Software
Manual

Digi Intelligent Serial Communications Boards

**Device Drivers for Microsoft Windows 95,
Windows NT, Windows for Workgroups 3.11,
Windows 3.1**

92000220 Rev C

Table of Contents

Introduction

This manual provides the information you need to install, configure and operate Digi intelligent asynchronous serial communications boards in Microsoft Windows 95, Windows NT, Windows for Workgroups 3.11 and Windows 3.1 environments. The accompanying high density diskettes contain all of the files required to install and configure the device driver software for each of these environments.

The following table shows which Digi asynchronous boards are supported; the four columns to the right show which Windows environments are supported for each board:

Product Name	W95	NT	WFW	W31
AccelePort 4r - ISA	Yes	Yes	Yes	No
AccelePort 8r - ISA	Yes	Yes	Yes	No
AccelePort 4r - PCI	Yes	Yes	No	No
AccelePort 8r - PCI	Yes	Yes	No	No
AccelePort 2e	Yes	Yes	Yes	Yes
AccelePort 4e	Yes	Yes	Yes	Yes
AccelePort 8e	Yes	Yes	Yes	Yes
AccelePort C/X	No	Yes	No	No
AccelePort EPC/X	No	Yes	No	No
AccelePort Xem	Yes	Yes	No	No
PC/4e	Yes	Yes	Yes	Yes
PC/8e	Yes	Yes	Yes	Yes
PC/16e	Yes	Yes	Yes	Yes
PC/8i	Yes	Yes	Yes	Yes
PC/16i	Yes	Yes	Yes	Yes
MC/4i	Yes	Yes	Yes	Yes
MC/8i	Yes	Yes	Yes	Yes
COM/4i	No	No	No	Yes
COM/8i	No	No	No	Yes

Windows 95

Introduction

The Digi device driver for Windows 95 is a VCOMM Port Driver, and supports all applications which use the Windows COMM API. This includes Dial Up Networking, Microsoft FAX and many other Windows communications applications. This device driver does not support virtual UARTs or Interrupt 14h BIOS commands.

Beginning with the release of Windows for Workgroups 3.11, Microsoft redesigned the Windows communications subsystem. Its central component is now the virtual communications driver (VCOMM), a virtual device (VxD) that manages all access to communications resources. VCOMM relies on separate VxDs called Port Drivers to access these communications resources. Since Port Drivers communicate with applications via VCOMM, there is no need to replace VCOMM or COMM.DRV, as was often required in previous versions of Windows. This means that Digi hardware can now coexist with any other communications hardware which utilizes VCOMM technology.

See the file **`README95.WRI`** on the distribution diskette for other information not available at this manual's press time.

Hardware and Software Requirements

- One or more Digi intelligent serial communications boards (AccelePort Xr, AccelePort Xe, AccelePort Xem, PC/Xe, MC/Xe, PC/Xi or MC/Xi).

- Microsoft Windows 95.

- One or more application programs, such as the Windows Terminal program or PROCOMM PLUS for Windows, which support Windows COMM API calls; you may also need a special **.DLL** file to enable support for more than four ports— if available, this can be obtained from your software publisher.

Important! The MS-DOS device driver for Digi intelligent communications boards must *not* be loaded. Look in your **CONFIG.SYS** file for the following line:

DEVICE=C:\DIGI\XIDOS5.SYS

If present, either delete it, or disable it by inserting "**REM**" (for "remark") at the beginning of the line:

REM DEVICE=C:\DIGI\XIDOS5.SYS

Installation

Hardware Installation

Before proceeding with the software installation for the Microsoft Windows device driver, you must first install the board(s) according to the instructions in the *Installation Guide* for your board.

Software Installation

ISA and Micro Channel Adapters

Digi has its own Windows 95 device class. Digi adapters are described as "**Digi Intelligent Async Adapter**". On your first installation, the Digi device class will be added to Windows 95. Thereafter, when using the **Add New Hardware** wizard or **System Device Manager** wizard to set up the hardware resources for the Digi adapter, look for the device under the "**Digi Intelligent Async Adapter**" hardware type.

Note: *In Windows 95, SETUP is not used to install Digi driver files.*

Add the New Hardware to Windows 95:

1. Start Windows 95.

2. From the Windows 95 Control Panel, start the **Add New Hardware** wizard.

3. Click **Next** to begin installing new hardware.

4. You will be asked: "Do you want Windows to search for your new hardware?" Select **No**, then click on **Next**.

5. Highlight the **Other Devices** hardware type, then click on **Next** (on subsequent installs you will be able to select "**Digi Intelligent Async Adapter**" for the hardware type.

6. Click on **Have Disk**.

7. On the **Install from Disk** applet, enter the drive or directory location of the Digi Windows 95 driver files, then click on **OK**.

8. A list of Digi's hardware choices will appear. Select your board from the list and click on **Next**.

9. Write down or print the displayed list of hardware settings. If you need to, you can adjust these settings later by using the Device Manager in the System control panel. *If the hardware settings are not displayed, see the troubleshooting tips starting on page 12.*

10. Click **Next**. The driver files will be copied to your system. The message, "Building driver database information file," will appear briefly.

11. The **Ports Configuration** property page will be displayed for you to view and edit the assigned port names. For an Xem adapter, you will need to configure the PORTS modules that are connected to your adapter. On-line help is available for more information. When you are finished, click **OK**.

12. Click **Finish**.

13. A **System Settings Change** applet will ask whether you want to shut down your computer now. Click on **No**.

Edit the Assigned Hardware Resources and Enable Ports:

1. From the Windows 95 Control Panel, start the **System** wizard. Select the **Device Manager** tab. If you "**view devices by type**", the Digi device will be listed under "**Digi Intelligent Async Adapters**". Highlight the Digi adapter entry and select **Properties**.

2. Use the **Resources** property tab to configure the hardware resources for your adapter. Online help is provided.

The Digi software is now installed. To activate it, restart your computer.

PCI and EISA Adapters

1. Install the PCI or EISA adapter according to the instructions in the Installation Guide that came with the adapter. For EISA adapters, be sure to run the EISA configuration program to set up the adapter.

2. Start Windows 95. Windows 95 will detect the new adapter and display the message "**New Hardware Found**". This message will be followed by "Windows has found new hardware and is installing the software for it."

3. At the prompt to "**Select which driver you want to install…**", select "**Driver from disk provided by hardware manufacturer**" and click **OK**. Specify the driver file location and click **OK** again.

    The message "Building driver database information file" will appear briefly.

    If you are installing an AccelePort 4r PCI or an AccelePort 8r PCI, you will be prompted to identify which adapter you have installed.

4. The **Ports Configuration** property page will now be displayed for you to view the assigned port names. For an Xem adapter, you will need to configure the PORTS modules that are connected to your adapter. Online help is available for more information. When finished, click **OK**.

The Digi software is now installed. To activate it, restart your computer.

Editing the Port Configuration

If you need to edit the configuration of the attached ports, follow the steps below:

1. From the Windows 95 Control Panel, start the **System** wizard. Select the **Device Manager** tab. If you "**view devices by type**", the Digi device will be listed under "**Digi Intelligent Async Adapters**". Highlight the Digi adapter entry and select **Properties**.

2. Select the Port Configuration tab. Online help is available for more information.

Troubleshooting

Problem

Under **Windows 95**, when I attempt to install an adapter, the "Add New Hardware" wizard displays a warning dialog box which says "You are using other hardware that conflicts with the hardware you are trying to install." This is displayed during the installation at the point when you would normally expect the assigned hardware resources to be displayed.

Causes/Solutions

Other devices in the system are configured to use the same resource(s) that your adapter needs (for example, a specific memory location).

Continue the software installation. Then start the Hardware Conflict Troubleshooter. The Troubleshooter will offer suggestions on how to resolve the conflict by using the Device Manager. You may need to:

- Disable a conflicting device to free up its resource, or

- Rearrange the resources used by one or more of the devices to free up resources needed by your adapter. For example, if you are using a 64K adapter, you may need to rearrange the memory assigned to other adapters in order to have a 64K block of memory available for your adapter.

Problem

> When I attempt to open a Digi port in **Windows 95**, I get an error message stating that the device driver initialization failed.

Causes/Solutions

- The configuration of the device driver may not match the configuration of the board. Make sure that the I/O port address assigned by Windows 95 matches the address set on the ISA board's DIP switches. To view and modify the assigned I/O port, use the System Device Manager. Highlight the Digi adapter entry. Select Properties, then display the Resources property page.

- Verify that the assigned resources don't conflict with the resources of another device. To view the resources in use in the system, start the System Device Manager. Highlight the "Computer" entry and click on "Properties". Use the buttons to view the assigned IRQs, I/O ports and memory addresses.

- Try reconfiguring the port for a different IRQ or memory address. To modify an assigned resource, use the System Device Manager. Highlight the Digi adapter entry and click on Properties. Use the Resources property page to change the configured IRQ or memory address.

- Try disabling the IRQ. To modify an assigned resource, use the System Device Manager. Highlight the Digi adapter entry and click on Properties. Use the Resources property page to change the configured IRQ. Change the basic configuration to "Basic Configuration 1". If you no longer get the error message, you had an IRQ conflict. Either leave the IRQ disabled, or try a different IRQ.

If you still have trouble after checking these points, Digi has a staff of Technical Support specialists to help you. See page 43 for phone numbers.

Uninstalling the Software

To remove the driver configuration:

> Use the **System Device Manager** wizard to remove the Digi adapter listed under **Digi Intelligent Async adapters**. This will remove your previous configuration from the Windows 95 registry.

To completely remove the Digi driver files from your system:

> Delete the following files from the **\win95\system** directory:
>
> ```
> digicfg.dll
> digicfg.hlp
> digifep5.vxd
> digixall.vxd
> digixem.vxd
> digienum.vxd
> ```
>
> In the **\win95\inf** directory, delete any **oem*.inf** file with DIGI in it. Also delete the file **digiport.inf**.

To completely remove the Digi Intelligent Async device class from your system:

> In the **\win95\system** directory, delete the following files:
>
> ```
> diginstl.dll
> diginstl.hlp
> ```
>
> Run the regedit program to start the Registry Editor. Step through the registry tree to highlight the branch:
>
> HKEY_LOCAL_MACHINES\System\CurrentControlSet\Services\Class\ DigiAsync.
>
> Delete this key by selecting "Edit" from the menubar, then "Delete" from the pulldown menu.

Windows NT

Introduction

The Digi device driver for Windows NT provides full communications support for all applications which use the Windows COMM API. This device driver does not support virtual UARTs or Interrupt 14h BIOS commands.

Hardware and Software Requirements

- One or more Digi intelligent serial communications boards (AccelePort Xr, AccelePort Xe, AccelePort C/X, AccelePort EPC/X, AccelePort Xem, MC/Xe, PC/Xi or MC/Xi).

- Microsoft Windows NT.

- One or more application programs, such as the Windows Terminal program, PROCOMM PLUS for Windows or Remote Access Service (RAS), which support Windows COMM API calls. Note that some application programs support only ports COM1-COM9. Others can handle more ports, but require a prefix of "`\\.\`" before the name (for example, `\\.\COM10`). Check the documentation for your communications application to find out how it handles ports above COM9.

Note:	Be sure to read the text file **README.TXT**, included on the device driver diskette. This file contains information that was not available at this manual's press time.

Installation

Hardware Installation

Before proceeding with the software installation for the Microsoft Windows device driver, you must first install the board(s) according to the instructions in the *Installation Guide* for your board.

[Important!]	*Before attempting to install the Windows Device driver, be sure to run the Memory Map utility to find the required amount of available address space for your board (ISA, EISA or Micro Channel boards only), and the User Diagnostics to verify that the board is working correctly. See the* Installation Tips *section of the* Installation Guide *for your board for details.*

Software Installation

1. Start Windows NT.

2. From the Windows NT Control Panel, select the **Network** icon.

3. Click on **Add Adapter**.

4. From the list that appears, select "**Other**" (note that there may be Digi adapters listed, but the drivers on the Digi distribution diskette are more current than the ones included on the Microsoft Windows NT Server and Workstation CD-ROMs).

5. When asked for the path for the driver software, enter the drive designation of your diskette drive (for example, **A:\i386**).

6. A list of supported Digi products will be displayed. Select your product from the list and click on **OK**.

7. You will now be asked to configure the ports on the adapter. This step varies depending on which Digi product you are installing. For multi-port boards (AccelePort/Xe, AccelePort/Xr, PC/Xe, PC/Xi, etc.), the only configuration required is naming the ports (see *Port Names*, on page 18). For cluster controller products (AccelePort C/X, EPC/X and Xem), you must also supply information about how many and what type of concentrators are connected to the host adapter (see *Ports Configuration for Cluster Controllers*, on page 18).

8. When you have completed the port configuration, you will be asked to configure the adapter. Review the following, and change if necessary:

    PCI: Device Number. This is the logical device number.

    ISA: I/O Base Address (as set on the adapter's DIP switches), and Memory Base Address.

    EISA: Slot Number. All other required information is taken from the EISA configuration (as set by the EISA configuration utility).

    MC: Slot Number. All other required information is taken from the EISA configuration (as set by the MC configuration utility).

9. If you need to install additional adapters, repeat steps 2-8.

10. Restart the system to enable the drivers. Check the event viewer for error messages.

Port Names

The **Name Ports** dialog consists of a list of ports and default names, and a checkbox labeled **Auto-Enumerate**. If you want all of the ports to be numbered sequentially, check **Auto-Enumerate** and select the first port in the list. When you enter the name of that port (using a name-stem and a number, such as COM3 or Digi5) and click on **Apply**, all of the remaining ports will be given the same name with an incrementing number (for example, Digi5, Digi6, etc.).

Ports Configuration for Cluster Controllers

For Digi cluster controller systems (AccelePort C/X, EPC/X and Xem), additional configuration is required beyond naming the ports (see above). Information must be provided about the type and number of concentrators/modules connected to the host adapter, and the synchronous data rate to be used by the host adapter and concentrators for communication with each other.

1. Open the **Adapter** folder. The **Add Module** button will become active. If the adapter is an AccelePort C/X, EPC/X or Xem, the **Speed** button will also become active.

2. If the adapter is an AccelePort C/X, EPC/X or Xem, select the synchronous line (Line 1 or Line 2) to which the concentrator is connected.

3. Click on **Add Module**. From the list, select the concentrator or other module that is connected to the host adapter. If the module is an EPC/CON-16 concentrator, you may use the **Add Module** button to add support for PORTS/Xem[p] modules attached to the concentrator.

4. Repeat steps 2 and 3 for all concentrators and/or modules attached to the host adapter.

5. Now set the synchronous line speed (*if your adapter is an Xem, skip this step*). The line speed must be set for each synchronous line (Line 1 and Line 2), and each concentrator, if you are using remote connections. If your concentrators are all local, leave the line speed at the default value. The speed setting for Line 1 and Line 2 controls the rate of data transmitted from the adapter to the first concentrator. The speed setting for the concentrators controls the rate of the data from one concentrator to the next, or from the last concentrator back to the host adapter. See the *Installation Guide* for your concentrators for information and cautions about selecting synchronous data rates.

6. Now name the ports. If you want all of the names to have the same stem and sequential numbering, select the first port on the first concentrator or module, check the **Auto Enumerate** box, and enter the desired name in the Currently Selected Port Name box. The name must end with a number. Now click on **Apply**. The name stem will be assigned to all ports, and the number will be incremented for each one.

Uninstalling the Device Driver

To remove the Digi device driver, go to the Windows NT Control Panel, select **Network**, highlight the Digi adapter and click on **Remove**. Restart Windows NT to complete the removal process.

Testing the Ports

To test the Digi ports under Windows NT, you may use the Windows NT Terminal application or Digi's TTY program.

Windows NT Terminal will allow you to test COM1-COM9.

TTY.EXE is a Digi program similar to Terminal, and allows you to test COM1-COM256. TTY.EXE may be obtained from Digi' BBS or FTP server (see Digi Support Services, starting on page 43, for BBS and FTP information).

Note: Windows NT will only recognize port names above COM9 if they are prefixed with "`\\.\`". For example, to access COM10, use `\\.\COM10`. For the sake of consistency, this convention may also be used for COM1-COM9, if desired. Some communications applications handle this automatically; consult your application's documentation to see how it handles port names.

Important! The Windows NT device driver does not support ALTPIN software re-wiring of the DCD and DSR signals. If your adapter is equipped with RJ-45 connectors, and you intend to attach modems, you must use full 10-pin RJ-45 connectors. See the *Installation Guide* for your adapter or concentrator for more information.

Troubleshooting

Problem

The following error message appears in the Event Viewer:

> **Wait confirmation failed**…. (the exact wording of the error message varies with adapter type)

Causes/Solutions

- The DIP switches on the adapter do not match the I/O Base Address you selected during driver installation. Verify that the switch settings are correct.

- The I/O Base Address set on the board and in the driver is in conflict with some other device in the system. Make sure that the selected I/O Base Address is unique, and not used by any other device in the system, including other Digi products.

- You have chosen the incorrect adapter type for the Digi product you have installed. Reinstall the driver (uninstall it first) with the correct adapter type.

Problem

The following error message appears in the Event Viewer:

> **BIOS image failed to load**…. (the exact wording of the error message varies with adapter type)

Causes/Solutions

- There is a conflict with the Memory Base Address you chose during installation. Reinstall the driver with a different Memory Base Address.

- Shadow RAM is enabled for all or part of the memory address space assigned to the Digi adapter (depending on the adapter, the required address space is 8K, 32K or 64K, beginning at the Memory Base Address you set during driver installation). Check your computer's CMOS setup and make sure that shadowing is disabled for the addresses used by the Digi adapter.

- There is a hardware problem with the adapter. Contact Digi Technical Support.

Problem

The following error message appears in the Event Viewer:

```
While validating that COM3 was really a serial port, the
contents of the divisor latch register was identical to the
interrupt enable and the receive registers.  The device is
assumed not to be a serial port and will be deleted.
```

Causes/Solutions

You may have configured one or more non-intelligent ports with the same name(s) as ports on the Digi adapter. The conflict must be removed either by re-mapping the conflicting Digi port or removing the conflicting non-intelligent port configuration.

The conflicting non-intelligent port may have been configured by making changes within the Control Panel Ports applet. You may correct these changes either from within the Control Panel Ports applet, or with the Registry Editor. If you are unsure of how to do this, call Digi Technical Support.

Windows for Workgroups 3.11

Introduction

The Digi device driver package for Microsoft Windows for Workgroups 3.11 provides full communication support for Digi AccelePort Xr - ISA, AccelePort Xe, PC/Xe, MC/Xe, PC/Xi and MC/Xi intelligent serial communications boards. The device drivers support up to nine serial ports (the maximum number supported by Windows).

With the release of Windows for Workgroups 3.11, Microsoft redesigned the Windows communications subsystem. Its central component is now the virtual communications driver (VCOMM), a virtual device (VxD) that manages all access to communications resources. VCOMM relies on separate VxDs called Port Drivers to access these communications resources. Since Port Drivers communicate with applications via VCOMM, there is no need to replace VCOMM or COMM.DRV, as was often required in previous versions of Windows. This means that Digi hardware can now coexist with any other communications hardware which utilizes VCOMM technology.

If you are running Windows for Workgroups 3.11, you will have the option of installing either the Windows 3.1 device driver, or the Windows for Workgroups 3.11 driver. The two drivers have different features:

- The **Windows 3.1** device driver supports virtualization of UARTs—that is, Digi ports may each be assigned a "virtual" I/O port address and IRQ number so that DOS applications which normally communicate directly with the I/O hardware rather than through BIOS commands can use the Digi intelligent ports. *The procedure for installing the Windows 3.1 driver begins on page 32*.

  The **Windows 3.1** device driver also supports an Interrupt 14h extended BIOS function set. This method is used primarily by DOS applications, and is provided for compatibility. The Interrupt 14h extended BIOS function set is documented in a text file, **INT14.TXT**, in the **DOS** directory of the distribution diskette. *The procedure for installing the Windows 3.1 driver begins on page 32.*

  The **Windows 3.1** device driver replaces Windows' COMM.DRV with Digi's DBCOMM.DRV. This means that Win32 COMM applications will not work with the Windows 3.1 device driver installed.

- The **Windows for Workgroups 3.11** device driver supports Win32 COMM and VCOMM applications such as RAS and At Work Fax, but does not support virtual UARTs or Interrupt 14h BIOS commands.

See the files **README.TXT** (for the Windows 3.1 driver) and **README.WRI** (for the Windows for Workgroups 3.11 driver), on the distribution diskette for other information not available at this manual's press time.

Hardware and Software Requirements

- One or more Digi intelligent serial communications boards (AccelePort Xr, AccelePort Xe, PC/Xe, MC/Xe, PC/Xi or MC/Xi).

- Microsoft Windows for Workgroups 3.11, running in enhanced mode.

- One or more application programs, such as the Windows Terminal program or PROCOMM PLUS for Windows, which support Windows COMM API calls; you may also need a special **.DLL** file to enable support for more than four ports— if available, this can be obtained from your software publisher.

|Important!| The MS-DOS device driver for Digi intelligent communications boards must *not* be loaded. Look in your **CONFIG.SYS** file for the following line:

DEVICE=C:\DIGI\XIDOS5.SYS

If present, either delete it, or disable it by inserting "**REM**" (for "remark") at the beginning of the line:

REM DEVICE=C:\DIGI\XIDOS5.SYS

Installation

Hardware Installation

Before proceeding with the software installation for the Microsoft Windows device driver, you must first install the board(s) according to the instructions in the *Installation Guide* for your board.

Important! *Before attempting to install the Windows Device driver, be sure to run the Memory Map utility to find the required amount of available address space for your board, and the User Diagnostics to verify that the board is working correctly. See the Installation Tips section of the Installation Guide for your board for details.*

Software Installation

1. Start Windows.

2. Place the Windows Async Driver diskette in drive A. Select **Run** from the Program Manager's **File** menu. In the dialog box, type

   `A:\SETUP`

   and click on the **OK** button (if you install from a drive other than drive A, substitute the appropriate drive designation for `A:` in the **Run** dialog box). A series of dialog boxes will follow, containing introductory information.

3. The software will ask you to select either the Windows 3.1 device driver or the Windows for Workgroups 3.11 device driver. If you plan to use RAS, you must install the Windows for Workgroups 3.11 device driver. If you don't need RAS support, but want virtual UARTs or Interrupt 14h BIOS support, select the Windows 3.1 device driver. See page 24 for more information.

`SETUP` will now automatically invoke the device driver configuration program. Complete context sensitive on-line help is available at any time by clicking on the **Help** button.

Note:】 After the device driver is installed, the configuration program may be entered via the Windows **Control Panel** program.

Software Configuration

1. Start Windows. Run the Windows **Control Panel** program by double clicking on the Control Panel icon.

2. From Control Panel, double click the **Digi** icon.

   Micro Channel Systems: The configuration program will identify any Digi Xe (MC) or Xi (MC) boards installed in your machine by board family, but it cannot determine the number of ports on the board(s). You will see a dialog box requesting identification of each board. All remaining board configuration parameters are automatically read from the POS registers in your computer.

Troubleshooting

Before calling Technical Support, be sure to run the Memory Map utility to find the required amount of available address space, and the User Diagnostics to verify that the board is working correctly. See the Installation Tips section of the Installation Guide for your board for details.

Problem

When I start Windows, I get an error message stating that the device driver initialization failed.

Causes/Solutions

- The configuration of the device driver may not match the configuration of the board. Make sure that the I/O port address you used in the configuration program matches the address set on the ISA board's DIP switches.

- The board's memory may be in conflict with the memory of some other device. Try reconfiguring the device driver for a different memory starting address (if the board is a Micro Channel board, reconfigure the board for a different address by running the configuration program on the IBM Reference Diskette).

- The board's IRQ setting may be in conflict with the IRQ setting of some other device. Try reconfiguring the device driver for a different IRQ (if the board is a Micro Channel board, reconfigure the board for a different IRQ by running the configuration program on the IBM Reference Diskette).

- The board may not be seated properly in its slot in your computer. Make sure that the board is pushed all the way into the slot, and that the endplate is securely screwed to the computer chassis.

- If your system is running an expanded memory manager (e.g. EMM386, QEMM, etc.), be sure to exclude the memory address range used by the board (8K, 32K or 64K, depending on the board type, beginning with the address you specified in the **Board Parameters** dialog box. This is usually done with a command line option in the **DEVICE=** line for your memory manager in **CONFIG.SYS**.

  EXAMPLES (**EMM386.EXE**; boards addressed at D0000h):

  AccelePort Xr, AccelePort Xe (8K)
  DEVICE=EMM386.EXE [...] **X=D000-D1FF**

  PC/Xe (64K) and PC/Xi (64K)
  DEVICE=EMM386.EXE [...] **X=D000-DFFF**

  Consult the documentation for your expanded memory manager for instructions.

- If your system is not running an expanded memory manager, or if the board's memory address range is not excluded in the memory manager command line (as shown above), be sure to exclude it in Windows by adding the following line to the **[386Enh]** section of **SYSTEM.INI** in your Windows directory:

  EMMExclude=D000-D1FF

  (Substitute the appropriate address range for your installation)

Problem

Windows starts up properly, but the system locks up after I access one of the Digi ports.

Causes/Solutions

- If your board is an older PC/Xe or PC/Xi board (these have two banks of DIP switches on the top edge of the board), you may have a conflict with a device in your system which is operating in 8-bit mode (e.g. video controller, SCSI interface, etc. set for 8-bit operation). If possible, set this device to operate in 16-bit mode, or change either its address or the address of the Digi product so that they are not in the same 128K area (128K areas are 0A0000h-0BFFFFh, 0C0000h-0DFFFFh and 0E0000h-0FFFFFh).

- If your board is a newer PC/Xe, AccelePort Xe or AccelePort Xr (DIP switches on the end of the board), make sure that switch 4 is ON (toward the board).

Uninstalling the Software

To remove the Digi Windows for Workgroups 3.11 device driver, follow these steps:

1. Start the Digi Configuration program from the Control Panel.

2. Remove each board from the "**Adapters**" box by clicking on the board, then clicking on the "**Remove**" button.

3. Click on the "**OK**" button, and save the changes to the **SYSTEM.INI** file. When asked if you want to restart Windows, click on the "**Don't Restart Now**" button.

4. At this point, you have uninstalled the driver so it won't be loaded when you restart Windows. If you wish to delete the driver files from your hard drive, continue with the following steps:

5. When you installed the drivers, you were prompted for two paths: your Windows path, and a path where you wanted the Digi software copied. If you elected to use the default path, the files were installed in **C:\WINDOWS\DIGIBRD**. Whatever the actual path, the files placed in the directory include:

   README.WRI
   DGCONFIG.EXE
   DGCONFIG.HLP

   Delete all files from your Digi directory and remove the directory.

6. Remove the following files from your **SYSTEM** directory:

   DIGIFEP5.VXD
   DIGIXEM.VXD
   DIGIXALL.VXD
   DIGIERR.DRV
   DGCTRLPN.CPL

7. You may also delete the **[digiboard]** section from **WIN.INI**.

Windows 3.1

Introduction

The Digi device driver package for Microsoft Windows™ provides full communication support for the Digi AccelePort Xe, PC/Xe, MC/Xe, PC/Xi, MC/Xi and COM/Xi intelligent serial communications boards under Microsoft Windows version 3.1. The driver can be used with Windows for Workgroups 3.11, but does not support Win32 COMM applications. The device driver supports up to nine serial ports (the maximum number supported by Windows).

If you are running Windows for Workgroups 3.11, you will have the option of installing either the Windows 3.1 device driver, or the Windows for Workgroups 3.11 driver. The two drivers have different features:

- The **Windows 3.1** device driver supports virtualization of UARTs—that is, Digi ports may each be assigned a "virtual" I/O port address and IRQ number so that DOS applications which normally communicate directly with the I/O hardware rather than through BIOS commands can use the Digi intelligent ports.

  The **Windows 3.1** device driver also supports an Interrupt 14h extended BIOS function set. This method is used primarily by DOS applications, and is provided for compatibility. The Interrupt 14h extended BIOS function set is documented in a text file, **INT14.TXT**, in the **DOS** directory of the distribution diskette.

- The **Windows for Workgroups 3.11** device driver supports Win32 COMM and VCOMM applications such as RAS and At Work Fax, but does not support virtual UARTs or Interrupt 14h BIOS commands. *The procedure for installing the Windows for Workgroups 3.11 device driver begins on page 24.*

See the files **README.TXT** (for the Windows 3.1 driver) and **README.WRI** (for the Windows for Workgroups 3.11 driver), on the distribution diskette for other information not available at this manual's press time.

Hardware and Software Requirements

- One or more Digi intelligent serial communications boards (AccelePort Xe, PC/Xe, MC/Xe, PC/Xi, MC/Xi or COM/Xi).

- Microsoft Windows 3.1 or Windows for Workgroups 3.11, running in enhanced mode.

- One or more application programs, such as the Windows Terminal program or PROCOMM PLUS for Windows, which support Windows COMM API calls; you may also need a special **.DLL** file to enable support for more than four ports— if available, this can be obtained from your software publisher.

Important! The MS-DOS device driver for Digi intelligent communications boards must *not* be loaded. Look in your **CONFIG.SYS** file for the following line:

DEVICE=C:\DIGI\XIDOS5.SYS

If present, either delete it, or disable it by inserting "**REM**" (for "remark") at the beginning of the line:

REM DEVICE=C:\DIGI\XIDOS5.SYS

Installation

Hardware Installation

Before proceeding with the software installation for the Microsoft Windows device driver, you must first install the board(s) according to the instructions in the *Installation Guide* for your board.

Important! *Before attempting to install the Windows Device driver, be sure to run the Memory Map utility to find the required amount of available address space for your board, and the User Diagnostics to verify that the board is working correctly. See the Installation Tips section of the Installation Guide for your board for details.*

Software Installation

1. Start Windows.

2. Place the Windows Async Driver diskette in drive A. Select **Run** from the Program Manager's **File** menu. In the dialog box, type

`A:\SETUP`

and click on the **OK** button (if you install from a drive other than drive A, substitute the appropriate drive designation for `A:` in the **Run** dialog box). A series of dialog boxes will follow, containing introductory information, and requesting the name of your Windows directory, etc.

3. If your system is **Windows for Workgroups 3.11**, the software will ask you to select either the Windows 3.1 device driver or the Windows for Workgroups 3.11 device driver. If you plan to use Win32 COMM applications such as RAS, you must install the Windows for Workgroups 3.11 device driver. If you don't need RAS support, but want virtual UARTs or Interrupt 14h BIOS support, select the Windows 3.1 device driver. See page 32 for more information.

`SETUP` will now automatically invoke the device driver configuration program. Complete context sensitive on-line help is available at any time by clicking on the **Help** button.

Note: After the device driver is installed, the configuration program may be entered via the Windows **Control Panel** program.

Software Configuration

1. Start Windows. Run the Windows **Control Panel** program by double clicking on the Control Panel icon.

2. From Control Panel, double click the **Digi** icon.

Micro Channel Systems: The configuration program will identify any Digi Xe (MC) or Xi (MC) boards installed in your machine by board family, but it cannot determine the number of ports on the board(s). You will see a dialog box requesting identification of each board.   All remaining board configuration parameters are automatically read from the POS registers in your computer.

Troubleshooting

Important! *Before calling Technical Support, be sure to run the Memory Map utility to find the required amount of available address space, and the User Diagnostics to verify that the board is working correctly. See the Installation Tips section of the Installation Guide for your board for details.*

Problem

When I start Windows, I get an error message stating that the device driver initialization failed.

Causes/Solutions

- The configuration of the device driver may not match the configuration of the board. Make sure that the I/O port address you used in the configuration program matches the address set on the ISA board's DIP switches.

- The board's memory may be in conflict with the memory of some other device. Try reconfiguring the device driver for a different memory starting address (if the board is a Micro Channel board, reconfigure the board for a different address by running the configuration program on the IBM Reference Diskette).

- The board's IRQ setting may be in conflict with the IRQ setting of some other device. Try reconfiguring the device driver for a different IRQ (if the board is a Micro Channel board, reconfigure the board for a different IRQ by running the configuration program on the IBM Reference Diskette).

- The board may not be seated properly in its slot in your computer. Make sure that the board is pushed all the way into the slot, and that the endplate is securely screwed to the computer chassis.

- If your system is running an expanded memory manager (e.g. EMM386, QEMM, etc.), be sure to exclude the memory address range used by the board (8K, 32K or 64K, depending on the board type, beginning with the address you specified in the **Board Parameters** dialog box. This is usually done with a command line option in the **DEVICE=** line for your memory manager in **CONFIG.SYS**.

  EXAMPLES (**EMM386.EXE**; boards addressed at D0000h):

  AccelePort Xe (8K)
      DEVICE=EMM386.EXE [...] **-X D000-D1FF**

  PC/Xe (64K) and PC/Xi (64K)
      DEVICE=EMM386.EXE [...] **-X D000-DFFF**

  COM/Xi (32K)
      DEVICE=EMM386.EXE [...] **-X D000-D7FF**

  Consult the documentation for your expanded memory manager for instructions.

- If your system is not running an expanded memory manager, or if the board's memory address range is not excluded in the memory manager command line (as shown above), be sure to exclude it in Windows by adding the following line to the **[386Enh]** section of **SYSTEM.INI** in your Windows directory:

  EMMExclude=D000-D1FF

  (Substitute the appropriate address range for your installation)

Problem

Windows starts up properly, but the system locks up after I access one of the Digi ports.

Causes/Solutions

- If your board is an older PC/Xe or PC/Xi board (these have two banks of DIP switches on the top edge of the board), you may have a conflict with a device in your system which is operating in 8-bit mode (e.g. video controller, SCSI interface, etc. set for 8-bit operation). If possible, set this device to operate in 16-bit mode, or change either its address or the address of the Digi product so that they are not in the same 128K area (128K areas are 0A0000h-0BFFFFh, 0C0000h-0DFFFFh and 0E0000h-0FFFFFh).

- If your board is a newer PC/Xe or AccelePort Xe (DIP switches on the end of the board), make sure that switch 4 is ON (toward the board).

Uninstalling the Software

To remove the Digi Windows 3.1 device driver, follow these steps:

1. Start the Digi Configuration program from the Control Panel.

2. Remove each board from the "**Installed Boards**" box by clicking on the board, then clicking on the "**Remove**" button.

3. Click on the "**OK**" button, and save the changes to the `SYSTEM.INI` file. When asked if you want to restart Windows, click on the "**Don't Restart Now**" button.

4. Use Windows Notepad to edit the `SYSTEM.INI` file (this should be in your main Windows directory).

5. Find the `COMM.DRV` entry in the `[boot]` section of the `SYSTEM.INI` file and change it from:

    `COMM.DRV=C:\WINDOWS\SYSTEM\DBCOMM.DRV`
    to:
    `COMM.DRV=COMM.DRV`

    NOTE: Substitute your Windows system path for `C:\WINDOWS\SYSTEM` above, if appropriate. Example: `C:\W31\SYSTEM`

6. Delete the following entries from the `[386Enh]` section of your `SYSTEM.INI` file:

    `DEVICE=VRCD.386`
    `DEVICE=VDBCD.386`
    `DEVICE=VUARTD.386`

7. At this point, you have uninstalled the driver so it won't be loaded when you restart Windows. If you wish to delete the driver files from your hard drive, continue with the following steps:

8. When you installed the drivers, you were prompted for two paths: your Windows path, and a path where you wanted the Digi software copied. If you elected to use the default path, the files were installed in `C:\WINDOWS\DIGIBRD`. Whatever the actual path, the files placed in the directory include:

    `README.TXT`
    `DGCONFIG.EXE`
    `DGCONFIG.HLP`

    Delete all files from your Digi directory and remove the directory.

9. Remove the following files from your **SYSTEM** directory:

   DBCOMM.DRV
   VDBCD.386
   VRCD.386
   DGCTRLPN.CPL
   VUARTD.386

10. You may also delete the **[LogPorts]** and **[DigiBoard]** sections from **SYSTEM.INI**, and the **[digiboard]** section from **WIN.INI**.

Programming Information

Windows 3.1

The Windows 3.1 device driver for Digi intelligent communications boards supports three methods of serial port control: the Windows 3.1 16-bit COMM API (Communications Application Programming Interface), an extended set of Interrupt 14h BIOS functions, and direct access via "virtual UARTs".

The primary (and most efficient) method is the Windows 3.1 16-bit COMM API, which is the method used by nearly all programs written expressly for Windows. The Digi Windows device driver provides full support for COMM API calls. The Windows 3.1 16-bit COMM API is documented in the Microsoft Windows Software Development Kit (SDK).

The second method is the Interrupt 14h extended BIOS function set. This method is used primarily by DOS applications, and is provided for compatibility. The Interrupt 14h extended BIOS function set is documented in a text file, **INT14.TXT**, in the **DOS** directory of the distribution diskette.

The third (and least efficient) method is direct access via virtual UARTs. This method is used by applications which are designed to control the communications hardware by directly accessing its I/O registers. Since Digi intelligent ports cannot be directly accessed via the I/O bus, a means has been provided for each port to be assigned a "virtual" I/O base address and IRQ (Interrupt Request) line. Windows traps I/O requests to these devices and passes them to the Digi device driver for processing.

Windows 95 and Windows for Workgroups 3.11

The Windows 95 and Windows for Workgroups 3.11 device drivers are VCOMM Port Drivers, and support the Win32 COMM API, the Win32 TAPI (Telephony API) and the 16-bit COMM API, as well as VCOMM clients.

The Win32 COMM API and Win32 TAPI are documented in the Microsoft Win32 Software Development Kit (SDK).

Note: The Windows 95 and Windows for Workgroups 3.11 device drivers do not support Interrupt 14h BIOS calls or virtual UARTs. If you are running Windows 95 or Windows for Workgroups 3.11, and wish to use these features, you must install the Windows 3.1 device driver instead.

Digi Support Services

The Digi Bulletin Board System

Digi provides an electronic bulletin board service (BBS) for our customers. This bulletin board provides general and technical information about Digi's products.

The Digi BBS allows users to download software drivers as soon as they become available. There is also a feature to allow users with problems or questions about Digi products to leave messages to Digi Technical Support.

Using the Digi BBS is easy. Simply dial **(612) 912-4800**. In Europe, dial **+49 221 9205211**; in Asia, dial **+65 735 2460**.

The recommended modem communications parameters are 8 bits, no parity and one stop bit (**8 N 1**). Other settings may also work.

Download protocols include Zmodem, Xmodem, Ymodem, Kermit and others.

Internet FTP Server

Digi has set up an Anonymous FTP server for those with access to the Internet network. The address is **ftp.dgii.com**. Log in as **anonymous**, and enter your E-mail address when asked for a password. Drivers and installation tips are located in the **/drivers** directory. A text file, **download.doc**, gives information on uncompressing the files after downloading. Tip: Be sure to enter "**bin**" before downloading, to ensure binary transfer of files.

World Wide Web Server

Product information, manuals, new product announcements, programs, application stories and more can be obtained through the World Wide Web. Our address is **http://www.dgii.com**.

DigiFACTs FaxBack Server

Manuals and technical information can also be obtained by FAX. To use the FaxBack server, simply call (612) 912-4990 on a touch tone phone.

Information About Your System

Serial number of your Digi product: _____

Make, model and clock speed of your computer: _____

_____

How much RAM does your computer have? _____

Hard disk controller: Type: _____   Memory addressed at: _____

       I/O port used: _____   IRQ: _____

LAN card: Type: _____   Memory addressed at: _____

       I/O port used: _____   IRQ: _____

Other: Type: _____   Memory addressed at: _____

       I/O port used: _____   IRQ: _____

Operating system: _____   Version: _____

Digi device driver version: _____

Technical Support

At Digi, we are proud of our products, and support them. Our dealers and distributors are fully trained on our product line, so that they can help you on a technical level should assistance be needed.

Your first level of support is your Digi dealer, the place where you purchased your Digi product. Your dealer has the training to help you with any installation questions or difficulties you might have.

If you still experience difficulties (after contacting your first level of support), Digi has a staff of Technical Support Specialists that can assist you. They can be reached at **(612) 912-3456**. In Europe, call **+49 221 920520**, and in Asia, call **+65 732 1318**. FAX numbers are: (612) 912-4958 (USA), +49 221 9205210 (Europe) and +65 732 1312 (Asia).

When you call Digi Technical Support, please call from a position where you can operate your system. Also, please fill out the form on the preceding page before calling, so your Technical Support representative can have a clear picture of your system and any potential conflicts between devices.

Digi Technical Support can also be reached via Internet E-mail. Please send correspondences to `support@dgii.com`, and include your voice and FAX phone numbers.

Customer Service

Digi also has a staff of Customer Service representatives to help you with software and documentation update requests, as well as Returned Merchandise Authorizations (RMAs) in case you need to return your Digi product for repair (see page *47*). They may be reached at **(612) 912-3456**. Digi Customer Service may be contacted by FAX at (612) 912-4959.

Digi Customer Service can also be reached via Internet E-mail. Please send correspondences to `cust_serv@dgii.com`, and include your voice and FAX phone numbers.

Return Procedures

All Digi products have a five-year parts and labor warranty, and we are ultimately responsible for any defective parts, according to the limits specified in the warranty. However, many of the reported problems are due to factors other than defects in the product itself. To save you time and possibly additional cost, Digi asks that you *first* try to resolve any difficulties by contacting our Technical Support representatives at **(612) 912-3456.**

Important! *Be sure to have the serial number of your Digi product at hand before calling Technical Support.*

Returns should be directed to the dealer or distributor from whom you purchased the product. If you need to return your Digi product for repair, it is first necessary to obtain an RMA (Returned Merchandise Authorization) number from Digi, by speaking to a Digi Customer Service representative. Authorized returns should be shipped to Digi International, 10000 West 76th Street, Eden Prairie, MN 55344. The RMA number should appear on the shipping carton, on or near the address label.

Note: *Products received without an RMA number clearly marked on the outside of the package will be returned, unopened, to the sender*

Digi Intelligent Serial Communications Products