

NEXTSTEP for Intel Processors

Title: DPT 2022 EISA SCSI Adapter

Entry Number: 1457

Entry Date: <<Date June 17, 1997>>

Product Vendor:

Distributed Processing Technology

140 Candace Drive

Maitland, FL 32751

USA

+1 (407) 830 5522 phone

+1 (407) 831 6432 bulletin board system

+1 (407) 260 5366 fax

Keywords: DPT, 2022, SCSI, EISA

Description:

The DPT 2022 SCSI Controller provides NEXTSTEP users with a high performance EISA bus to SCSI interface. Some of the notable features of this card are:

- Up to 64 megabytes of RAM cache with optional CM4000 Caching Module
- ECC Cache RAM SIMMs available for enhanced reliability
- 33MB/second EISA transfer
- EISA bus mastering
- SCSI-2 and CCS compliance
- 10MB/second SCSI synchronized transfer
- CAM-compliant EATA interface

- Overlapped commands
- Scatter/gather
- Automatic request sensing
- Active termination
- RAID 0, 1, 3, and 5 support in hardware with an optional DM4000 Disk Array Module

Setup and Installation:

You can use the factory default settings for all jumpers on the DPT 2022/90.

The DPT 2022/90 provides power for its own SCSI termination. The adapter can also provide termination power on the TERMPWR line for terminators on other devices. If the devices terminating the bus can reliably provide their own termination power, then remove jumper Y50 for best operation.

Jumper Settings

Y50 (TERMPWR Enabled): on (optional, factory setting: on)

If the DPT 2022 will not be at the end of the SCSI bus, use the EISA Configuration Utility to disable the card's integrated SCSI termination. For more information on SCSI setup refer to NeXTanswer document 1109_SCSI_Setup.rtf

Use the EISA Configuration Utility to set the following values.

ECU Settings

```
DPT - DPT SCSI Host Adapter (PM2X22A/9X)
CONTROLLER PARAMETERS
    WD1003 Boot Address..... Disabled
    Interrupt Number..... 15 Edge
    Floppy Disk Controller..... Disabled
    SCSI BIOS ROM Address..... Enabled at C8000h
    Host Bus Adapter SCSI ID..... 7

SCSI PARAMETERS
    Maximum Transfer Rate..... 5MB/s *
    External Cable Detection..... Enabled - 5MB/s
    SCSI Termination..... Enabled
```

```
Command Queuing..... Enabled **
Command Timeout..... Disabled
```

CACHE PARAMETERS

```
Cache..... Read Caching (Write-Through) ***
Maximum Percent Dirty..... 50%
Maximum Percent Read-Ahead..... 30%
Read-Ahead..... Enabled
Long Record Caching..... Disabled
Caching Parameters..... Use Values Stored on Device
```

```
!DPTA410.CFG Version..... 006A
```

* *To achieve 10MB/second transfer, you must have very good cabling and termination.*

** *Some SCSI devices don't correctly implement Command Queuing and require that you disable this feature.*

*** *See note in **Known Problems** regarding setting cache to "Enabled (Write-Back)."*

Our tests used NEXTSTEP Release 3.1 and 3.2. The BIOS versions report during start up read "DPT SCSI BIOS v002.A" and "Controller: PM2022A/9X v205.A 4.0 MB" . The cache card had 4 megabytes of RAM.

Some revisions of the firmware don't work with NEXTSTEP Release 3.1. All versions should work with NEXTSTEP Release 3.2. The versions known to work with Release 3.1 are labeled "005A2" or "005A5". Our testing used version "005A2". These version numbers are found on the chips mounted in sockets on the lower section of the board farthest from the external SCSI connector.

For NEXTSTEP Release 3.3, please see NeXTanswers document 1830_DPT_SCSI_family_Driver_Overview.rtf

Known Problems:

The factory default IRQ setting of 14 causes the following error:

```
EATA controller at IRQ 14
Registering sc0
```

The system will then hang. To recover, use the ECU to reconfigure the non-volatile memory on the DPT card to

select the proper IRQ. Unless you're sure that the right answer is something else, set it to IRQ 15, edge triggered. If your ECU diskette doesn't already have the files necessary to set up a DPT card, when you run the ECU and try to configure the card you will be asked to insert the proper diskette from DPT .

Once the card has been set to IRQ 15, your system will probably just boot. If it doesn't, at the "boot:" prompt type "mach_kernel config=Default" and the system will start up, allowing you to run Configure and set the DPT configuration to IRQ 15, edge-triggered.

- Setting the Cache Parameters in the ECU to enable the cache in write-back mode may result in increased performance. However, any errors like a power failure or system panic that prevent the cache from being written to disk before normal shutdown could cause severe data loss.