



AHA-1540 User's Manual

AT-to-SCSI Host Adapter

Section Three

Installation

3.1 UNPACKING AND INSPECTION

The carrier is responsible for damage incurred during shipment. In case of damage, have the carrier note the damage on both the delivery receipt and the freight bill, then notify your freight company representative so that the necessary insurance claims can be initiated.

After opening the shipping container, use the packing slip to verify receipt of the individual items listed on the slip. Retain the shipping container and packing material for possible later reuse should return of the equipment to the factory necessary.

NOTE: The AHA-1540, like all electronic equipment is static sensitive. Please take the proper precautions when handling the board. Keep the board in its conductive wrapping until it is configured and ready to be installed in your system.

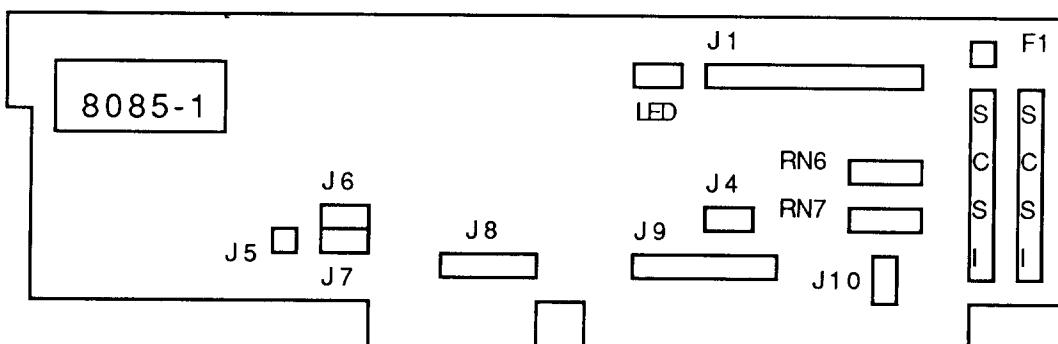
3.2 INSTALLATION

The following section details the installation procedure for the Adaptec AHA-1540 AT to SCSI host adapter. The installation of the board consists of setting the various on-board jumpers, inserting the board into a full-length AT compatible connector, and connecting a SCSI cable from the on-board connector to a SCSI target.

NOTE: The system must be turned off during the installation procedure.

The following diagram shows the approximate location of the various customer configurable items on the AHA-1540. Listed after the diagram are the functions of each item.

Jumper locations:



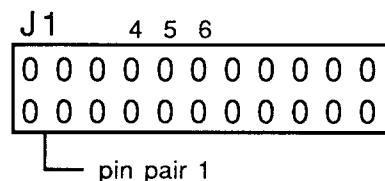
3.2.1 SCSI Jumper Configuration

Jumper set J1, pin pairs 4, 5 and 6, defines the SCSI address. The SCSI address consists of pin pairs 4, 5, and 6 in the large block of jumper pins located in the upper right hand corner of the PCB. Pin pair 1 is the left most pair of pins. The SCSI address is selected according to the following table. **The default address is 7.**

SCSI Address Jumpers

Pin	Pair		SCSI Address
4	5	6	
X	X	X	0
-	X	X	1
X	-	X	2
-	-	X	3
X	X	-	4
-	X	-	5
X	-	-	6
-	-	-	7

X = Jumper Installed



3.2.2 SCSI Parity

Jumper set J1, pin pair 3, is the parity enable/disable jumper. The SCSI parity jumper, pin pair 3 is located in the large block of jumper pins located in the upper right hand corner of the PCB. Pin pair 1 is the left most pair of pins. The SCSI parity checking is disabled if this jumper is installed. **The default is parity checking enabled.**

3.2.3 SCSI Terminators

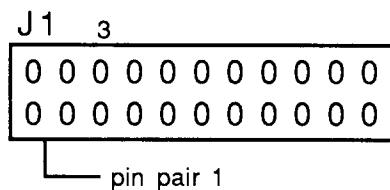
RN6 and RN7 are the SCSI terminators. If the AHA-1540 is not the first or the last SCSI device in a string of SCSI devices, or if in-line terminators are used, then both of these resistor networks must be removed. **Default is terminators installed.**

3.2.4 SCSI Terminator Power

Fuse, F1, controls the terminator power. If another SCSI device is supplying terminator power, then F1 may optionally be removed. No more than 5 SCSI devices should be configured to supply terminator power to a single SCSI bus. **Default is F1 installed** with the AHA-1540 supplying the terminator power.

3.2.5 SCSI Synchronous Negotiation

Jumper set J1, pin pair 1, is the synchronous negotiation enable jumper. This jumper set consists of pin pair 1 in the large block of jumper pins in the upper right hand corner of the printed circuit board. Pin pair 1 is the leftmost pair of pins.



The AHA-1540 will initiate SCSI synchronous negotiation during initialization or after a SCSI reset if this jumper is installed. If the jumper is not installed, the AHA-1540 will still support synchronous SCSI transfers, but the target must initiate the negotiation. **Default is jumper removed, synchronous negotiation initiation disabled.**

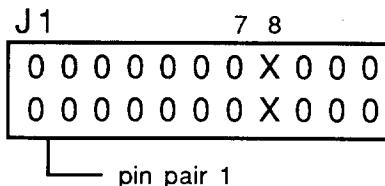
3.3 AT CONFIGURATION

3.3.1 DMA Channel Selection

There are three jumper blocks involved in selecting the DMA channel. These are J1, J6, and J7. The DMA channel selection jumpers consist of pin pairs 7 and 8 located in the large block of jumper pins in the upper right hand corner of the PCB. Pin pair 1 is the left most pair of pins. The DMA channel reported to the AT during the Return Configuration command is set by these jumpers according to the following table. **Default is DMA channel 5.**

DMA Channel Jumpers		
Pin	Pair	DMA Channel
7	8	
X	X	0
-	X	5
X	-	6
-	-	7

X = Jumper Installed



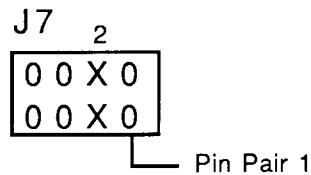
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Jumper set J7 selects the DMA ACK signal to be used by the AHA-1540. This jumper set is located near the left corner of the small AT bus connector. Pin pair 1 is the right most set of pins. **Default is DMA Acknowledge 5.**

DMA ACK Jumpers				
Pin Pair			DMA Channel	
4	3	2	1	
-	-	-	X	0
-	-	X	-	5
-	X	-	-	6
X	-	-	-	7

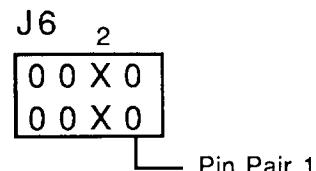
X = Jumper Installed



Jumper set J6 selects the DMA REQ signal to be used by the AHA-1540. This jumper set is located near the left corner of the small AT bus connector. Pin pair 1 is the right most pair of pins. **The default is DMA Request 5.**

DMA REQ Jumpers				
Pin Pair			DMA Channel	
4	3	2	1	
-	-	-	X	0
-	-	X	-	5
-	X	-	-	6
X	-	-	-	7

X = Jumper Installed



3.3.2 AT Interrupt Channel

There are two jumper blocks involved in selecting the AT interrupt channel. These are J1 and J8. The AT interrupt channel jumpers consist of pin pairs 9, 10, and 11 in the large block of jumper pin pairs located in the upper right hand corner of the PCB. Pin pair 1 is the left most pair of pins. The interrupt channel reported to the AT during the Return Configuration Command is set by these jumpers according to the following table. **The default is interrupt channel 11.**

AT Interrupt Channel			Interrupt Channel
9	10	11	
X	X	X	Not Defined
-	X	X	Not Defined
X	-	X	15
-	-	X	14
X	X	-	12
-	X	-	11
X	-	-	10
-	-	-	9

x = Jumper Installed

J1	9 10 11
0 0 0 0 0 0 0 0 X 0	
0 0 0 0 0 0 0 0 X 0	

pin pair 1

Jumper set J8 selects the AT interrupt channel to be used by the AHA-1540. This jumper set is located just above the small AT bus connector. Pin pair 1 is the right most pair of pins. The interrupt channel used is set according to the following table. **The default interrupt channel is 11.**

AT Interrupt Channel							Interrupt Channel
6	5	4	3	2	1		
-	-	-	-	-	-	X	9
-	-	-	-	-	X	-	10
-	-	-	X	-	-	-	11
-	-	X	-	-	-	-	12
-	X	-	-	-	-	-	14
X	-	-	-	-	-	-	15

X = Jumper Installed

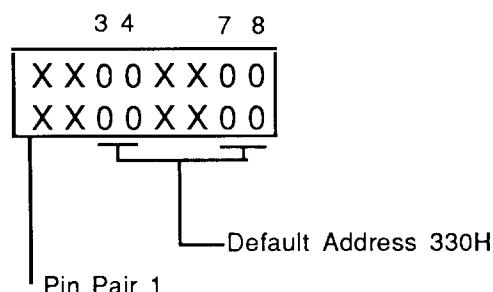
J8	3
0 0 0 X 0 0	
0 0 0 X 0 0	

Pin Pair 1

3.3.3 AT Port Address

The starting address of the block of four I/O ports required by the AHA-1540 is selected by the jumpers in jumper block J9. This jumper set is located just above the left corner of the large AT bus connector. Pin pair 1 is the left most pair of pins. The default address is 0330H and must not be changed unless a new BIOS is supplied. The port address is coded in the BIOS and must match. Valid port addresses are 334H, 330H, 234H, 230H, 134H, and 130. **The default address is 330H.**

Port Address	
Pin Pair	Port I/O Address Bit
LSB	
1	004H
2	008H
3	010H
4	020H
5	040H
6	080H
7	100H
MSB	
8	200H

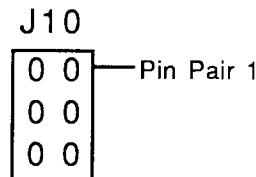


X = Jumper Installed, Jumper Deasserts the Address Bit.
 Valid Addresses Are: 334, 330, 234, 230, 134, 130

3.3.4 AT BIOS Address

The starting address of the block of address space reserved for the Adaptec BIOS is selected by the jumper pins located in J10. This jumper set is located just above the large AT bus connector. **The default address is ODC000H.** This address must not conflict with any other BIOS in the system.

AT BIOS Address			
Pin Pair			BIOS Address
1	2	3	
X	-	X	0C8000H
-	-	X	0D8000H
X	-	-	0CC000H
-	-	-	0DC000H



X = Jumper Installed

3.3.5 AT BIOS Wait State

Accesses to the Adaptec BIOS can have one wait state added by installing the jumper located at J4. This jumper set is located to the left of the SCSI terminator RN7. **The default is no wait state.**

3.3.6 Reserved Jumpers

The jumper, pin pair 2 located in jumper block J1, is reserved for Adaptec use only and must not have any jumper shunts installed. If this jumper is installed, normal operation is prevented. **Default is no jumper installed.**

3.3.7 LA Enable Jumper

Note: Some computers, especially 80386 based machines, short address lines LA17 and SA17, LA18 and SA18, and LA19 and SA19 together. If your computer system shorts these lines then remove jumper J5. Default is jumper installed.

Warning: Incorrect installation of this jumper may not result in immediate system problems. If it is necessary to change the state of this jumper after the system has been configured, the SCSI hard disk must also be re-formatted. Contact your system manufacturer if in doubt on how your system implements these address lines.