# DECpc

# 525-MB IDE Hard Disk Drive Installation Guide

**Digital Equipment Corporation**
**Maynard, Massachusetts**

## Kit Contents

The 525-MB hard disk drive kit contains the following:

| Item | Order Number |
|------|--------------|
| One disk drive | RE25L |
| Two expansion brackets | 74-44337-01 |
| Four screws, #6-32 x 3/16-inch | 90-08020-01 |
| Four screws, #6-32 x 1/4-inch | 90-00038-19 |
| *DECpc 525-MB IDE Hard Disk Drive Installation Guide* | EK-XARCG-IA-A01 |

If you install the drive in a DECpc 400 ST, you need an IDE cable. The cable is not included with this kit and must be ordered separately. The Digital part number is BC10N-3E.

## Before You Start

Read the following installation instructions. If you are unsure about your ability to install the drive, you can contact Digital Services to hire a Digital Services technician to install the drive for you.

If you are replacing a drive, or adding a second drive, always back up the data before starting the installation.

The drive can be connected directly to the 40-pin IDE-bus connector located on the DECpc motherboard, or to a separate IDE-bus adapter board.

_____**CAUTION**_____

Static electricity can destroy the circuits on the drive's circuit board. Discharge static electricity by touching the drive's metal frame before touching the circuit board.
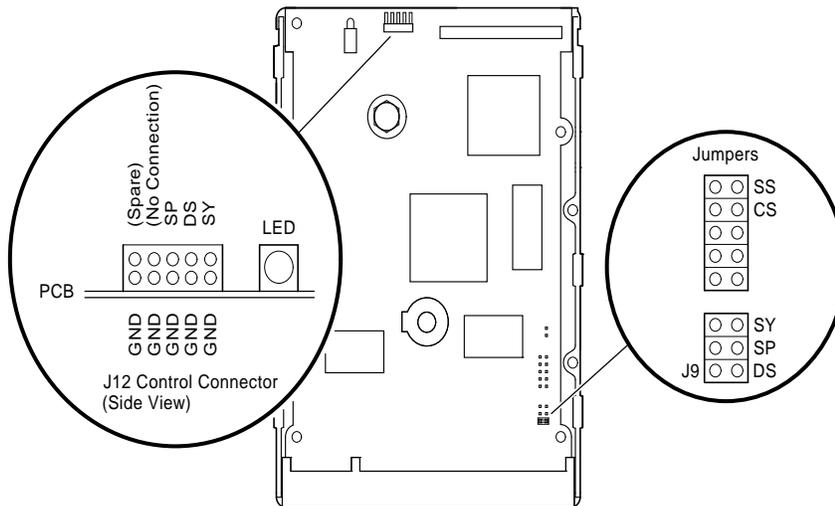
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# Drive Configuration Overview

Drive configuration depends on whether the drive operates as a *master* or a *slave*.

| If the drive operates as a... | Then... |
|---|---|
| Master  (boot drive) | Use the factory-default jumper setting |
| Slave (secondary drive) | Reconfigure the jumpers |

The jumpers are located at J9 and J12 on the printed circuit board (Figure 1).



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**Figure 1.  Jumper Locations**

_____**Note** _____

Jumpers CS and SY are not applicable to DECpc computers.
Do not change their factory-default settings.

Table 1 describes the J9 and J12 jumper functions and default settings.

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**Table 1.  Jumper Functions and Default Settings**

| Jumper | Function | Default Setting |
|--------|----------|-----------------|
| SS | Reserved for factory use | Open [*] |
| CS | Cable select | Open |
| SY | Synchronization (disk array) | Open |
| SP | Slave present | Open |
| DS | Drive select | Jumpered [†] |

[*] Only located at J9

[†] DS jumpered at J9 and DS open at J12

## Drive Select (DS) Jumper Configurations

The drive is configured at the factory as a master drive with the DS pins jumpered on J9. If you install the drive as a slave, park the factory-installed DS jumper.

The DS jumper is a small plastic block that plugs onto a pair of pins. Figure 2 shows the J9 DS pins both jumpered *(master drive)* and open/parked *(slave drive)*.
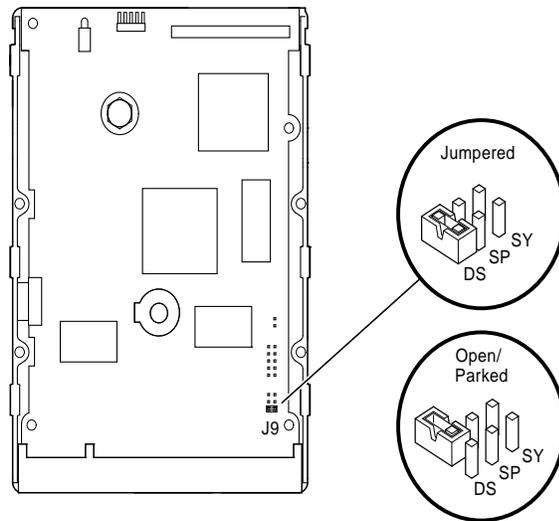


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**Figure 2.  DS Jumper Configurations**

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You can jumper the DS pins at *either* the J9 or J12 control connector location.

Example:

If you jumper the DS pins at J12 to configure a master drive, park the jumper (if installed) on J9.

The drive has drive active slave present (DASP) signal capabilities to check for the presence of a slave drive. In a master-slave relationship, if both drives have the DASP option, leave the SP pins at J9 and J12 open. If the slave drive does not have the option, you must jumper the master drive SP pins.

Table 2 describes the DS jumper settings.

**Table 2.  DS Jumper Setting Descriptions**

| Drive Configuration | Setting |
|---|---|
| Slave drive | DS, Open/parked<br>SP, Open/parked |
| Master drive (using the DASP signal to indicate that a slave drive is present.)<br>*Use this configuration in most cases.* | DS, Jumpered *(default)* |
| Master drive (using the SP jumper instead of the DASP signal to indicate that a slave drive is present.) | DS, Jumpered<br>SP, Jumpered |

## Installing the Drive

Perform the following steps to install the drive:

1.  Set the correct drive jumper setting for master or slave. See the previous sections for configuration information.

2.  Turn off the computer and unplug the power cord from the wall outlet, then from the back of the system box.

3.  Remove the system box cover and select an available drive bay. See your computer user guide for instructions.

_____ **Note** _____

> Depending on the layout of your computer, you may find it easier to
> connect the cables (described in step 5) before you mount the drive
> in the bay.

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4.  Mount the drive in a drive bay. If you mount the drive in a 5¼-inch bay, attach
    the expansion brackets (Figure 3).

    Some computers require you to install drive rails. If so, attach the drive rails,
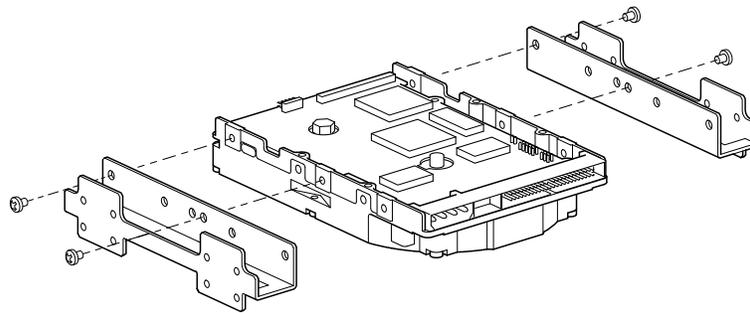    supplied with your computer, to the expansion brackets.

_____ **CAUTION** _____

> Use the short (3/16-inch) screws to mount the brackets to the drive.
> The longer screws will extend into the circuit board and damage the
> drive. Use the longer screws to attach the drive rails to the
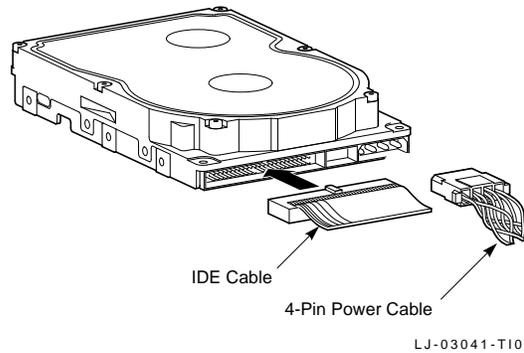> expansion brackets, or to mount the brackets to the computer case .

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**Figure 3.  Attaching Expansion Brackets**

5. Connect the IDE cable and 4-pin DC power cable (Figure 4).



IDE Cable

4-Pin Power Cable

LJ-03041-TI0

**Figure 4.  Connecting Cables**

6. Verify that your computer has an ISA or an EISA bus.

| Bus | Configuration Utility |
|-----|----------------------|
| ISA (16-bit) | System setup utility |
| EISA (32-bit) | System Configuration Utility (SCU) |

Run the appropriate setup utility to enter the new drive parameters. See your computer user guide for the configuration instructions.

7. Select the Hard Drive 1/Hard Drive 2 field in the appropriate setup utility.

Using the following *logical* addressing parameters (Table 3), you either:

- Select a drive type, from a predetermined list of drives, that matches these parameters, or

- Enter the parameters as a user-definable hard drive.

**Table 3.  Logical Addressing Parameters**

| Size | Formatted Capacity | Heads | Cylinders | Precomp | Landing Zone | Sectors |
|------|--------------------|-------|-----------|---------|--------------|---------|
| 525 MB | 525 MB | 16 | 1017 | 0 | 0 | 63 |

If you select an adapter board instead of the computer's main logic board IDE hard disk controller, *disable* the computer's main logic board IDE hard disk controller. See the setup utilities in your computer user guide.

8.  Reboot your computer.

If the operating system is not installed, boot the system with the operating system installation diskette. See the operating system information for further instructions.

9.  Partition and format the drive.

Use these commands with MS-DOS:

- FDISK to partition the drive.

- FORMAT to prepare each partition to receive MS-DOS files.

- FORMAT C: /S to copy the operating system to the primary DOS partition (master drive partitions only).

See the MS-DOS user information for specific instructions.

10. Restore any backup files.

# Specifications

The following table describes operational specifications:

**Table 4. Operational Specifications**

| Characteristics | Specifications |
| --- | --- |
| Capacity (formatted) | 525 MB |
| Number of disks | 3 |
| Number of read/write heads | 6 |
| Track density (tracks per inch) | 2670 |
| Logical characteristics<br>• Cylinders<br>• Heads<br>• Sectors per track<br>• Total number of sectors | <br>1017<br>16<br>63<br>1,025,136 |
| Seek times (average)<br>• Read-on-arrival<br>• Average write<br>• Track-to-track<br>• Full stroke | <br>10 ms<br>11 ms<br>< 3 ms<br>25 ms |
| Data transfer rate<br>• Disk to read buffer<br>• Read buffer to IDE-bus (PIO mode) | <br>2.30–4.66 MB/s<br>5.00 MB/s |
| DisCache size | 512 KB |
| Rotational latency (average) | 6.7 ms |
| • Temperature<br>• Operating<br>• Nonoperating | <br>0° to 55°C<br>-40° to 65°C |
| • Humidity<br>• Operating<br>• Nonoperating | <br>8% to 85%<br>5% to 95% |