

5 1/4 INCH 4 GB HIGH-PERFORMANCE SCSI DISK DRIVE  
0664 MODELS CSH AND ESH

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AN OEM OFFERING FROM IBM

The 0664 Models CSH and ESH are the first 4 GB Direct Access Storage Devices in a 5 1/4-inch form factor. These models each contain two 0664 3 1/2-inch HDAs addressable as a single logical unit (LUN). Data striping across the two actuators, which are accessed in parallel, provides twice the data rate of a standard 5 1/4-inch drive. A high areal density and fast media data rate are made possible through the use of IBM's Magneto-Resistive Head Technology, coupled with the enhanced Partial Response Maximum Likelihood (PRML) channel with Digital Filter.

The 0664 utilizes an optimized striping algorithm to enhance performance. The size of the interleave can be specified in order to optimize to the operating system or application.

The 0664 is available with a SCSI-2 interface and supports both 50-pin Fast and 68-pin Fast & Wide connectors.

These drives provide an ideal solution for applications requiring high band-width and capacity in a standard 5 1/4-inch drive.

HIGHLIGHTS

- Fast SCSI-2 interface (Model CSH)
- Fast & Wide SCSI-2 interface (Model ESH - 68-pin P Cable)
- Dual striped actuators--programmable striping interleave
- Predictive Failure Analysis for increased reliability
- PRDF data channel (PRML with Digital Filter)
- Drive-supported SCSI term power
- LED driver supported
- 1 MB, multi-segmented, dual port data buffer
- Industry-standard mounting (5 1/4-inch form factor)
- Extremely small SCSI bus time utilization
- Command reordering
- Self-optimizing buffer ratios
- Read Ahead caching
- Automatic sector reallocation
- Spindle synchronization
- Automatic power management

PRODUCT DESCRIPTION

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5 1/4" 4.0 GB High Performance SCSI Disk Drives	0664 Model CSH	0664 Model ESH
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Disk Drive Configuration

Formatted Capacity (512 bytes)	4027 MB
Number of Disks	16
Number of Heads	32
Recording Surfaces	30
Tracks per Surface	2870
Tracks Density	3168 TPI
Areal Density	259 Mb/sq in
Recording Density	81913 BPI

Bytes per Sector	512 to 744	
Disk Type	Thin Film	
Channel	PRDF	
Actuator Type	Rotary VCM	
Head Type	Magneto-resistive (MR)	
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Performance		
Media Data Rate		
Non-Banded	5.22 MB/sec per actuator	
Access Times		
Average Read	9.4 ms	
Average Write	11.4 ms	
Track to Track Read	.6 ms	
Full Stroke Read	18.5 ms	
Rotational Speed	5400 RPM	
Command Overhead (Read)		
Random	0.28 ms	
Sequential w/Read Ahead	0.41 ms	
Data Transfer Rate (max)		
Synchronous	10 MB/sec	20 MB/sec
Asynchronous	5 MB/sec	10 MB/sec
Buffer Size	1 MB	
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Reliability		
MTBF	375,000 hours (1)	
Recoverable Read Errors		
Population Average	<10 in 10 to 11	
Non-Recoverable Read Errors		
Population Average	<10 in 10 to 15	
Seek Errors	<10 in 10 to 8	
Predictive Failure Analysis	Yes	
Buffer Memory Parity	Yes	
Longitudinal Redundancy	Yes	
Code (LRC)		
Preventive Maintenance	None	
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Power Requirements		
+5 VDC Idle	1.9 Amps (1)	
+5 VDC Standby	1.85 Amps	
+12 VDC Idle	1.1 Amps (1)	
+12 VDC Start-up	3.6 Amps (1)	
Power	23 Watts (1)	
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Physical Size		
Dimensions		
Length	209.5 mm	
Height	82.5 mm	
Width	146.0 mm	
Weight	2.0 kg	
Mounting	Industry Standard/All Orientations	
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Environmental Characteristics	Operating	Non-Operating
Temperature	5 to 55 degrees C	-40 to 65 degrees C
Relative Humidity		
Non-Condensing	8% to 80%	5% to 80%
Shock (11 ms)	10 G	60 G
Vibration	<Note 2>	2 G
Audible Noise		
(population average)		
(Idler)	<34 dba @ 1 M	NA
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- (1) Preliminary data.
- (2) File vibration levels are available upon request, values vary with frequency and orientation.

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