Radio Frequency Interference Statement

This Western Digital product has been certified to comply with limits for a Class B computing device pursuant to Subpart J of Part 15 of F.C.C. Rules.

This does not guarantee that interference will not occur in individual installations. Western Digital is not responsible for any television, radio, or other interference caused by unauthorized modifications of this product.

If interference problems do occur, please consult the system equipment owner's manual for suggestions. Some of these suggestions include relocation of the computer system away from the television or radio, or placing the AC power connection on a different circuit or outlet.

The product was tested with a shielded interconnecting cable; therefore, a shielded cable is required to be used with this product.

If you require further information or other technical support, please contact your authorized dealer:

Doc. No. 79-000270

Western Digital
2445 McCabe Way
Irvine, California 92714
(800) 847-6181 (714) 863-0102
FAX (714) 660-4909 TLX 910-595-1139

WD1900S 5/88 20M

USER'S GUIDE

WD1002A-FOX Diskette/Floppytape Controller

Important Information
Do Not Discard

WESTERN DIGITAL

Product Description

Western Digital's WD1002A-FOX (FOX) diskette/floppytape controller is compatible with an IBM* Personal Computer XT* or IBM Personal Computer AT.* Designed for ease of integration, the WD1002A-FOX features Western Digital's proprietary LSI device, the WD37C65, and an optional Basic Input/Output System (BIOS) ROM. The WD37C65 performs all drive control functions. An optional BIOS ROM allows XT and XT-compatible systems to support 1.2 or 1.44 diskette drives. Included on the controller board are all of the necessary drivers and receivers for direct attachment of four drives (maximum). J1 is a 34-pin diskette drive control and data connector. J2 is an optional 37-pin control, data, and power connector for external diskette or floppytape drives. J3, an optional 4-pin connector, supplies power for external drives.

Four versions of the WD1002A-FOX are available:

Feature 001 (F001): Supports two drives, no J2, no J3, no BIOS.

Feature 002 (F002): Supports four drives (two internal, two external), J2, J3, no BIOS.

Feature 003 (F003): Supports two drives, no J2, no J3, BIOS.

Feature 004 (F004): Supports four drives (two internal, two external), J2, J3, BIOS.

Requirements

Observe the three following guidelines for the WD1002A-FOX:

1. Verify that the system BIOS supports the drive type. The FOX BIOS supplies the system with the proper drive type if the system BIOS does not support the drive type. For example, F003 or F004 would allow you to install 720 KB, 1.2 MB, or 1.44 MB drives in XT or XT-compatible systems. Refer to Table 1 for further information on drive type support.

2. Use of DOS 3.3 is recommended. Older versions of DOS can support your drive. Refer Table 1 for further details. Use of DRIVER.SYS (or other appropriate device driver) is necessary for external drives. Refer to the DOS user's guide manual for use of DRIVER.SYS and drive parameters. Make sure that your version of DRIVER.SYS supports 15 (or 18 sectors) if you install 1.2 MB (or 1.44 MB) drives.

*IBM and AT are registered trademarks and XT is a trademark of International Business Machines Corporation.

Requirements (Cont'd.)

3. There are several types of 1.44 MB drives available. The WD1002A-FOX only supports "intelligent" 1.44 MB drives. These intelligent drives determine the drive type and data rate from the drive's media and do not depend upon the state of J1 (or J2) pin 2 for this information. Check the drive's documentation to discover if pin 2 is used.

TABLE 1. REQUIREMENTS

SYSTEM DRIVE LOCATION	360 KB	720 KB	1.2 MB	1.44 MB
F001				
XT				
Internal 2 drives	S	N	N	N
AT[1]				
Internal 2 drives	S	S DOS 3.2	S DOS 3.1	S DOS 3.3
F002				
XT				
Internal 2 drives	S	N	N	N
XT				
External 2 drives	S	N	N	N
AT[1]				
Internal 2 drives	S	S DOS 3.2	S DOS 3.1	S DOS 3.3
AT[1]				
External 2 drives	S	S DOS 3.2	S DOS 3.1	S DOS 3.3

S: Supported

N: Not supported

[1]Run SET UP program (or equivalent) when installing in an AT (or AT-compatible). Verify that the system BIOS supports the drive type before running SET UP. If the system BIOS does not support the drive type, then F003 or F004 with FOX BIOS must be used.

TABLE 1. REQUIREMENTS (CONT'D.)

F003				
XT				
Internal 2 drives	S	S DOS 3.2	S DOS 3.1	S DOS 3.3
AT[1]				
Internal 2 drives	S	S DOS 3.2	S DOS 3.1	S DOS 3.3
F004				
XT				
Internal 2 drives	S	S DOS 3.2	S DOS 3.1	S DOS 3.3
XT				
External 2 drives	S	S DOS 3.2	S DOS 3.1	S DOS 3.3
AT[1]				
Internal 2 drives	S	S DOS 3.2	S DOS 3.1	S DOS 3.3
AT[1]				
External 2 drives	S	S DOS 3.2	S DOS 3.1	S DOS 3.3

S: Supported

N: Not supported

[1]Run SET UP program (or equivalent) when installing in an AT (or AT-compatible). Verify that the system BIOS supports the drive type before running SET UP. If the system BIOS does not support the drive type, then F003 or F004 with FOX BIOS must be used.

Installation

This section briefly describes the installation of the controller board. If the drive(s) is (are) installed internally, it is best to locate the FOX controller board in the closest available expansion slot to the internal drive. However, expansion slot J8 in the IBM Personal Computer XT should not be used because of the slot's modified select and timing characteristics.

CAUTION

Handle the controller board by the ends of the board or bracket. Some of the chips are static sensitive and damage may occur if the board is incorrectly handled.

Installation of an external floppy diskette or floppytape in an older host system with a 63 watt power supply may require replacing the 63 watt power supply with a 135 watt power supply. Contact your dealer for further assistance. A 135 watt power supply is not necessary if the drive uses an external power source.

Installation (Cont'd.)

Installation of a FOX supporting 720 KB, 1.2 MB, or 1.44 MB diskette drives in an IBM Personal Computer XT requires a FOX BIOS ROM (U14: P/N 62-000105-001). A FOX BIOS is not necessary for operation in AT or AT-compatible systems. Refer to Table 1 on pages 2 and 3 for more information.

Installation of a FOX in the IBM Personal Computer AT with a 1981-1984 BIOS ROM requires a hard disk controller in the system. This is a restriction caused by the AT system BIOS checking for a hard disk controller before booting the system. The 1985 AT BIOS does NOT require a hard disk controller. AT-compatible systems may or may not follow this requirement. Consult your system technical manuals for information on this requirement.

Verify the jumper settings on the controller board. Only verify the settings. Modification of the factory settings is rarely necessary. Refer to Table 2 for the proper jumper settings. Figure 2 illustrates the jumper locations for the WD1002A-FOX.

Next, remove the blank expansion slot bracket. Put the bracket away and save it for possible future use. The screw will be used to hold the new controller board in place.

Connect the 34-pin connector to J1 on the controller. Make sure that pin 1 of the cable connector mates to pin 1 on the controller board. Pin 1 of the cable connector is typically located on the color coded side of the cable.

For external diskette drives or floppytape drives, connect the 37-pin connector to J2 on the F002 or F004 controller boards. Make sure that pin 1 on the cable is connected to pin on the controller board.

Connect the system's 4-pin power connector to J3. Make sure that pin on the cable connector mates to J3 pin 1.

At this time, also verify that the diskette drive(s) is (are) properly installed. This includes correct placement of drive select jumpers and drive terminator installation. Refer to the drive installation manual for further information.

Install the controller board into the expansion slot. Make sure the board is seated properly by pressing down on both ends of the board. Secure the board with the bracket screw.

Installation (Cont'd.)

CAUTION

When routing the cables, be careful not to pinch them. Cables must not get caught between the cover and the boards, nor should they obstruct any air flow path from fans or vents.

Install the drive(s) per manufacturer's instructions.

You may turn on system power and boot the system normally.

TABLE 2. JUMPER SETTINGS

W1 THROUGH W8		
JUMPER	PIN CONNECTS	DESCRIPTION
W1		High density or ground return for external drive connector.
	1-2	High density to J2 pins 2 and 3
	2-3	Ground return J2 pins 2 and 3.
W2, W3		BIOS ROM address range select.
	W2: 2-3 W3: 2-3	EE000 thru EFFFF
	W2: 2-3 W3: 1-2	CE000 thru CFFFF
	W2: 1-2 W3: 2-3	EC000 thru EDFFF
	W2: 1-2 W3: 1-2	CC000 thru CDFFF
W4		Primary/secondary I/O address select.
	1-2	Secondary addresses, 328-32B
	2-3	Primary addresses, 320-323
W5		Optional +5V to external drive connector.
	1-2	+5V to J2 pin 4
	2-3	No connection. Storage position only.
W6		Optional +12V to external drive connector.
	1-2	+12V to J2 pin 1
	2-3	No connection. Storage position only.
W7		Dual speed spindle support.
	1-2	Supports dual speed drives.
W8		Chassis ground option.
	1-2	Connects logic ground to chassis ground.

All addresses in Table 2 are in hex.

TABLE 2. JUMPER SETTINGS (CONT'D.)

SW1-		
1,3,5,7	2,4,6,8	DRIVE TYPE
OFF	OFF	360 KB
OFF	ON	1.2 MB
ON	OFF	720 KB
ON	ON	1.44 MB
	First drive: SW1-1 and SW1-2	
	Second drive: SW1-3 and SW1-4	
	Third drive: SW1-5 and SW1-6	
	Fourth drive: SW1-7 and SW1-8	

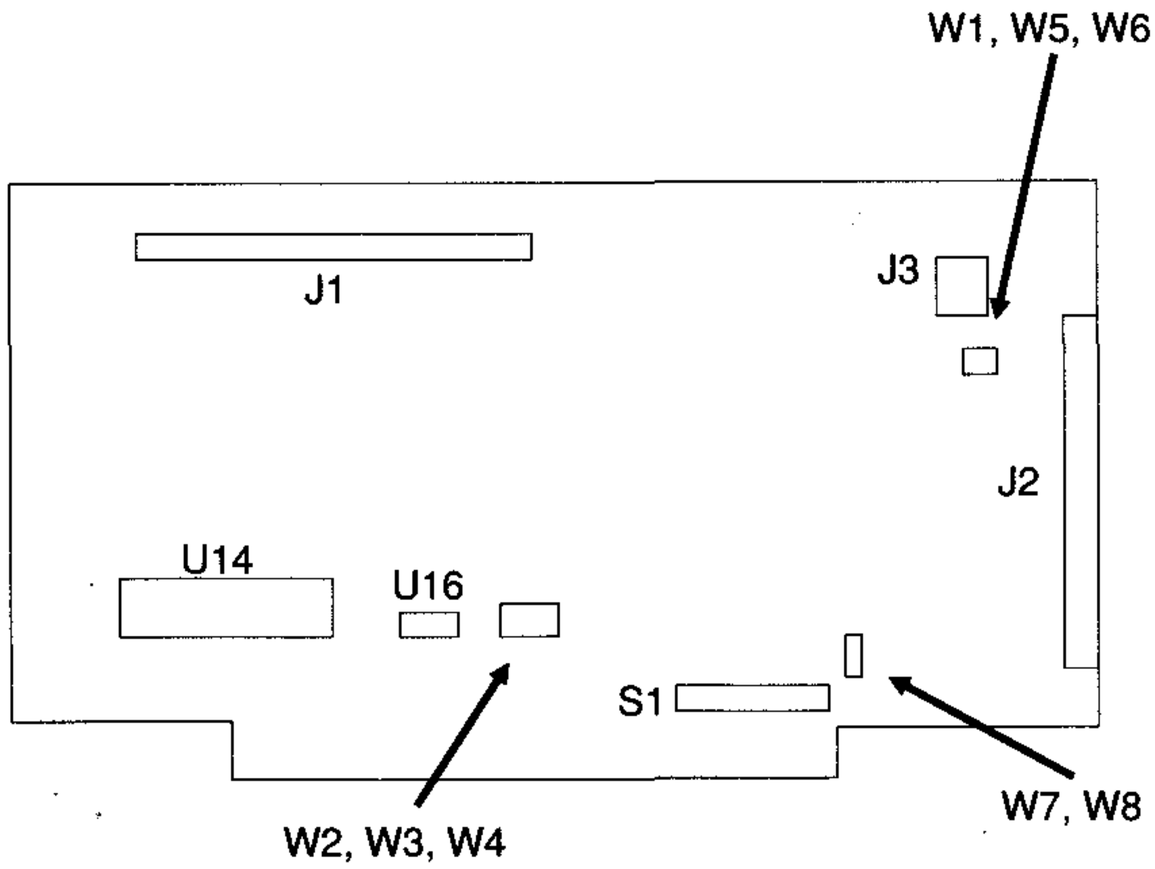

FIGURE 1. JUMPER LOCATIONS