# Software Manual

**Digi Micro Channel Intelligent Serial
Communications Products**

**Novell AIO Device Driver Package**

# Table of Contents

# Introduction

This manual contains instructions for installing and configuring the Digi device drivers for Novell AIO. The device drivers in this package support the following Digi products for the Micro Channel bus:

- AccelePort (Xe - MC, Xem - MC, C/X - MC, EPC/X - MC)
- MC/Xe, MC/Xi

The manual is divided into sections pertaining to each of the major families of Digi intelligent asynchronous communications products:

# AccelePort C/X - MC

## Overview

Digi's support for Novell compatible asynchronous applications is provided through a universal driver conforming to the "AIO" (Asynchronous Input/Output) specification. Use the AIO driver when Digi hardware is being installed in the file server (or machine with run-time NetWare).

AIO drivers are loaded on the file server from the system console (or **RCONSOLE**) command line or the **AUTOEXEC.NCF** file. Installation is performed simply by copying the driver files **AIODGMCX.NLM**, **AIODGMEM.NLM**, **AIOCMCFG.NLM**, **AIODGMCX.ADI** and **AIOCXDTA.NLM** from the distribution diskette to the system directory of the file server.

## Compatibility

This AIO driver supports the Micro Channel version of the Digi C/X system.

The driver will support up to four C/X - MC host adapters—however, your server may be limited to two boards due to possible conflicts with the network adapter card and hard disk controller.

Concentrators may be connected locally (direct wiring), or remotely (via high-speed synchronous modems). This driver supports one modem pair per synchronous line, and the modems must be installed between the host adapter and the first concentrator (i.e. local and remote concentrators may not be combined on a single synchronous line).

# Installation and Configuration

## Copying the Files

To install the Digi AIO driver, simply copy the relevant files to your file server. The Digi AIO files should be copied to the system directory of the file server, typically called **F:\SYSTEM**.  Copy the files  from a workstation to the file server with the commands:

```
COPY A:\MCX\AIODGMCX.NLM F:\SYSTEM
COPY A:\MCX\AIODGMCX.ADI F:\SYSTEM\AIO
COPY A:\MCX\AIOCMCFG.NLM F:\SYSTEM
COPY A:\MCX\AIODGMEM.NLM F:\SYSTEM
COPY A:\MCX\AIOCXDTA.NLM F:\SYSTEM
```

## Configuring the AIO Driver

Before the AIO driver can be loaded for the first time, it must be configured to match the C/X System hardware you have installed in your server.  The configuration program, **AIOCMCFG.NLM**, creates a data file in **SYS:SYSTEM** called **DGCXDATA.CFG**.  **AIOCXDTA.NLM** reads this file at driver load and returns the configuration to the **AIODGMCX.NLM** driver.  The new configuration can be changed by re-running the configuration utility or by deleting the data file **DGCXDATA.CFG** from the **SYS:SYSTEM** directory.  Note that this will clear out the configuration.

To configure the AIO driver, enter the following command from the server:

```
load aiocmcfg
```

You will see the banner for the configuration utility:

```
Digi C/X - MC AIO Driver Configuration Utility          V 1.00
```

Below the banner, the current driver configuration will be displayed.

Because Micro Channel servers read board configuration information directly from the POS, the configuration fields will already be filled in. The number of concentrators will be automatically set to a default value of 1, and the board name will be assigned (**DgMCX00**, **DgMCX01**, **DgMCX02** or **DgMCX03**):

```
                     Digi Driver Configuration

   Brd Type    I/O Addr    Mem Addr    #Concs    Brd#    Brd Name

      MC       Port 108h   0D8000h        1        0     DgMCX00
```

Below the configuration display a box will appear listing the available configuration options:

```
            Available Options
   > │ Change Board Parameters
     │ Configure Sync Lines
     │ Set Altpin Option
     │ Set AIO Version
     │ Exit
```

## Adding Boards

**1.** To add a Micro Channel host adapter, simply install the board (follow the procedure in the *Installation Guide* for the Micro Channel host adapter) and run the Automatic Configuration program on the IBM reference diskette.

**2. Number of Concentrators**

Select "Change Board Parameters" from the main ("Available Options") menu, then select "# Concentrators". You will see the following:

```
          Concentrators
  > │  1 Concentrator
    │  2 Concentrators
    │  3 Concentrators
    │  4 Concentrators
    │  5 Concentrators
    │  6 Concentrators
    │  7 Concentrators
    │  8 Concentrators
```

Select 1 to 8 concentrators by moving the pointer to the desired number and press <Enter>.

**3. Concentrator Type (C/CON-8 or C/CON-16)**

Now identify each concentrator as either a C/CON-8 or C/CON-16. You will see a screen like this:

```
      C/X Concentrator Type Configuration

                              Type

  Conc 1                 >  C/CON-16
  Conc 2                    C/CON-16
  Conc 3                    C/CON-16
  Conc 4                    C/CON-16
                           <ESC> to Quit
```

## 4.  Host Adapter Sync Line Configuration

Now you need to set up the host adapter's synchronous line parameters. These include the wiring mode (4 or 8 wire), Transmit Clock mode (Internal or External), the baud rate and the modem type (if applicable). Select "Change Board Parameters" from the main ("Available Options") menu, then select "Config Sync Lines", and finally, select "Host Adapter":

```
            C/X Host Adapter Sync Line Configuration

 Line      Mode      TX Clock      Speed      Modem
   1    > 8-Wire     Internal      1.2M       N/A
   2      8-Wire     Internal      1.2M       N/A


                      <ESC> to Quit
```

### 4a.  Wiring Mode

To change the wiring mode, use the up, down, left and right arrow keys to place the pointer next to the wiring mode you wish to change, then press <Enter>. For maximum throughput under moderate to heavy loads, 8-Wire mode is recommended. If the concentrators are to be located at a remote site and connected to the host adapter via high-speed synchronous modems, 8-Wire mode is required.

### 4b.  Transmit Clock Mode

To change the Transmit Clock mode, use the up, down, left and right arrow keys to place the pointer next to the TX Clock mode you wish to change, then press <Enter>. Select Internal for local (hard-wired) concentrators, and External for remote concentrators (connected via high-speed synchronous modems).

### 4c. Line Speed Selection

Now choose the baud rate for the synchronous lines. Use the up, down, left and right arrow keys to place the pointer next to the Line Speed you wish to change, then press <Enter>. If you chose 8-Wire, Internal clocking above, the recommended Line Speed is 1.2 megabaud ("1.2M"). If you chose 4-Wire, Internal clocking, the maximum baud rate is 460K. If you are using high-speed synchronous modems to connect to remote concentrators, use the fastest baud rate supported by your modems.

```
        Select Line Speed
    ┌──────────────────────────┐
    │   2400                   │
    │   4800                   │
    │   9600                   │
    │   19.2K                  │
    │   38.4K                  │
    │   57.6K                  │
    │   76.8K                  │
    │   115K                   │
    │   230K                   │
    │   460K                   │
    │   920K                   │
    │ > 1.2M                   │
    └──────────────────────────┘
```

### 4d. Modem Type

To change the synchronous modem type, use the arrow keys to position the cursor next to the Modem Type you wish to change and press <Enter>. If the Transmit Clock mode is set to Internal (step 6b), then this field is automatically set to "N/A" and cannot be changed. Otherwise the choices are EIA-232 and EIA-422.

### 5. Concentrator Sync Line Configuration

Next, you will be asked to set up the concentrator's sync line parameters (this will not affect the sync line parameters you set for the host adapter). You will see a screen similar to the following:

```
┌─────────────────────────────────────────────────────┐
│     C/X Concentrator Sync Line Configuration        │
│                                                      │
│            Line      Mode      TX Clock      Speed   │
│                                                      │
│   Conc 1  > 1       8-Wire     Internal       1.2M   │
│   Conc 2    1       8-Wire     Internal       1.2M   │
│   Conc 3    1       8-Wire     Internal       1.2M   │
│   Conc 4    1       8-Wire     Internal       1.2M   │
│   Conc 5    2       8-Wire     Internal       1.2M   │
│   Conc 6    2       8-Wire     Internal       1.2M   │
│   Conc 7    2       8-Wire     Internal       1.2M   │
│   Conc 8    2       8-Wire     Internal       1.2M   │
│                                                      │
│                                      <ESC> to Quit   │
└─────────────────────────────────────────────────────┘
```

Note that only the Line number and Speed can be changed, and that the speed of the last concentrator on each line will always reflect the host adapter's speed setting for that line.

### 5a. Sync Line Selection

By default, concentrators 1 through 4 will be placed on Line 1, and concentrators 5 through 8 will be placed on Line 2. To redistribute the concentrators, use the up, down, left and right arrow keys to move the pointer to the Line number of the concentrator you wish to change, and press <Enter>. Note that configuring any concentrator for Line 1 will automatically change all lower-numbered concentrators to Line 1, and setting any concentrator to Line 2 will automatically change all higher-numbered concentrators to Line 2.

### 5b. Line Speed Selection

By default, all concentrators will be assigned the maximum line speed for their wiring mode (1.2 megabaud for 8-wire and 460K for 4-wire), except the last concentrator in the daisy chain, which will be set for the same line speed as the host adapter line to which the concentrators are attached. Under normal circumstances, this setting should not be changed (changing the line speed will degrade the performance of all concentrators connected to this host adapter synchronous line).

**6. Changing the C/X Host Adapter's Name**

You will now be given the opportunity to change the name of the host adapter. By default, host adapters are named "DgMCX00" through "DgMCX03". Select "Change Board Parameters" from the main ("Available Options") menu, then select "Host Adapter Name" to get this screen:

```
             Change C/X Host Adapter Name
  Current Name   : DgMCX00

  Enter New Name :

  <ENTER> to Accept Current Name
```

To keep the default name, simply press <Enter>.

This completes the procedure for adding host adapters to the configuration.

## Removing Boards

To uninstall a board from a Micro Channel server, remove the board from the computer and run the configuration utility on your IBM reference diskette, then reload the Digi AIO driver configuration utility.  The board you removed should no longer appear in the driver configuration box.

## Enabling and Disabling the AltPin Feature

This feature internally swaps the signals DCD (Data Carrier Detect) and DSR (Data Set Ready).  This is useful for concentrator models that are equipped with RJ-45 modular jacks for the serial connections.  The DCD signal is normally on pin 10 of the RJ-45 jack, which makes it inaccessible to 8-pin RJ-45 plugs.

When the AltPin feature is enabled, pin 2 of the 10-pin RJ-45 connector will be interpreted by the driver as the DCD signal.  This corresponds to pin 1 of an 8-pin RJ-45 connector.  Pin 10 then becomes DSR.  Be sure that your cabling reflects this configuration.

To configure the AIO driver to use the alternate pin assignments, select "Set AltPin Option" from the main ("Available Options") menu, then select the board from the Driver Configuration box:

```
                    Digi Driver Configuration

   Brd Type      I/O Addr    Mem Addr    #Concs     Brd#     Brd Name

 > MC           Port 108h    0D8000h        8         0       DgMCX00
   MC           Port 118h    0D8000h        8         1       DgMCX01
   MC           Port 208h    0D8000h        8         2       DgMCX02
   MC           Port 218h    0D8000h        8         3       DgMCX03
```

Now you will be shown a list of the concentrators attached to that host adapter.  Choose the concentrator you wish to configure for AltPin by positioning the pointer and press <Enter>.

```
   Select C/X Concentrator for AltPin Configuration

              Line     Mode     TX Clock     Speed

 > Conc 1      1      8-Wire    Internal     1.2M
   Conc 2      1      8-Wire    Internal     1.2M
   Conc 3      1      8-Wire    Internal     1.2M
   Conc 4      1      8-Wire    Internal     1.2M
   Conc 5      2      8-Wire    Internal     1.2M
   Conc 6      2      8-Wire    Internal     1.2M
   Conc 7      2      8-Wire    Internal     1.2M
   Conc 8      2      8-Wire    Internal     1.2M

                                  <ESC> to Quit
```

You will now see a list of the ports on the selected concentrator, and their AltPin status. Use the up, down, left and right arrow keys to position the pointer by the port you wish to change. Press <Enter> to toggle the AltPin status of the selected port.

```
                     Port AltPin Status

               Host Adapter 0   Concentrator 1


        > Port  1 : Enabled      Port  2 : Disabled
          Port  3 : Disabled     Port  4 : Disabled
          Port  5 : Disabled     Port  6 : Disabled
          Port  7 : Disabled     Port  8 : Disabled
          Port  9 : Disabled     Port 10 : Disabled
          Port 11 : Disabled     Port 12 : Disabled
          Port 13 : Disabled     Port 14 : Disabled
          Port 15 : Disabled     Port 16 : Disabled


     <ENTER> to toggle Status           <ESC> to Quit
```

## Selecting the AIO Version

The AIO driver needs to be configured to specify what method is to be used for numbering boards. In AIO versions 1.02 and earlier, board numbers were assigned sequentially in the order in which the boards were added to the configuration (in Micro Channel servers, this is the order in which they appeared in the POS). In versions 1.03 and later, the board numbers are dependent upon the I/O port addresses (Port 108 = Board 0, Port 118 = Board 1, etc.), and therefore may not appear in sequential order in the Driver Configuration box.

The Digi AIO driver may be configured to use either numbering style. From the main ("Available Options") menu, select "Set AIO Version". You will see the following menu:

```
        AIO Version : V1.02
 >  V1.02 and earlier
    V1.03 and later
```

Move the pointer to the appropriate line and press <Enter>.

**Note:** It is recommended that you choose the 1st option, V1.02 and earlier, so the boards are numbered sequentially.

**Note:** This parameter does not specify to the version of AIO that you are running. It specifies the style of port numbering to be used.

## Saving the Configuration

Once all parameters have been set as desired, select "Exit" from the main ("Available Options") menu. When asked if you want to save the configuration, answer "Y" to save the changes, or "N" to leave the driver unchanged.

## Loading the AIO Driver

To load the configured AIO driver, enter the following command on the server's console:

```
load aiodgmcx
```

Upon successfully loading the driver, the following banner message (or similar) will appear:

```
NetWare AIO Digi C/X - MC Driver
Version 1.00    Feb 7, 1997
Copyright 1997, Digi International Inc.  All rights reserved.

Board 0 :  Port 208, Mem D0000 - Initialized successfully.
```

The driver is now ready for use.

## Changing the AIO Driver's Configuration

To reconfigure the AIO driver, enter the following command on the server's console:

```
load aiocmcfg
```

You will be shown the current configuration, and the "Available Options" menu. Make the desired changes and save the new configuration.

If you wish to reset the configuration to default values, delete the data file **DGCXDATA.CFG** from the **SYS:SYSTEM** directory.

# Error Messages

If there is a problem with the installation, one or more of the following error messages may appear after you load the driver.

**\*Error: Driver Already Loaded.**
>This message will appear if the driver is presently loaded. To reload the driver, unload the present memory copy of the driver by entering **unload aiodgmcx** at the server console. Then you may reload the driver.

**\*Error:  This is not a Micro Channel system. Use AIODGCX.NLM.**
>This message indicates that this Micro Channel driver is being loaded on a system that is not a Micro Channel system. The **AIODGCX.NLM** driver should be used.

**\*Error: Driver Configured for 0 Boards. Configure Driver with AIOCMCFG.NLM.**
>This message indicates that the driver is configured for 0 boards. You must **load aiocmcfg** to configure the driver to support at least one board.

**\*Error: AllocateIOResourceTag failed.**
**\*Error: Allocate Resource Tag failed.**
**\*Error: AllocateAESResourceTag failed.**
**\*Error: Allocation of PortConfig memory failed.**
**\*Error: Allocation of PortStats memory failed.**
>These messages indicate that the driver encountered difficulties while trying to obtain resources from AIO.  This usually indicates that the system is out of resources.  Unload any unnecessary NLMs and reload the driver.

**\*Error: AIORegisterDriver failed (code=xx).**
>This message indicates that another driver has already registered the C/X hardware type (possibly illegally).  Unload other AIO drivers and reload the C/X AIO driver.

**Board 0 : Port 208, Mem D0000 - Hardware Reset fails.**
>This message indicates that the driver could not place the board into a reset state.  This is most likely the result of an I/O port address conflict or a faulty board.  Be sure that there are no other I/O ports in your system at the indicated I/O port address.

**Board 0 : Port 208, Mem D0000 - AIORegisterBoard failed (code=xx).**
>This message indicates that an error occurred while trying to register the board with AIO.  This failure is usually the result of no system resources, or a duplicate board number.  Check the driver configuration for duplicate board numbers.  If none exist, unload unnecessary NLMs to free system resources.

**Board 0 : Port 208, Mem D0000 - Failed Hardware Registration.**
>This message indicates that an error occurred while trying to register the board's specific hardware addresses with AIO.

---

The following error messages are usually the result of memory and/or I/O address conflicts with other devices within your system.  Insure that no such conflicts exist.  If errors persist, your board may be defective.

**`Board 0 : Port 208, Mem D0000 - Memory not found error x.`**
This message indicates that the driver could not find the board's memory.  x indicates the number of memory errors found in a 256 byte block.

**`Board 0 : Port 208, Mem D0000 - Memory error x.`**
This message indicates that the driver has found the board's memory, but it appears to be faulty.  x indicates the number of errors found in a 256 byte block.

**`Board 0 : Port 208, Mem D0000 - Memory fails disable x.`**
This message indicates that the board's memory could not be disabled.

**`Board 0 : Port 208, Mem D0000 - BIOS fails initialization.`**
This message indicates that the board's on-board BIOS did not initialize properly.

**`Board 0 : Port 208, Mem D0000 - NMI Fails during FEPOS execution.`**
This message indicates a failure during transfer of the on-board operating system code.

**`Board 0 : Port 208, Mem D0000 - FEPOS Fails Initialization.`**
This message indicates that the on-board operating system did not initialize successfully.

**`Board 0 : Port 208, Mem D0000 - Command <x> failure during Initialization.`**
This message indicates that the on-board operating system encountered a failure during initialization of the asynchronous channels.

**`Board 0 : Port 208, Mem D0000 - Memory Fails Window Test.`**
This message indicates that the board fails to window it's memory pages correctly.

# AccelePort EPC/X - MC

## Overview

Digi's support for Novell compatible asynchronous applications is provided through a universal driver conforming to the "AIO" (Asynchronous Input/Output) specification. Use the AIO driver when Digi hardware is being installed in the file server (or machine with run-time NetWare). When Digi hardware is installed in a machine other than the server, use the specific driver for that application.

AIO drivers are loaded on the file server from the system console (or **RCONSOLE**) command line or the **AUTOEXEC.NCF** file. Installation is performed by copying the driver files **AIODGMEP.NLM**, **AIODGMEP.ADI**, **AIODGMEM.NLM**, **AIOEPCDT.NLM**, **AIOEMCFG.NLM**, **DGEPCXF.BIN**, **DGEPCXPF.BIN**, **DGEPCXB.BIN**, **DGEPCXBF.BIN**, **DGSER.NLM**, **DGT1CFG.NLM** and **FEPMNGR.NLM** from the distribution diskette to the system directory of the file server.

## Compatibility

This AIO driver supports the Micro Channel version of the Digi EPC/X system.

The driver will support up to four Digi EPC/X host adapters—however, your server may be limited to two boards due to conflicts with the network adapter card and hard disk controller.

Concentrators may be connected locally (direct wiring), or remotely (via high-speed synchronous modems). This driver supports one modem pair per synchronous line, and the modems must be installed between the host adapter and the first concentrator (i.e. local and remote concentrators may not be combined on a single synchronous line).

# Installation and Configuration

## Copying the Files

To install the Digi AIO driver, simply copy the relevant files to your file server. The Digi AIO files should be copied to the system directory of the file server, typically called **F:\SYSTEM**.  Copy the files  from a workstation to the file server with the commands:

```
COPY A:\MEPC\AIODGMEP.NLM F:\SYSTEM
COPY A:\MEPC\AIODGMEP.ADI F:\SYSTEM\AIO
COPY A:\MEPC\AIOEMCFG.NLM F:\SYSTEM
COPY A:\MEPC\AIODGMEM.NLM F:\SYSTEM
COPY A:\MEPC\AIOEPCDT.NLM F:\SYSTEM
COPY A:\MEPC\DGEPCXF.BIN  F:\SYSTEM
COPY A:\MEPC\DGEPCXPF.BIN F:\SYSTEM
COPY A:\MEPC\DGEPCXB.BIN  F:\SYSTEM
COPY A:\MEPC\DGEPCXBF.BIN F:\SYSTEM
COPY A:\MEPC\DGSER.NLM    F:\SYSTEM
COPY A:\MEPC\DGT1CFG.NLM  F:\SYSTEM
COPY A:\MEPC\FEPMNGR.NLM  F:\SYSTEM
```

## Configuring the AIO Driver

Before the AIO driver can be loaded for the first time, it must be configured to match the Digi EPC/X System hardware you have installed in your server.  The configuration program, **AIOEMCFG.NLM**, creates a data file in **SYS:SYSTEM** called **DGEPCX.CFG**.  **AIOEPCDT.NLM** reads this file at driver load and returns the configuration to the **AIODGMEP.NLM** driver.  The new configuration can be changed by re-running the configuration utility or by deleting the data file **DGEPCX.CFG** from the **SYS:SYSTEM** directory.  Note that this will clear out the configuration.

When updating to future releases of this driver, the **DGEPCX.CFG** file will still contain your configuration.  To reset this configuration, simply delete the data file **DGEPCX.CFG** from the **SYS:SYSTEM** directory.

To configure the AIO driver, enter the following command from the server:

```
load aioemcfg
```

You will see the banner for the configuration utility:

```
Digi EPC/X - MC AIO Driver Configuration Utility          V 1.00
```

Below the banner, the current driver configuration will be displayed. Because Micro Channel servers read board configuration information directly from the POS, the configuration fields will already be filled in.  The number of concentrators will be automatically set to a default value of 1, and the board name will be set to "DgMEPC0" (if multiple host adapters are present, they will be named "DgMEPC1", "DgMEPC2" and "DgMEPC3"):

```
                  Digi EPC/X - MC Driver Configuration

   Brd Type      I/O Addr      Mem Addr      #Concs      Brd#      Brd Name

     MC         Port 108h     0D8000h          1          0       DgMEPC0
```

Below the configuration display a box will appear listing the available configuration options:

```
            Available Options

  >    Change Board Parameters
       Configure Sync Lines
       Set Altpin Option
       Set AIO Version
       Exit
```

## Adding Boards

**1.** To add a Micro Channel host adapter to the configuration, simply install the board (follow the procedure in the *Installation Guide* for the Micro Channel host adapter) and run the Automatic Configuration program on the IBM reference diskette.

**2. Host Adapter Sync Line Configuration**

Now you need to set up the host adapter's synchronous line parameters. These include the wiring mode (4 or 8 wire), Transmit Clock mode (Internal or External) and the baud rate. From the main ("Available Options") menu, select "Configure Sync Lines" to see the following:

```
            EPC/X - MC Host Adapter Sync Line Configuration

 Line     Mode     TX Clock     Speed     Modem     Concentrators
   1    > 8-Wire   Internal     10.0M      N/A            1
   2      8-Wire   Internal     10.0M      N/A            0

                         <ESC> to Quit
```

**2a. Wiring Mode**

To change the wiring mode, use the arrow keys to place the pointer next to the wiring mode you wish to change, then press <Enter>. For maximum throughput under moderate to heavy loads, 8-Wire mode is recommended. If the concentrators are to be located at a remote site and connected to the host adapter via high-speed synchronous modems, 8-Wire mode is required.

**2b. Transmit Clock Mode**

To change the Transmit Clock mode, use the arrow keys to place the pointer next to the TX Clock mode you wish to change, then press <Enter>. Select Internal for local (hard-wired) concentrators, and External for remote concentrators (connected via high-speed synchronous modems).

### 2c. Line Speed Selection

Now choose the baud rate for the synchronous lines. Use the arrow keys to place the pointer next to the Line Speed you wish to change, then press <Enter>. If you chose 8-Wire, Internal clocking above, and *all* concentrators on the line are EPC/CON-16 concentrators, the recommended Line Speed is 10.0 megabaud ("10.0M"). If you chose 4-Wire, Internal clocking, the maximum baud rate is 460K. If you are using high-speed synchronous modems to connect to remote concentrators, use the fastest baud rate supported by your modems. *If you have any C/CON-16 or C/CON-8 concentrators on the line, the maximum line speed is 1.2M.*

```
         Select Line Speed

        2400
        4800
        9600
        19.2K
        38.4K
        57.6K
        76.8K
        115K
        230K
        460K
        920K
        1.2M
        1.8M
        2.4M
        3.6M
        7.3M
  >     10.0M
```

### 2d. Number of Concentrators

Now specify the number of concentrators connected to each line of the host adapter. You can have up to 8 concentrators on a line, but the total number (on both lines) must not exceed 14. Furthermore, if EBI (PORTS) modules are connected to any of the concentrators, the combined number of ports on both sync lines must not exceed 224. Use the arrow keys to position the pointer next to the "Concentrators" option and press <Enter>. You will see:

```
          Concentrators

      0 Concentrators
  >   1 Concentrator
      2 Concentrators
      3 Concentrators
      4 Concentrators
      5 Concentrators
      6 Concentrators
      7 Concentrators
      8 Concentrators
```

Use the arrow keys to select the appropriate number and press <Enter>.

### 3. Concentrator Sync Line Configuration

Once you've set the number of concentrators on a sync line, you will be asked to set up each concentrator's sync line parameters (this will not affect the sync line parameters you set for the host adapter unless you specify a C/CON-16 concentrator on a line whose speed is greater than 1.2M). You will see a screen similar to the following:

```
      EPC/X Concentrator Sync Line Configuration

            Speed    Type    Ports    EBI 1    EBI 2    EBI 3

Conc 1  > 10.0M   EPC/CON    16        0        0        0
Conc 2    10.0M   EPC/CON    16        0        0        0
Conc 3    10.0M   EPC/CON    16        0        0        0
Conc 4    10.0M   EPC/CON    16        0        0        0

                                    <ESC> to Quit
```

### 3a. Line Speed Selection

By default, all concentrators will be assigned the maximum line speed for their wiring mode (10.0 megabaud for 8-wire and 460K for 4-wire), except the last concentrator in the daisy chain, which will be set for the same line speed as the host adapter line to which the concentrators are attached. Under normal circumstances, this setting should not be changed (changing the line speed will degrade the performance of all concentrators connected to this host adapter synchronous line).

### 3b. Concentrator Type Selection

EPC/CON-16, C/CON-16, C/CON-8 concentrators and T1 Modem Banks can be connected to the EPC/X host adapter. The Type setting defaults to EPC/CON. If a C/CON concentrator is installed on the line, then set the appropriate concentrator's type to C/CON. Doing this will change the Line Speed to 1.2M (the maximum speed for a C/CON concentrator).

### 3c. EBI Modules

EBI (Extended Bus Interface) modules include PORTS/16em, PORTS/8em, PORTS/8emp, Modem/8em and Modem/4em modules.

If EBI modules are connected to an EPC/CON-16 concentrator, you must configure the EBI 1, EBI 2 and EBI 3 settings appropriately. Use the arrow keys to position the pointer next to the EBI module you wish to configure and press <Enter>. Select the type of EBI module from the displayed list. To remove an EBI module, select None.

**4. Changing the EPC/X Host Adapter's Name**

You will now be given the opportunity to change the name of the host adapter. By default, host adapters are named "DgMEPC0" through "DgMEPC3". Select "Change Board Parameters" from the main ("Available Options") menu, then select "Host Adapter Name" to get this screen:

```
              Change EPC/X Host Adapter Name
   Current Name    : DgMEPC0

   Enter New Name :

   <ENTER> to Accept Current Name
```

To keep the default name, simply press <Enter>.

This completes the procedure for adding host adapters to the configuration.

## Removing Boards

To remove an ISA, EISA or PCI host adapter from the configuration, select "Delete Board" from the main ("Available Options") menu. Then, in the Driver Configuration box, move the pointer to the board you wish to remove, and press <Enter>.

```
                    Digi Driver Configuration
  Brd Type    I/O Addr    Mem Addr    #Concs    Brd#    Brd Name

 >  MC        Port 108h   0D8000h       8         0     DgMEPC0
    MC        Port 118h   0D8000h       8         1     DgMEPC1
    MC        Port 208h   0D8000h       8         2     DgMEPC2
    MC        Port 218h   0D8000h       8         3     DgMEPC3
```

To delete a board from a Micro Channel server, remove the board from the computer and run the configuration utility on your IBM reference diskette, then reload the Digi AIO driver configuration utility. The board you removed should no longer appear in the driver configuration box.

## Enabling and Disabling the AltPin Feature

This feature internally swaps the signals DCD (Data Carrier Detect) and DSR (Data Set Ready).  This is useful for concentrator models that are equipped with RJ-45 modular jacks for the serial connections.  The DCD signal is normally on pin 10 of the RJ-45 jack, which makes it inaccessible to 8-pin RJ-45 plugs.

When the AltPin feature is enabled, pin 2 of the 10-pin RJ-45 connector will be interpreted by the driver as the DCD signal.  This corresponds to pin 1 of an 8-pin RJ-45 connector.  Pin 10 then becomes DSR.  Be sure that your cabling reflects this configuration.

To configure the AIO driver to use the alternate pin assignments, select "Set AltPin Option" from the main ("Available Options") menu, then select the board from the Driver Configuration box:

```
                    Digi Driver Configuration

  Brd Type     I/O Addr    Mem Addr    #Concs    Brd#    Brd Name

 > MC          Port 108h   0D8000h        8        0     DgMEPC0
   MC          Port 118h   0D8000h        8        1     DgMEPC1
   MC          Port 208h   0D8000h        8        2     DgMEPC2
   MC          Port 218h   0D8000h        8        3     DgMEPC3
```

Now you will be shown a list of the concentrators attached to that host adapter. Choose the concentrator you wish to configure for AltPin by positioning the pointer and press <Enter>.

```
     Select C/X Concentrator for AltPin Configuration

     Line     Concentrator      AltPin
 >    1            1            Disabled
      1            2            Disabled
      1            3            Disabled
      1            4            Disabled
      2            5            Disabled
      2            6            Disabled
      2            7            Disabled
      2            8            Disabled
```

Enabling or disabling AltPin affects all ports on the specified concentrator.

**Important!**    AltPin must be disabled for T1 Modem Bank devices.

## Selecting the AIO Version

The AIO driver needs to be configured to specify what method is to be used for numbering boards.  In AIO versions 1.02 and earlier, board numbers were assigned sequentially in the order in which the boards were added to the configuration (in Micro Channel servers, this is the order in which they appeared in the POS).  In versions 1.03 and later, the board numbers are dependent upon the I/O port addresses (Port 108 = Board 0, Port 118 = Board 1, etc.), and therefore may not appear in sequential order in the Driver Configuration box.

The Digi AIO driver may  be configured to use either numbering style.  From the main ("Available Options") menu, select "Set AIO Version".  You will see the following menu:

```
        AIO Version : V1.02
  >   V1.02 and earlier
      V1.03 and later
```

Move the pointer to the appropriate line and press <Enter>.


**Note:** It is recommended that you choose the 1st option, V1.02 and earlier, so the boards are numbered sequentially.


**Note:** This parameter does not specify to the version of AIO that you are running.  It specifies the style of port numbering to be used.


## Saving the Configuration

Once all parameters have been set as desired, select "Exit" from the main ("Available Options") menu.  When asked if you want to save the configuration, answer "**Y**" to save the changes, or "**N**" to leave the driver unchanged.

## Loading the AIO Driver

To load the configured AIO driver, enter the following command on the server's console:

```
load aiodgmep
```

Upon successfully loading the driver, the following banner message (or similar) will appear:

```
NetWare AIO Digi EPC/X - MC Driver
Version 1.00    Feb 25, 1997
Copyright 1997, Digi International Inc.  All rights reserved.

Board 0 :  Port 208, Mem D0000 - Initialized successfully.
```

The driver is now ready for use.

## Changing the AIO Driver's Configuration

To reconfigure the AIO driver, enter the following command on the server's console:

```
load aioemcfg
```

You will be shown the current configuration, and the "Available Options" menu. Make the desired changes (the various menus are described in the preceding pages of this manual) and save the new configuration.

If you wish to reset the configuration to default values, delete the data file **DGEPCX.CFG** from the **SYS:SYSTEM** directory.

## T1 Modem Bank Configuration

To configure any T1 Modem Banks installed in the EPC/X system, load the device driver (**aiodgmep.nlm**), then load **dgt1cfg.nlm** (or run Quick Manager on a Windows NT workstation or server). Please refer to the Digi T1 Modem Bank documentation for more information.

# Error Messages

If there is a problem with the installation, one or more of the following error messages may appear after you load the driver.

**\*Error: Error Registering rfc-1406 for SNMP.**
> A problem was encountered while attempting to register the standard dsx1 MIB. Non fatal error.

**\*Error: Error Registering DigiT1E1 MIB for SNMP.**
> The Digi specific MIB could not be registered. Management of this device with Quick Manager will not be possible. Non fatal error.

**\*Error: Error Registering rfc-1659 for SNMP.**
> A problem was encountered while attempting to register the standard EIA-232 MIB. Non fatal error.

**\*Error: Driver Already Loaded.**
> This message will appear if the driver is presently loaded. To reload the driver you must first unload the present memory copy of the driver by entering **unload aiodgmep** at the server console. Then you may reload the driver.

**\*Error:  This is not a Micro Channel system. Use AIODGEPC.NLM.**
> This message indicates that this Micro Channel driver is being loaded on a system that is not a Micro Channel system. The **AIODGEPC.NLM** driver should be used.

**\*Error: Driver Configured for 0 Boards. Configure Driver with AIOEMCFG.NLM.**
> This message indicates that the driver is configured for 0 boards. You must **load aioemcfg** to configure the driver to support at least one board.

**\*Error: AllocateIOResourceTag failed.**
**\*Error: Allocate Resource Tag failed.**
**\*Error: AllocateAESResourceTag failed.**
**\*Error: Allocation of PortConfig memory failed.**
**\*Error: Allocation of PortStats memory failed.**
> These messages indicate that the driver encountered difficulties while trying to obtain resources from AIO.  This usually indicates that the system is out of resources.  Unload any unnecessary NLMs and reload the driver.

**\*Error: AIORegisterDriverA failed (code=xx).**
> This message indicates that another driver has already registered the EPC/X hardware type (possibly illegally).  Unload other AIO drivers and reload the EPC/X AIO driver.

**Board 0 : Port 208, Mem D0000 - Port 208 not found.**
> This message indicates that the driver could not find a board with port 208h. Check to insure that you have specified the correct I/O port or that you have properly configured the board's port address.

**`Board 0 : Port 208, Mem D0000 - Hardware Reset fails.`**
This message indicates that the driver could not place the board into a reset state. This is most likely the result of an I/O port address conflict or a faulty board. Be sure that there are no other I/O ports in your system at the indicated I/O port address.

**`Board 0 : Port 208, Mem D0000 - AIORegisterBoard failed (code=xx).`**
This message indicates that an error occurred while trying to register the board with AIO. This failure is usually the result of no system resources, or a duplicate board number. Check the driver configuration for duplicate board numbers. If none exist, unload unnecessary NLMs to free system resources.

**`Board 0 : Port 208, Mem D0000 - Failed Hardware Registration.`**
This message indicates that an error occurred while trying to register the board's specific hardware addresses with AIO.

The following error messages are usually the result of memory and/or I/O address conflicts with other devices within your system. Insure that no such conflicts exist. If errors persist, your board may be defective.

**`Board 0 : Port 208, Mem D0000 - Memory not found error x.`**
This message indicates that the driver could not find the board's memory. x indicates the number of memory errors found in a 256 byte block.

**`Board 0 : Port 208, Mem D0000 - Memory error x.`**
This message indicates that the driver has found the board's memory, but it appears to be faulty. x indicates the number of errors found in a 256 byte block.

**`Board 0 : Port 208, Mem D0000 - Memory fails disable x.`**
This message indicates that the board's memory could not be disabled.

**`Board 0 : Port 208, Mem D0000 - Unable to load BIOS file (\SYSTEM\DGEPCXB.BIN).`**
This message indicates that the specified BIOS file was not able to load properly.

**`Board 0 : Port 208, Mem D0000 - Unable to load BIOS file (\SYSTEM\DGEPCXPB.BIN).`**
This message indicates that the specified BIOS file was not able to load properly.

**`Board 0 : Port 208, Mem D0000 - BIOS fails initialization.`**
This message indicates that the board's on-board BIOS did not initialize properly.

**`Board 0 : Port 208, Mem D0000 - NMI Fails during FEPOS execution.`**
This message indicates a failure during transfer of the on-board operating system code.

`Board 0 : Port 208, Mem D0000 - Unable to load FEPOS file`
`(\SYSTEM\DGEPCXF.BIN).`

> This message indicates that the specified FEP/OS file was not able to load properly.

`Board 0 : Port 208, Mem D0000 - Unable to load FEPOS file`
`(\SYSTEM\DGEPCXPF.BIN).`

> This message indicates that the specified FEP/OS file was not able to load properly.

`Board 0 : Port 208, Mem D0000 - FEPOS Fails Initialization.`

> This message indicates that the on-board operating system did not initialize successfully.

`Board 0 : Port 208, Mem D0000 - Command <x> failure during`
`Initialization.`

> This message indicates that the on-board operating system encountered a failure during initialization of the asynchronous channels.

`Board 0 : Port 208, Mem D0000 - Memory Fails Window Test.`

> This message indicates that the board fails to window it's memory pages correctly.

# AccelePort Xem - MC

## Overview

Digi's support for Novell compatible asynchronous applications is provided through a universal driver conforming to the "AIO" (Asynchronous Input/Output) specification. Use the AIO driver when Digi hardware is being installed in the file server (or machine with run-time NetWare).

AIO drivers are loaded on the file server from the system console (or **RCONSOLE**) command line or the **AUTOEXEC.NCF** file. Installation is performed simply by copying the driver files **AIODGMXM.NLM**, **AIODGMEM.NLM** and **AIODGMXM.ADI** from the distribution diskette to the system directory of the file server.

## Supported Boards

This AIO driver supports the Micro Channel version of the Digi Xem system.

The driver will support up to four Digi Xem - MC host adapters—however, your server may be limited to two boards due to conflicts with the network adapter card and hard disk controller.

## Unsupported Hardware Features

This driver uses no interrupts from the AccelePort Xem host adapter. The adapter's interrupt setting must be disabled (use the POS configuration utility on the IBM Reference Diskette).

This driver does not support the ninth (parallel printer) port on PORTS/8emp modules. The driver will report nine serial ports, but the ninth port is unusable since AIO does not provide support for parallel ports.

# Installation

To install the Digi AIO driver, simply copy the relevant files to your file server (although the driver can be loaded from the file server floppy, this will not be a typical way to set-up a system).  The Digi AIO driver files (**AIODGMXM.NLM**, **AIODGMEM.NLM** and **AIODGMXM.ADI**) should be copied to the system directory of the file server, typically called **F:\SYSTEM**. Copy the files  from a workstation to the file server with the commands:

```
COPY A:\MXEM\AIODGMXM.NLM F:\SYSTEM
COPY A:\MXEM\AIODGMEM.NLM F:\SYSTEM
COPY A:\MXEM\AIODGMXM.ADI F:\SYSTEM\AIO
```

## Loading the Device Driver

If you are running NetWare Connect 2.0, the driver load command line is configured from within the NetWare Connect Console.  See the NetWare Connect 2.0 manual for information on installing AIO device drivers.  Note that the **AIODGMXM.NLM**, **AIODGMEM.NLM** and **AIODGMXM.ADI** files must be in the **SYS:SYSTEM** directory so that Connect 2.0 can select **AIODGMXM.NLM** as a loadable driver.

If you are running NetWare Connect 1.x, you must load the driver by hand.  The user supplies information to the driver through a set of command line parameters at load time.  Some or all of the parameters are optional.

The **load** command has the following syntax:

**load aiodgmxm** [**port=***xxx* **mem=***xxxxx* [**name=***bname*]][**node=0**]
                [**altp**[**=***mask*[**,***mask*[**,***mask*[**,***mask*]]]]]

If the **port=** and **mem=** parameters are omitted, the driver automatically loads support for all AccelePort Xem - MC host adapters found in the system at supported memory addresses, and the default names are used.

**port=***xxx*      This parameter is the board's 3 digit hex I/O port address.  For example: **port=328**.  Valid port addresses are **108**, **118**, **128**, **208**, **228**, **308** and **328**.

          Each host adapter must have a unique I/O port address, which must not be used by any other device in the system.

**mem=***xxxxx*     This parameter is the 5 digit hex starting address of the board's dual-ported memory.  For example: **mem=d0000**.  The device driver supports the following 32K starting addresses: **80000**, **88000**, **90000**, **98000**, **A0000**, **A8000**, **B0000**, **B8000**, **C0000**, **C8000**, **D0000**, and **D8000**—typically, the addresses from **C0000** to **D8000** will be the only addresses available in your server.

**name=***bname*:   This parameter is optional and allows you to specify up to a 10 character name to identify the host adapter.  *bname* may consist of any combination of alphanumeric characters.  If you do not specify a name, one will be assigned by the driver.  Following is a list of the board's I/O port addresses and the associated default names and board numbers:

| Port Address | Default Name | Board Number |
|---|---|---|
| 108h | DgMXM00 | 0 |
| 118h | DgMXM01 | 1 |
| 128h | DgMXM02 | 2 |
| 208h | DgMXM03 | 3 |
| 228h | DgMXM04 | 4 |
| 308h | DgMXM05 | 5 |
| 328h | DgMXM06 | 6 |

**node=0**    The **node=0** parameter informs the driver to assign board numbers sequentially. If this parameter is omitted, the driver will assign board numbers based on the I/O port address as defined above. The parameter is effective only when used in the first **load** command, and determines the method by which subsequently loaded boards will be numbered.
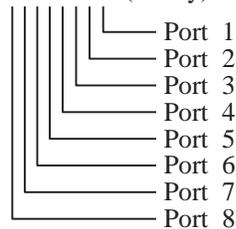
**altp[=***mask***]**

The standard wiring for Digi PORTS modules equipped with RJ-45 connectors places the modem control lines RI (Ring Indicator) and DCD (Data Carrier Detect) on pins 1 and 10, respectively, which makes them inaccessible to an 8-pin RJ-45 plug. While RI is seldom used, DCD is necessary for most modem applications. To facilitate the use of 8-pin RJ-45 plugs, a software feature called "**AltPin**" has been included with this device driver. When AltPin is active, DCD is swapped with DSR (Data Set Ready), which is on pin 1 of an 8-pin RJ-45 plug.

This parameter is optional and allows you specify that you want to activate the driver's AltPin option. When this parameter is entered as just "**altp**", all ports on the board will operate with the AltPin option active. When entered as "**altp=***mask***"** the driver uses the hex mask to determine which ports will use the AltPin feature. For example :

    **altp=f0**

```
        F0 (hex) = 11110000 (binary)
                   |||| ||| └──── Port  1
                   |||| ||└────── Port  2
                   |||| |└─────── Port  3
                   |||| └──────── Port  4
                   |||└────────── Port  5
                   ||└─────────── Port  6
                   |└──────────── Port  7
                   └──────────── Port  8
```
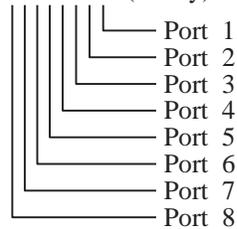
This will activate AltPin on ports 5-8. The mask can be up to 16 hex digits long to activate AltPin on up to 64 ports.

```
altp[=mask[,mask[,mask[,mask]]]]
```
When autoloading support for all boards in a Micro Channel server, up to four masks may be specified, one for each host adapter installed. For example:

```
altp=1,8,10,80
```

```
 1  (hex)  =  00000001  (binary)
 8  (hex)  =  00001000  (binary)
10  (hex)  =  00010000  (binary)
80  (hex)  =  10000000  (binary)
                                    Port  1
                                    Port  2
                                    Port  3
                                    Port  4
                                    Port  5
                                    Port  6
                                    Port  7
                                    Port  8
```

In this example the first port on the first board, the fourth port on the second board, the fifth port on the third board and the eighth port on the fourth board will use AltPin. The mask can be up to 16 hex digits long to activate AltPin on up to 64 ports.

When autoloading, the driver uses the Micro Channel bus's POS (Programmable Option Select) capabilities to determine the AccelePort Xem - MC host adapters that are installed in your server, starting with slot 1. The first AltPin mask will activate AltPin on the board in the lowest numbered slot, the second mask for the next lowest slot, and so on.

# Error Messages

The following error messages may occur while the driver is parsing the parameters.

**\*Error: Invalid Port Address 0x310.**
This message indicates that an invalid port address was specified.

**\*Error: Port Address 0x308 is already supported.**
This message indicates that the driver is already supporting an AccelePort Xem host adapter at this port address.

**\*Error: Invalid Memory Address 0xF0000.**
This message indicates that an invalid memory address was specified.

**\*Error: AllocateResourceTag failed.**
This message indicates that the driver could not allocate resources from NetWare. Unload unnecessary NLMs and reload the driver.

**\*Error: AIORegisterDriverA failed.**
This message indicates that NetWare failed to permit registration of the driver.

**\*Error: AllocateSemiPermMemory returns NULL.**
This message indicates that the driver's request to allocate memory failed. Unload unnecessary NLMs and reload the driver.

**\*Error:  This is not a Micro Channel system. Use AIODGXEM.NLM.**
This message indicates that this Micro Channel driver is being loaded on a system that is not a Micro Channel system. The **AIODGXEM.NLM** driver should be used.

The following error messages may occur while the driver is performing some initial tests on the AccelePort Xem - MC host adapter.

**Board 4: Port 308 Mem D0000**
**\*Error:  This is not an Xem host adapter**
This message indicates that a board was found, but it is not an Xem host adapter.

**Board 4: Port 308 Mem D0000 Failed Hardware Registration.**
This message indicates that NetWare failed to accept the driver's attempt to register the board's hardware resources.

**Board 4: Port 308 Mem D0000 Port 304 not found.**
This message indicates that the driver could not find a board with port 304h. Check to insure that you have specified the correct I/O port or that you have properly configured the board's port address.

**`Board 4: Port 308 Mem D0000 Hardware Reset Fails.`**
This message indicates that the driver could not place the board into a reset state. This is most likely the result of an I/O port address conflict or a faulty board. Be sure that there are no other I/O ports in your system at the indicated I/O port address.

**`Board 4: Port 308 Mem D0000 Memory not found error x.`**
This message indicates that the driver could not find the board's memory. $x$ indicates the number of memory errors found in a 256 byte block.

**`Board 4: Port 308 Mem D0000 Memory error x.`**
This message indicates that the driver has found the board's memory, but it appears to be faulty. $x$ indicates the number of errors found in a 256 byte block.

The following messages may occur during the driver's attempt to initialize the board.

**`Board 4: Port 308 Mem D0000 BIOS fails initialization.`**
This message indicates that the host adapter's on-board BIOS did not initialize properly.

**`Board 4: Port 308 Mem D0000 FEPOS fails initialization.`**
This message indicates that the on-board operating system did not initialize successfully.

**`Board 4: Port 308 Mem D0000 FEPOS finds 0 ports.`**
This message indicates that the on-board operating system initialized successfully, but found no ports. Check to see that the PORTS modules are connected to the AccelePort Xem host adapter.

**`Board 4: Port 308 Mem D0000 Command failure during Initialization.`**
This message indicates that the on-board operating system encountered a failure during initialization of the asynchronous channels.

# AccelePort MC/Xe and MC/Xi

## Overview

Digi's support for Novell compatible asynchronous applications is provided through a universal driver conforming to the "AIO" (Asynchronous Input/Output) specification. Use the AIO driver when Digi hardware is being installed in the file server (or machine with run-time NetWare 3.X). When Digi hardware is installed in a machine other than the server (for instance NetWare Access Server v1.3) use the specific driver for that application.

AIO drivers are loaded on the file server from the system console (or **RCONSOLE**) command line or the **AUTOEXEC.NCF** file. Installation is performed simply by copying the driver files **AIODGMEM.NLM** and **AIODGMXI.ADI** from the distribution diskette to the system directory of the file server.

The driver will support up to seven AccelePort Xe - MC, MC/Xe and/or MC/Xi boards. AccelePort Xe - MC, MC/Xe and MC/Xi boards may *not* share memory address space.

# Installation

To install the Digi AIO driver, simply copy the relevant files to your file server (although the driver can be loaded from the file server floppy, this will not be a typical way to set-up a system). The Digi AIO driver files (**AIODGMXI.ADI**, **AIODGMXI.NLM** and **AIODGMEM.NLM**) should be copied from the **\MXALL** directory of the distribution diskette to the system directory of the file server, typically called **F:\SYSTEM**. Copy the files from a workstation to the file server with the commands:

```
COPY A:\MXALL\AIODGMXI.ADI F:\SYSTEM\AIO
COPY A:\MXALL\AIODGMXI.NLM F:\SYSTEM
COPY A:\MXALL\AIODGMEM.NLM F:\SYSTEM
```

# Loading the Device Driver

## NetWare Connect 2.0

If you are running NetWare Connect 2.0, the driver load command line is configured from within the NetWare Connect Console.  See the NetWare Connect 2.0 manual for information on installing AIO device drivers.  Note that the **AIODGMXI.ADI**, **AIODGMXI.NLM** and **AIODGMEM.NLM** files must be in the **SYS:SYSTEM** directory so that Connect 2.0 can select **AIODGMXI.NLM** as a loadable driver.

## NetWare Connect 1.x or 2.0

If you are running NetWare Connect 1.x, you must load the driver by hand (if desired, this may also be done under NetWare Connect 2.0).  The user supplies information to the driver through a set of command line parameters at load time.  Some or all of the parameters are optional, depending upon the type of board you are using.  The driver may be loaded for each board individually, or it may be loaded once to support all boards in the server.

There are two ways to load the driver on these servers:  You may load the driver for one board at a time or you may autoload the driver for all boards in the system (if you do not specify values for **port**, **mem** or **name**, the driver will auto-load all Digi intelligent serial boards present in the system).

To load the driver for individual AccelePort Xe - MC, MC/Xe or MC/Xi boards, use the following command syntax:

**load aiodgmxi [port=***xxx* **mem=** *xxxxx***[name=***bname***]][node=0]**

**port=***xxx*

> This parameter is the board's 3 digit hex I/O port address.  For example:  **port=328**.  Valid port addresses are **108**, **118**, **128**, **208**, **228**, **308** and **328**.

> Each board must have a unique I/O port address, which must not be used by any other device in the system, including other Digi products.

**name=***bname*:

This parameter is optional and allows you to specify up to a 10 character name to identify the board. *bname* may consist of any combination of alphanumeric characters. If you do not specify a name, one will be assigned by the driver. Following is a list of the I/O port addresses and the associated default names and board numbers.

| Port Address | Default Name | Board Number |
|---|---|---|
| 108h | DgMXi00 | 0 |
| 118h | DgMXi01 | 1 |
| 128h | DgMXi02 | 2 |
| 208h | DgMXi03 | 3 |
| 228h | DgMXi04 | 4 |
| 308h | DgMXi05 | 5 |
| 328h | DgMXi06 | 6 |

**node=0**

The **node=0** parameter informs the driver to assign board numbers sequentially. If this parameter is omitted, the driver will assign board numbers based on the I/O port address as defined above. The parameter is effective only when used in the first **load** command, and determines the method by which subsequently loaded boards will be numbered.

# Error Messages

The following error messages may occur while the driver is parsing the parameters.

**\*Error: Invalid Port Address 0x310.**
This message indicates that an invalid port address was specified.

**\*Error: Port Address 0x328 is already supported.**
This message indicates that the driver is already supporting a board at this port address.

**\*Error: Invalid Memory Address 0xF0000.**
This message indicates that an invalid memory address was specified.

**\*Error: Memory Address 0xC0000 is already supported.**
This message indicates that the driver is already supporting a board at the specified memory address.

**\*Error:  This is not a Micro Channel system. Use AIODGXI.NLM.**
This message indicates that this Micro Channel driver is being loaded on a system that is not a Micro Channel system. The **AIODGXI.NLM** driver should be used.

The following error messages may occur while the driver is performing some initial tests on the board.

**Board 4: Port 228 Mem D0000 Port 228 not found.**
This message indicates that the driver could not find a board with port 220h. Check to insure that you have specified the correct I/O port or that you have properly configured the board's port address.

**Board 4: Port 228 Mem D0000 Hardware Reset Fails.**
This message indicates that the driver could not place the board into a reset state.  This is most likely the result of an I/O port address conflict or a faulty board.  Be sure that there are no other I/O ports in your system at the indicated I/O port address.

**Board 4: Port 228 Mem D0000 Memory not found error *x*.**
This message indicates that the driver could not find the board's memory.  *x* indicates the number of memory errors found in a 256 byte block.

**Board 4: Port 228 Mem D0000 Memory error *x*.**
This message indicates that the driver has found the board's memory, but it appears to be faulty.  *x* indicates the number of errors found in a 256 byte block.

The following messages may occur during the driver's attempt to initialize the board.

`Board 4: Port 228 Mem D0000 BIOS fails initialization.`
> This message indicates that the board's on-board BIOS did not initialize properly.

`Board 4: Port 228 Mem D0000 BIOS passes init but reports 0 ports.`
> This message indicates that the BIOS initialized successfully, but could not find any of the asynchronous channels.

`Board 4: Port 228 Mem D0000 NMI Fails during FEPOS code move.`
> This message indicates a failure during transfer of the on-board operating system code.

`Board 4: Port 228 Mem D0000 NMI Fails during FEPOS execution.`
> This message indicates a failure during startup of the on-board operating system.

`Board 4: Port 228 Mem D0000 FEPOS Fails Initialization.`
> This message indicates that the on-board operating system did not initialize successfully.

`Board 4: Port 228 Mem D0000 Command failure during Initialization.`
> This message indicates that the on-board operating system encountered a failure during initialization of the asynchronous channels.

# 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. 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.