



# *RZ1BB, RZ1CB, and RZ1DB Ultra Wide Disk Drive StorageWorks Building Blocks*



Product Notes

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*This Product Note contains the replacement considerations, disk specifications, and application notes for the DS-RZ1BB-VW, DS-RZ1CB-VW, and DS-RZ1DB-VW Ultra Wide disk drive SBBs.*

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## **Overview of StorageWorks Building Blocks**

Thank you for purchasing one of our disk StorageWorks Building Blocks (SBB), designed and manufactured by Digital Equipment Corporation. This device is compatible with SCSI single-ended interface standards and has been certified and is supported on Alpha Windows NT, DIGITAL UNIX and all Intel compatible Windows, Windows NT, and Novell Systems. It is also supported for use with HP9000 700/800 Series, IBM RS/6000, SGI IRIX, and Sun SPARC system platforms.

## **Specifications**

Special features of note include:

- Ultra Wide SCSI disk drive in SBB
- Leading edge technology – Magneto Resistive (MR) heads
- 7200 rpm; 8 ms average seek time
- Asynchronous and Synchronous data -transfer protocol
- Programmable sector size reallocation
- Tagged command queuing and multi-initiator support
- Staggered disk spin up
- Self diagnostics
- 5-year warranty
- UL, CSA, and VDE standards

The disk drive has been designed to be compatible with many data-storage applications and is ready to be used when attached to qualified Industry-standard SCSI Adapter and corresponding driver software. The drive identifies itself when interrogated by the SCSI driver software.

The drive has a turn-on circuit that automatically spins up the drive after a delay period. The delay period is equal to the disk specific predetermined delay (see Table 4) times the SCSI ID of the drive; e.g., drive in SCSI ID2 delays 2 times the predetermined delay before spin up; drive in SCSI ID6 delays 6 times the predetermined delay before spin up, etc. This arrangement is required for operating systems that do not have a facility for motor spin up; it lets successive drives in an array automatically spin up following a staggered delay.

This sequence avoids excessive loading of the power supply. If your specific operating system is not compatible with this automatic "spin up" feature, please contact your supplier for instructions.

Some SCSI adapters provide options in the adapter set-up menu to allow automatic spin up of the disk drive motor. Although not required by the drive, the automatic spin up feature may be enabled, if other disk drive devices sharing the same SCSI adapter require it. SCSI adapters that have jumper or switch options to simultaneously spin up disk drive motors should not have that function enabled. The staggered spin up feature within the disk sequences power to the disk drive motors one at a time. This sequencing avoids out-of-specification surges of power supply current that, under extreme conditions, could cause the supply to turn off.

**Table 1 Disk Drive Physical Data**

SBB Physical Data			
Disk Drive Model	RZ1BB	RZ1CB	RZ1DB
Height	51 mm/2.0 inches	51 mm/2.0 inches	51 mm/2.0 inches
Width	121 mm/4.8 inches	121 mm/4.8 inches	121 mm/4.8 inches
Length	216 mm/8.5 inches	216 mm/8.5 inches	216 mm/8.5 inches
Weight	0.6 Kg/1.32 lbs	0.63 Kg/1.38 lbs	0.95 Kg/2.10 lbs

**Table 2 Disk Drive Environmental Data**

Environmental	
Non-Operating:	
Temperature	-40 <sup>o</sup> C to +66 <sup>o</sup> C
Humidity (RH)	5% to 95%, noncondensing
Operating:	
Temperature	+5 <sup>o</sup> C to +50 <sup>o</sup> C
Humidity (RH)	8% to 80%, noncondensing
Shock	10 G peak half-sine 11 ms duration
Vibration	22–400 Hz @ 0.5 G

**Table 3 Disk Drive Power Requirements**

Power Requirements			
Disk Drive Model	RZ1BB	RZ1CB	RZ1DB
Seeking current (Max.)			
+5 Vdc +/-5%	.81 A	.81 A	0.91 A
+12 Vdc +/-5%	.85 A	.85 A	1.18 A
Power consumption: (Typical)			
Active	12.3 W	12.8 W	15.5 W
Idle	8.5 W	8.8 W	13.2 W

**Table 4 Disk Drive Logical configuration**

Logical Configuration			
Disk Drive Model	RZ1BB	RZ1CB	RZ1DB
# of read/write heads	16	20	20
Servo	Embedded	Embedded	Embedded
Formatted capacity	2.10	4.29	9.1 GB
Number of cylinders	3,045	3,708	5,273
Tracks per surface	3,045	3,708	5,273
Bytes/sector	512	512	512
Sectors/drive	4,110,479	8,380,079	17,773,523
Spin up Delay	4–12 Sec	4–12 Sec	4–12 Sec

## Application Notes

### Notes for Alpha Windows NT, Intel MS-DOS, Windows, WindowsNT, and Netware Users

There are no known special operating system-specific instructions regarding the use of this device.

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### Notes for DIGITAL Unix Users

The RZ1DB 9.1 GB Wide disk drive requires DIGITAL Unix operating software to be Version 3.2D or 4.0.

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### Notes for OpenVMS Users

The RZ1DB 9.1 GB Wide disk drive requires OpenVMS operating software to be at least Version 6.0 for OpenVMS VAX. OpenVMS Alpha users require Version 6.2.

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### Notes for HP Users

These disk drives require HP-UX version 10.20 or 11.00.

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### Notes for IBM AIX RS/6000 Users

After you have appropriately connected the drive to the SCSI bus, you can install the drive from the root account by using SMIT. Enter the following:

```
# smit dev
```

and then perform the following two steps:

1. Choose "Configure Devices Added After IPL" from the menu and then exit SMIT.
2. Execute either of the following selections, as applicable:
  - a. If you want to add the disk to a new volume group, enter:

```
smit vg
```

then choose:

**Add a Volume Group**” from the menu, and follow the normal procedures for this operation.

- b. If you want to add the disk to an already existing volume group, enter:

```
# smit lv
```

then choose:

**Add a Logical Volume**” from the menu, and follow the normal procedures for this operation.

As an alternative to using SMIT, you can use the following commands while logged into the root account:

1. # **cfgmgr**
2. # **lsdev -Cc disk**

Example:

```
# lsdev -Cc disk
hdisk1 Available 00-03-00-20 Other SCSI Disk Drive
```

3. Depending on whether :

- a. A new volume group is to be added:

- i. # **mkvg -f -y<newvg> -s<size> <new-disk>**
- ii. # **varyonvg <newvg>**

or

- b. The drive is added to an existing volume group:

```
#extendvg -f <oldvg> <new-disk>
```

where the angle-bracketed options are:

<newvg> is the volume group name to be added.

<oldvg> is an existing volume group.

<size> is the physical partition size (normally 4).

<new-disk> is the disk added, as identified by the *lsdev* command.

For additional help on these commands refer to the *man* pages.

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### Notes for SGI IRIX Users

SGI uses ID0 instead of ID7 for the initiator, therefore, ID0 cannot be used for a device ID. Your 16-bit I/O module has been delivered numbering device slots 0–7 with IDs 0–7 and must be changed if you want to use device slot 0.

With power OFF, remove the I/O module from the top of the pedestal and place it on a bench with the handles facing to the right. The 7 position SBB I/O module shelf address switch will be in the upper left hand corner of the I/O module. Switch 1 is on the right and switch 7 is on the left. As delivered, all switches should be depressed on the top (0) resulting in a shelf address setting of 000.

Following are a few suggested Single Bus, Single Shelf address settings:

Switch Setting	Slots						
	0	1	2	3	4	5	6
007	8	9	10	11	12	13	14
012	4	5	6	7	12	13	14

Other switch settings can be found in the *DIGITAL StorageWorks SBB Shelf I/O Modules User's Guide* (EK-SBBIO-UG. A01)

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## Notes for Solaris Users

*/etc/format.dat* information: Note that we designated a fixed *nsect* value, even though this banded drive allows a different number of sectors/track, depending on the radius of a given track. We determined this value by dividing the total number of blocks by the total number of heads, dividing that result by the total number of cylinders, and then rounding down the result to the next whole number. Some partition sizes also were selected to be consistent with the *newfs* command. (For example, we reduced the “g” partition to avoid truncation of the last cylinder group.) We recommend that you enter this information into your */etc/format.dat* file so that the data will be readily available for any possible future use:

```
disk_type = "DEC_RZ1BB-CA@DEC-LYJ0"
: ctlr = SCSI :
: ncyl = 2985 : acyl = 2 : pcyl = 2987 : nhead = 16 : nsect = 86 \
: rpm = 7200 :
For Solaris systems, the partition data is as follows:
partition = "DEC_RZ1BB" \
: disk = "DEC_RZ1BB" : ctlr = SCSI \
: 0 = 0, 132096 : 1 = 96, 262816 : 2 = 0, 4107360 : 6 = 287, 3712448
```

```
disk_type = "DEC_RZ1CB-CA@DEC-LYJ0"
: ctlr = SCSI :
: ncyl = 3706 : acyl = 2 : pcyl = 3708 : nhead = 20 : nsect = 113 \
: rpm = 7200 :
For Solaris systems, the partition data is as follows:
partition = "DEC_RZ1CB" \
: disk = "DEC_RZ1CB" : ctlr = SCSI \
: 0 = 0, 262160 : 1 = 116, 262160 : 2 = 0, 8375560 : 6 = 232, 7851240
```

```
disk_type = "DEC_RZ1DB-CA@DEC-LYJ0"
: ctlr = SCSI :
: ncyl = 5271 : acyl = 2 : pcyl = 5273 : nhead = 20 : nsect = 168 \
: rpm = 7200 :
For Solaris systems, the partition data is as follows:
partition = "DEC_RZ1DB" \
: disk = "DEC_RZ1DB" : ctlr = SCSI \
: 0 = 0, 265440 : 1 = 79, 265440 : 2 = 0, 17710560 : 6 = 158, 17179680
```

For Solaris systems, when the format utility is run, it automatically configures the disks by reading the disk firmware. However, it does not automatically write this label information onto the disk and the autoconfig label is slightly different from the label provided here.

Select the disk, then select the “type” option from the format command. Select the label number for the DEC\_RZ1DB. Finally, use the “label” option to write the label information onto the disk.

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