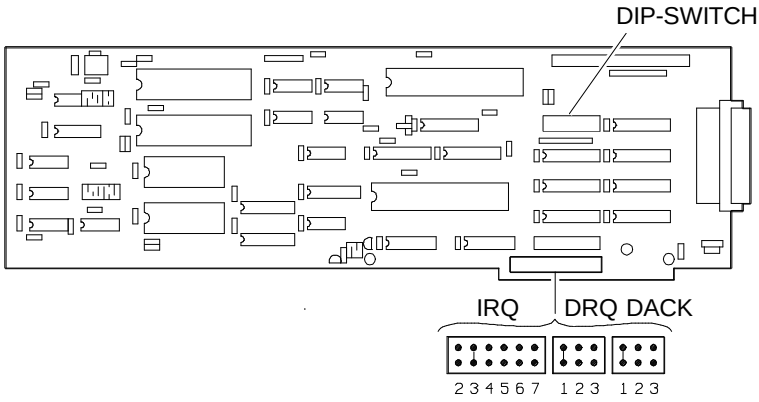
GO718/GO725 STREAMING TAPE CONTROLLER BOARD

GO718 60 MB Streaming Tape controller
GO725 60 MB and 125 MB Streaming Tape controller



BDP7A

JUMPERS

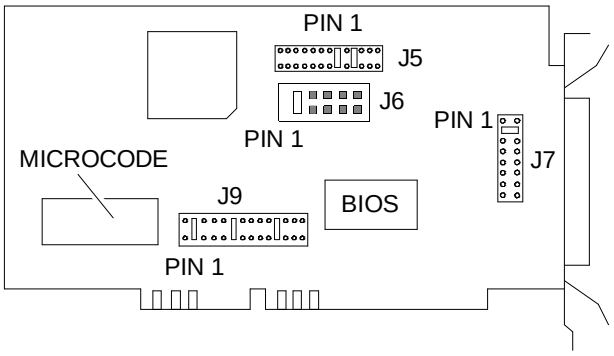
JUMP.	POSITION	FUNCTION
DRQ/DACK	DMA channel selection Channel 1 Channel 3 Channel 1	 DRQ = 1 DACK = 1 For MS DOS S.O. DRQ = 3 DACK = 3 For THEOS S.O. DRQ = 1 DACK = 1 For XENIX SCO - OS/2 S.O.
IRQ	Interrupt level selection Level 3 Level 3 Level 5	 IRQ 3 For MS DOS S.O. IRQ 3 For THEOS S.O. IRQ 5 For XENIX SCO - OS/2 S.O.
W1	IN	Enables the software RESET *
W2 W3	IN OUT OUT IN	Memory Buffer 2 KB GO718 Memory Buffer 4 or 8 KB GO725
W4	OUT IN	Control for threshold selection * External control for threshold selection
W5	OUT IN	9 - track format * 12 - track format
W6 W7	IN OUT OUT IN	PLL oscillator clock source * PLL oscillator test
W8	OUT IN	Normal * Pull-up for line DS3 of the interface connector
W9	OUT IN	Normal * Externally generated coercion signal
W10	OUT IN	Logic ground connected to frame Logic ground not connected to frame *

DIP-SWITCH SW1

* Default Position

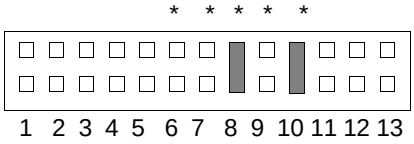
1	2	3	4	5	6	7	8	9	10	FUNCTION
ON	ON	ON	ON	ON	ON	ON	ON	ON	OFF	I/O address 000
ON	ON	ON	ON	OFF	ON	ON	ON	OFF	OFF	I/O address 220
ON	ON	OFF	ON	ON	ON	OFF	ON	OFF	OFF	I/O address 288 MS DOS - XENIX
ON	ON	ON	ON	ON	ON	ON	OFF	OFF	OFF	I/O address 300
ON	ON	OFF	OFF	OFF	ON	ON	OFF	OFF	OFF	I/O address 338 THEOS-XENIX SCO

ASC-1 INTERFACE BOARD



BK09A

JUMPER BLOCK J5



Default settings shown in this figure

PIN 1

OUT	Synchronous transfer disabled
IN	Synchronous transfer enabled

PIN 2

OUT	SCSI parity checking enabled
IN	SCSI parity checking disabled

PIN 4, 5, 6 SCSI address

4	5	6	ADDRESS
OUT	OUT	OUT	7 Default
IN	OUT	OUT	6
OUT	IN	OUT	5
IN	IN	OUT	4
OUT	OUT	IN	3
IN	OUT	IN	2
OUT	IN	IN	1
IN	IN	IN	0

PIN 7, 8 DMA channels

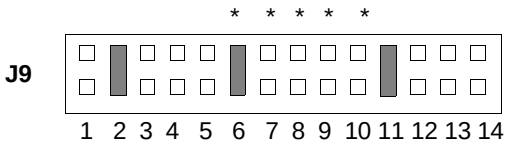
7	8	DMA CHANNEL
OUT	OUT	7
IN	OUT	6
OUT	IN	5 Default

PIN 9, 10, 11 AT interrupt channels

9	10	11	ADDRESS
OUT	OUT	OUT	9
IN	OUT	OUT	10
OUT	IN	OUT	11 Default
IN	IN	OUT	12
OUT	OUT	IN	14
IN	OUT	IN	15

PIN 12, 13 DMA transfer speed

12	13	DMA SPEED
OUT	OUT	5.0 MB/s Default
IN	OUT	5.7 MB/s
OUT	IN	6.7 MB/s
IN	IN	8.0 MB/s



Default settings shown in this figure.

JUMPER BLOCK J9

PIN 1, 2, 3, 4 Enable DMA REQ signal

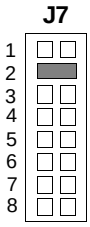
PIN 1 - DREQ Channel 0
PIN 2 - DREQ Channel 5
PIN 3 - DREQ Channel 6
PIN 4 - DREQ Channel 7

PIN 5, 6, 7 Enable DMA ACK signal

PIN 5 - DACK Channel 0
PIN 6 - DACK Channel 5
PIN 7 - DACK Channel 6
PIN 8 - DACK Channel 7

PIN 9, 10, 11, 12, 13, 14 AT interrupt channels

PIN 9 - IRQ Channel 9
PIN 10 - IRQ Channel 10
PIN 11 - IRQ Channel 11
PIN 12 - IRQ Channel 12
PIN 13 - IRQ Channel 14
PIN 14 - IRQ Channel 15



JUMPER BLOCK J7

PIN 1 Address of second floppy. (This jumper is not used as the floppy disks are connected to the main board).

PIN 2, 3, 4 I/O port address

2	3	4	ADDRESS
OUT	OUT	OUT	334
IN	OUT	OUT	330 Default
OUT	IN	OUT	234
IN	IN	OUT	230
OUT	OUT	IN	134
IN	OUT	IN	130

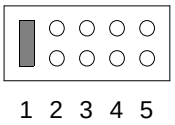
PINS 7, 8 Selection of BIOS start address on ASC-1 board (used only on M480-10 and M480-20)

JUMPERS		ADDRESS
7	8	
OUT	OUT	DC000
IN	OUT	CC000
OUT	IN	D8000
IN	IN	C8000

PIN 5, 6 Selection of the wait state value during BIOS reading on the ASC-1 board. (Used only on M480-10 and M480-20).

JUMPERS		WAIT STATE
5	6	ADDRESS
OUT	OUT	0 Signal IOCHRDY is not driven (default)
IN	OUT	100 ns
OUT	IN	200 ns
IN	IN	300 ns

JUMPER BLOCK J6



The figure shows the default position.

PIN 1 - Board BIOS enable

When this jumper is inserted, the BIOS on the board is enabled. Position of this jumper will depend on how the board is used:

If the ASC-1 board is used as controller of the system SCSI peripherals (System in SCSI configuration), the jumper must be inserted. The BIOS is that on the ASC-1 board.

If the ASC-1 board is used as controller of the SCSI streaming tape, of the SCSI CD-ROM or of the EOD-400 (system in AT configuration), the jumper must not be inserted. The BIOS is that of the main board.

PINS 2, 3, 4 - Not used

PIN 5 - Auto Sense command disable

When this jumper is inserted, the ASC-1 control board does not issue a Sense command when it receives the Check Condition command.

NOTE: If the BIOS of the ASC-1 board is not enabled (this occurs when the system is in AT configuration where the BIOS of the magentic peripherals is that on the main board), the parameters seen in jumper block J7 cannot be selected except for those concerning board addressing, i.e. PINS 2,3, and 4.

INSTALLING EOD-400 IN ODIS ENVIRONMENT

To use EOD-400 in ODIS environment it is necessary to change the jumper configuration on SCSI ASC-1 interface board.

ASC-1 board is usually set with the following default settings (see previous pages):

I/O Port Address	330 - 333 h
DMA Channel	5
Interrupt	11

To use this device in ODIS environment, it is necessary to change these parameters as follows:

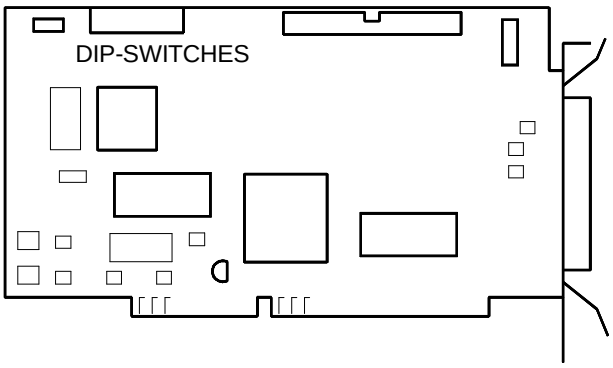
I/O Port Address	134 - 136 h
DMA Channel	5
Interrupt	10

After these hardware changes, a software change must be made to the configuration file: *Config.sys*

Add /P134 option to line [device = .\aspi4dos.sys].

This config.sys line will be:
device = ..\aspi4dos.sys /P134

ASC-2 SCSI INTERFACE BOARD



EXM3A

The ASC-2 controller can be configured through DIP-Switch settings and through a software configuration program. This program is stored in the controller's ROM BIOS as well as in a diskette supplied with the controller's installation kit. As will be explained further on, you can use either the BIOS-resident or the diskette-resident program depending on the configuration of the DIP-Switches.

NOTE: Usually this controller does not need to be configured. The DIP-Switches have the following default settings:

- Terminators controlled by the configuration software
- Board address 330 - 333 h
- On-board BIOS disabled
- Floppy disk interface not present.

DIP-SWITCH BLOCK

DIP-SWITCH	**POSITION**			**DESCRIPTION**
SW1	ON OFF			The terminators are installed on the board The terminators on the board are controlled by the configuration software (default)
SW2 SW3 SW4	**SW2**	**SW3**	**SW4**	Board's I/O port address
	OFF	OFF	OFF	330 - 333 h (default)
	ON	OFF	OFF	334 - 337 h
	OFF	ON	OFF	230 - 233 h
	ON	ON	OFF	234 - 237 h
	OFF	OFF	ON	130 - 133 h
	ON	OFF	ON	134 - 137 h
	OFF	ON	ON	Reserved
	ON	ON	ON	Reserved
SW5	ON OFF			Floppy disk interface disabled. Floppy disk interface enabled. **NOTE:** The board does not have the components needed to implement the floppy disk interface, therefore the setting of this jumper has no value.
SW6 SW7 SW8	**SW6**	**SW7**	**SW8**	BIOS addressing on the ASC-2 board.
	OFF	OFF	OFF	DC000 h (address to use in case the BIOS needs to be enabled)
	ON	OFF	OFF	
	OFF	ON	OFF	D8000 h
	ON	ON	OFF	D4000 h
	OFF	OFF	ON	D0000 h
	ON	OFF	ON	CC000 h
	OFF	ON	ON	C8000 h
	ON	ON	ON	Reserved - BIOS on the ASC-2 controller disabled (default)

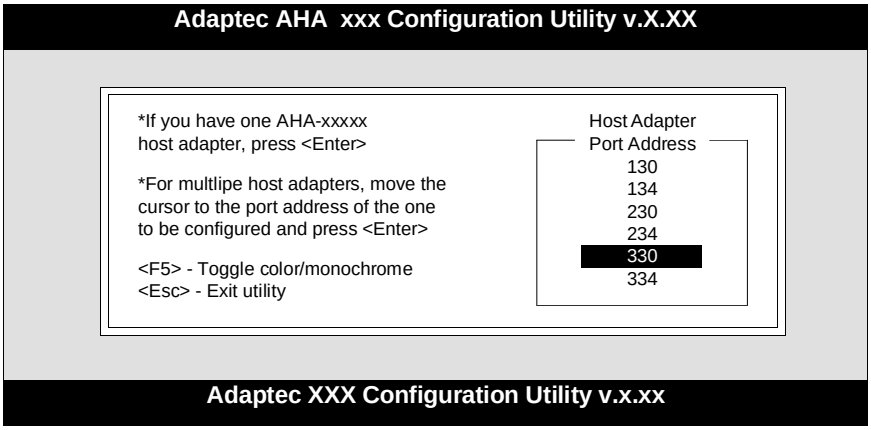
BOARD SOFTWARE CONFIGURATION

As explained earlier, the software configuration program for the ASC-2 controller is available on two distinct supports: In the controller's ROM BIOS
- In a floppy disk supplied with the board's starter kit.

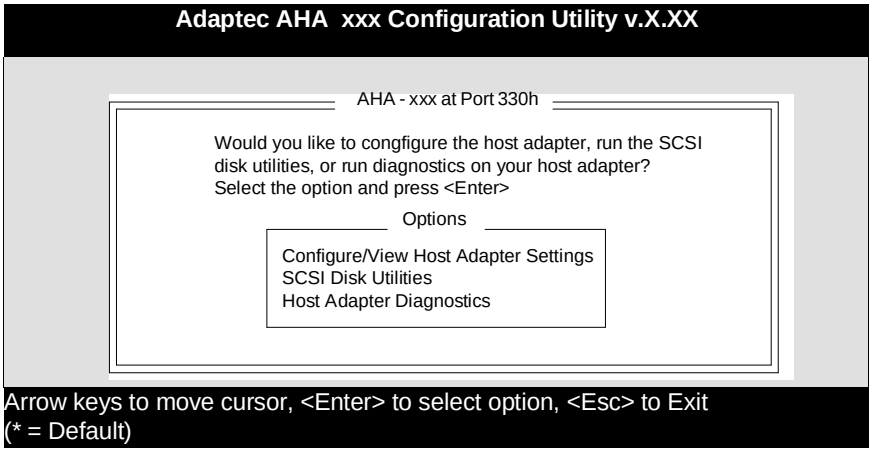
Follow the instructions given below according to the support that will be used.

RUNNING THE CONFIGURATION PROGRAM STORED IN THE ROM BIOS

- Set the controller's **SW6**, **SW7** and **SW8** DIP-Switches to **OFF** (BIOS enabled responding to address DC000 h.
- IInstall the controller in the system.
- Power on the system. A message is displayed during the Power On Diagnostics asking whether you wish to use the configuration program stored in the controller's ROM BIOS.
- If you are going to use this program, press the **CTRL** and **A** keys simultaneously.
- The following screen is displayed indicating the controllers I/O address. The default address is 330h. This address is determined by the configuration of DIP-Switches SW2, SW3 and SW4.

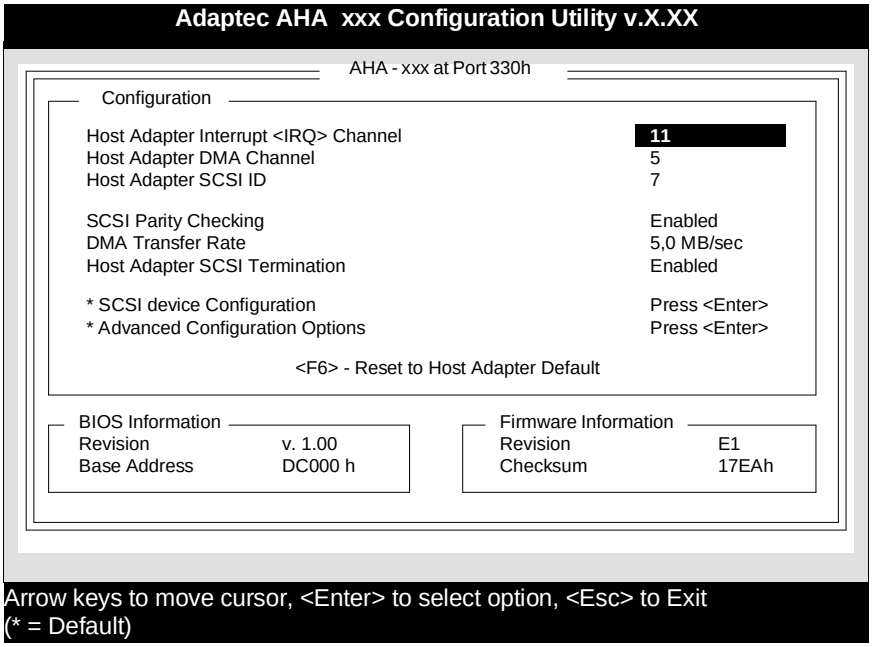


- By pressing ENTER the highlighted value is accepted by the system and you can then move on to the next screen.



Configure/View Host Adapter Settings Utility

Selecting this option displays the following menu.



Host Adapter Interrupt <IRQ> Channel
Use this option to determine the interrupt that the controller will use. The default value is 11, and should not cause any conflicts with other system resources.

Host Adapter DMA Channel
Use this option to determine the DMA channel that the controller will use. The default value is 5.

Host Adapter SCSI ID
Use this option to determine the controller's identifier (ID). The default value is 7, which should not be changed.

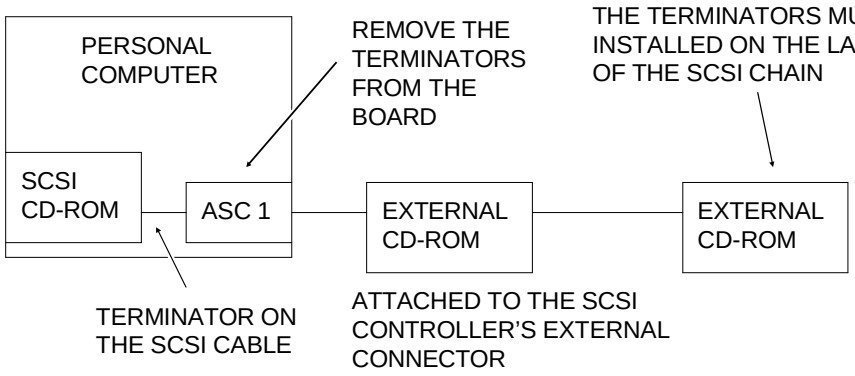
SCSI Parity Checking
Use this option to enable or disable SCSI parity checking. By default parity checking is enabled.

DMA Transfer Rate
Use this option to determine the data transfer rate between hard disk and controller. The default value is 5.0 MB/sec, and should not be changed.

Host Adapter SCSI Termination

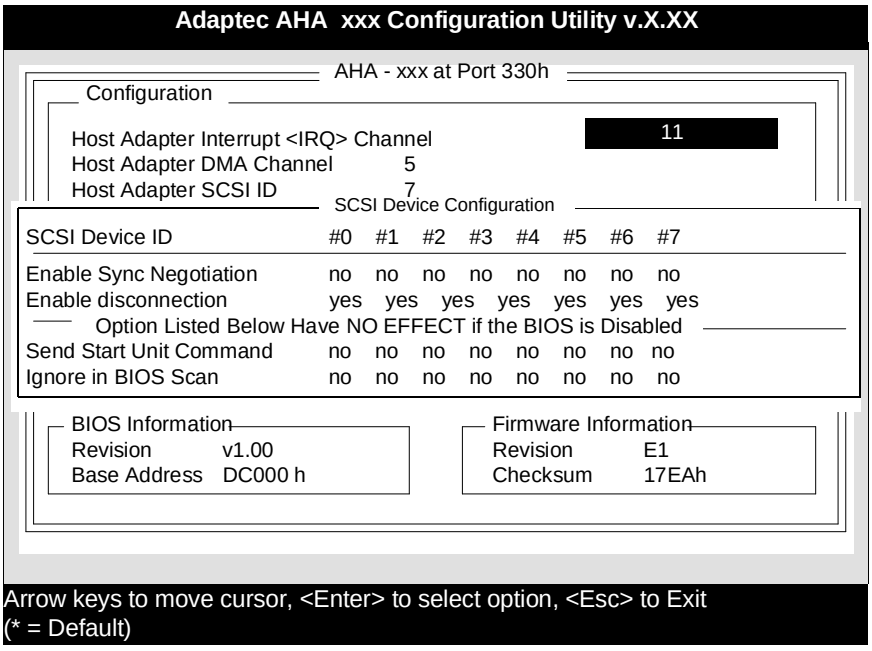
Use this option to enable or disable the terminators on the system board. Whether to enable or disable the terminators installed on the system board depends on the SCSI drives connected.

- The terminators must be enabled if there is only one SCSI drive connected to the ASC-2 SCSI controller.
- The terminators must be disabled if an additional SCSI drive is connected to the ASC-2 board's external connector. See the following diagram.



SCSI device Configuration

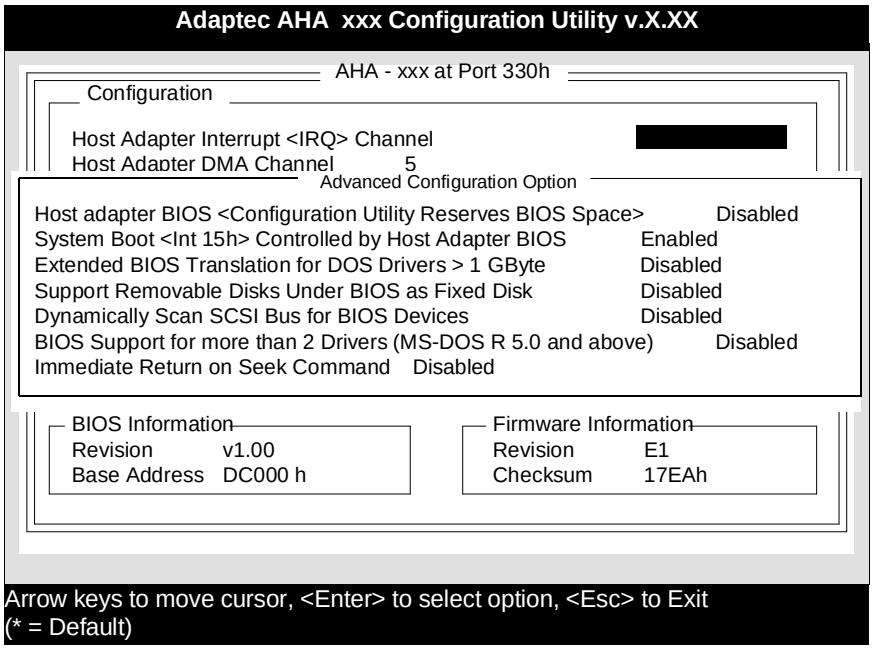
Selecting this option displays the following screen.



All the options in this screen concern the SCSI protocol and therefore it is not necessary to change their default values.

Advanced Configuration Options

Selecting this option displays the following screen.



Host adapter BIOS <Configuration Utility Reserves BIOS Space>
Select this option to enable the BIOS to attempt at running bootstrap routines on all the SCSI peripherals before relinquishing the control to the system BIOS. Disabled is the default value.

System Boot <Int 15h> Controlled by Host Adapter BIOS
Int 15 is controlled by the BIOS on the ASC-2 controller. Enabled is the default value.

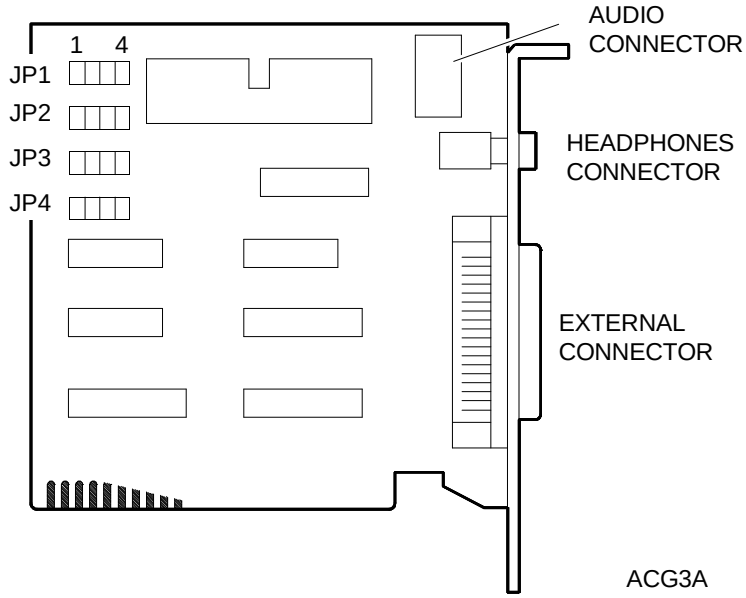
Extended BIOS Translation for DOS Drivers > 1 GByte
Select this option when installing hard disks with a capacity greater than 1 GB.

The values of all the other options listed need not be changed.

RUNNING THE CONFIGURATION PROGRAM STORED ON DISKETTE

- Set the controller's **SW6**, **SW7** and **SW8** DIP-Switches to **ON** (BIOS disabled).
- Install the controller in the system.
- Power on the system.
- Insert the diskette supplied with the controller's installation kit in drive A.
- Type the following command: C_CONFIG
- The same screens explained earlier are displayed. You can now begin to configure the system via software.

INTEGRATED AT CD-ROM CONTROLLER BOARD



Jumper Block JP4 - Interrupt

Not used since the board does not use this interrupt.

Jumper Block JP1 - Board base address

The following table lists the base addresses that the controller can use.

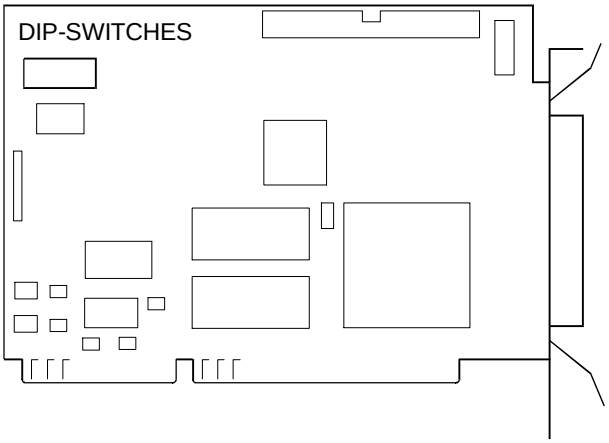
BASE ADDRESS	JUMPER BLOCK JP1			
	1	**2**	**3**	**4**
320 h	IN	IN	Not used	Not used
330 h	IN	OUT		
340 h	OUT	IN		
360 h	OUT	OUT		

Jumper Block JP2 and JP3 - DMA Channels

DMA CHANNEL	JUMPER BLOCK JP2				JUMPER BLOCK JP3			
	1	**2**	**3**	**4**	**1**	**2**	**3**	**4**
1	IN	OUT	OUT	Not used	IN	OUT	OUT	Not used
2	OUT	IN	OUT		OUT	IN	OUT	
3	OUT	OUT	IN		OUT	OUT	IN	

ASC-2F SCSI INTERFACE BOARD

This board is similar to the previous board (ASC-2) with the exception of the characteristics and performance indicated in this section.



FDF8A

DIP-SWITCHES
The following figure shows this board's DIP-switch settings.
The meaning of these switches is the same as the ASC-2 DIP-switches described earlier.

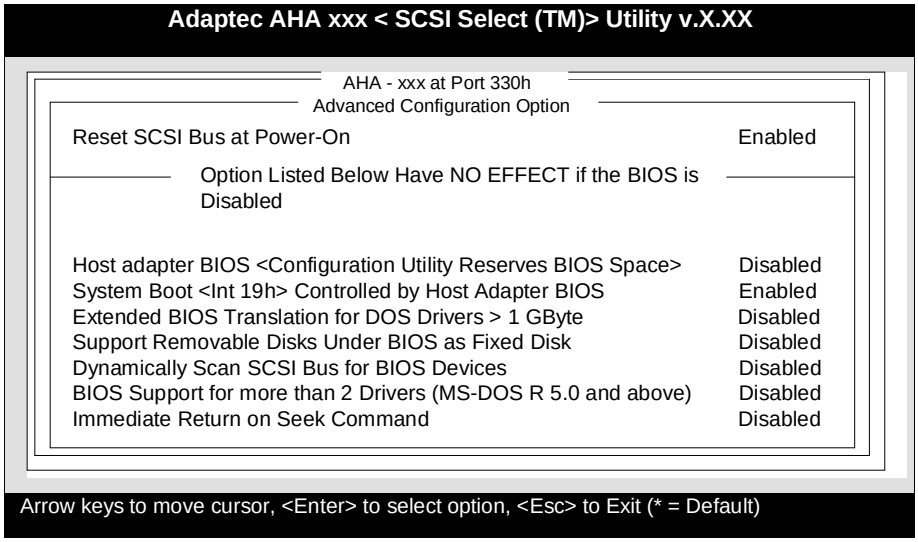
DIP-SWITCH	SETTING			DESCRIPTION
SW1	ON OFF			Board terminators installed Board terminators controlled by the configuration software (default)
SW2 SW3 SW4	**SW2**	**SW3**	**SW4**	Board I/O port address
	OFF ON OFF ON OFF ON OFF ON	OFF OFF ON ON OFF OFF ON ON	OFF OFF OFF OFF ON ON ON ON	330 - 333 h (default) 334 - 337 h 230 - 233 h 234 - 237 h 130 - 133 h 134 - 137 h Reserved Reserved
SW5	ON OFF			Disables the floppy disk interface. Enables the floppy disk interface. **NOTE:** The board is not equipped with the components which implement the floppy disk interface, therefore the setting of this jumper is insignificant.
SW6 SW7 SW8	**SW6**	**SW7**	**SW8**	BIOS address on the ASC-2 board
	OFF ON OFF ON OFF ON OFF ON	OFF OFF ON ON OFF OFF ON ON	OFF OFF OFF OFF ON ON ON ON	DC000 h (use this address to enable the BIOS) D8000 h D4000 h D0000 h CC000 h C8000 h Reserved - BIOS on the ASC-2 board is disabled (default)

NOTE: By default the BIOS on this board is enabled. Configuration can only be made through the BIOS since the diskettes containing the configuration program are no longer supplied.

CONFIGURATION OPTIONS SPECIFIC FOR THIS BOARD VERSION ONLY

Enable Fast SCSI
This option is part of the ***SCSI Device Configuration*** Menu shown in the previous section.
Turn to page 11-9.
This option allows data transfers over the SCSI bus at speeds ranging from 5 MB/s to 10 MB/s.

Menu Advanced Configuration Option
This menu allows the configuration of the some board features which were not available with the ASC-2. Turn to page 11-10 for a comparison.
The following screen page is displayed after accessing this menu.



Use these advanced configuration options in one of the following cases:

- To disable the board's BIOS so as to be able to control the SCSI peripherals through the I/O Operating Environment Software Drivers software.
- To connect drives with capacities greater than 1 GB to the ASC-2F board. This option is only effective with MS-DOS and must not be used with other operating systems.
- To use SCSI peripherals without having installed the I/O Operating Environment Software Drivers software.
- To bootstrap from a drive which is not identified with SCSI ID=0.
- To support two or more SCSI peripherals without having installed the I/O Operating Environment Software Drivers software.

Reset SCSI Bus at Power-On
This option is enabled by default and must not be changed.

Host adapter BIOS <Configuration Utility Reserves BIOS Space>
Enabling this option allows you to make use of all the features offered by the ASC-2F board. For example, this board can support up to 7 SCSI peripherals in the MS-DOS environment. If, instead, you need to use peripherals that require the I/O Operating Environment Software Drivers management software, the board BIOS needs to be disabled so that the drive can have control of both the SCSI bus and the board itself. The BIOS can also be disabled by means of the DIP-switches seen earlier. Turn to page 11-6.

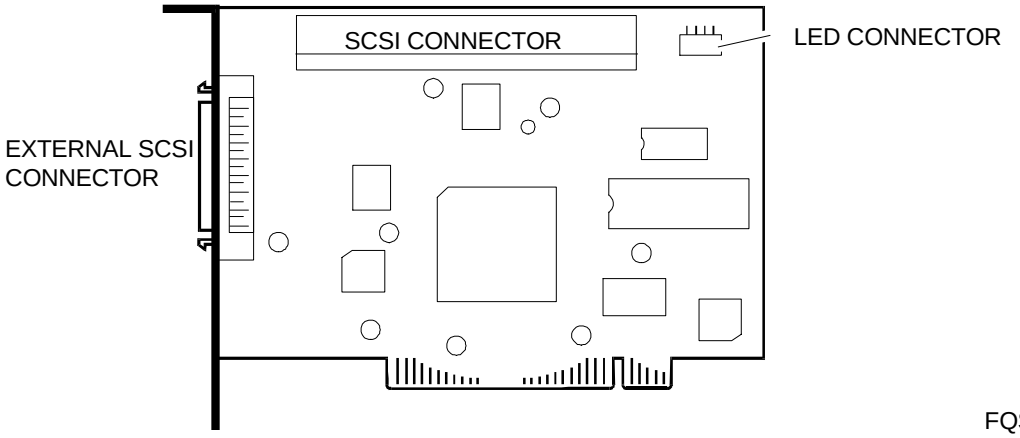
The BIOS must be disabled when the system is not configured to bootstrap from a SCSI peripheral. In its standard configuration, this Personal Computer cannot bootstrap from a SCSI peripheral and therefore the only SCSI interface peripherals used with this system are Streaming Tape and CD-ROm drives that do not require the BIOS on the ASC-2F board.

System Boot <Int 19h> Controlled by Host Adapter BIOS
This option is enabled by default and must not be changed.

Extended BIOS Translation for DOS Drivers > 1 GByte
This option must only be used when installing hard disk drives with a capacity grater than 1 GB.

All the other listed options must not be changed.

ASC/PCI-2F (AHA-2940) SCSI INTERFACE BOARD



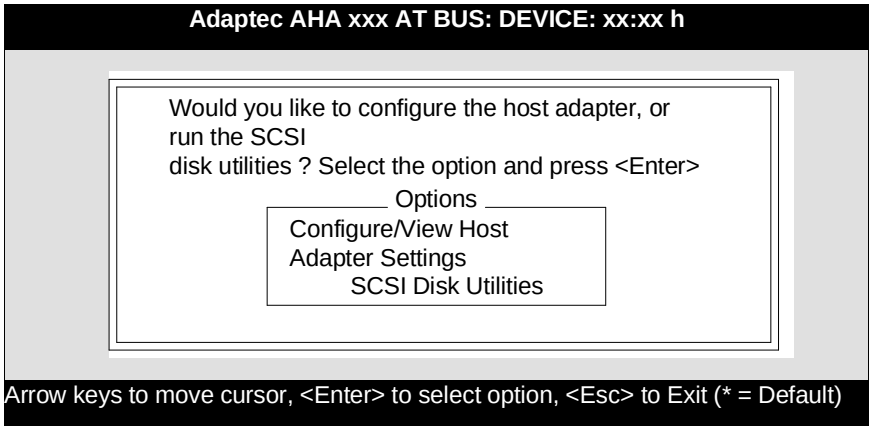
FQS2A

D

BOARD SOFTWARE CONFIGURATION

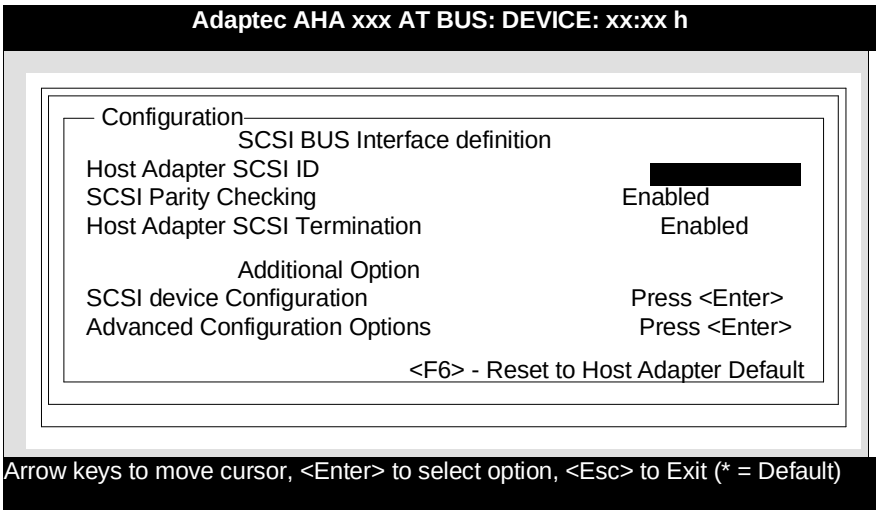
This board is configured by means of a software configuration program stored in the board ROM BIOS:

- Install the board in the system.
- Power on the system.
- During the execution of the power on diagnostics a message is displayed asking the operator if access to the board configuration program is required.
  Press the **CTRL** and **A** keys simultaneously to configure the board.
- The SCSI board Configuration Utility menu is displayed. Press the ↓↑ keys to select an option and then press **ENTER**. Press the **ESC** key to exit a menu. By pressing **ENTER** the highlighted value is accepted by the system**.**



Configure/View Host Adapter Settings Utility

Selecting this option displays the following menu.



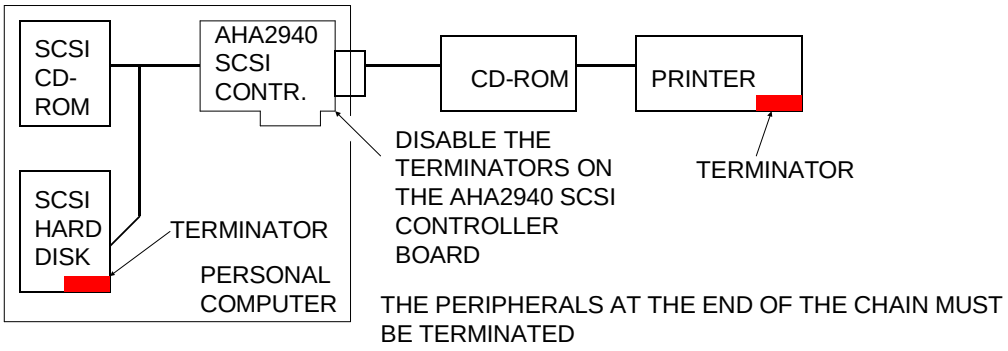
Host Adapter SCSI ID
This option is used to determine the board ID. The default value is 7, which must not be changed.

SCSI Parity Checking
This option enables or disables SCSI parity checking. By default SCSI parity checking is enabled.

Host Adapter SCSI Termination
This option enables or disables the terminators present on the SCSI board. Enabling or disabling the terminators on the board depends on the SCSI drives connected to it.

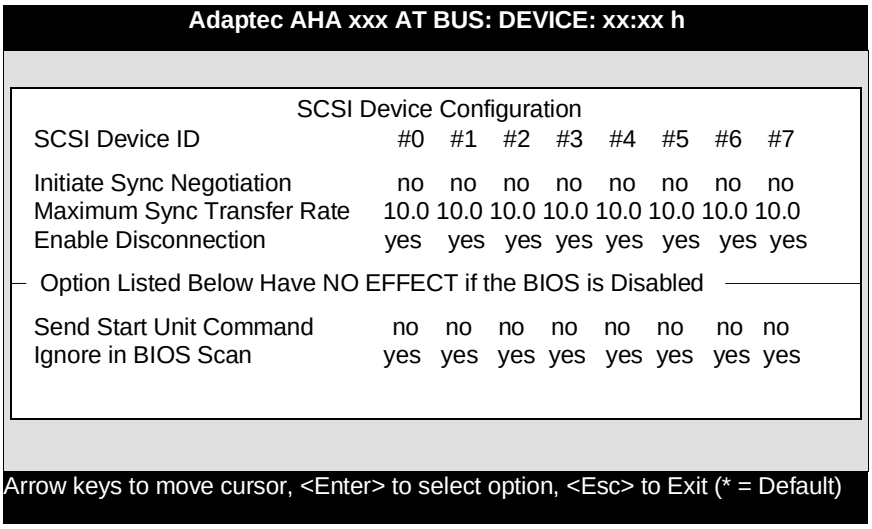
The terminators must be enabled if there is only one SCSI drive connected to the SCSI controller board.

The terminators must be disabled if other SCSI drives are connected to the board's external connector. See the following diagram.



SCSI Device Configuration

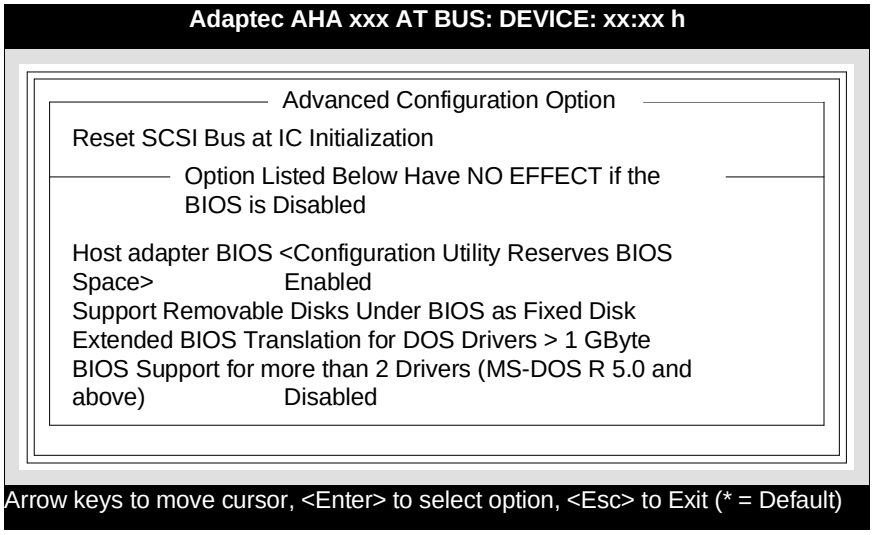
Selecting this option displays the following screen.



All the options that can be modified in this screen concern the SCSI protocol and therefore the default values need to be changed.

Advanced Configuration Options

Selecting this option displays the following screen.



These advanced configuration options need to be used when disabling the board BIOS in order to be able to check the SCSI peripherals by means of the software called I/O Operating Environment Software drivers (ASPI drivers).

Reset SCSI Bus at Power-On
This option is enabled by default and must not be changed.

Host Adapter BIOS <Configuration Utility Reserves BIOS Space>
All the features offered by the SCSI board can be used when this option is enabled. Under MS-DOS, for example, the board can control up to seven SCSI peripherals. The BIOS must be disabled in order to be able to boot from a non-SCSI peripheral.

Extended BIOS Translation for DOS Drivers > 1 GByte
This option must be used when installing hard disks greater than 1 GB.

All other items on the list must not be modified.

SCSI Disk Utilities

These utilities are used when a hard disk is connected to the SCSI board.
They allow the following operations to be performed:

- View the list of peripherals connected to the SCSI board and their ID.
- Format SCSI hard disks.
- Check the integrity of the hard disk: the faulty blocks are tested.

NOTE: Formatting must not be interrupted otherwise the hard disk cannot be accessed.
If formatting is interrupted it needs to be started over again.

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