

INTEGRATION INFORMATION

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IBM OEM STORAGE PRODUCTS

DATA SHEET 0664002

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0664 Model M1H &amp; N1H

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2 GB Disk Drives  
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GENERAL INSTALLATION TIPS

## COOLING

This drive does require airflow in order to fulfill its reliability performance.

Please refer to Environmental section of the 0664 Enhanced Disk Drive product specification for full details of the maximum allowable temperatures and measurement points.

Operation at excessive temperatures will void the drive warranty.

A summary of the measurements is given on the back page of this data sheet.

## INTEGRATION INTO USING SYSTEM

- The drive's mounting frame is electrically isolated from the drive's disk enclosure.

The Disk Enclosure is not at Ground Potential

Any user mounting scheme must not result in the disk enclosure being sorted to ground. Drive malfunction will result if this occurs.

The correct length screws must be used.

## FAST SCSI

The ANSI SCSI committee recommend that fast SCSI devices (such as 0664) must have cable lengths of less than 3 metres and must use active terminators.

Active 50 & 60 pin single ended and differential terminators are available from Datamate and Amphenol.

## MODE SELECT PARAMETERS

One of the many advantages of the SCSI interface is the

provision of user-programmable (mode select) parameters to allow devices to be customized and optimized.

These parameters are fully described in the 0664 functional specification. Further advice is available from IBM OEM Technical Support.

#### COMPATIBILITY

- Testing should be carried out to ensure that the drive is fully compatible with the using system.

System BIOS, Operating System, Device drivers and interface card BIOS/characteristics can affect the ability to attach the drive to the system. All need to be verified jointly as compatible with the drive.

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| SCSI ATTACHMENT |  
| INFORMATION      |  
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#### SYNCHRONOUS DATA TRANSFER REQUESTS.

The drive initiates the negotiation for synchronous data transfer rate during the initialization sequence. (Synchronous Data transfer Request - SDTR). This may cause problems with some SCSI controller cards which do not conform to the ANSI SCSI specification. The drive synchronous data transfer request may be switched off by modifying the mode select parameters, PO, Byte 5, Bit 5. (Labelled in SCSI spec. as DSN bit).

The SCSI controller will then negotiate with the drive for the highest common bus speed.

#### IDLE TIME FUNCTIONS

The 0664 has advanced self-diagnostic features. If this is not supported in the specific application, the time taken to update the drive's internal status tables may cause problems especially in high speed or very long data transfers. Mode select PO Byte 5 Bit 0 (LITF) will disable the main idle time features when set to "1". (See functional specification).

#### ATTACHMENT TIPS -

Autostart Jumper is required for any adaptor or system that does NOT issue START UNIT commands, e.g. Adaptec 1542C.

#### Operating Systems -

DRDOS 6.0 does not support partitions >1GB  
UNIX Boot Partition limit usually 1024 cylinders

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| ATTACHMENT TO SPECIFIC SYSTEMS / SCSI CONTROLLERS |
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## PC - SCSI ADAPTERS

- The following SCSI Adapters have been evaluated with the 0664 drives on typical ISA/EISA platforms with a range of operating systems. Any limitations are noted below.

## ISA BUS ADAPTERS

ADAPTEC 154BS6 - ASPI4DOS reqd. for drives>1GB  
 ADAPTEC 1542C \*\*\*  
 BUSLOGIC BT545S  
 FUTURE DOMAIN TMC 885M AT Bus  
 FUTURE DOMAIN TMC 1660 SCSI-2  
 FUTURE DOMAIN TMC 1670 ISA/16  
 FUTURE DOMAIN TMC 1680 SCSI-2  
 FUTURE DOMAIN TMC 7000 FAST SCSI-ISA/16

\*\*\*: Enable>1GB support option for DOS/Windows  
 Disable for UNIX/NOVELL

## EISA BUS ADAPTERS

ADAPTEC 1720  
 ADAPTEC 1740A 32-bit EISA  
 ADAPTEC 1744 differential  
 DPT PM2012A/95 32-bit EISA - partition limit of 1GB  
 DPT PM2012A/90 - partition limit of 1 GB  
 FUTURE DOMAIN TMC7000EX 32-bit EISA  
 (partition limit of 512MB)

## MICROCHANNEL BUS ADAPTERS

ADAPTEC 1640  
 FUTURE DOMAIN MCS-600  
 FUTURE DOMAIN MCS-700-Partition limit 1 GB  
 IBM Spock Prime

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| DEC SYSTEMS |
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Platforms	DEC STATION 3100
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	DECVAXStation3100
	DECMicroVax3100
Operating System	VMX V5.5
	VMS V5.6

Note: Attachment to earlier versions of the VMS operating system is not possible.

Configuration Required:

Alter MODE SELECT Page 1, Byte 2 to '04'  
Alter MODE SELECT Page 7, Byte 2 to '04'

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Platforms          DEC STATION 3100
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                   DECVAXStation3100
                   DECMicroVax3100

Operating System(s)  Ultrix V4.1
                   Ultrix V4.2
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Configuration Required:

Disable SDTR as above - DSN bit in Mode Select

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Platforms          DEC STATION 5000
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Operating System(s)  Ultrix V4.1
                   Ultrix V4.2
```

Configuration Required:

No modifications to the drive are required. However it is necessary to modify the list of device types in the table of known drives contained in the 'usr/sys/data/scsi-data,c' system file as follows:

Change first line from  
/\*UNKNOWN DISK\*/to/\*IBM OEM\*/.

Following this change, the operating system kernel must be rebuilt (recompiled).

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| SUN SYSTEMS |
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Platform(s)        SUN SPARC STATION
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                   IPC ect.

Operating System    Sunos V4.1.2
                   Sunos V4.1.3 or later.
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Note: Attachment to earlier versions of operating system is not possible.

Some CPU boxes have inadequate cooling and internal clearances to allow internal installation of the 0664 drive - see cooling

requirements above.

If this drive is the boot device, the DSN bit must be set to 1.

Configuration Required:

The drive will attach with no changes. It is recommended that the FRDD bit is set, using mode select PAGE 0 BYTE 5 BIT 4.

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DEVICE PARAMETER SETTINGS DECLARED TO SYSTEM:

The system will accept a wide range of settings provided these do not result in the total number of data sectors declared (Data Cylinders x Heads x Sectors per track) exceeding the number available on the drive.

One set of parameters which work and give a close system estimate of formatting time is:

Cylinders : 3567  
 Alt. Cylinders : 2  
 Heads : 19  
 Sectors : 58  
 RPM : 5400

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HP Systems

Platforms	HEWLETT PACKARD ----- HP9000-710 etc
Operating System(s)	Proprietary (supplied with platform)
Configuration Required:	Disable SDTR as above - DSN Bit in Mode Select

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APPLE SYSTEMS

	APPLE -----
Platforms	MAC/QUADRA
Operating System(s)	Proprietary (supplied with platform)
Configuration Required:	

A special version of 0664 is available for attachment to MAC/Quadra systems. This has the first Unit Attention after reset disabled (as required by the Apple SCSI implementation) to allow installation as the boot drive.

A standard drive may be attached as a non-boot device using third party device drivers such as Software Architects and Macpeak products.

All trademarks are acknowledged.

This information is provided for the use of OEM Manufacturers attaching IBM disk drives & is believed to be accurate but is supplied without guarantee.