



Remember to shut down your system and **disconnect power** before:

- Adding or removing controller cards.
- Connecting or disconnection expansion boxes.

Refer to the *IntelliPort II Hardware Reference Guide* for instructions on installing the various types of controllers. Points to remember:

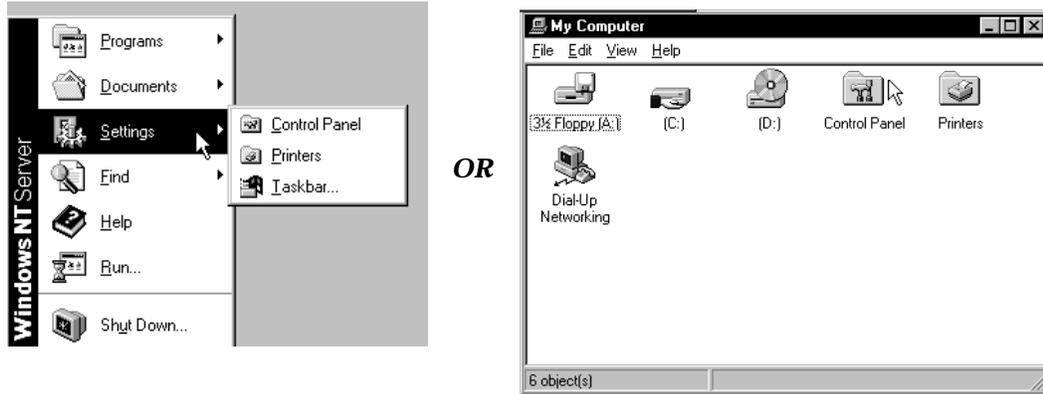
- For ISA controllers it is important to select an I/O address which does not conflict with other hardware on your system. You will need to supply this address when you install the driver, *and* you must set a DIP switch on the board to select that address, before you install the hardware. The address you supply at installation needs to match the one you have chosen in the DIP switches.
- For ISA controllers, you must also select an IRQ (interrupt request line). If you are installing several IntelliPort II ISA controllers, they can share the same IRQ, but since many ISA products do not support interrupt sharing, we do not recommend trying to share an interrupt with other devices.
- PCI controllers are assigned an IRQ and I/O address automatically, so this information is not required for installation.
- These driver don't support EISA or Micro Channel IntelliPort II controllers.

INSTALLING THE DRIVER

The IntelliPort III driver is installed, removed, updated, or reconfigured via the *Network* icon found on the *Control Panel*.

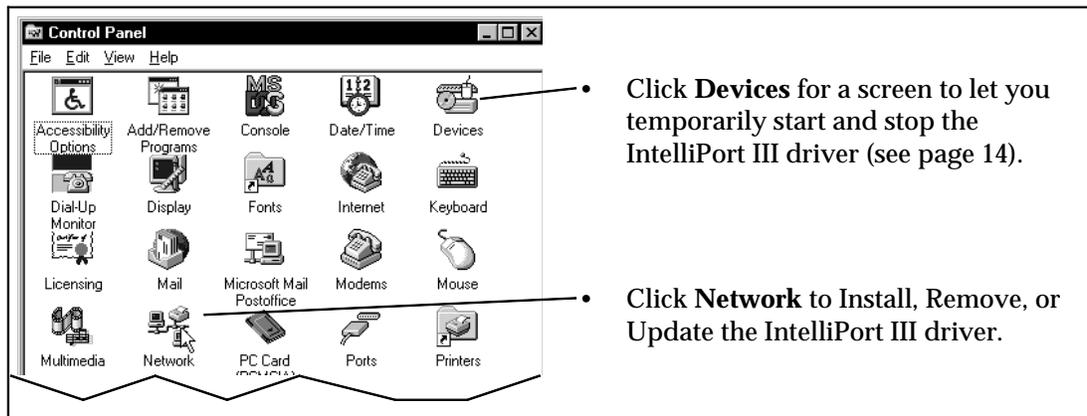
1. To find the *Control Panel*, bring up the Windows NT menu by clicking **Start**; then select **Settings**, and finally **Control Panel**. Alternately, you can double-click on the *Control Panel* icon found under *My Computer*, as shown in Illustration 1 below.

ILLUSTRATION 1: FINDING THE CONTROL PANEL



2. From the *Control Panel*, double click on the *Network* icon:

ILLUSTRATION 2: CONTROL PANEL



3. In Windows NT parlance, the IntelliPort II multi-port serial card is an “adapter”.

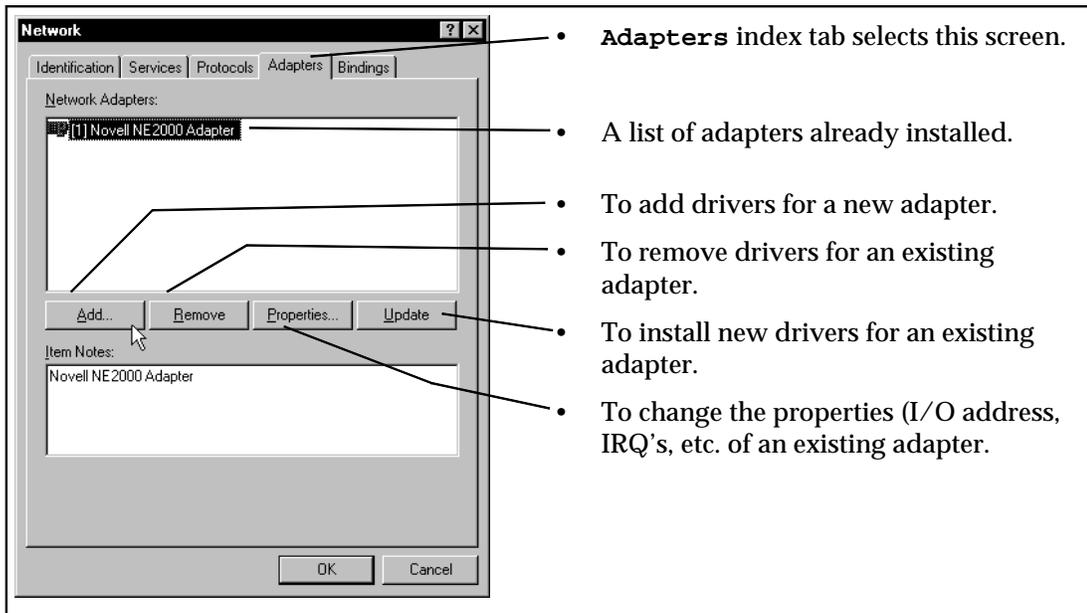
Click on the **Adapters** tab at the top of the *Network* screen, and you will see something similar to Illustration 3 below.

If you are installing the IntelliPort III driver for the first time, it will not be listed among the network adapters already installed. Click **Add**.

If you were upgrading (Installing a newer version of an existing driver) then *Computone IntelliPort II* would appear on the list: you would click on it to select it, then click **Update**.

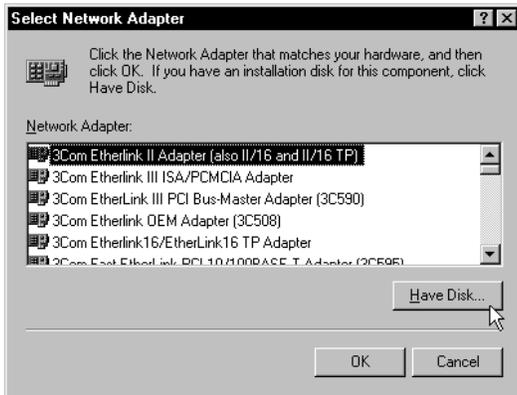
Other selections are available to remove or reconfigure an existing driver — change the number of boards, their I/O addresses, IRQ selection, and number of ports installed.

ILLUSTRATION 3: NETWORK (ADAPTERS) SCREEN



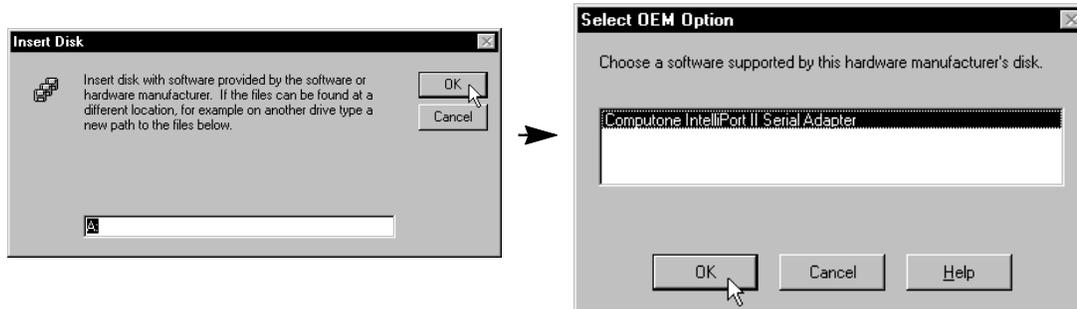
- Windows NT is shipped with a number of drivers available for installation but not yet installed. These are listed as shown in Illustration 4. But you aren't using any of those: you have our installation diskette. **Insert the installation disk into your floppy drive, and select *Have Disk* as shown.**

ILLUSTRATION 4: SELECTING AN ADAPTER TO INSTALL



- Next you must specify where the installation files are to be found. When installing under Windows NT 4.0, the installation files are found in the main directory of the diskette. If your diskette drive is **A** then your screen should look like the left side of Illustration 5. Click **Ok** to continue. You are then asked to select which software to install: there is only one choice. Choose it and click **Ok** to continue.

ILLUSTRATION 5: WHERE ARE THE INSTALLATION FILES?



- Now you should see the IntelliPort III Configuration Menu. Illustration 6 shows how the screen will appear if you are installing the IntelliPort III driver for the first time.

ILLUSTRATION 6: INTELLIPOINT III CONFIGURATION MENU

- Bus type: If a board is installed, indicates whether it is **ISA** or **PCI**. If the board is **PCI**, the **IRQ** and **IO Address** are left blank. If fewer than four boards are installed, the unused boards are marked **None**.
- **IRQ** and **IO address** must be supplied for any **ISA** controller installed. For **PCI** cards, this information is assigned automatically.
- You must indicate how many serial ports are attached to each controller: this can be as few as four (for an **ISA-4**) or as many as 64 (for an expandable with four 16-port expansion boxes).

• The device and logical name suffixes will generally default to 3, and this value is usually what you will want to use: the first serial port on the first board will be called *serial3* or *COM3*.

The configuration menu defaults to a single **ISA** controller, using the default **IRQ** of 10 and **I/O** address of 308.

- For each IntelliPort II controller you are installing, change the *Bus Type* from **None** to **ISA** if it is an **ISA** controller or to **PCI** if it is a **PCI** board. If you are installing just one board it should be *Board 1*; if two, they should be *Board 1* and *Board 2* — don't leave gaps.
- For each **ISA** controller, you must specify an **IRQ**. Click on the arrow next to the window and a scroll list of choices are presented. You may assign separate **IRQ**'s for each board if you like, but it is better if all your IntelliPort II **ISA** controllers share a common interrupt. For one thing, it leaves more **IRQ**'s left over for other adapters. While IntelliPort II adapters can share interrupts, many other **ISA** adapters are unable to, so it is best to choose an **IRQ** that no *other* adapter is using.
- For each **ISA** controller, you must specify an **I/O** address. Click on the arrow next to the window, and a scroll list of choices is presented. You are responsible for choosing one that does not conflict with other hardware that has been installed on your system. Each

IntelliPort II ISA controller uses a block of eight I/O addresses starting at the specified base address. For example, a board starting at I/O address 308 occupies addresses 308–30F inclusive.

The IRQ and I/O address for PCI controllers are assigned automatically by the PCI BIOS, and this information is passed to the IntelliPort III driver when the system boots. For PCI boards, the IRQ and I/O address windows remain blank.

10. For each board installed, you must indicate the number of ports which are attached to the controller. A port is counted if it is present on the expansion box, even if no device is connected to it. For example, if you are installing an ISA–8, you must specify that there are eight ports. If you are installing a PCI–EX with two 16-port expansion boxes, you say there are 32 ports.

Make sure you specify the correct number here: the driver uses the information to properly allocate system resources for each port.

11. Windows NT gives each port a name according to the *Device Name Suffix* and *Logical Name Suffix* you specify. The installation menu looks for any serial ports which are already registered and defaults to a starting number higher than any already in use.

A typical system will have two COM ports already, to which Windows NT has assigned the device names `serial1` and `serial2`, and the logical names `com1` and `com2`. In that case, the device and logical name suffixes will each default to 3. This means that the first port on the first IntelliPort II board would be called `serial13` or `com3`, and the rest of the ports are named sequentially. The first port of the second board immediately follows the last port of the first board.

Usually you will want to accept the default values, but there is one situation where you should not: if you were to remove and re-install the IntelliPort III driver, the reinstallation can occur at a time before all the old IntelliPort II devices were completely removed. This causes it to default to a higher starting number than is necessary, because it is trying to skip the numbers it was using before it was removed. If this happens, reset the numbers to what you know you were using previously. To avoid this completely, restart Windows NT after you remove the old driver and before you re-install them. The additional reset allows the old driver to become completely purged.

Use caution when installing the IntelliPort II boards along with other multi-port serial boards. **We will always assign the port numbers sequentially, starting with the Device & Logical Name suffixes you define.** Suppose you installed a single eight-port IntelliPort II controller first, and our devices were COM3–COM10. So far so good. Then you install a serial board from a different vendor; this board might be assigned COM11–18. Then you buy an additional IntelliPort II controller and reconfigure the driver. If the *Device & Logical Name suffix*'s remain 3, then our devices will attempt to assign COM3–18 to our sixteen

ports. The last eight of these would already have been assigned to the non-Computone device. To avoid this, remove other driver as necessary to allow the IntelliPort III driver sufficient consecutive device numbers, then re-install the other driver. Alternatively, you can remove both drivers, install the other one first, then install the IntelliPort III driver, selecting our numbers where the other driver leaves off.

12. When everything is set as you like it, click **Ok**.
13. When installation is complete, you will see a message similar to Illustration 7 on page 12. The driver cannot be used until after Windows NT has been shut down and restarted. If the hardware has already been installed, you can just shut down and restart without powering down. If the hardware is not installed yet, you can allow Windows NT to shut down completely, and then power down the system, install the hardware, and restart.

ILLUSTRATION 7: YOU MUST RESTART WINDOWS NT



When the system re-boots, the driver should start automatically, and the new serial ports will be usable.

REMOVING THE DRIVER

To remove the IntelliPort III driver:

1. On the *Network Adapter* Menu (Illustration 3 on page 8) locate and highlight the *Computone IntelliPort III Drivers* selection in the list of installed adapters.
2. Click on the **Remove** button.
3. Windows NT will ask you to verify that you want to remove this driver. After you do so, the driver and associated files are *marked* for deletion; they will be actually removed the next time Windows NT is rebooted.

RECONFIGURING THE DRIVER

After the driver has been installed, you may wish to:

- Add additional IntelliPort II controller boards.

- Change the IRQ or I/O address of existing ISA controllers.
- Add or replace expansion boxes, changing the number of ports on some controllers.

Any of these changes requires that you change some of your answers on the IntelliPort III Configuration Menu. Does this mean you must re-install the driver? No! Here's all it takes:

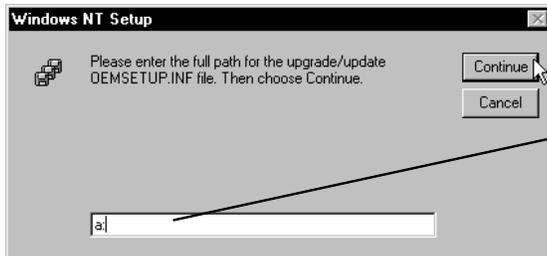
1. On the *Network Adapter* Menu (Illustration 3 on page 8) locate and highlight the *Computone IntelliPort III Drivers* selection in the list of installed adapters, and click on the **Properties** button.
2. This brings you to the configuration menu shown in Illustration 6 on page 10. Fill in the new information as appropriate and click **Ok** when everything is correct. As with installation, the changes do not take effect until after the system has been rebooted.

UPGRADING

If you wish to replace existing IntelliPort III driver with a newer version, you proceed exactly as if you were installing the driver for the first time, with three differences:

- On the *Network (Adapters)* menu (Illustration 3 on page 8) select the IntelliPort II driver from the list of drivers already installed, and click **Update**.
- You will be asked to provide the path (diskette letter and directory) where the new driver is to be found.

ILLUSTRATION 8: WHERE IS THE UPGRADE SOFTWARE?



- Check the path carefully. Make sure you specify the floppy where the new driver is to be found. Don't trust the default to be correct.

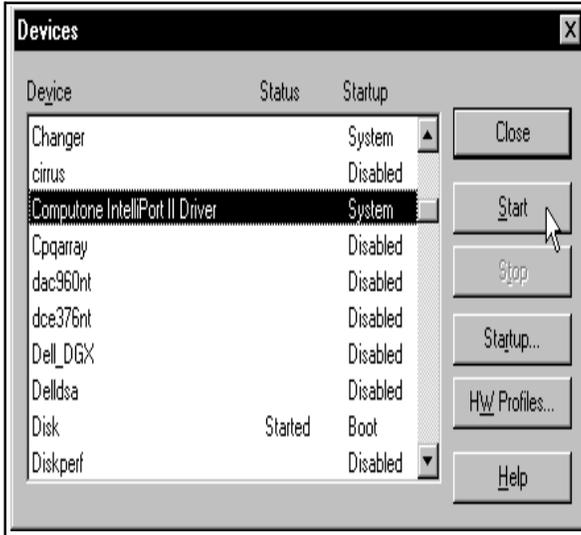
- After confirmation, the new software and driver will be copied to your system. Unlike the original installation, you will not see the configuration menu (Illustration 6 on page 10) because the hardware configuration is presumed to be unchanged. If you are making hardware changes as well, use the **Properties** button as explained under "Reconfiguring the Driver" on page 12.

As with installing, removing, and reconfiguring, the changes do not take effect until after Windows NT is restarted.

STARTING & STOPPING THE DRIVER

By default, the IntelliPort III driver will start up automatically when the system is booted. You may manually stop and restart the driver as well.

ILLUSTRATION 9: DEVICES (FROM CONTROL PANEL)



Device	Status	Startup
Changer		System
cirrus		Disabled
Computone IntelliPort II Driver		System
Cpqarray		Disabled
dac960nt		Disabled
dce376nt		Disabled
Dell_DGX		Disabled
Delldsa		Disabled
Disk	Started	Boot
Diskperf		Disabled

1. Select *Devices* from the *Control Panel* shown in Illustration 2 on page 7.
2. Locate *Computone IntelliPort III Driver* in the list of devices.
3. If the driver is already running, the **Stop** button will be available: click on it to stop the IntelliPort III driver.
4. Contrariwise, when the driver is not running, the **Start** button will start it again.
5. Select **Startup** for a window that will let you control whether the driver will load automatically at startup.

By default, the driver is configured as startup type *system*. This allows any other Windows NT services to make best use of the ports. Don't change the **Startup** type unless you have a good reason.

TROUBLESHOOTING

WINDOWS NT WON'T BOOT?

If Windows NT won't boot properly after an IntelliPort II ISA controller or driver has been installed, the most likely cause is an IRQ or I/O address conflict between the IntelliPort II hardware and other installed.

- Try rebooting with the IntelliPort II hardware physically removed from the system. If Windows boots properly, reconfigure the driver and board to use a different I/O address or IRQ.
- Another experiment is to change the *start-up* setting to **manual** (see Illustration 9 on page 14) so that the driver won't start automatically. If Windows NT reboots properly, start up the driver manually and see if there is a problem then.

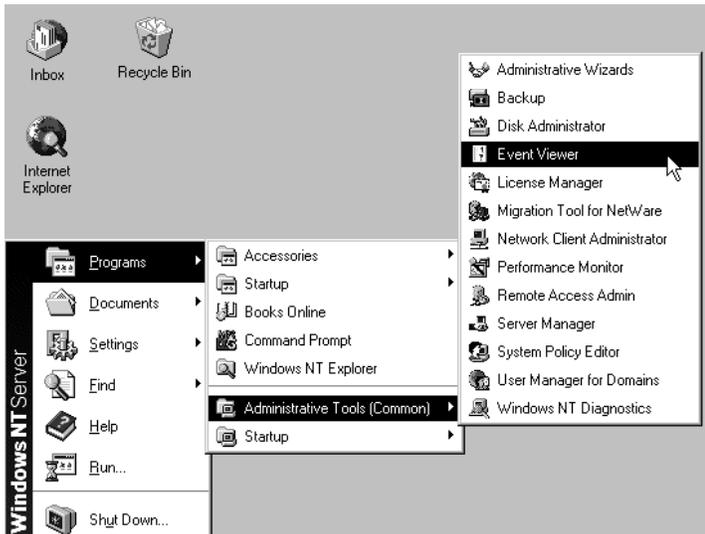
NO INTELLIPOINT III SERIAL PORTS WORK?

- Check the configuration of whatever software is supposed to be using these ports. Make sure you have associated the correct port name with the correct port. If your computer has a built in COM1 or COM2 port that you are not already using, attempt to configure your software to use one of those ports. If the problem persists, it is a software configuration problem, not an IntelliPort II problem.
- Check the Event Log. If the IntelliPort III driver detects a problem during initialization, it sends messages to the Event Log. Applications attempting to use the serial ports may also send such messages. Illustration 10 on page 16 shows how to start the event log viewer; refer to your Windows NT documentation for instructions on its use.

Error messages will be sent to the event log if the driver cannot find an IntelliPort II controller board at its expected address, if there are fewer serial ports installed than expected, or if Windows NT does not have sufficient resources (e.g., memory) to load the driver. By manually editing the *Resource directory* (see "The Registry" on page 17) additional information can be sent.

- Check the LED's on each IntelliPort II controller. These are found on the controller card next to the external connector, so they are visible even when the cover is on your computer. Normally they will blink green. If they are blinking amber, it indicates that the driver has not loaded or have not completely initialized the controller. Any pattern containing red indicates an error condition: write down the pattern so it will be available when you talk to one of our tech support representatives.

ILLUSTRATION 10: STARTING THE EVENT LOG VIEWER



SOME APPLICATIONS DON'T WORK?

Some applications are able to use IntelliPort II serial ports, while others are not?

- Check the event log for messages which the failing application might have sent.
- Attempt to configure the application to use an unused built-in COM port.
- If you are having trouble accessing ports above COM9, try using the following naming convention: \\.\com nn where nn is the corresponding COM number.

THE REGISTRY

Under Windows NT, the configuration information for all device drivers is stored in a database called the *Registry*. Normally, you don't need to know that the registry exists because the information it contains is automatically maintained by the configuration utilities, and silently queried by the device drivers and other software.

For troubleshooting purposes, it is sometimes useful to view and edit this information in its raw form:

- The registry contains version information which is not otherwise visible.
- By manually adding certain entries to the registry, you can access advanced driver debugging features. For example, the IntelliPort III driver can be made to send additional information to the Event log during initialization.

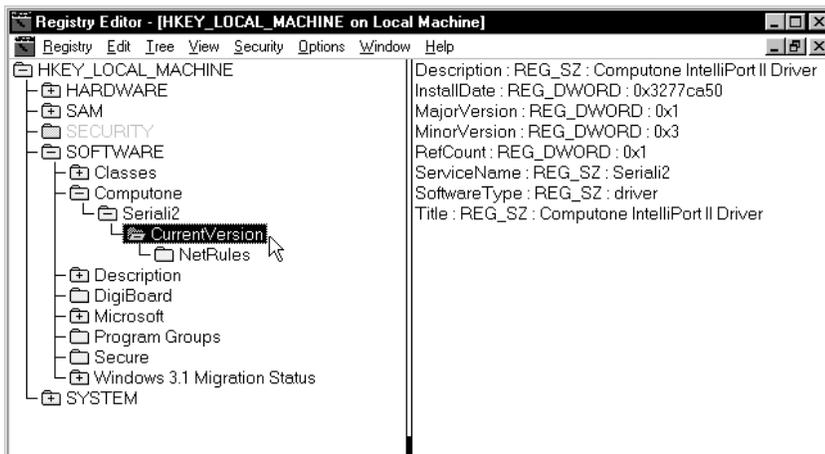
THE REGISTRY EDITOR

The registry database is viewed and maintained using the *registry editor*. To start the registry editor:

1. Click **Start**, then **Run**.
2. Enter the program name `regedt32`.

Illustration 11 shows what the registry editor looks like. The registry contains configuration information for *everything*, very little of which has to do with the IntelliPort III product, so use *extreme* care not to change something unintentionally.

ILLUSTRATION 11: THE REGISTRY EDITOR



On the left side you find a branching tree-like structure which you use to find the specific area you are interested in. Levels expand into sub-levels, which in turn expand into lower levels. The levels look like the way folders (directories) are displayed using the NT Explorer, and the navigation is about the same.

When you have selected an area of the registry on the left side, a list of its associated properties appears on the right.

WHAT VERSION OF THE DRIVER IS RUNNING?

Illustration 11 on page 17 shows how you would determine the IntelliPort III driver's version number:

- Starting at the top level, `HKEY_LOCAL_MACHINE`, we clicked on the file folders to expand levels when necessary...
- Under `HKEY_LOCAL_MACHINE` we found and expanded `SOFTWARE`, and under that we found `Computone`.
- Under `Computone` we found a single product, `Seriali2`, and under that we found `CurrentVersion`.
- Selecting `CurrentVersion`, we find the information we seek on the right. Each piece of information or *property* consists of a name, a data type, and a value.
- You can see in this example that `MajorVersion` is `0x2`, and `MinorVersion` is `0x0`. The `0x` prefix indicates that the numbers are represented in *hexadecimal* notation, but otherwise can be ignored. These numbers correspond to driver version 1.3 as described in these release notes.

HOW CAN I GET MORE CLUES IN THE EVENT LOG?

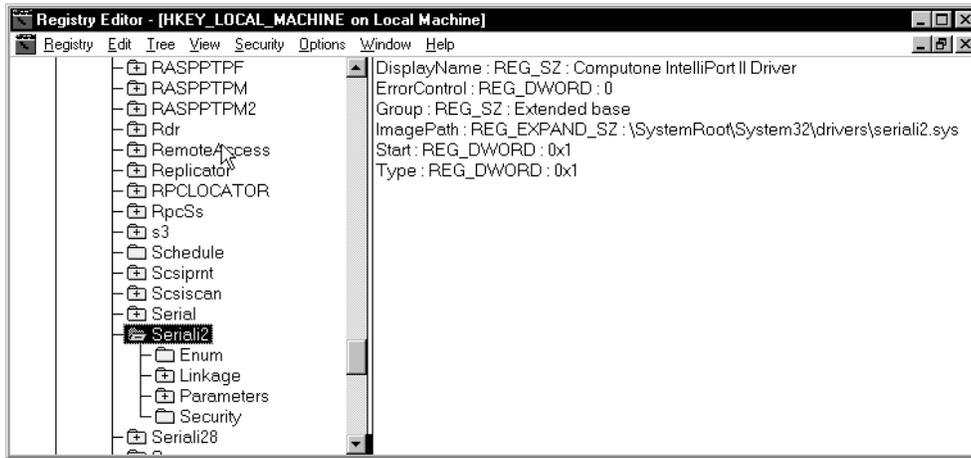
If the IntelliPort II driver is not starting up properly, it is possible to have them send additional information to the Event Log. To do this, you must add a new property to the registry.

- Under `HKEY_LOCAL_MACHINE`, select `SYSTEM`, then `CurrentControlSet`.
- Under `CurrentControlSet`, select `Services`, and under that, `Seriali2`.

You should then see something very much like Illustration 12 on page 19. The right side of the screen will list properties like **DisplayName**, **ErrorControl**, **Group**, and so on as shown.

There will probably *not* be a property called **LogLevel**, unless someone has already added it manually. You will increase the amount of Event Log messages by adding this property and then assigning an appropriate value to it.

ILLUSTRATION 12: REGISTRY EDITOR—WHERE TO ADD LOGLEVEL



To add a new property:

- Click **Edit**.
- Click **Add Value**.
- The name of the value should be **LogLevel1** (use upper and lower case as indicated).
- The data type must be **REG_DWORD**.
- The value to assign depends on the amount of output you want:

TABLE 1: LOGLEVEL VALUES

Value in hexadecimal	Result
LogLevel is not present	No additional output
0x0	
0x3	Logs the driver version number when it starts up.
0x7	The above, plus logs IRQ and I/O address information about each board as it is determined.
0xf	The above, plus logs a trace of activity during the driver initialization phase.

If the **LogLevel1** property exists already, double click on it, and you are prompted for its new value.

The new registry values are used the next time the driver is started. (See page 14).

ADDING A PRINTER

One common use for serial ports is to connect serial printers. Suppose one of the IntelliPort II ports is called COM8 and you have it connected to a serial printer. Before Windows NT can use the printer, we must tell the operating system that there is a printer there, and what kind it is.

Before you try to configure any of our ports to be used with printers, or for any other use, you need to have already restarted Windows NT as prompted at the end of the driver installation (see Illustration 7 on page 12).

Here is how to add a printer under Windows NT 4.0:

1. From Windows NT *Start*, click on **Settings**, then **Printers**.
2. From the *Printers* screen, click on the *Add Printers* icon. This brings up a series of panels entitled *Add Printer Wizard*.
3. Specify that the printer is on “My Computer”, and click on **Next**: you will see a list of devices to which the printer might be attached. This list may include parallel ports, built-in COM ports, and COM ports assigned to the IntelliPort III driver.
4. Select one of our serial ports from the list and click on **Configure Port**. This will bring up a list of ports: re-select the one you want to configure, and you will be given a port configuration menu. This menu allows you to specify the baud rate, protocol, and flow control to be used. The settings you select must match whatever settings your serial printer is configured to use, so check your printer manual as necessary. Your printer cable must carry all the proper signals to support the flow control you have chosen. For more information about cabling, consult the *IntelliPort II Hardware Reference Manual*, or the *POWER RACKPORT Hardware Reference Manual*. Note: your cable should also ensure that the IntelliPort II DCD signal is connected to a signal on the printer which would be asserted as long as the printer is powered on. Often this will be DTR or RTS—whichever *isn't* being used for flow control. (If the printer has no such signal, connect DCD to DTR on the IntelliPort II side). This is to ensure the driver recognizes that a device is connected.
5. Once the port is configured, click **Ok...Close** and you are back to the *Add Printer Wizard* panel. Click **Next**, and you will see more panels asking you what kind of printer you are using. Answer these questions as appropriate for your printer. For the rest of the installation there is nothing special about which COM port you have used.
6. **Caution:** In step 4 you were shown a list of ports, and you were told to click on **Configure Port**. There is another button on the same screen labeled **Add Port**. *Don't press it!* That button is specific to the built-in drivers for standard serial devices, e.g., COM1–4. It is not intended to be used with COM ports assigned to IntelliPort III or other drivers.

REMOTE ACCESS SERVICES (RAS) NOTES

Configuring Remote Access Services (RAS) to use an IntelliPort III port is no different from configuring it to use any COM port. Your Windows NT documentation is the most authoritative source of information, but for convenience here are the main points to remember:

1. You should have already installed our driver *and* restarted Windows NT: our ports should now be available for configuration and use. If you configure a port to be used with Remote Access, it becomes *dedicated* to that purpose so long as it is so configured: you cannot use the port for anything else even if the port happens to be idle.
2. When you are configuring a port for RAS, you will almost certainly be using a modem, and RAS will want to know about that modem. This means that you should have already configured the modem, using the *Modem* icon in the *Control Panel*.
3. Once the driver is installed, Windows NT is restarted, and any necessary modems are defined, you are ready to specify what ports RAS is to use. This is done from the *Network* menu (Illustration 3 on page 8) but this time you will click on the **Services** tab, instead of **Adapters**, which you used during installation. From the list of services, select **Remote Access**, and follow the instructions from there.
4. If the port is only used for dial-in access, you can skip this step. If the port will sometimes be used to dial out, you must set up dialer scripts, phone numbers, etc. to allow you to place a call through your modem. These are set up using *Dial Up Networking*, which is reached from **Start, Programs, Accessories**.

NOTES FOR WINDOWS NT 3.51 USERS

Windows NT versions 3.51 and 4.0 use different drivers and setup utilities. The driver and setup software for 4.0 is stored in the main directory of the installation diskette, so they are what will be installed by default.

The driver and installation utility for Windows NT 3.51 are also stored on our installation diskette, but in a subdirectory — `\winnt351`.

The procedure for installing the driver under 3.51 is almost the same as for 4.0. Aside from the strictly cosmetic, here are the differences:

- To reach the *Control Panel* under Windows NT 3.51, click on the *Control Panel* icon found under *Main*.
- You still click on the *Control Panel's Network* icon to add, remove, or update adapters, but the resulting *Network Settings* dialog box looks superficially very different from the one shown in Illustration 3 on page 8. On closer inspection, everything we need is there:

TABLE 2: NETWORK DIALOG BOX COMPARISON

Windows NT 4.0	Windows NT 3.51
Selecting the <i>Adapters</i> tab (see page 8)	Portions of the Network Settings box.
Network Adapters (list)	Network Software and Adapter Cards
Add	Add Adapter (<i>not</i> Add Software)
Remove	Remove
Update	Update
Properties	Configure
Have Disk (see page 9)	<Other> Requires Disk from Manufacturer (selection in the <i>Add Network Adapter</i> box)
A: \ (where to find the files — see page 9)	A: \winnt351 (files are in a subdirectory!)

- So, for Windows NT 3.51, you will click on **Add Adapter** in the *Network* dialog box, then select **<Other> Requires disk...**, choose the product to install (there is just the one), and then there will be a screen to prompt you for the location where the installation files are to be found.



For 3.51, remember to specify **a:\winnt351** as the path (assuming drive A is your diskette drive).

If you use the default of **a:** the **wrong driver** (the ones for NT 4.0) will be installed, and that would be a Bad Thing.

As you can see from Table 2 on page 22, reconfiguring and upgrading the driver for 3.51 parallels the process for 4.0, with slight cosmetic differences. When upgrading, remember to specify the correct path.

PRINTER SETUP

The basic steps are similar to Windows NT 4.0:

- Go to the *Print Manager* by clicking on the *Printers* icon in the *Control Panel*.
- Pull down the **Printer** menu bar and click on **Create Printer...** This brings up a *Create Printer* dialog box.
- Select the device; then click on **Settings...** to configure the speed, flow control, etc.
- Configure the port as needed, and click **Ok** to return to *Create Printer*. Then click **Ok** again to finish the setup by specifying what kind of printer you are using, and supplying any needed printer-specific information.