SWXD3-SA 1.05-GB 3.5-Inch Disk Drive SBB Product Notes

Thank you for purchasing our SWXD3-SA StorageWorks Building Block (SBB), designed and manufactured by Digital Equipment Corporation. This 1.05-GB, 3.5-inch disk drive is compatible with SCSI-2 interface standards. It will function in many operating system environments — and is tested and approved for NOVELL NetWare™.

Overview of the SWXD3-SA Drive:

This 3.5-inch drive has a formatted capacity of 1.05 GB. It features an average seek time of 9.5 ms and an average latency of 5.6 ms, providing an average data-access time of 15.l ms. The drive has a 512-KB segmented cache buffer that maximizes the cache hit rate for sequential reads.

The SWXD3-SA drive also offers unsurpassed data integrity, featuring a 264-bit ECC technique that can correct up to 11 non-contiguous bytes per block. The drive layout ensures proper addressing by providing four separate copies of the header for each sector, along with embedded servo data for fine-tuning the head position. In addition, the drive electronics add end-to-end checksum error detection code (EDC) to the data to ensure the integrity of the data returning to the system bus.

Other special features of note include:

- Self diagnostics.
- Fast SCSI-2 interface.
- Tagged command queuing.
- Seek ordering.
- Zero-latency read and messages.
- Automatic sector reallocation.
- UL, CSA, and VDE standards.
- 250,000-hour MTBF.

SWXD3-SA Application Notes:

1. The SWXD3-SA 3.5-inch disk drive has been designed to be compatible with many data-storage applications. This SBB is ready to be used when attached to qualified Industry-standard SCSI Adapters and corresponding SCSI driver software.

2. The generic model number of the internal 3.5-inch disk drive is RZ26. The drive will identify itself as "DEC RZ26" when interrogated by the SCSI driver software.

3. Standard RZ26 units do not automatically supply voltage to the spindle motor when installed in a computer system, but instead must be switched on by the host computer. The SWXD3-SA has a modified turn-on circuit that automatically spins up the drive after a delay period which is a multiple of the applicable SCSI address for that drive, each eight seconds longer than the preceding one. This arrangement, required for operating systems that do not have a facility for motor spin-up, means that successive drives in an array automatically spin up following a staggered delay. This sequence avoids excessive loading of the power supply. If this automatic "spin up" feature of the disk drive must be disabled for a specific operating system that is not compatible with this feature, please contact your supplier for instructions. (Smilarly, please contact your supplier if you wish to reprogram the generic RZ26 drive for automatic spin-up operation.)

4. Some SCSI adapters provide options within the adapter set-up menu to allow automatic spin-up of the disk drive motor. Although the SWXD3-SA disk drive does not require it, this 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 SWXD3-SA sequences power to the disk drive motors one at a time. This sequencing avoids out-of-specification surges of power supply current, which under extreme conditions could cause the supply to turn off.

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SWXD3-SA Specifications:

Physical Configuration	
Number of discs (platters)	7
Number of read/write heads	14
Servo	Embedded
Unformatted capacity	1,372 MB
Formatted capacity	1,050 MB
Number of cylinders	2,570
Tracks per surface	2,570
Track capacity	29,696 bytes
Bytes/sector	512
Sectors/track	57
Sectors/drive	2,050,860

Recording	
Track density	2,756 tpi
Bit density	56,000 bpi
Areal density	153 MB/in^2
Recording method	RLL (1,7)

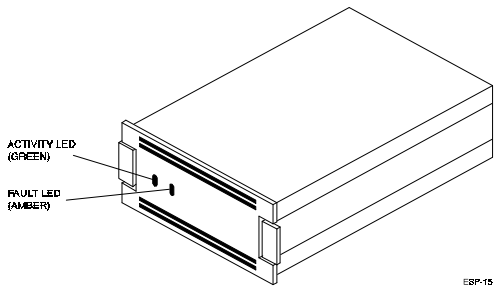
Physical	
Height	41.4 mm/1.63 inches
Width	101 mm/4.0 inches
Length	146 mm/5.75 inches
Weight	0.82 Kg/1.8 lbs

Power Requirements	Typ.
Seeking current:	
+5 Vdc +/-5% (typical)	0.71 A
+12 Vdc +/5% (typical)	0.85 A
Power consumption:	
Active (100% seeking)	13.7 W
Active (40% seeking)	12.2 W
Idle	11.2 W

Performance	
Interface transfer rate:	
Synchronous (8-bit)	10 MB/s
Asynchronous (8-bit)	5 MB/s
Media transfer rate	2.6 MB/s
Cache buffer	512 KB
Track-to-track seek:	1 ms

Environmental	
Non-Operating:	
Temperature	-40^o C to 66^o C
Humidity (RH)	8% to 95%, noncondensing
Operating:	
Temperature	5^o C to 55^o C
Humidity (RH)	10% to 90%, noncondensing
Shock	10 G peak half sine 10 ms duration
Vibration	22–500 Hz @ 0.5 G peak
Acoustics:	
Seeking	40 dBA @ 1.0 meter
Idle	33 dBA @ 1.0 meters

Figure 1 Disk Drive StatusLEDs



Power On Test

Disk drive status is displayed by two LEDs on the front of the storage device (Figure 1). Each LED has three states: *on, off,* or *flashing*. When the drive is powered on, both LEDs flash as a lamp test and then assume the following normal operating 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.