

# DIGITAL PowerStorm 4D10T Windows NT

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## Installation Guide

Part Number: EK-4D10W-IG. A01

**November 1997**

This guide describes the installation of the DIGITAL PowerStorm 4D10T Graphics Option on DIGITAL personal workstation products.

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**November 1997**

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# Table of Contents

## 1 Overview

1.1 Introduction .....	1-1
1.2 Module Description.....	1-1
1.3 Connector Pinouts .....	1-4
1.4 Specifications.....	1-5

## 2 Installation

2.1 Introduction .....	2-1
2.2 Unpacking.....	2-1
2.3 Installation Procedure (Windows NT 4.0) .....	2-2
2.3.1 New Installation or Upgrade of Windows NT .....	2-2
2.3.2 Software Driver Installation .....	2-2
2.3.3 Changing Windows NT Display Characteristics .....	2-4
2.4 Hardware Installation.....	2-4

## Figures

Figure 1-1 PowerStorm 4D10T with 4 MB Memory .....	1-3
Figure 1-2 PowerStorm 4D10T with 8 MB Memory .....	1-3

## Tables

Table 1-1 PowerStorm 4D10T Graphics Options .....	1-1
Table 1-2 Supported Systems and Support Matrix.....	1-2
Table 1-3 Standard 15-Pin VGA Connector Pinout .....	1-4
Table 1-4 5-Pin mini-DIN Stereo (3D) Graphics Connector Pinout .....	1-4

Table 1-5 PowerStorm 4D10T Graphics Option Specifications..... 1-5

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# Preface

## Purpose of This Guide

This guide describes how to install the DIGITAL PowerStorm 4D10T Graphics Option in your computer system.

## Who Should Use This Guide

This guide is intended for anyone who has purchased the DIGITAL PowerStorm 4D10T Graphics Option, either already installed or as an add-on.

## Structure of This Guide

This guide is organized as follows:

- **Chapter 1, Overview**-Provides an overview of the DIGITAL PowerStorm 4D10T Graphics Option.
- **Chapter 2, Installation**-Describes how to install the DIGITAL PowerStorm 4D10T Graphics Option in your DIGITAL personal workstation running Windows NT.

## Related Documentation

The following related documents may be used when Graphics Support Services Software is available for use with the PowerStorm 4D10T graphics option.

- *Graphics Support Services Software Version 4.5 for Microsoft Windows NT Installation and User Guide for Alpha Systems*
- *Graphics Support Services Software Version 4.5 for Microsoft Windows NT Installation and User Guide for Intel Systems*

## Conventions Used in This Guide

In this guide, every use of Windows NT means the Windows NT operating system.

This guide also uses the following conventions:

Convention	Meaning
<b>Note</b>	A note calls the reader's attention to any item of information that may be of special importance.
<b>Caution</b>	A caution contains information essential to avoid damage to the equipment.
<i>italic type</i>	<i>Italic type</i> indicates complete titles of manuals.
<b>bold type</b>	<b>Bold type</b> indicates text that is highlighted for emphasis.
Monospaced	In text, this typeface indicates the exact name of a command, routine, partition, pathname, directory, or file.

## Reader's Comments

DIGITAL welcomes your comments on this or any other manual. You can send your comments to DIGITAL by mail to the following address:

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## 1.1 Introduction

This chapter provides a brief overview of the PowerStorm 4D10T Graphics Option.

## 1.2 Module Description

The PowerStorm 4D10T Graphics Option accelerator module is a single expansion-slot, 32-bit PCI bus graphics option that provides 2D and 3D graphics acceleration for Alpha workstations and Intel systems running Windows NT.

The PowerStorm 4D10T graphics option is available with 4 MB or 8 MB of SGRAM memory. These options are listed in Table 1-1.

**Table 1-1 PowerStorm 4D10T Graphics Options**

<b>Option</b>	<b>Description</b>
SN-PBXGK-AA	PowerStorm 4D10T graphics module with 4 MB of SGRAM memory.
SN-PBXGK-AB	PowerStorm 4D10T graphics module with 8 MB of SGRAM memory.

## Overview

Table 1-2 provides a support matrix for the SN-PBXGK PowerStorm 4D10T graphics option.

**Table 1-2 Supported Systems and Support Matrix**

System	Service Pack	Minimum BIOS	O/S Version
DPWS 433a	SP3	V5.31	Windows NT 4.0
500a	SP3	V5.31	Windows NT 4.0
600a	SP3	V5.31	Windows NT 4.0
DPWS 266i	SP3	V4.05	Windows NT 4.0
266i <sup>2</sup>	SP3	V4.05	Windows NT 4.0
300i	SP3	V4.05	Windows NT 4.0

The PowerStorm 4D10T graphics option with 4 MB of memory (see Figure 1-1) contains one standard 15-pin VGA connector on the PCI bulkhead.

The PowerStorm 4D10T graphics option with 8 MB of memory (see Figure 1-2) contains a standard 15-pin VGA connector, a 5-pin mini-DIN connector used for stereo viewing with CRYSTAL EYES stereo goggles, and a video input connector on the PCI bulkhead.

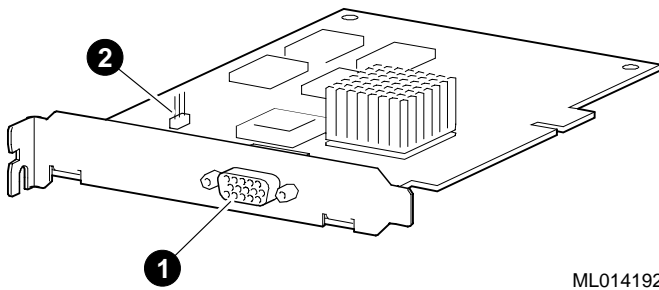
**Note**

Stereo viewing will be supported on future releases of the software.

The PowerStorm 4D10T graphics option modules contain one 3-pin jumper for enabling or disabling the VGA capability when more than one VGA graphics module is installed in the same system.



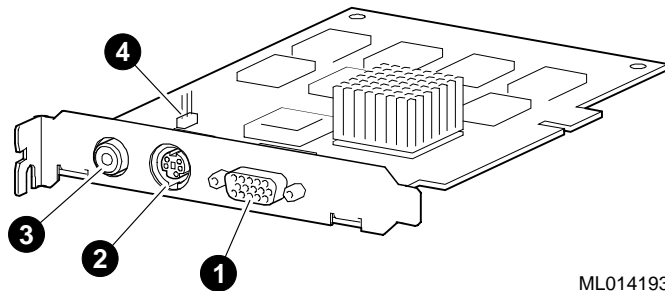
**Figure 1-1 PowerStorm 4D10T with 4 MB Memory**



ML014192

- ❶ Standard 15-pin VGA connector
- ❷ VGA enable/disable jumper (jumper default = enabled)

**Figure 1-2 PowerStorm 4D10T with 8 MB Memory**



ML014193

- ❶ Standard 15-pin VGA connector
- ❷ 5-pin mini-DIN stereo (3D) graphics connector
- ❸ Video input connector
- ❹ VGA enable/disable jumper (jumper default = enabled)

## Overview

### 1.3 Connector Pinouts

Table 1-3 contains a listing of the pins and signals found on the standard 15-pin VGA connector.

**Table 1-3 Standard 15-Pin VGA Connector Pinout**

Pin No.	Signal
1	RED VIDEO
2	GREEN VIDEO
3	BLUE VIDEO
4	NC (no connection)
5	GROUND
6	GROUND
7	GROUND
8	GROUND
9	+5V SUPPLY
10	GROUND
11	NC (no connection)
12	BI-DIRECTIONAL DATA
13	HORIZONTAL SYNC or COMPOSITE SYNC
14	VERTICAL SYNC (VCLK)
15	DATA CLOCK

Table 1-4 contains a listing of the pins and signals found on the 5-pin stereo (3D) graphics connector.

**Table 1-4 5-Pin mini-DIN Stereo (3D) Graphics Connector Pinout**

Pin No.	Signal
1	GROUND
2	GROUND
3	+12 Vdc
4	STEREO OUTPUT
5	GROUND

## 1.4 Specifications

Table 1-5 lists the specifications for the PowerStorm 4D10T graphics option.

**Table 1-5 PowerStorm 4D10T Graphics Option Specifications**

Stereo (SN-PBXGK-AB only)	Stereo viewing will be supported with CRYSTAL EYES goggles on future software releases
Resolution	1600 x 1200 (maximum) @ 75 Hz
Color planes	32 bit double buffered
Z-buffer	16 bit
Unified memory (frame buffer, Z-buffer, texture memory)	4 MB or 8 MB
Form factor	Single half-length PCI card
PCI	PCI 2.1, 32-bit, 33 MHz, 5V signaling
Input voltage	3.3 Vdc, 5 Vdc, +12 Vdc
Power	25 W maximum
Operating temperature	10°C to 40°C (50°F to 104°F)
Relative humidity	10% to 90% noncondensing



## 2.1 Introduction

This chapter describes the installation of the PowerStorm 4D10T Graphics Option in a DIGITAL personal workstation system. Topics included in this chapter are:

- Unpacking
- Windows NT 4.0 installation
- Hardware installation

## 2.2 Unpacking

The graphics option hardware is packaged in a single carton that contains the following:

- Graphics option (SN-PBXGK-AA or SN-PBXGK-AB)
- *DIGITAL PowerStorm 4D10T Windows NT Installation Guide* (EK-4D10W-IG)
- Windows NT software drivers
  - AK-R915A-CA for Alpha systems
  - AK-R916A-CA for Intel systems

## Installation

### 2.3 Installation Procedure (Windows NT 4.0)

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#### Note

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If a graphics option other than the PowerStorm 4D10T was previously operating in the system, keep that option installed and refer to Section 2.3.2. If the previously installed graphics option is not available or it is not operational, refer to Section 2.3.1.

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#### 2.3.1 New Installation or Upgrade of Windows NT

Before installing the software drivers during a Windows NT upgrade or new installation, install the PowerStorm 4D10T graphics option as described in Section 2.4. You can then install Windows NT as described in the Windows NT documentation.

During Windows NT installation, a hardware and software component list is displayed, like the one shown here:

Computer: DIGITAL Personal Workstation xxx (xxx = CPU type)

Display: VGA Compatible

Keyboard: XT, AT, or Enhanced Keyboard (83-104 keys)

Keyboard Layout: US

Pointing Device: Mouse Port Mouse

No Changes: The above list matches my computer

When you have completed the Windows NT installation, go to Section 2.3.2.

#### 2.3.2 Software Driver Installation

If you have purchased the PowerStorm 4D10T graphics option as an add-on, you must install the software drivers. Install the 2D and 3D drivers (the DIGITAL optimized OpenGL support) from the included diskettes (or the Graphics Support Services Software CD-ROM that will be included in future releases) by performing the following steps:

1. Boot your system and log into Windows NT if you have not already done so.
2. From the desktop, choose **My Computer**.
3. From My Computer, choose **Control Panel**.
4. From Control Panel, choose **Display**.
5. From the Display Properties dialog box, choose the **Settings** tab.

## Installation

6. From the Settings dialog box, choose the **Display Type** button to see the driver and adapter (board) information.
7. From the Display Type dialog box, choose **Change**.
8. From the Change Display dialog box, choose **Have Disk**.
9. In the Install from Disk dialog box, you are prompted to insert the manufacturer's installation disk into the selected drive. Insert the appropriate diskette (Alpha or Intel) into the floppy drive (or the Graphics Support Services Software CD-ROM that will be included in future releases into the CD-ROM drive unit).
10. Enter the path of the PowerStorm 4D10T driver and choose **OK**.

The path is of the following format, where `dev:\` is the drive name (for example, `A:\` for floppy diskettes or `E:\` for the E drive):

`dev:\` (Alpha or Intel systems - Floppy Diskettes)

`dev:\i386\pbxgk\nt40` (Intel systems - GSSS CD-ROM)

**or**

`dev:\alpha\pbxgk\nt40` (Alpha workstations - GSSS CD-ROM)

11. In the Change Display dialog box, the driver whose path you just defined is displayed. Confirm this choice by choosing **OK**. The driver name displayed is:  
`PowerStorm 4D10T`
12. When the message displays stating that this is a third party driver, confirm by choosing **Yes**. A status box displays reflecting the progress of the driver installation.
13. When the files have been copied to your hard disk, a dialog box indicating that the driver was successfully installed is displayed. Choose **OK** and remove the CD-ROM from the drive.
14. Choose **Close** to close the Display Type dialog box.
15. Choose **Close** to close the Display application.
16. When a message displays stating that you must restart your computer to use the new display driver, choose **No**.
17. Shut down your system by choosing **Shut Down** from the Start menu, then remove power from your computer system and install the PowerStorm 4D10T graphics option as described in Section 2.4 if you haven't already done so.
18. After installing the PowerStorm 4D10T graphics option, reboot your system to access the new display driver. After your system reboots, a message displays indicating that the default screen resolution and refresh rate are being used. For information on changing these values, refer to Section 2.3.3.

## Installation

### 2.3.3 Changing Windows NT Display Characteristics

After installing the PowerStorm 4D10T graphics option, you can change the screen resolution and refresh rate, collectively referred to as the *display mode*. Before changing the display mode, you should verify that your monitor can accept the new values (refer to the monitor documentation). To change the display resolution and refresh rate, perform the following steps:

1. From the desktop, choose **My Computer**.
2. From My Computer, choose **Control Panel**.
3. From Control Panel, choose **Display**.
4. From the Display Properties dialog box, choose the **Settings** tab.
5. From the Settings dialog box, click on the arrows in the **Desktop Area** to change the screen resolution.

To change the refresh rate, choose one of the options in **Refresh Frequency**. (You can also change the resolution and refresh rate by choosing **List All Modes** and the desired mode, and then choosing **OK**.) If the refresh rate selected is not supported by the resolution you chose, the resolution will automatically change to the nearest value supported by that refresh rate, or the refresh rate will change to support the resolution.

6. Choose **Test** to verify that the settings work correctly. A test pattern will be displayed on your monitor for about five seconds.
7. You will now see the question “Did you see the test bitmap properly?”. If you are satisfied with the video display, choose **Yes**.

Choose **OK** to accept the changed settings.

8. You may have to adjust your monitor to align the new resolution to the monitor. This is typically done by using the controls on the front or side of the monitor.

## 2.4 Hardware Installation

The following section describes how to install the PowerStorm 4D10T Graphics Option. To install the graphics option, perform the following steps:

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#### Note

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Before installing the graphics option, check your monitor specification for signal compatibility and supported features offered by the graphics option.

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## Installation

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### Caution

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Static electricity can damage sensitive electronic components. When handling your graphics option, use an antistatic wriststrap that is connected to a grounded surface on your computer system.

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1. Perform a normal power down of your computer system and disconnect the monitor cable.
2. Remove the cover from your computer (refer to your system documentation).
3. Put on an antistatic wriststrap.

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### Caution

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An antistatic wriststrap must be worn when handling any module to prevent damage to the module.

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4. If your computer has an existing graphics module, remove the screw that secures it and then remove the module.
5. If your system had a previously installed graphics option, you can use that slot if it is a PCI slot, or you can select any empty PCI expansion slot. Remove the slot cover if you are using a new slot. Refer to your system owner's guide for information about graphics option slots.
6. Grasp the top edge of the graphics option and carefully insert it into the slot, then firmly seat it.
7. Secure the module retaining bracket.
8. Replace the computer cover.
9. Ensure that the monitor cable is connected to the video output connector located on the back of the graphics option.
10. Perform a normal power up of your computer system.

