

NEXTSTEP for Intel Processors

Title: Intel GX Professional

Entry Number: 1209

Last Updated: <<Date June 13 1995>>

Product Vendor:

Intel

1-800-628-8686 customer service phone (USA only)

1-916-356-6100 customer support fax

1-916-356-3600 OEM components bulletin board

1-800-897-2536 OEM components bulletin board,
viewing only (USA only)

1-800-628-2283 OEM components fax back system (USA only)

1-503-645-6275 reseller information bulletin board

1-800-525-3019 reseller information bulletin board,
viewing only (USA only)

1-916-356-3105 reseller information fax back system

WWW: <http://www.intel.com/>

Keywords: Intel, GX, Professional, ATI, Mach 32

Usage Commentary:

The Intel GX Professional displays at a resolution of 1024 x 768 in 16 bit color under NEXTSTEP. The computer offers a high degree of built-in integration including video (the ATI Mach 32 chip set), sound, SCSI, and IDE. The integrated sound and SCSI are supported under NEXTSTEP Release

3.2. On-board SCSI is supported by a third party driver. The GX has three slots—two EISA and one ISA. The computer's footprint is similar to that of a NeXTstation.

Integrated Video Capabilities [Releases 3.2 and 3.1]

For users of Release 3.1, update 1 of the ATI display adapter device driver provides enhanced functionality for the Intel GX Professional's integrated video hardware. It is now available from NeXTanswers via anonymous **ftp (ftp.next.com)** or e-mail (**nextanswers@next.com**). Request document numbers 1341, **ATIDriver.pkg.compressed**, and 1340, **ATIDriverReadMe.rtf**. This driver is included in Release 3.2.

ATI Display Adapter Device Driver Update 1/Release 3.2

Supported Video Modes

System	8-bit Greyscale	16-bit Color
Intel GX/Professional with a TI 34075 RAMDAC	1024 x 768 1MB VRAM 60, 72, or 76 Hz	800 x 600 1MB VRAM 60 Hz
	1120 x 832 2MB VRAM 60 or 68 Hz	1024 x 768 2MB VRAM 60 or 76 Hz
	1280 x 1024 2MB VRAM 60 Hz	

See NeXTanswers document 1122, "ATI Ultra Pro," for additional information.

Integrated Audio Capabilities [Release 3.2]

NEXTSTEP Release 3.2 includes an audio driver supporting the audio hardware integrated into the Intel GX Professional. The driver plays and records up to 44.1 kHz stereo. The GX's integrated audio hardware directly supports 8-bit mulaw and 16-bit linear sound data formats.

Setup and Installation:

NeXT has successfully installed NEXTSTEP Release 3.1 on a Revision 3 Intel GX Professional configured in the following manner. Our system was running off of a SCSI hard disk. Use the EISA Configuration Utility provided with your system to confirm that your system's settings match those shown below where applicable.

System - Intel L486 Series System Board

System Board Options

Microprocessor : 33 MHz Intel 486DX2 - OverDrive
Secondary Cache Module: Installed
System Board Extended Memory: 15MB
System Base Memory Option: 640KB Base Memory
User Definable Hard Drives: Types 2 and 3
Cache Control = CacheEnabled

Diskette Drive Group

Onboard Floppy Controller = Enabled
Diskette A = 3.5 inch 1.44 MB Drive

Hard Disk Options Group

Onboard IDE Hard Disk Controller = Disabled
Onboard SCSI Controller = Disabled
Hard Drive 1 = Disabled
Hard Drive 2 = Disabled

Parallel Port = Enabled -- Compatible

Serial Port Group

Serial Port 1 = Enabled
Serial Port 2 = Enabled

Video Options Group

Video Type = VGA/EGA
Offboard VGA/EGA Video Adapter = Yes - Disable Onboard Video
Controller via Jumper
Onboard Video BIOS Mapping = To C0000h

Keyboard Control = Keyboard Enabled
Onboard Mouse Control = Mouse Enabled
Speaker Control = Speaker Enabled
CPU Speed = FAST
NumLock Boot State = OFF at Boot

Onboard Audio = Disable Onboard Audio Controller
Shadow Control = Enabled at Defined Locations
POST Memory Test Prompt = Enabled
BIOS Setup Control = Enabled - Suppress setup prompt
Boot Device Control = Boot from floppy or hard drive

Reserved System Resources

Configuration File and Overlay Version 1.00

Audio Setup [Release 3.2]

Intel GX/Professional audio requires one DMA channel, an IRQ level, and a port address. To change either DMA or IRQ for audio, first run Configure and choose free resources so there are no conflicts. Then restart the computer. Run the ECU and configure the audio hardware to use the same DMA channel and IRQ you selected in Configure. Save the configuration and reboot in NEXTSTEP.

Disable the capture (recording) channel with the ECU, because capture is routed through the playback channel. The entry in the ECU should say **none**.

Known Problems:

Release: 3.2

- If your DPT SCSI card uses IRQ 15, change the audio IRQ to some other available value.
- On current revisions of the GX motherboard, DMA channels 3 and 6 are available for audio. However, some older GX motherboard revisions use channels 5 and 6 instead. Thus, though Configure always offers channels 3, 5, and 6 as options, any GX will support only channels 6 and either 3 or 5. NeXT recommends using channel 6 because it is the default and will work on all machines.

To find if you have an older machine, run the ECU and inspect the DMA channels available for audio. If the channels are 5 and 6 you have an older machine.

- Concurrent playback and recording are not supported in 3.2.

Releases 3.2 and 3.1

- The Corsair cache can become loose and may need to be reseated. If the computer can boot

with the cache disabled but refuses to boot with the cache enabled, reseal the cache.

- If you are using a serial mouse and disable the PS/2 mouse port in the EISA Configuration Utility, the keyboard will not respond during installation. Simply leave the PS/2 mouse port enabled to avoid this problem.

Release: 3.1

- The IDE IRQ has changed on new versions of the Intel GX Professional (revision 3), so that NEXTSTEP will attempt to access the IDE drive through the incorrect DMA channel. The solution below will allow you to install the software onto an IDE disk on new Intel GX Professional, however it will not allow NEXTSTEP to run with IDE DMA on these systems.

Symptom

- Booting with the installation floppy works normally. During the boot process the system displays, "IDE using multi-sector mode." The installation process continues and successfully completes the first phase.
- Rebooting off the IDE hard disk for the second installation phase produces the message, "IDE using DMA mode" when registering file systems. The installation process then fails while checking disks and displays the following messages, looping on the last two.
"Ide Dma Error Count = 0x1e00"
"Ide: ideFlushIntMsgs: Stray Interrupt :ideReset"
"Ide: softResetIde diagError = 0x1"
"Ide: Timeout while waiting for interrupt Cmd = 0ca"

Solution

- Follow the regular installation process through phase one. When prompted to remove the boot floppy before the beginning of phase two, leave it in the floppy drive. During the second boot process when the **boot:** prompt is displayed quickly enter:

```
fd()mach_kernel rootdev=hd0 -s
```

- Back up the IDE configuration default table. When the # prompt is displayed, enter the following commands.

```
cd /usr/Devices/IDE.config
```

```
mv Default.table Default.table~
```

- **Edit `/usr/Devices/IDE.config/Default.table`**, either with an editor such as **vi** or by entering the commands below.

```
cd /usr/Devices/IDE.config  
sed -e '/Channels/s/"3"/""/' <Default.table~ >Default.table
```

This command will change lines in **`/usr/Devices/IDE.config/Default.table`** from:

```
"DMA Channels" = "3";  
"Valid DMA Channels" = "3";
```

to:

```
"DMA Channels" = "";  
"Valid DMA Channels" = "";
```

- After completing the process outlined above type **halt** at the # prompt. When the computer says it's safe to shut it down, eject the boot floppy disk and then press the reset button. Your computer should then be able to successfully complete the installation process.