TOSHIBA STORAGE DEVICE DIVISION
2.5" HDD SERIES INSTALLATION NOTES - 9.5mm GAS Series
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GENERAL DESCRIPTION

Toshiba's 2.5" Hard Disk Drive 9.5mm GAS series, HDDXXXX, comprise a series of fast, high-capacity 2.5" Winchester disk drives which comply with ATA-5 standards and require only a simple adapter board for interfacing to standard IDE cables.

SPECIFICATIONS	MK3021 GAS	MK4021 GAS	MK6021 GAS	MK1031 GAS	MK2023 GAS
	HDD2181	HDD2182	HDD2183	HDD2A02	HDD2187
Formatted Capacity	30.00GB	40.00GB	60.00GB	100.030	20.003
Height	9.5mm	9.5mm	9.5mm	9.5mm	9.5mm
No. of Disks (platters)	1	2	2	2	1
No. of Data Heads	2	3	4	4	2
SPECIFICATIONS	**MK8025 GAS**	**MK6025 GAS**	**MK4025 GAS**	**MK3025 GAS**	
	HDD2188	HDD2189	HDD2190	HDD2196	
Formatted Capacity	80.012	60.00GB	40.007GB	30.006GB	
Height	9.5mm	9.5mm	9.5mm	9.5mm	
No. of Disks (platters)	2	2	1	1	
No. of Data Heads	4	4	2	2	

FUNCTIONAL SPECIFICATION

Logical Drive Parameters	MK3021 GAS	MK4021 GAS	MK6021 GAS	MK1031 GAS	MK2023 GAS
	HDD2181	HDD2182	HDD2183	HDD2A02	HDD2187
No. of Cylinders (user)	47,080	47,080	47,080	69,840	34,040
Bytes per Sector	512	512	512	512	512
LBA Sectors	58,605,120	78,140,160	117,210,240	195,371,568	39,070,080
Buffer Size (KBYTES)	2048	2048	2048	8,192	2048
Rotation Speed (±.1%)	4200	4200	4200	4,200	4200
Transfer Rate	154.3 –	154.3 –	154.3 –	170.0 –	164.6 –
Internal (MBITS/sec)	298.0	298.0	298.0	373.0	257.1
No. of Cylinders(logical)	16,383	16,383	16,383	16383	16383
No. of Heads	16	16	16	16	16
No. of sec./Track	63	63	63	63	63
PIO/Ultra DMA (MBITS/sec)	16.6/100	16.6/100	16.6/100	16.6/100	16.6/100
Seek Time (MSEC.)					
Average	12	12	12	12	12
Track-to-track	2	2	2	2	2
Maximum	22	22	22	22	22

Logical Drive	MK8025 GAS	MK6025 GAS	MK4025 GAS	MK3025 GAS
HDD2187	HDD2188	HDD2189	HDD2190	HDD2196
No. of Cylinders (user)	54,000	42,480	54,000	42,480
Bytes per Sector	512	512	512	512
LBA Sectors	156,301,488	117,210,240	78,140,160	58,605,120
Buffer Size (KBYTES)	8,192	8,192	8,192	8192
Rotation Speed (±.1%)	4200	4200	4,200	4,200
Transfer Rate	175.0 –	201.6 –	175.0 –	201.6 –
Internal (MBITS/sec.)	341.7	307.5	341.7	307.5
No. of Cylinders (logical)	16,383	16,383	16,383	16,393
No. of Heads	16	16	16	16
No. of sec./Track	63	63	63	63
PIO/Ultra DMA (MBITS/sec.)	16.6/100	16.1	16.6/100	16.6/100
Seek Time (MSEC.)				
Average	12	12	12	12
Track-to-track	2	2	2	2
Maximum	22	22	22	22

UNPACKING PROCEDURE

Visually inspect the shipping container prior to unpacking for any signs of damage to the container or its contents (the carrier is responsible for any damage incurred during shipment). The drive is a precision device and even a small drop onto any surface can cause damage. Prior to opening the anti-static bag, it is recommended that the user ground himself with a ground strap or by touching the PC chassis or other metal object. Remove the drive from the anti-static bag and check it for damage. Place the drive on the anti-static bag while configuring jumpers to avoid any electrostatic discharge. Save the shipping container and packing material for possible use later.

DRIVE CONFIGURATION

Toshiba's 2.5" hard disk drives can be configured as either master or slave units. Master configuration is used for all single drive applications, and master or slave configuration (only one of each per port) is used for two drive applications. Use the information in the following table before setting M/S drive.

Master configuration is obtained by setting jumpers B, C & D open (no jumper). Slave configuration is obtained by setting jumpers C-D. When B-D jumper is installed, the drive is configured as cable select. If pin 28 = Low, the drive is master. If pin 28 = High, the drive is slave.
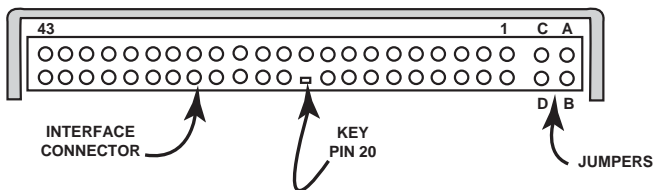
FIGURE 1 – 2.5" HDD JUMPER LOCATIONS

JUMPER	P28	DRIVE
No Jumper	-	Master Drive
C-D Jumper	-	Slave Drive
B-D Jumper	LOW	Master Drive
B-D Jumper	HIGH	Slave Drive
A-B Jumper	-	Slave Drive/
A-C Jumper	-	Prohibit

FIGURE 2 – MOUNTING HOLE LOCATIONS

INSTALLATION INSTRUCTIONS

Note: Toshiba's 2.5" HDDs are primarily used in notebook devices. Installation into a notebook varies depending on the system manufacturer. Toshiba's 2.5" drives that are installed into a desktop PC require a 3.5" installation kit.

1. Determine mounting configuration (can be mounted in either a horizontal or vertical orientation).
2. Configure drive for system application.
3. Configure the adapter board for the specific system application (if required).
4. Install the I/F cable to the System's 44 pin connector port or adapter board. Ensure Pin 1 is oriented correctly. (Pin 1 on the cable is usually identified by a red or blue stripe.)
5. Refer to applicable manuals for software installation instructions.

CABLING INFORMATION

DRIVE INTERFACE SIGNALS			
PIN	SIGNAL	PIN	SIGNAL
1	-RESET	2	GROUND
3	DD 7	4	DD 8
5	DD 6	6	DD 9
7	DD 5	8	DD 10
9	DD 4	10	DD 11
11	DD 3	12	DD 12
13	DD 2	14	DD 13
15	DD 1	16	DD 14
17	DD 0	18	DD 15
19	GROUND	20	KEY
21	DMARQ	22	GROUND
23	-DIOW STOP	24	GROUND
25	-DIOR -DMARDY HSTROBE	26	GROUND
27	IORDY -DMARDY -DSTROBE	28	CSEL
29	-DMACK	30	GROUND
31	INTRQ	32	- IOCS16
33	DA1	34	- PDIAG
35	DA0	36	DA 2
37	- CS0	38	- CS1
39	- DASP	40	GROUND
41	+5V (LOGIC)	42	+5V (MOTOR)
43	GROUND	44	RESERVED

Note: Symbol (–) in front of signal indicates negative logic.

TECHNICAL SUPPORT

Should you require technical support, contact your computer distributor. If your distributor is unable to answer your questions, have them call Toshiba Storage Device Division Technical Support, on your behalf.

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You can also visit Toshiba's web site at: http://www.sdd.toshiba.com

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