SWSD3-SD 2.10-GB 3.5-inch Disk Drive SBB For Sun™ Product Notes

StorageWorks™

Thank you for purchasing our SWSD3-SD StorageWorks Building Block (SBB). Please note that this drive is preformatted and pre-labled for Sun and is ready to go.

Overview of SWSD3-SD Drive:

This 3.5-inch drive has a formatted capacity of 2.10 GB. It features an average read seek time of 9.9 ms and an average latency of 5.5 ms, giving an average data-read access time of 15.4 ms (without cache). Similarly, average write seek time is 11.4 ms, yielding an average data write access time of 16.9 ms. The drive uses a banded recording technique to keep the bit density constant regardless of track radius, obtaining media transfer rates as high as 5.4 MB/s. This drive has a 256-KB segmented cache buffer to maximize the cache hit rate for sequential reads. The 256-KB cache can be optionally programmed into one to sixteen cache-area segments, with the size of these segments depending on how many are selected. The default program is set for three segments, each approximately 80 KB in size.

The SWSD3-SD drive also offers high data integrity, ensured by a 96-bit Reed-Solomon error correction code (ECC) and a 32-bit error detection code (EDC). ECC is performed "on the fly," when data is written to or read from the disk drive; this scheme will detect and correct a single 41-bit burst or two 17-bit bursts of defective data in a single block on the disk.

Other special features of note include:

- Asynchronous & synchronous data-transfer protocol
- Downloadable SCSI firmware
- Programmable sector size reallocation
- Tagged command queuing
- Background queue processing
- Self diagnostics
- 500,000-hour MTBF
- UL, CSA, and VDE standards
- Fast SCSI-2 interface

/etc/format.dat Information:

For your convenience, we have labeled this drive with a format utility, giving the drive traditional partitions, so that you can install this unit and get it up and running quickly. To do this, we used the following settings. 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 lower whole number. Some partition sizes also were selected to be consistent with the *newfs* command. (For example, the "g" partition was reduced to avoid truncation of the last cylinder group.) We recommend that you enter the applicable information into your */etc/format.dat* file at your earliest convenience so that the data will be readily available for any possible future use:

```
disk_type = "DEC_RZ28B" \
  : ctlr = SCSI : fmt_time = 5 \
  : ncyl = 3043 : acyl = 2 : pcyl = 3045 : nhead = 16 : nsect = 84 \
  : rpm = 5400 : bpt = 43008
```

For SunOS systems, the partition data is as follows:

```
partition = "DEC_RZ28B" \
  : disk = "DEC_RZ28B" : ctlr = SCSI \
  : a = 0, 64512 : b = 48, 196224 : c = 0, 4089792 : g = 194, 3827712
```

For Solaris systems, the partition data is as follows:

```
partition = "DEC_RZ28B" \
  : disk = "DEC_RZ28B" : ctlr = SCSI \
  : 0 = 0, 64512 : 1 = 48, 196224 : 2 = 0, 4089792 : 6 = 194, 3827712
```

SWSD3-SD Specifications:

Logical Configuration[†]	
Number of discs (platters)	8 (10 physical)
Number of read/write heads	16 (19 physical)
Servo	Dedicated
Formatted capacity	2,105 MB
Number of cylinders	3,045
Tracks per surface	3,045
Track capacity	30,720 to 61,440 bytes
Bytes/sector	512
Sectors/drive	4,110,480

Recording	
Track density	3,000 tpi
Bit density	50,000 bpi
Areal density	150 MB/in^2
Recording method	RLL (1,7)

| Environmental		
Non-Operating:		
Temperature	-40° C to 66° C	
Humidity (RH)	8% to 95%, noncondensing	
Operating:		
Temperature	5° C to 50° C	
Humidity (RH)	8% to 80%, noncondensing	
Shock	10 G half-sine 11 ms peak duration	
Vibration	22–400 Hz @ 1.0 G peak	

[†]The SWSD3-SD unit has been designed to have a logical configuration that is equivalent to that of the StorageWorks Model SWSD3-SB 2.1-GB drive, but physical construction of the hard-drive assembly may be different.

Performance		
Interface transfer rate:		
Synchronous (8-bit)	10 MB/s	
Asynchronous (8-bit)	5 MB/s	
Media transfer rate	3.4-5.4 MB/s	
Cache buffer	256 KB	
Track-to-track read seek (typical):	1 ms	

Physical	
Height	41.1 mm/1.62 inches
Width	101.6 mm/4.0 inches
Length	145.8 mm/5.74 inches
Weight	0.93 Kg/2.1 lbs

Power Requirements	
Seeking current:	
+5 Vdc +/-5%	1.0 A max.
+12 Vdc +/5%	1.0 A max.
Power consumption:	
Typical operations:	10.8 W
Idle	8.6 W

Figure 1 Disk Drive Status
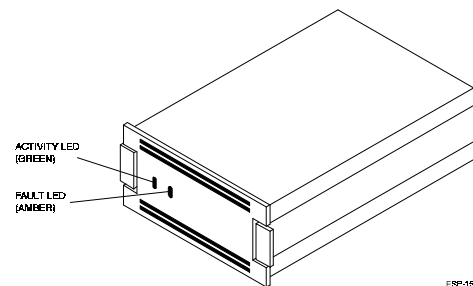
Power-On Test

Disk drive status is displayed by LEDs on the front of the storage device (Figure 1). Each LED has three states: *on, off,* and *flashing*. When the drive is powered on, verify the following normal operating LED status activity.

- The left LED (green) is a device-controlled activity LED and is on or flashing when the drive is active

- The right LED (amber) is the drive fault LED and indicates an error condition when either on or flashing.