
Digi

Digi AccelePort C/X and Xem
PCI and ISA
Device Drivers for AIX Release 4.x
92000249B

http://www.digi.com

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Introduction

Note: Be sure to read the *Release Notes* that may be included with this software device driver. The *Release Notes* contain information not available at this manual's press time.

The device driver software for AIX Release 4.x is an Optional Program Product requiring only the AIX Base Operating System (BOS) Runtime.

Once you have completed the hardware installation according to the instructions in the *Installation Guide* for your adapter, you may proceed with the software device driver installation starting on page 6.

You may also wish to read the instructions for DigiPRINT transparent printing (page 18) and DigiSCREEN, Digi's multiple screen utility (page 23).

Software Installation

Installation of the Digi device driver software for AIX Release 4.x is a three-part procedure. First, the device driver software is installed on your system. Second, the host adapter is configured. Third, ttys are configured on the Digi ports.

Note: Software changes more rapidly than printed documentation can keep up. For this reason, some of the screens or prompts may not appear exactly as shown.

Follow the instructions on the following pages to install and configure the Digi device driver software.

Installing the Device Driver Software

1. Log onto the system as super-user (root).
2. Insert the Digi software diskette, and enter:

   smit install_latest

   The system will display the *Install Software Products at Latest Available Level* screen:

```
Install Software Products at Latest Available Level


Type or select a value for the entry field.
Press Enter AFTER making all desired changes.
                                                      [Entry Fields]
* INPUT device / directory for software               []             +



F1=Help            F2=Refresh       F3=Cancel        F4=List
F5=Reset           F6=Command       F7=Edit          F8=Image
F9=Shell           F10=Exit         Enter=Do
```

3. You will be asked to specify the device containing the installation information. If your 3½" diskette drive is device **/dev/fd0**, enter:

   /dev/fd0

   or press **<F4>** for a list of supported devices.

4. Select the appropriate device and press **<Enter>**.

   You will now see the following screen:

```
Install Software Products at Latest Available Level

Type or select a value for the entry field.
Press Enter AFTER making all desired changes.
                                                      [Entry Fields]
* INPUT device / directory for software               [/dev/fd0]   +
* SOFTWARE to install                                 [all_licensed] +
PREVIEW only?(install operation will NOT occur)       no           +
COMMIT software updates?                              no           +
SAVE replaced files?                                  yes          +
ALTERNATE save directory                              []
AUTOMATICALLY install requisite software?             yes          +
EXTEND file systems if space needed?                  yes          +
OVERWRITE same or newer versions?                     no           +
VERIFY install and check file sizes?                  no           +
Include corresponding LANGUAGE filesets?              yes          +
DETAILED output?                                      no           +

F1=Help           F2=Refresh      F3=Cancel       F4=List
F5=Reset          F6=Command      F7=Edit         F8=Image
F9=Shell          F10=Exit        Enter=Do
```

This screen contains a list of installation parameters you may change. If this is a first time installation of the Digi device driver, you can use the default values for all of the installation parameters. Simply press <Enter> to begin the installation.

If you are reinstalling the Digi device driver, you may wish to change some of the installation parameters. Use the <F1> (“Help”) key to display help information for each parameter you wish to change. After selecting the appropriate installation parameters, press <Enter> to begin the installation.

The system will display information similar to the following during the installation:

```
Pre-installation Verification
installp: Pre-installation verification may take several minutes.
Please wait...
Verifying selections...done
Verifying selections...done
Results...

SUCCESSES
Filesets listed in this section passed pre-installation verification
and will be installed.

Selected Filesets
digicx.pci_isa.rte 1.0.0.0         #Digi C/X and Xem Driver

<< End of Success Section >>

FILESET STATISTICS
1 Selected to be installed, of which:
1 passed pre-installation verification
1 Total to be installed

Installing Software

installp: APPLYING software for:
digicx.pci_isa.rte 1.0.0.0

Restoring files, please wait.
1 entries added.
0 entries deleted.
22 entries updated.
Finished processing all filesets. (Total time: 1 mins 3 secs)

                  Post-installation Processing...
                          Summaries:

Installation Summary
Name                    Level       Part        Event       Result
digicx.pci_isa.rte      1.0.0.0     USR         APPLY       SUCCESS
digicx.pci_isa.rte      1.0.0.0     ROOT        APPLY       SUCCESS
```

The Digi device driver software is now installed on your system and you are ready to configure the Digi adapters you have installed on your system.

Configuring the C/X Host Adapters

After you have installed the host adapters and completed the software installation, you are ready to configure the devices.

ISA Host Adapters

1. Log on to the system as super-user (root).
2. Enter

   smit isa
3. Configure the adapter in the same way as for IBM ISA asynchronous adapters (refer to your AIX documentation):

   For an ISA C/X adapter, select:

   cxisa ISA Digi C/X Host Adapter

   For an ISA Xem adapter, select:

   xemisa ISA Digi Xem Host Adapter

C/X PCI Host Adapters

Because PCI adapters are auto detected, your PCI adapter will be automatically configured (with default settings, if not previously defined) when you reboot your machine or run **cfgmgr**. To customize the settings:

1. Log on to the system as super-user (root).
2. For a PCI C/X adapter, enter:

   smit digi_cxpci
3. Select **Change/Show Characteristics of a Digi PCI Host Adapter**.
4. Modify the settings in the same way as for IBM ISA asynchronous adapters (refer to your AIX documentation).

Xem PCI Host Adapters

Because PCI adapters are auto detected, your PCI adapter will be automatically configured (with default settings, if not previously defined) when you reboot your machine or run **cfgmgr**.

Configuring ttys

Configuring ttys on the Digi C/X system is the same as configuring ttys on IBM async adapters. For complete information, refer to your AIX documentation.

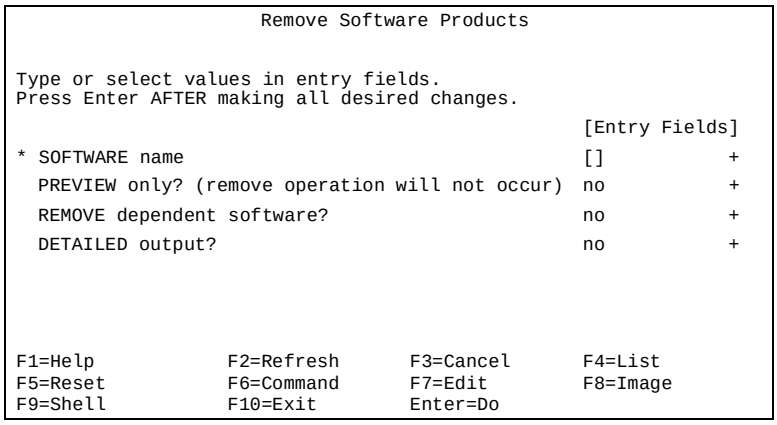
Uninstalling the Device Driver

The Digi device driver software can be removed from the system using the **smit** command.

1. Run **smit** to remove all Digi C/X and Xem devices you have configured on your system.
2. Log onto the system as super-user (root).
3. Enter:

   smit install_remove

   The system will display the *Remove Software Products* screen:



4. Type **digicx.pci_isa.rte** in the SOFTWARE name field and press **<Enter>**.

   The Digi device driver will now be removed from your system.

Setting Terminal Options with stty-digi

stty-digi is a utility program that sets and displays the terminal options for the Digi device driver. **stty-digi** is located in your **/usr /lbin/tty** directory.

The format is:

stty-digi [-a] [*option*(*s*)] [*ttyname*]

With no options, **stty-digi** displays all Digi special driver settings, modem signals, and all standard parameters displayed by **stty(1)** for the tty device referenced by standard input.

Command options are provided to change flow control settings, set transparent print options, force modem control lines, and display all tty settings. Any unrecognized options are passed to **stty(1)** for interpretation.

The options are:

-a	Display all of the unique Digi option settings, as well as all of the standard tty settings reported by **stty -a**.
ttyname	Set and display options for the given tty device, instead of standard input. This form can be used with a tty pathname prefixed by **/dev/** or with a simple tty name beginning with **tty**. This option may be used on a modem control line when no carrier is present.

The following options specify transient actions to be performed immediately:

break	Send a 250 MS break signal out on the tty line.
flush	Immediately flush (discard) tty input and output.
flushin	Flush tty input only.
flushout	Flush tty output only.

The following options specify actions which are not “sticky,” meaning that the changes are reset when the device is closed, and that the device will use the default values the next time it is opened.

stopout Stop output exactly as if an **xoff** character was received.

startout Restart stopped output exactly as if an **xon** character was received.

stopin Activate flow control to stop input.

startin Release flow control to resume stopped input.

[-]dtr Raise [drop] the DTR modem control line, unless DTR hardware flow control is selected.

[-]rts Raise [drop] the RTS modem control line, unless RTS hardware flow control is selected.

The following options are “sticky”, meaning the effects continue until the system is rebooted or until the options are changed.

[-]fastcook Perform cooked output processing on the intelligent card to reduce host CPU usage, and increase raw mode input performance.

[-]fastbaud Alter the baud rate tables, so 50 baud becomes 57,600 baud.

[-]rtspace Enable [disable] RTS hardware input flow control, so RTS drops to pause remote transmission.

[-]ctspace Enable [disable] CTS hardware output flow control, so local transmission pauses when CTS drops.

[-]dsrpace Enable [disable] DSR hardware output flow control, so local transmission pauses when DSR drops.

[-]dcdpace Enable [disable] DCD hardware output flow control, so local transmission pauses when DCD drops.

[-]dtrpace Enable [disable] DTR hardware input flow control, so DTR drops to pause remote transmission.

[-]forcedcd Disable [re-enable] carrier sense, so the tty may be opened and used even when carrier is not present.

[-]altpin Switches the function of the DSR and the DCD inputs on the interface connector, so that DCD is available when using an 8-pin RJ-45 connector instead of a 10-pin RJ-45 connector.

startc *c* Sets the XON flow control character. The character may be given as a decimal, octal or hexadecimal number. Octal numbers are recognized by the presence of a leading zero, and hexadecimal numbers are denoted by a leading "0x". For example, the standard XON character, <CTRL-Q>, can be entered as "17" (decimal), "021" (octal) or "0x11" (hexadecimal).

stopc *c* Sets the XOFF flow control character. The character may be given as a decimal, octal, or hexadecimal number (see **startc**, above, for format of octal and hexadecimal numbers).

astartc *c* Sets auxiliary XON flow control character. The character may be given as a decimal, octal, or hexadecimal number (see **startc**, above, for format of octal and hexadecimal numbers).

astopc c Sets auxiliary XOFF flow control character. The character may be given as a decimal, octal, or hexadecimal number (see **startc**, above, for format of octal and hexadecimal numbers).

[-]aixon Enables auxiliary flow control, so that two unique characters are used for XON and XOFF. If both XOFF characters are received, transmission will not resume until both XON characters are received.

[-]2200flow Use 2200 style flow control on the port. The 2200 terminals support an attached printer and use four flow control characters: terminal XON (0xF8), printer XON (0xF9), terminal XOFF (0xFA) and printer XOFF (0xFB).

[-]2200print The **2200print** flag determines how these flow control characters (see **2200flow**, above) are interpreted. If **2200print** is set, run independent flow control for terminal and transparent print devices. Otherwise, terminal and printer flow control are logically tied together, so if either XOFF character is received, all output is paused until the matching XON character is received.

maxcps *n* Sets the maximum Characters Per Second (CPS) rate at which characters are output to the transparent print device. The rate chosen should be just below the average print speed. If the number is too low, printer speed will be reduced. If the number is too high, the printer will resort to flow control, and user entry on the terminal will be correspondingly impaired. Default is 100 CPS.

maxchar *n* Sets the maximum number of transparent print characters the driver will place in the output queue. Reducing this number increases system overhead; increasing this number delays operator keystroke echo times when the transparent printer is in use. Default is 50 characters.

bufsize *n* Sets the driver's estimate of the size of the transparent printer's input buffer. After a period of inactivity, the driver bursts this many characters to the transparent printer before reducing to the **maxcps** rate selected above. Default is 100 characters.

onstr *s* Sets the terminal escape sequence to turn transparent printing on. The string ***s*** can be composed of standard ASCII printing and non-printing characters; control (non-printing) characters must be entered by their octal values, and must consist of three digits preceded by a back-slash ("\") character. For example, the "Escape" character <Esc>, 33 octal, should be entered as "**\033**". Thus, if transparent printing is turned on by the string "**<Esc>[5i**" (ANSI standard), ***s*** should be entered as "**\033[5i**".

offstr ***s*** Sets the terminal escape sequence to turn transparent printing off. See "**onstr**", above, for the format of the string ***s***.

term ***t*** Sets the transparent printer on/off strings to values found in the internal default table. Internal defaults are used for the following terminals: **adm31**, **ansi**, **dg200**, **dg210**, **hz1500**, **mc5**, **microterm**, **multiterm**, **pcterm**, **tvi**, **vp-a2**, **vp-60**, **vt52**, **vt100**, **vt220**, **wyse30**, **wyse50**, **wyse60**, or **wyse75**. If the terminal type is not found in the internal default table, then **ditty** reads the **terminfo** entry for the terminal type and sets transparent print on/off strings to values given by the **mc5/mc4** attributes found there.

Also see **stty**(1), **ioctl**(2), **termio**(4), and **terminfo**(5).

DigiPRINT Transparent Print Feature

Description & Theory of Operation

Most terminals have an auxiliary port that can be connected to a serial printer. These terminals support two print modes, Auxiliary and Transparent. If both print modes are OFF, data received by the terminal is simply displayed on the screen. With Auxiliary print mode ON, data received by the terminal is displayed on the screen, and is also transmitted to the printer. With Transparent Print Mode ON, the terminal transmits data received directly to the printer, without displaying it on the screen.

DigiPRINT allows you to use your terminal in a normal manner, while information is also being sent *over the same serial connection from the host* to the printer connected to the terminal's auxiliary printer port. This is "transparent printing." The DigiPRINT software determines whether packets of data are bound for the screen or for the printer, and precedes data bound for the printer with the Transparent Print Mode ON command, and follows it with the Transparent Print Mode OFF command.

Data for the terminal screen has the highest priority, and DigiPRINT sends data to the printer only if there is a break in information being sent to the screen. If continuous data is being transmitted to the terminal device, nothing gets sent to the printer.

Whenever an auxiliary printer port is used, flow control to the printer becomes an issue. If the printer falls behind and invokes flow control, output to both the printer and the terminal is stopped: this is aggravating to the terminal user. The **stty-digi** command provides three parameters to limit printer output and avoid this situation. (See *Setting Terminal Options with stty-digi* on page 13 for a complete description of the **stty-digi** command.)

The parameter **maxcps** limits the maximum printer port character-per-second data rate. This number should be set to the minimum character rate the printer can sustain in typical use.

The parameter **maxchar** limits the number of characters queued to the printer ahead of terminal output. Lower numbers increase system overhead, higher numbers result in keystroke echo delays. A value of 50 is generally a good compromise at 9600 baud.

The parameter **bufsize** should be set to a value just below the printer's buffer size. After a period of inactivity, the driver will burst up to this many characters to the printer to fill the print

buffer before slowing to the maxcps rate.

The printer on/off strings are also set using **stty-digi**.

DigiPRINT will be available for use after the Digi device driver software for your operating system is installed, and the transparent print options are activated with the **stty-digi** program.

A cable must be connected between the auxiliary port of the terminal and the printer. The baud rate on the terminal auxiliary port and the printer must be the same, and the printer and the auxiliary port of the terminal must use the same handshaking mode. The auxiliary port must also be enabled. If your terminal is not one of those directly supported, you must know the escape sequence of your terminal.

Refer to your terminal and printer manuals for connection information, escape codes, and to see what handshaking modes are supported (i.e. xon/xoff, busy/ready, rts/cts, etc.).

Printer devices (**lp1**, etc.) must not be in either the **/etc/inittab** or **/etc/ttys** files, and must not be enabled.

Transparent Print Activation

DigiPRINT is activated with **stty-digi**. The **stty-digi** program configures the Digi tty device driver for transparent print options (See *Setting Terminal Options with stty-digi* for a complete description of the **stty-digi** command). The **stty-digi** command must be run each time the machine is booted. Usually, the best way to do this is by adding **stty-digi** commands to your **etc/init-tab** system initialization file. Alternatively, you may include the **stty-digi** command sequence in your **.login** or **.profile** files, to ensure that DigiPRINT is activated when you log in. Your System Administrator can help you edit these files. The pathname for **stty-digi** is **/usr/lbin/tty/stty-digi**.

DigiPRINT transparent print Options are set using the **stty-digi** program in the following manner:

stty-digi [option(s)] port

The command line options are:

maxcps *n* Sets the maximum Characters Per Second (CPS) rate at which characters are output to the transparent print device. See *Setting Terminal Options with stty-digi* (page 13) for more information.

maxchar *n* Sets the maximum number of transparent print characters the driver will place in the output queue. See *Setting Terminal Options with stty-digi* for more information.

bufsize *n* Sets the driver's estimate of the size of the transparent printer's input buffer. See *Setting Terminal Options with stty-digi* for more information.

onstr *s* Sets the terminal escape sequence to turn the transparent printer on. An arbitrary octal character *xxx* may be given as **\xxx**.

offstr *s* Sets the terminal escape sequence to turn the transparent printer off. An arbitrary octal character *xxx* may be given as **\xxx**.

term *t* Specifies the terminal type. See *Setting Terminal Options with stty-digi* for more information.

port Specifies the tty device.

Test the Printer

Use this command to send a file to the printer:

cat *filename* > /dev/lp1

stty-digi Examples

Example 1:

The following command configures the DigiPRINT options for a DEC VT100 terminal connected to **/dev/tty1**. (Note that the printer uses **/dev/lp1**). **maxcps**, **maxchar** and **bufsize** are left to defaults. Type:

stty-digi term vt100 /dev/tty1

Example 2:

The following example uses **onstr** and **offstr** arguments. (This sets the terminal to use ANSI Standard.) Again **maxcps**, **maxchar**, and **bufsize** are defaults. Type:

stty-digi onstr "\033[5i" offstr "\033[4i" /dev/tty1

Example 3:

This example command sets the DigiPRINT option for a WYSE30 terminal, with **maxcps** of 75, a **maxchar** of 100, and a printer buffer size, **bufsize**, of 1000. Type (all on one line, with a carriage return at the end only):

stty-digi term wyse30 maxcps 75 maxchar 100 bufsize 1000 /dev/tty1

Performance Tuning

The Digi device driver is configured to give the best performance under the widest variety of conditions.

Performance under certain conditions can be improved through the use of tunable parameters. As with most tunable parameters, increasing performance in one area decreases performance in other areas.

Digi supports a number of tunable parameters that may be useful under special conditions. These parameters are tunable on a per-port basis and may be set with **stty-digi**, **chdev** or **smit**.

EDELAY

EDELAY is a tunable parameter used to determine the number of milliseconds of delay between the time the first character arrives after a period of no characters and notification of its arrival to the host. This is also referred to as the wakeup rate between the host software (FEPOS) and the host device driver. This has the advantage of reducing host overhead by allowing the host to process larger blocks of incoming data.

Larger **EDELAY** values result in more characters being sent in a given time period. This will reduce host processor utilization and character response time and increase overall system throughput.

Smaller **EDELAY** values result in fewer characters being sent in a given time period. This will increase character response time and increase host processor utilization.

The default value for **EDELAY** is 100. This is a good value for normal tty activity including typing and **uucp**. For applications receiving continuous input at high speeds, increasing **EDELAY** will result in lowering host overhead and an increase in overall system throughput. A value of 250 is reasonable.

Note: **EDELAY** is currently the only tunable parameter supported by the device driver software.

DigiSCREEN Multiple Screen Utility

Description and Theory of Operation

DigiSCREEN is a utility that allows a single physical terminal to be connected to several virtual terminal sessions (*screens*) at one time. It is mainly intended for use with terminals that have two or more pages of screen memory. With such terminals, switching between virtual screens will also switch between physical terminal screen pages, allowing each virtual screen's image to be saved and restored. On terminals without multiple pages of screen memory, DigiSCREEN can still be used to switch among virtual screen sessions, although the appearance of the screen will not be maintained when switching screens.

Note: For full support of DigiSCREEN, your terminal must be able to switch internal screen pages on command *and must remember the cursor position for each page*. While DigiSCREEN will work on both smart and dumb terminals, screen images are not saved during screen changes on dumb terminals. DigiSCREEN also supports terminals connected to two or more computers through separate serial ports.

Options

DigiSCREEN is called with the following format:

dscreen [-i *infofile*] [-t *termtype*]

If ***infofile*** is specified, it will be used as the source of terminal configuration information. Otherwise, if the environment variable **DSINFO** is defined, it specifies the name of the file to be used as the source of terminal configuration information. If neither *infofile* nor **DSINFO** is specified, the configuration information is read from the file **/etc/dsinfo**. This option is used to define a different set of keys to be used with DigiSCREEN, e.g. when the originally defined DigiSCREEN keys conflict with an application one wishes to use.

The terminal type is used to select which entry in the *infofile* (default **/etc/dsinfo**) is used to describe the terminal. If the desired terminal type does not match the setting of the **TERM** environment variable (again, for alternate key mappings), it can be specified as *termtype* with the **-t** option.

Using DigiSCREEN

When DigiSCREEN is run, it starts up one virtual screen. Some of the keys on the terminal keyboard will not be passed through to the virtual screen; instead, DigiSCREEN will intercept these keys and perform certain actions when they are pressed. The actions include select a specific screen, block all input and output, start a new screen, end DigiSCREEN (exit code 0), quit DigiSCREEN (exit code 1), switch to the previous screen, and list the DigiSCREEN keys and what they do. Which function each key performs is dependent upon the terminal and the terminal description in the **dsinfo** file.

When a new virtual screen is created, it is assigned to a select key. When this key is pressed, DigiSCREEN will switch the physical terminal to the video page associated with the particular virtual screen and direct all input and output to go between the physical terminal and the virtual screen. Each virtual screen must have a select key; once all of the select keys defined in the **dsinfo** file have virtual screens assigned to them, no more screens may be created. Individual screen sessions will end when the original shell process exits, and this will free the associated select key for use with another virtual screen. DigiSCREEN exits when there are no more active screens.

Block keys can be used to stop output (in a fashion similar to <Ctrl-S> when using "**ixon**" flow control). However, the true purpose of these keys is to allow for transparently setting up terminal sessions on two computers using a terminal that has two serial ports. See **dsinfo** (page 25) for more information.

Pressing a new screen key will create a new screen and assign it to one of the select keys, unless one of the necessary resources is exhausted. Each new screen requires a select key as defined in the **dsinfo** file, a DigiSCREEN pseudo terminal device, enough memory for the various structures used to keep track of the screen, and a process to run the shell. If any of these are not available, the new screen operation will fail and print a message indicating the reason for the failure.

Pressing an end key will send a SIGHUP signal to all the screen sessions, clean up, and exit with a status of 0. Pressing a quit key will perform the same actions, but will exit with a status of 1.

Pressing a previous key will switch the terminal to the screen that was last displayed.

Pressing a list key will cause a list of the keys recognized by

DigiSCREEN and their actions to be displayed on the terminal. When DigiSCREEN starts a new screen, it will display the message “Press *KEY* for help” (where *KEY* is the name of the list key) if there is a list key defined.

Dynamic Screen Assignment

Normally, the terminal description entry in the **dsinfo** file will have the same number of screen selection keys as the terminal has physical screen pages. However, if more screen selection keys are defined than the number of physical screen pages defined, DigiSCREEN will dynamically assign physical screen pages to virtual screens. When a virtual screen that doesn’t have an associated page of screen memory in the terminal is selected, DigiSCREEN assigns the least recently used physical screen to the virtual screen. When this occurs, some sort of indication is given that the physical screen is connected to a different virtual screen; for instance, the screen may be cleared. Using a terminal that has only one physical screen is the simplest case of this; the one screen is shared between all virtual screens.

Note: Avoid switching screens when the screen is being written to; you may interrupt an escape sequence and leave the terminal in an unknown state.

Note: Even if your terminal saves the cursor position for individual screens, it may not save other states such as insert mode, inverse video, etc. If this is the case in your situation, make sure you are not in any such mode when you switch screens.

DSINFO DigiSCREEN Information File

Description

/etc/dsinfo is a database of terminal descriptions used by **dscreen** (DigiSCREEN). The information in the descriptions include what keys are to be used by DigiSCREEN and what functions they perform, how many pages of screen memory the terminal has, and what code sequences are sent/received to use these features.

Entry Format

Entries in **/etc/dsinfo** consist of a number of comma separated fields. The first field is a list of alternate names for the terminal, separated by "**|**" characters.

The remaining fields are strings describing the capabilities of the terminal to DigiSCREEN. Within these strings, the following escape codes are recognized:

\E,\e	escape character
\n,\l	newline (a.k.a. linefeed) character
\r	carriage return
\t	tab character
\b	backspace character
\f	formfeed character
\s	space character
nnn	character with octal value ***nnn***
^x	<Ctrl-*x*> for any appropriate **x**

Any other character preceded by a backslash will yield the character itself. The strings are entered as *type=string*, where *type* is the type of string as listed below, and *string* is the string value.

String Types

The string types are as follows:

dsk*x* A string type that starts with "**dsk**" describes a key. The type must be four letters long, and the fourth letter *x* indicates what action is taken when the key is received. The key types are:

Type	Action
dsks	Switch Screens
dskb	Block Input and Output
dske	End DigiSCREEN
dskq	Quit DigiSCREEN (non-zero exit status)
dskc	Create New Screen
dskp	Switch to Previous Screen
dskl	List Keys and Actions

Any other key type (a string type **dsk*x*** that doesn't end in **s**, **b**, **e**, **q**, **p**, or **l**) will cause no internal dscreen action, but will show up in the key listing and will be recognized and acted upon (see below). A type of **dskn** (**n** for No Operation) is guaranteed not to be used for any function in future versions; it is recommended that this be used when no internal dscreen action is desired. The value string for each key has three substrings, which are separated by "|" characters (use "\|" to include the "|" character in one of the substrings). The first substring is the sequence of characters that the terminal sends when the key is pressed. The second substring is a label for the key that is printed when a list of the keys is presented (for example, "Shift-F1"). The third substring is a sequence of characters that DigiSCREEN sends to the terminal when this key is pressed, before performing the action this key requests.

dsp A string type of "**dsp**" describes a physical screen in the terminal. One **dsp** string should be present for each physical screen in the terminal. The value string for each physical screen has two substrings, which are separated by a "|" character (again, use "\|" to include the "|" character in one of the substrings). The first substring should be the sequence of characters to send to the terminal to display and output to the particular physical page on the terminal. The second substring is sent to the terminal any time the page is used for something new. This second substring is usually set to the clear screen sequence. It is sent under two conditions. The first condition is when a new virtual terminal session is being created. The second condition occurs when the user is running more virtual terminals than there are physical screens; if the user selects a virtual terminal such that DigiSCREEN has to reuse one of the physical screens, it will send this sequence to the screen to indicate to the user that the screen contents don't match the output of the virtual terminal to which it is connected. Note that running with more virtual terminals than physical screens can be quite confusing and is not particularly recommended; it can be avoided by defining no more screen selection keys ("**dsks=...**") than physical screens ("**dsp=...**") in the **dsinfo** entry.

dst A string with a type of "**dst**" adjusts DigiSCREEN's input timeout. The value of the string should be a decimal number. The timeout value is in tenths of a second, and has a maximum value of 255. The default timeout value is 1 (or .1 seconds). When DigiSCREEN recognizes a prefix of an input key sequence but doesn't have all the characters of the sequence, it waits for more characters. If the timeout occurs before more characters are received, the characters are sent on to the virtual screen and DigiSCREEN will not consider these characters as part of an input key sequence. It may be necessary to raise this value if one or more of the "keys" DigiSCREEN is to trigger on is actually a number of keystrokes (i.e. assigning Ctrl-Z 1, Ctrl-Z 2, Ctrl-Z 3, etc. for screen selection, Ctrl-Z N for new screen and so on).

Example 1

The following example entry is for a Wyse 60 with three screens:

```
wy60|wyse60|wyse model 60,
        dsks=^A`^M|Shift-F1|,
        dsks=^Aa^M|Shift-F2|,
        dsks=^Ab^M|Shift-F3|,
        dskc=\200|Ctrl-F1|,
        dske=\201|Ctrl-F2|\Ew0\E+,
        dskl=\202|Ctrl-F3|,
        dsp=\Ew0|\E+,
        dsp=\Ew1|\E+,
        dsp=\Ew2|\E+,
```

With this entry, <Shift-F1> through <Shift-F3> are used for selecting screens 1 through 3, respectively. <Ctrl-F1> will create a new screen, <Ctrl-F2> will send "<ESC> w 0 <ESC> +" to the screen (switching to window 0 and clearing the screen) and then end dscreen, and <Ctrl-F3> will list the keys and their functions. The three physical screens are displayed by sending "<ESC> w 0", "<ESC> w 1", and "<ESC> w 2." Each time a physical screen is used for a new screen, the sequence "<ESC> +" will be sent to the terminal, which will clear the screen.

Example 2

This example is, again, for a Wyse 60 with three screens, but one of the screens is on a second computer communicating through the second serial port on the terminal:

```
wy60-1|wyse60-1|wyse model 60 - first serial port,
        dsks=^A`^M|Shift-F1|,
        dsks=^Aa^M|Shift-F2|,
        dskb=^Ab^M|Shift-F3|\Ed#^Ab\r^T\Ee9,
        dskc=\200|Ctrl-F1|,
        dske=\201|Ctrl-F2|\Ed#\201^T\Ew0\E+,
        dskl=\202|Ctrl-F3|,
        dsp=\Ew0|\E+,dsp=\Ew1|\E+,

wy60-2|wyse60-2|wyse model 60 - second serial port,
        dskb=^A`^M|Shift-F1|\Ed#^A`\r^T\Ee8,
        dskb=^Aa^M|Shift-F2|\Ed#^Aa\r^T\Ee8,
        dsks=^Ab^M|Shift-F3|,
        dskc=\200|Ctrl-F1|,
        dske=\201|Ctrl-F2|\Ed#\201^T\Ew0\E+,
        dskl=\202|Ctrl-F3|,
        dsp=\Ew2|\E+,
```

For this setup to work, DigiSCREEN must be run on both computers, with terminal type **wy60-1** on the first computer and terminal type **wy60-2** on the second computer (using the **-t** option to DigiSCREEN). The **wy60-1** entry will be examined first.

The first two key entries are unchanged from the original wy60 entry. The third key, however, has type "**dskb**," which means block both input and output. When this key is pressed, the sequence "<ESC> d # <Ctrl-A> b <CR> <Ctrl-T> <ESC> e 9" is sent to the terminal; after this output is blocked and DigiSCREEN continues scanning input for key sequences but discards all other input.

The effects caused by the sequence sent to the terminal contain the real magic here. The sequence "**<ESC> d #**" puts the terminal in "Transparent Print Mode," which echoes all characters up to a **<Ctrl-T>** out the other serial port. The characters "**<Ctrl-A> b <CR>**" are sent out the other serial port, informing the **dscreen** process on the other computer that it should activate the window associated with the **<Shift-F3>** key. The "**<Ctrl-T>**" takes the terminal out of the Transparent Print mode, and the sequence "**<ESC> e 9**" tells the terminal to switch to the other ("AUX") serial port for data communications.

At this point the other computer takes over and sends an "**<ESC> w 2**" to switch to the third physical screen, and then resumes normal communication.

The wy60-2 entry follows the same general pattern for keys **<Shift-F1>** and **<Shift-F2>**: switch to transparent print mode; send function key string to other computer; switch transparent print off; and switch to the other serial port. The end key (<**Ctrl-F2**>) works the same for both computers; it sends the end key sequence to the other computer through the transparent print mechanism, switches the terminal to window 0, clears the screen, then exits.

Port Monitoring with mon-dpa

Introduction

mon-dpa is a software tool which provides a means to monitor the status of the Front End Processor/Operating System (FEP/OS), which is the on-board software run by Digi intelligent serial communications products.

mon-dpa also shows the status of the individual ports on a Digi C/X or Xem system by displaying a simulated concentrator front panel. Each of the eight supported EIA-232 signals is displayed, along with input and output flow control status and the status of the host adapter to concentrator connection status.

mon-dpa can be run from any terminal on the system, and supports the following Digi hardware and device drivers:

Hardware:	Digi C/X host adapter
	Digi Xem host adapter
Software:	AIX, Release 4.x

mon-dpa is installed automatically when you install this device driver.

Using mon-dpa

To run **mon-dpa**, enter the following command from any terminal, or the system console:

mon-dpa [-l *logfile*] [-f *download_file*] [-s *slot*]

The **-l *logfile*** option specifies the file path for screen dumps. If this option is not specified, the default log file path is **/tmp/mon-dpa.log**.

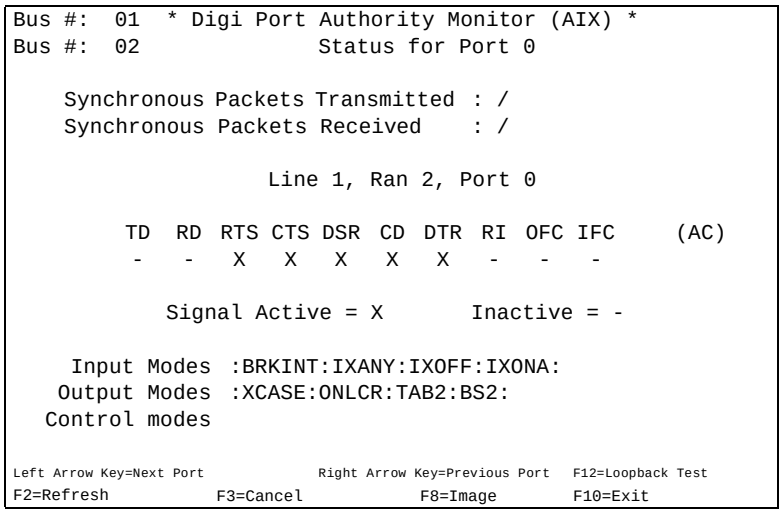
The **-f *download_file*** option specifies the download device name for the adapter (i.e. **/dev/cxisa0**).

The **-s *slot*** option specifies the slot number, *minus 1*, in your machine that you wish to inspect. For slot 1, use “0”; for slot 2, use “1”, etc.

mon-dpa is placed in the **/usr/lbin/tty/mon-dpa** directory when the driver is installed.

Monitoring Channel Activity

mon-dpa allows the user to view the current activity of any Digi C/X or Xem port in the system. To view a channel's activity, use the arrow keys (or **H** and **L** keys, if your arrow keys aren't correctly mapped) to select the desired port, then press the space bar. The software will display a graphic representation of the port's signals. The screen is dynamically updated at half second intervals, and shows the current status of the channel selected.



The box in the center of the screen shows the state of the EIA-232 signals TxD, RxD, RTS, CTS, DSR, DCD, DTR and RI, plus input and output flow control states (IFC and OFC, respectively). An inactive signal is indicated by a dash (-) under its name. An active signal is indicated by a block under its name. If data is currently being transmitted or received, a blinking "**X**" will appear under the signal name (TxD or RxD, respectively).

Input, Output and Control Modes

Beneath the line status box are the input, output and control modes in effect for that channel. These are UNIX style flags, and have the following meanings:

Input Modes

IGNBRK	Ignore Break
BRKINT	Interrupt on Break
IGNPAR	Ignore parity errors
PARMRK	Mark parity errors
INPCK	Input parity check
ISTRIP	Strip input characters
ITOSS*	Toss IXANY characters
IXON	Enable start/stop output
IXANY	Restart output on any character
IXOFF	Enable start/stop input
IXONA*	Enable start/stop output Auxiliary

*Not a standard UNIX flag

Output Modes

XCASE*	Canonical upper/lower display
OLCUC	Map lower case to upper
ONCLR	Map NL to CR/NL
OCRNL	Map CR to NL
ONOCR	No CR output at column 0
ONLRET	NL performs CR function
OFILL	Use fill characters for delay
OFDEL	Fill character is DEL; otherwise NUL
NLDLY	NL delay is selected
CR1	Carriage Return delay type 1
CR2	Carriage Return delay type 2
CR3	Carriage Return delay type 3
TAB1	Tab delay type 1
TAB2	Tab delay type 2
TAB3	Tab delay type 3
BS1	Backspace delay
VT1	Vertical tab delay
FF1	Form feed delay

*Not a standard UNIX flag

Control Modes

Baud Rate	50, 75, 110, 134, 150, 200, 300, 600, 1200, 1800, 2400, 4800, 9600, 19200, 38400. If Fast Baud is set (see below), baud rates of 50, 75 and 110 are translated to 57600, 75600 and 115200, respectively.
Char Bits	5, 6, 7, 8 or None.
Stop Bits	2, 1 or None.
Parity	Enabled, Odd or None.
Fast Baud*	Use fast baud rates (see **stty-digi fastbaud**, on page 14).

*Not a standard UNIX flag

From the channel monitoring screen, channels on any concentrator or PORTS module may be monitored without returning to the

previous screen. The following single keystroke commands are available:

→, L, l	Increment channel number. If the currently selected channel is the last one on the concentrator, then the channel number wraps around to #1.
←, H, h	Decrement channel number. If the currently selected channel is #1, then the channel number wraps around to the last one on the concentrator.
1-8	Select a specific channel. Press **1**-**8** for channels 1-8, respectively.
T	Execute loop back test on the selected channel. The loop back test transmits 128 bytes and attempts to read them back via the same port. A loop back plug is required. See the following section for information on the loopback test.
Print Screen	Dumps the current screen contents to the log file. The default log filename is **/tmp/mon-dpa.log**. A different file may be specified by using the **-l *logfile*** command line option. If the Print key does not map correctly, use **^P** (Ctrl-P) instead.
- (Minus)	Return to the previous screen.
Q	Quit the **mon-dpa** program.

Loop Back Test

A loop back diagnostic test can be run against any selected channel by pressing the **T** (or **t**) key from the channel monitoring screen (see page 32). A loop back plug must be installed in the channel to be tested.

The loop back test consists of five phases:

Phase 1

Verify that the channel is not currently in use. All signals must be low.

If the port is busy, a message similar to the following will appear:

****** Port is Busy :DTR:CD:DSR:RTS**

Probable cause of failure:

- Port is open by some process (e.g. getty).
- Incorrect loop back connector or cable.

Phase 2

128 bytes of test data (the letter **A** is used) are put into the transmit buffer.

If the write operation fails, a message similar to the following will appear:

****** Loop Back Test Failure #1**

After the write operation is complete, the FEP/OS is notified that data is available for transmission. At this time, the 128 bytes of data is transmitted. If the transmission fails, the following message will appear:

****** Loop Back Test Failure #2**

Probable cause of failure:

- Hardware failure.
- FEP/OS or driver failure.

Phase 3

At this point, the FEP/OS should have received 128 bytes of data. If not, the following message will appear:

****** Loop Back Test Failure #3**
****** Data Not Transferred to RX.**

Probable cause of failure:

- Hardware failure.
- Loop back connector not installed, or incorrectly wired.
- FEP/OS or driver failure.

Phase 4

128 bytes of data are read from the receive buffer. If the read operation fails, the following message will appear:

****** Loop Back Test Failure #4**

Probable cause of failure:

- Hardware failure.
- FEP/OS or driver failure.

Phase 5

The data that was transmitted is compared with the data that has been read from the receive buffer. If the comparison fails, the following message will appear:

****** Loop Back Test Failure #5**

Probable cause of failure:

- Hardware failure.
- FEP/OS or driver failure.

If all test phases pass, the following message will appear:

Loop Back Test Passed.

After test completion, the input and output data can be viewed. Press the **I** key to see the last 128 bytes of data that were put into the receive (input) buffer. Press the **O** key to see the last 128 bytes of data that were put into the transmit (output) buffer. The display shows the hexadecimal value of each character above the character itself. If the character is a non printing character, "|" is dis-

played in its place.

Note: For security reasons, the receive buffer contents will only be displayed if the loop back test passes.

Press the **Q** key to return to the channel monitoring screen.

Loop Back Plug Specification

The loopback plug for **RJ-45** versions consists of a single 10-pin RJ-45 plug wired as follows:

- Pin 3 connected to pins 1 and 8 (RTS to RI and CTS);
- Pin 5 connected to pin 6 (TxD to RxD);
- Pin 9 connected to pins 2 and 10 (DTR to DSR and DCD).

For **DB-25** versions, the loopback plug consists of a female DB-25 connector wired as follows:

- Pin 4 connected to pins 22 and 5 (RTS to RI and CTS);
- Pin 2 connected to pin 3 (TxD to RxD);
- Pin 20 connected to pins 6 and 8 (DTR to DSR and DCD).

Host Status

mon-dpa provides several status and error counters to aid you in monitoring activity between the host adapter and concentrators, and diagnosing possible communication problems.

Each status counter is described on the following pages. Several of the counters increment steadily under normal conditions. An incrementing counter does not necessarily indicate a problem. For example, if a concentrator is turned off, several counters will increment. When the concentrator is turned back on, those counters will stop incrementing.

If any counters that are usually idle begin to increment steadily, perform the recommended tests described for that counter. Call Digi Technical Support if the counters continue to increment steadily after performing the recommended tests.

From the adapter configuration screen, press "**s**". You will see the status and error counters. The counters are reset during system initialization (boot-up).

```
                          HOST STATUS

Activity Counters:
RECEIVE1  RECEIVE2   RECEIVE3  RECEIVE4  RECEIVE5  TRANSMIT
  24382       0          0         0         0      300477

Sync Counters:
ERR_UFRAM ERR_ABSTAT  ERR_INC   ERR_CRC   ERR_DATA  ERR_BACK


Saturation Counters:
ERR_TBUF  ERR_FIFO   ERR_ORUN  ERR_TBUSY ERR_RITEM
    0         0          0         0         0

FEP/OS Counters:
ERR_REC0  ERR_ADDR   ERR_MTYPE ERR_MSIZE ERR_RID   ERR_TID   ERR_PING
    0         0          0         0         0         0         0

Hardware Counters:
ERR_ABREC ERR_URUN   ERR_CONC  ERR_CHECK
    0         0          0         0
```

Activity Counters

RECEIVE1 The number of times the host adapter processed a request from a concentrator, and one packet was received.

Under idle conditions, RECEIVE1 will increment, representing the "heartbeat" of the concentrators communicating with the host.

RECEIVE2 through RECEIVE4 The number of times the host adapter processed a request from a concentrator, and two, three or four packets were received.

RECEIVE5 The host adapter is 100% busy if RECEIVE5 is incrementing. Users may experience slower response time. Monitor **EC** (Error Count) on the concentrator front panel.

The Digi product in use is being maximized. Consider adding another host adapter.

TRANSMIT The number of data packets transmitted from the host.

Under idle conditions, the TRANSMIT counter will increment. This is the heartbeat of the host checking the status of communications to the concentrators.

Under normal operating conditions, the TRANSMIT counter will increment.

Sync Counters

ERR_UFRAM The host adapter received an incomplete packet. Check the physical hardware configuration to ensure a stable environment. Check for other incrementing counters.

ERR_ABSTAT The host adapter received a bad data packet, and discarded it. Check for concentrator "down" **[DN]** status (see the previous screen). Check the physical hardware configuration. If the ERR_ABSTAT counter is constantly incrementing, run the concentrator diagnostics (see the concentrator *Installation Guide*). Call Digi Technical Support.

ERR_INC The host adapter received an incomplete data packet. Check the physical hardware configuration. If this counter is constantly incrementing, call Digi Technical Support.

ERR_CRC The host adapter received a packet with a CRC error. Run the concentrator sync line diagnostic tests (see the concentrator *Installation Guide*). If this counter is constantly incrementing, call Digi Technical Support.

ERR_DATA The host adapter received a packet with an error found in the data. This will cause other counters to increment. Check sync line connections. Run the concentrator sync line diagnostic tests (see the concentrator *Installation Guide*). If this counter is constantly incrementing, call Digi Technical Support.

Saturation Counters

ERR_TBUF The transmit buffers on the host adapter are full. The data is not getting out to the ports fast enough. Also monitor RECEIVE1 through RECEIVE5 and TRANSMIT counters.

ERR_FIFO The host adapter is receiving more data than it can handle. Also monitor RECEIVE5.

ERR_ORUN The host adapter is receiving too much data; the host is 100% busy.

ERR_TBUSY The number of times the host adapter tried to transmit data when the transmitter was busy. Also monitor RECEIVE counters.

ERR_RITEM The receive buffer on the host adapter is full; the host adapter is 100% busy. Also monitor the ERR_ORUN counter.

FEP Counters

ERR_REC0 The number of times the host adapter received a request from a concentrator, but no packets were received. If the environment is stable and no other counters are incrementing, call Digi Technical Support.

ERR_ADDR The host adapter received a message that contains an invalid node number. This is *not* a physical node number error, but a software node number error. If this counter is constantly incrementing, call Digi Technical Support.

ERR_MTYPE The host adapter received a message with a bad message type. If this counter is constantly incrementing, call Digi Technical Support.

ERR_MSIZE The host adapter received a message with a bad length. If this counter is constantly incrementing, call Digi Technical Support.

ERR_RID The host adapter received a message with an out-of-sequence message ID. This is *not* a physical node number error, but a software node number error. If this counter is constantly incrementing, call Digi Technical Support.

ERR_TID The host adapter sync line transmit sequence number is out of sequence. If this counter is constantly incrementing, call Digi Technical Support.

ERR_PING The host adapter received a sync line ping message when not in ping mode. If this counter is constantly incrementing, call Digi Technical Support.

Hardware Counters

ERR_ABREC The host adapter aborted receiving a packet. Run host adapter diagnostics. If a hardware problem is detected, try a different host adapter.

ERR_CONC A message sent to the concentrators was sent back to the host adapter. A concentrator is down. Back up one screen in **mon-dpa** to check for "**DN**" status on a concentrator. Check the power on the concentrator and reset the concentrator. If the counter is still incrementing, try a different concentrator.

ERR_CHECK The host adapter received an incomplete status packet. Run concentrator diagnostics. If a hardware problem is detected, try a different concentrator.

Diagnostics

Digi has provided a diagnostics test suite to aid in troubleshooting problems with your C/X host adapters.

To run the diagnostics, enter the command below which corresponds to your host adapter type (ISA or PCI):

ISA: For an ISA C/X, enter this command at a root prompt:

smit isa

Select “ISA Async Adapter Diagnostics”

PCI: For a PCI C/X adapter, enter this command at a root prompt:

smit digi_cxpci

Select “PCI Async Adapter Diagnostics”

Several tests will be run, and Pass/Fail status will be displayed for each test. Make a note of any failures, and contact Digi Technical Support.

Error Messages

Error messages from the Digi device driver are written to the system error log. The **errpt** command can be used to produce an error report from the system error log.

Adapter	errpt Command
C/X ISA	**errpt -a -N cxisa***
C/X PCI	**errpt -a -N cxpci***
Xem ISA	**errpt -a -N xemisa***
Xem PCI	**errpt -a -N xempci***

The following pages list specific errors, their description, causes, and recommended action(s) to take.

For more information on error messages, see:

- The **errdemon** daemon
- The commands **errclear**, **errdead**, **errlogger**, **errpt**, and **errstop**.
- The *Error Logging Overview* in *General Concepts and Procedures*

LABEL: DIGI_CX_CFG_MTST
IDENTIFIER:0958C259
Date/Time: Thu Nov 21 15:04:39
Sequence Number: 8783
Machine Id: 003062904D00
Node Id: gainer
Class: S
Type: PERM
Resource Name:
Description
ADAPTER MEMORY TEST FAILED
Failure Causes
ADAPTER IS GOING BAD.
Recommended Actions
RUN DIAGNOSTICS AGAINST THE FAILING DEVICE
CONTACT APPROPRIATE SERVICE REPRESENTATIVE
Detail Data
ADAPTER MEMORY ADDRESS:
0000 0000

What it means:

An error occurred while testing the adapter's memory.

Action to take:

Contact Digi Technical Support.

LABEL: DIGI_CX_CFG_RST
IDENTIFIER:91F5D066
Date/Time: Thu Nov 21 15:04:39
Sequence Number: 8782
Machine Id: 003062904D00
Node Id: gainer
Class: S
Type: PERM
Resource Name:
Description
ADAPTER RESET FAILED
Failure Causes
ADAPTER IS GOING BAD.
Recommended Actions
RUN DIAGNOSTICS AGAINST THE FAILING DEVICE
CONTACT APPROPRIATE SERVICE REPRESENTATIVE
Detail Data
ADAPTER I/O PORT ADDRESS:
0000 0000

What it means:

An error occurred while resetting the adapter.

Action to take:

Contact Digi Technical Support.

LABEL: COM_CFG_UNK

IDENTIFIER:7993098B

Date/Time: Thu Nov 21 15:04:39

Sequence Number: 8779

Machine Id: 003062904D00

Node Id: gainer

Class: S

Type: PERM

Resource Name:

Description

CONFIGURATION FAILED: BAD ADAPTER TYPE

Install Causes

CONFIGURATION DATA BASE IMPROPERLY SET UP.

Recommended Actions

CORRECT CONFIGURATION DATA BASE.

Failure Causes

ADAPTER TYPE SPECIFIED NOT KNOWN TO THIS LEVEL OF DRIVER.

Recommended Actions

INSTALL UPDATED DRIVER CODE.

CONTACT APPROPRIATE SERVICE REPRESENTATIVE

Detail Data

TYPE

0000 0000

What it means:

A configuration error has occurred with an unknown adapter type.

Action to take:

Contact Digi Technical Support.

LABEL: COM_CFG_NADP

IDENTIFIER:3EC3C657

Date/Time: Thu Nov 21 15:04:39

Sequence Number: 8798

Machine Id: 003062904D00

Node Id: gainer

Class: S

Type: PERM

Resource Name:

Description

CONFIGURATION FAILED: ADAPTER MISSING

Install Causes

CONFIGURATION DATA BASE IMPROPERLY SET UP.

Recommended Actions

CORRECT CONFIGURATION DATA BASE.

Failure Causes

BUS CONFIGURATOR ERROR

Recommended Actions

REPORT ERROR AND CONDITIONS.

IF PROBLEM PERSISTS, CONTACT APPROPRIATE SERVICE

REPRESENTATIVE

Detail Data

ERROR CODE AS DEFINED IN sys/errno.h

0

What it means:

An error occurred while matching the adapter posid with the stored posid value.

Action to take:

Remove and then re-configure the device. If problem persists, contact Digi Technical Support.

LABEL: DIGI_CX_ADP_FAIL
IDENTIFIER:AC64221B
Date/Time: Thu Nov 21 15:04:39
Sequence Number: 8800
Machine Id: 003062904D00
Node Id: gainer
Class: H
Type: PERM
Resource Name:
Resource Class: NONE
Resource Type: NONE
Location: NONE
VPD:
Device Specific.
Device Specific.
Device Specific.
Description
ASYNC ADAPTER FAILED
Failure Causes
ADAPTER IS GOING BAD.
Recommended Actions
RUN DIAGNOSTICS AGAINST THE FAILING DEVICE
CONTACT APPROPRIATE SERVICE REPRESENTATIVE
Detail Data
SLOT NUMBER:
0

What it means:

The driver software has detected an unrecoverable error while communicating with the adapter.

Action to take:

Contact Digi Technical Support.

LABEL: DIGI_CX_MEM_ATT
IDENTIFIER:BFEA74DC
Date/Time: Thu Nov 21 15:04:39
Sequence Number: 8772
Machine Id: 003062904D00
Node Id: gainer
Class: S
Type: PERM
Resource Name:
Description
MEMORY SEGMENT ATTACH FAILED
Failure Causes
DEVICE DRIVER ERROR.
ADAPTER IS GOING BAD.
Recommended Actions
CONTACT APPROPRIATE SERVICE REPRESENTATIVE
Detail Data
DRIVER LINE NUMBER:
0

What it means:

An error occurred while attempting the attach to bus memory; usually indicates a device driver error.

Action to take:

Contact Digi Technical Support.

LABEL: DIGI_CX_CFG_TALLOC
IDENTIFIER:59853D4A
Date/Time: Thu Nov 21 15:04:39
Sequence Number: 8778
Machine Id: 003062904D00
Node Id: gainer
Class: S
Type: PERM
Resource Name:
Description
TALLOC FAILED
Failure Causes
OUT OF VIRTUAL MEMORY SPACE.
Recommended Actions
CONTACT APPROPRIATE SERVICE REPRESENTATIVE
Detail Data
ERROR CODE AS DEFINED IN sys/errno.h
0

What it means:

An error occurred while attempting to allocate a trb timer structure.

Action to take:

Contact Digi Technical Support.

LABEL: DIGI_CX_ERR_ASSRT
IDENTIFIER:5E9573AA
Date/Time: Thu Nov 21 15:04:39
Sequence Number: 8801
Machine Id: 003062904D00
Node Id: gainer
Class: S
Type: PERM
Resource Name:
Description
DRIVER ASSERT MESSAGE
Failure Causes
DEVICE DRIVER ERROR.
Recommended Actions
CONTACT APPROPRIATE SERVICE REPRESENTATIVE
Detail Data
DRIVER LINE NUMBER:
0

What it means:

An error occurred while executing a driver assert message.

Action to take:

Contact Digi Technical Support.

LABEL: COM_CFG_RESID

IDENTIFIER:804C1878

Date/Time: Thu Nov 21 15:04:39

Sequence Number: 8775

Machine Id: 003062904D00

Node Id: gainer

Class: S

Type: PERM

Resource Name:

Description

CONFIGURATION FAILED: RESID NOT CORRECT

Install Causes

CONFIGURATION DATA BASE IMPROPERLY SET UP.

Recommended Actions

CORRECT CONFIGURATION DATA BASE.

Failure Causes

CALL TO CONFIGURATION ENTRY POINT DOES NOT HAVE PROPER SIZE FOR

DDS.

Recommended Actions

FIX CUSTOMIZED CONFIGURATION PROGRAM.

CONTACT APPROPRIATE SERVICE REPRESENTATIVE

Detail Data

ERROR CODE AS DEFINED IN sys/errno.h

0

ERROR CODE

What it means:

The DDS structure passed from the configuration method to the driver configuration entry point is not the correct size.

Action to take:

Reinstall the driver software. If the problem persists, contact Digi Technical Support.

LABEL: DIGI_CX_IO_ATT
IDENTIFIER:2AA90CCD
Date/Time: Thu Nov 21 15:04:39
Sequence Number: 8773
Machine Id: 003062904D00
Node Id: gainer
Class: S
Type: PERM
Resource Name:
Description
I/O SEGMENT ATTACH FAILED
Failure Causes
DEVICE DRIVER ERROR.
ADAPTER IS GOING BAD.
Recommended Actions
CONTACT APPROPRIATE SERVICE REPRESENTATIVE
Detail Data
DRIVER LINE NUMBER:
0

What it means:

An error occurred while attempting the attach to I/O memory; usually indicates a device driver error.

Action to take:

Contact Digi Technical Support.

LABEL: COM_CFG_UIO

IDENTIFIER:4CEBE931

Date/Time: Thu Nov 21 15:04:39

Sequence Number: 8774

Machine Id: 003062904D00

Node Id: gainer

Class: S

Type: PERM

Resource Name:

Description

CONFIGURATION FAILED: RESID NOT CORRECT

Install Causes

CONFIGURATION DATA BASE IMPROPERLY SET UP.

Recommended Actions

CORRECT CONFIGURATION DATA BASE.

Failure Causes

CALL TO CONFIGURATION ENTRY POINT ATTEMPTS TO USE A DDS NOT READABLE BY PROCESS.

Recommended Actions

FIX CUSTOMIZED CONFIGURATION PROGRAM.

Detail Data

ERROR CODE AS DEFINED IN sys/errno.h

0

What it means:

The DDS structure passed from the configuration method to the driver configuration entry point is unreadable.

Action to take:

Reinstall the driver software. If the problem persists, contact Digi Technical Support.

LABEL: DIGI_CX_CFG_PORT
IDENTIFIER:680A6C7C
Date/Time: Thu Nov 21 15:04:39
Sequence Number: 8799
Machine Id: 003062904D00
Node Id: gainer
Class: S
Type: PERM
Resource Name:
Description
BAD ADAPTER I/O PORT ADDRESS
Install Causes
CONFIGURATION DATA BASE IMPROPERLY SET UP
Recommended Actions
CORRECT ADDRESS FROM MODEM KEYPAD
Failure Causes
ADAPTER SHOULD NOT BE AT THIS I/O PORT ADDRESS.
Recommended Actions
CHOOSE A DIFFERENT ADAPTER I/O PORT ADDRESS
Detail Data
ADAPTER I/O PORT ADDRESS:
0000 0000

What it means:

Bad adapter I/O port address.

Action to take:

Contact Digi Technical Support.

LABEL: COM_CFG_PIN
IDENTIFIER:DA244DCA
Date/Time: Thu Nov 21 15:04:39
Sequence Number: 8776
Machine Id: 003062904D00
Node Id: gainer
Class: S
Type: PERM
Resource Name:
Description
CONFIGURATION FAILED: PINCODE FAILED
Install Causes
CONFIGURATION DATA BASE IMPROPERLY SET UP.
Recommended Actions
CORRECT CONFIGURATION DATA BASE.
Detail Data
ERROR CODE AS DEFINED IN sys/errno.h
0

What it means:

An error occurred while pinning driver resources to memory.

Action to take:

Reboot your system without removing any devices and then reinstall the driver software. If the problem persists, contact Digi Technical Support.

LABEL: COM_CFG_UNPIN
IDENTIFIER:7F0052C6
Date/Time: Thu Nov 21 15:04:39
Sequence Number: 8781
Machine Id: 003062904D00
Node Id: gainer
Class: S
Type: PERM
Resource Name:
Description
CONFIGURATION FAILED: UNPINCODE FAILED
Install Causes
CONFIGURATION DATA BASE IMPROPERLY SET UP.
Recommended Actions
CORRECT CONFIGURATION DATA BASE.
Detail Data
ERROR CODE AS DEFINED IN sys/errno.h
0

What it means:

An error occurred while unpinning driver resources from memory.

Action to take:

Reboot your system without removing any devices and then reinstall the driver software. If the problem persists, contact Digi Technical Support.

LABEL: COM_CFG_DEVA
IDENTIFIER:BC8F0BBB
Date/Time: Thu Nov 21 15:04:39
Sequence Number: 8777
Machine Id: 003062904D00
Node Id: gainer
Class: S
Type: PERM
Resource Name:
Description
CONFIGURATION FAILED: DEVSWADD FAILED
Install Causes
CONFIGURATION DATA BASE IMPROPERLY SET UP.
Recommended Actions
CORRECT CONFIGURATION DATA BASE.
Detail Data
ERROR CODE AS DEFINED IN sys/errno.h
0

What it means:

An error occurred while adding an entry to the device switch table.

Action to take:

Reinstall the driver software. If the problem persists, contact Digi Technical Support.

LABEL: COM_CFG_DEVD

IDENTIFIER:29975223

Date/Time: Thu Nov 21 15:04:39

Sequence Number: 8780

Machine Id: 003062904D00

Node Id: gainer

Class: S

Type: PERM

Resource Name:

Description

CONFIGURATION FAILED: DEVSWDEL FAILED

Install Causes

CONFIGURATION DATA BASE IMPROPERLY SET UP.

Recommended Actions

CORRECT CONFIGURATION DATA BASE.

Detail Data

ERROR CODE AS DEFINED IN sys/errno.h

0

What it means:

An error occurred while deleting an entry from the device switch table. A previous attempt to unconfigure a device has failed and left the configuration database in an incomplete state.

Action to take:

Reboot your system without removing any devices and then reinstall the driver software. If the problem persists, contact Digi Technical Support.

LABEL: DIGI_CX_CFG_FEPOS
IDENTIFIER:7C153B7A
Date/Time: Thu Nov 21 15:04:39
Sequence Number: 8797
Machine Id: 003062904D00
Node Id: gainer
Class: S
Type: PERM
Resource Name:
Description
ADAPTER FEPOS EXECUTION FAILED
Failure Causes
DEVICE DRIVER ERROR.
ADAPTER IS GOING BAD.
Recommended Actions
RUN DIAGNOSTICS AGAINST THE FAILING DEVICE
CONTACT APPROPRIATE SERVICE REPRESENTATIVE
Detail Data
FEPOS STATUS DATA:
0000

What it means:

An error occurred while initializing the adapter FEP/OS

Action to take:

Contact Digi Technical Support.

LABEL: DIGI_CX_FEPOS_ERR1
IDENTIFIER:9B7CA2D9
Date/Time: Thu Nov 21 15:04:39
Sequence Number: 8791
Machine Id: 003062904D00
Node Id: gainer
Class: S
Type: PERM
Resource Name:
Description
ERROR OPENING FEPOS MICROCODE FILE
Failure Causes
DRIVER CALL TO FP_OPEN FAILED
Recommended Actions
VERIFY FEPOS MICROCODE IS IN CORRECT LOCATION ON FILESYSTEM
CONTACT APPROPRIATE SERVICE REPRESENTATIVE
Detail Data
ERROR CODE AS DEFINED IN sys/errno.h
0

What it means:

An error occurred while opening the FEP/OS microcode file.

Action to take:

Contact Digi Technical Support.

LABEL: DIGI_CX_FEPOS_ERR2
IDENTIFIER:C208EDC2
Date/Time: Thu Nov 21 15:04:39
Sequence Number: 8792
Machine Id: 003062904D00
Node Id: gainer
Class: S
Type: PERM
Resource Name:
Description
ERROR STATING FEPOS MICROCODE FILE
Failure Causes
DRIVER CALL TO FP_STAT FAILED
Recommended Actions
VERIFY FEPOS MICROCODE IS IN CORRECT LOCATION ON FILESYSTEM
CONTACT APPROPRIATE SERVICE REPRESENTATIVE
Detail Data
ERROR CODE AS DEFINED IN sys/errno.h
0

What it means:

A stat error occurred with the FEP/OS microcode file.

Action to take:

Contact Digi Technical Support.

LABEL: DIGI_CX_FEPOS_ERR3
IDENTIFIER:42506744
Date/Time: Thu Nov 21 15:04:39
Sequence Number: 8793
Machine Id: 003062904D00
Node Id: gainer
Class: S
Type: PERM
Resource Name:
Description
ERROR READING FEPOS MICROCODE FILE
Failure Causes
DRIVER CALL TO FP_READ FAILED
Recommended Actions
VERIFY PERMISSIONS OF FEPOS MICROCODE FILE
CONTACT APPROPRIATE SERVICE REPRESENTATIVE
Detail Data
ERROR CODE AS DEFINED IN sys/errno.h
0

What it means:

An error occurred while reading the FEP/OS microcode file.

Action to take:

Contact Digi Technical Support.

LABEL: DIGI_CX_FEPOS_ERR4
IDENTIFIER:E1B5F5F9
Date/Time: Thu Nov 21 15:04:39
Sequence Number: 8794
Machine Id: 003062904D00
Node Id: gainer
Class: S
Type: PERM
Resource Name:
Description
ERROR READING FEPOS MICROCODE FILE
Failure Causes
TOO FEW BYTES RETURNED FROM FP_READ
Recommended Actions
CONTACT APPROPRIATE SERVICE REPRESENTATIVE
Detail Data
ERROR CODE AS DEFINED IN sys/errno.h
0

What it means:

An error occurred while reading the FEP/OS microcode file.

Action to take:

Contact Digi Technical Support.

LABEL: DIGI_CX_FEPOS_ERR5
IDENTIFIER:E5771574
Date/Time: Thu Nov 21 15:04:39
Sequence Number: 8795
Machine Id: 003062904D00
Node Id: gainer
Class: S
Type: PERM
Resource Name:
Description
ERROR CLOSING FEPOS MICROCODE FILE
Failure Causes
DRIVER CALL TO FP_CLOSE FAILED
Recommended Actions
CONTACT APPROPRIATE SERVICE REPRESENTATIVE
Detail Data
ERROR CODE AS DEFINED IN sys/errno.h
0

What it means:

An error occurred while closing the FEP/OS microcode file.

Action to take:

Contact Digi Technical Support.

LABEL: DIGI_CX_FEPOS_ERR6
IDENTIFIER:D47C5D56
Date/Time: Thu Nov 21 15:04:39
Sequence Number: 8796
Machine Id: 003062904D00
Node Id: gainer
Class: S
Type: PERM
Resource Name:
Description
ERROR MOVING ADAPTER FEPOS
Failure Causes
DRIVER BLK_MV CALL FAILED
Recommended Actions
CONTACT APPROPRIATE SERVICE REPRESENTATIVE
Detail Data
FEPOS STATUS DATA:
0000

What it means:

An error occurred while moving the adapter FEP/OS to correct location.

Action to take:

Contact Digi Technical Support.

LABEL: DIGI_CX_CFG_BIOS
IDENTIFIER:DB7FF5B4
Date/Time: Thu Nov 21 15:04:39
Sequence Number: 8790
Machine Id: 003062904D00
Node Id: gainer
Class: S
Type: PERM
Resource Name:
Description
ADAPTER BIOS INITIALIZATION FAILED
Failure Causes
DEVICE DRIVER ERROR.
ADAPTER IS GOING BAD.
Recommended Actions
RUN DIAGNOSTICS AGAINST THE FAILING DEVICE
CONTACT APPROPRIATE SERVICE REPRESENTATIVE
Detail Data
POSTAREA DATA:
0000

What it means:

An error occurred while initializing the adapter BIOS.

Action to take:

Contact Digi Technical Support.

LABEL: DIGI_CX_BIOS_ERR1
IDENTIFIER:316ABD57
Date/Time: Thu Nov 21 15:04:39
Sequence Number: 8784
Machine Id: 003062904D00
Node Id: gainer
Class: S
Type: PERM
Resource Name:
Description
ERROR ALLOCATING MEMORY
Failure Causes
DRIVER CALL TO XMALLOC FAILED
Recommended Actions
CONTACT APPROPRIATE SERVICE REPRESENTATIVE
Detail Data
ERROR CODE AS DEFINED IN sys/errno.h
0

What it means:

An error occurred while allocating memory for the BIOS micro-code file.

Action to take:

Contact Digi Technical Support.

LABEL: DIGI_CX_BIOS_ERR2
IDENTIFIER:84F85E93
Date/Time: Thu Nov 21 15:04:39
Sequence Number: 8785
Machine Id: 003062904D00
Node Id: gainer
Class: S
Type: PERM
Resource Name:
Description
ERROR OPENING BIOS MICROCODE FILE
Failure Causes
DRIVER CALL TO FP_OPEN FAILED
Recommended Actions
VERIFY BIOS MICROCODE IS IN CORRECT LOCATION ON FILESYSTEM
CONTACT APPROPRIATE SERVICE REPRESENTATIVE
Detail Data
ERROR CODE AS DEFINED IN sys/errno.h
0

What it means:

An error occurred while opening the BIOS microcode file.

Action to take:

Contact Digi Technical Support.

LABEL: DIGI_CX_BIOS_ERR3
IDENTIFIER:DD8C1188
Date/Time: Thu Nov 21 15:04:39
Sequence Number: 8786
Machine Id: 003062904D00
Node Id: gainer
Class: S
Type: PERM
Resource Name:
Description
ERROR STATING BIOS MICROCODE FILE
Failure Causes
DRIVER CALL TO FP_STAT FAILED
Recommended Actions
VERIFY BIOS MICROCODE IS IN CORRECT LOCATION ON FILESYSTEM
CONTACT APPROPRIATE SERVICE REPRESENTATIVE
Detail Data
ERROR CODE AS DEFINED IN sys/errno.h
0

What it means:

A stat error occurred with the BIOS microcode file.

Action to take:

Contact Digi Technical Support.

LABEL: DIGI_CX_BIOS_ERR4
IDENTIFIER:7AB28202
Date/Time: Thu Nov 21 15:04:39
Sequence Number: 8787
Machine Id: 003062904D00
Node Id: gainer
Class: S
Type: PERM
Resource Name:
Description
ERROR READING BIOS MICROCODE FILE
Failure Causes
DRIVER CALL TO FP_READ FAILED
Recommended Actions
VERIFY PERMISSIONS OF BIOS MICROCODE FILE
CONTACT APPROPRIATE SERVICE REPRESENTATIVE
Detail Data
ERROR CODE AS DEFINED IN sys/errno.h
0

What it means:

An error occurred while reading the BIOS microcode file.

Action to take:

Contact Digi Technical Support.

LABEL: DIGI_CX_BIOS_ERR5
IDENTIFIER:BF28EBDA
Date/Time: Thu Nov 21 15:04:39
Sequence Number: 8788
Machine Id: 003062904D00
Node Id: gainer
Class: S
Type: PERM
Resource Name:
Description
ERROR READING BIOS MICROCODE FILE
Failure Causes
TOO FEW BYTES RETURNED FROM FP_READ
Recommended Actions
CONTACT APPROPRIATE SERVICE REPRESENTATIVE
Detail Data
ERROR CODE AS DEFINED IN sys/errno.h
0

What it means:

An error occurred while reading the BIOS microcode file.

Action to take:

Contact Digi Technical Support.

LABEL: DIGI_CX_BIOS_ERR6
IDENTIFIER:BBEA0B57
Date/Time: Thu Nov 21 15:04:39
Sequence Number: 8789
Machine Id: 003062904D00
Node Id: gainer
Class: S
Type: PERM
Resource Name:
Description
ERROR CLOSING BIOS MICROCODE FILE
Failure Causes
DRIVER CALL TO FP_CLOSE FAILED
Recommended Actions
CONTACT APPROPRIATE SERVICE REPRESENTATIVE
Detail Data
ERROR CODE AS DEFINED IN sys/errno.h
0

What it means:

An error occurred while closing the BIOS microcode file.

Action to take:

Contact Digi Technical Support.