



ActionMedia[®] II Hardware Installation Guide

For ISA Compatible Computers

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This guide provides general information, installation procedures and troubleshooting methods for the ActionMedia® II Delivery Board and accessory equipment.

Audience

This guide is intended for those persons responsible for the installation of the ActionMedia II Delivery Board into a Personal Computer.

Manual Organization

This manual is organized as follows:

Chapter 1 Introduction	Describes the ActionMedia® II Delivery Board, including warranty and customer support information.
Chapter 2 Planning A Multimedia Environment	Describes the system environment requirements for multimedia applications.
Chapter 3 Setting Up The Hardware Configuration	Provides procedures for configuring your system for the ActionMedia® II board(s) using the hardware configuration utility, AMSETUP, and for changing the Delivery Board jumper settings.
Chapter 4 Installing The ActionMedia® II Boards And Cables	Provides hardware installation procedures for the ActionMedia® II Delivery Board, optionally the ActionMedia® II Capture Module, accessory cables, and peripheral devices.

Appendix A Handling Error Messages And Problems	Lists error codes, messages, and general problems that may occur during installation and operation of the ActionMedia® II Delivery Board, Capture Module, and software.
Appendix B Technical Reference	Provides reference information for the ActionMedia® II Delivery Board.
Appendix C Package Contents	Shows the ActionMedia® II Delivery Board Package and optional Capture Module Package items.

Intel Multimedia Publications

Intel Corporation publishes a series of documents describing Intel multimedia products.

For a complete list of these publications, please contact the Intel Literature Department at the address provided on page iii of this guide. If you have a fax machine, use FaxBACK™ to request multimedia products. To access the FaxBACK service, call:

1-800-525-3019 (within Continental United States)

1-916-351-3105 (outside Continental United States)

FaxBACK software is telephone key-driven and self-explanatory.

This chapter describes the ActionMedia II Delivery Board, including warranty and customer support information.

Overview

Multimedia integrates full-motion video, high-resolution still images, audio, text, graphics, and graphics special effects in an interactive software application.

The ActionMedia II Delivery Board enables your system to play back full-motion video, high-resolution still images, high-performance graphics, and high-quality audio from CD-ROM, hard disk, network, or RAM in an all-digital, interactive personal computer environment.

For application development (and end-user systems that use audio/video capture), the ActionMedia II Capture Module daughter board can be attached to the Delivery Board. The Capture Module enables motion video, high-resolution still images, and audio input to be digitized for storage to hard disk or RAM. The data subsequently can be compressed and mastered to CD-ROM disc.

Together, these boards enable the use of Indeo video applications.

Delivery Board Features

The ActionMedia II Delivery Board can be installed in an Industry Standard Architecture (ISA) compatible (IBM PC AT compatible) computer that has an Intel386 or Intel486 microprocessor. Features of the Delivery Board include:

- Intel 82750PB Pixel Processor operating at 25 MHz, for compression and decompression of video.
- Intel 82750DB Display Processor operating at up to 45 MHz. Supports standard VGA-, XGA-, NTSC-, and PAL-format monitors..
- Expandable Video Random Access Memory (VRAM) to 4 MBytes.
- Audio Digital Signal Processor (DSP) for high-quality stereo compression and decompression.
- Onboard SCSI interface to an internal CD-ROM drive.
- Support for analog merging of RGB source graphics (including VGA and XGA) and video using an RGB Overlay Cable.
- Support for digital merging (keying) of VGA graphics and video, using a VGA Feature Connector Cable (optional).
- Support for full-motion playback of up to 30 frames per second. The Delivery Board supports scalability of the playback image size from 160x120 to 320x240 or 640x480 pixels.
- Support for real-time capture at a resolution (image dimension) of 160x120 pixels, via the ActionMedia II Capture Module (optional).

Board Warranty

Intel warrants that the board delivered in this package will be free from defects in material and workmanship for one (1) year following the date of purchase. The warranty does not cover repair or replacement if the board is damaged in the process of being installed. Intel recommends that you have your dealer install this board.

The above warranty is in lieu of any other warranty, whether expressed, implied or statutory, including but not limited to, any warranty of merchantability, fitness for any particular purpose, or any warranty arising out of any proposal, specification, or sample. Intel does not assume any other liability and does not authorize any person to assume other liability for Intel.

If the board is found to be defective, Intel, at its option, will replace the board at no charge except as set forth below, or refund your purchase price provided that you deliver the board, along with proof of purchase, either to the company from whom you purchased it or to Intel with an explanation of the deficiency. If you ship the board, you must assume the risk of damage or loss in transit. You must use the original container (or the equivalent) and pay the shipping charge.

Intel may replace your board with either new or reconditioned parts, and any replaced board becomes Intel's property.

This warranty does not cover replacement of boards damaged by abuse, accident, misuse, neglect, alteration, repair, disaster, improper installation, or improper testing.

INTEL WILL NOT BE HELD LIABLE FOR ANY LOSS OF PROFITS, LOSS OF USE, INCIDENTAL, CONSEQUENTIAL, OR SPECIAL DAMAGES CAUSED BY THE USE OF THIS BOARD OR INABILITY TO USE IT, EVEN IF THE DEALER OR INTEL HAS BEEN ADVISED OF SUCH LIABILITY OR OTHER SPECIAL CLAIMS.

Warranty Service

If you require service, within the U.S. call Board Repair at:

1-800-INTEL-4-U

Have your serial number and product description ready.
They will discuss your repair options.

Outside the United States, contact:

Intel Corporation (UK) Limited
Pipers Way
Swindon SN3 1RJ
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Tel: (0)793-641469
Fax: (0)793-641440

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Introduction

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bei Zuerich
SWITZERLAND
Tel: (0)1-860-6262
Fax: 41-1-860-0201

Registration

Please complete and return the Warranty Registration Card provided with the Delivery Board to Intel to register your ActionMedia II products. Technical support might be delayed if the Warranty Card is not returned.

To mail the Warranty Card from outside the United States, use the labels provided on the card. Warranty Cards mailed from outside the United States require correct postage.

Customer Support

For assistance installing the ActionMedia II boards, or for questions about other ActionMedia II products, contact your ActionMedia II Delivery Board vendor.

Chapter 2

Planning A Multimedia Environment

This chapter describes the system environment requirements for multimedia applications.

Overview

The information in this chapter is provided to help you determine the type of equipment you need for your multimedia objectives.

Requirements are listed for:

- The personal computer you will be using.
- Software that must be loaded on the PC prior to installation of ActionMedia II products.
- Video RAM.
- Hardware for playing back video and audio on your PC.
- Hardware for capturing video and audio on your PC.
- Hardware for increased performance.
- Optional equipment such as a CD-ROM or a VCR.
- Total PC power.
- Options for merging audio and graphics on your PC monitor.

The device compatibility sections will help you determine whether your existing equipment (hard drive, CD-ROM, VGA board) or devices you are intending to purchase, will operate properly with the ActionMedia II Delivery Board.

Minimum Host Computer Requirements

You must have a personal computer (PC) that has a minimum configuration of:

- i386DX PC-AT compatible microprocessor running at 33 MHz.
- 4 MBytes of Random Access Memory (RAM).
- A multisync monitor.
- An 8-bit VGA control board running at 60 or 72 Hz, and capable of up to 256-color video display.

Software Requirements

MS-DOS 5.0 software must be loaded onto your computer before beginning the hardware configuration and board installation procedures.

Video RAM Requirements

The ISA-compatible Delivery Board is capable of supplying up to 4 MBytes of video RAM (VRAM). Most multimedia systems require only the factory-installed 2 MBytes of VRAM (see Figure 2-1), and will not require extra VRAM. If your application requires additional memory, contact your Delivery Board vendor.

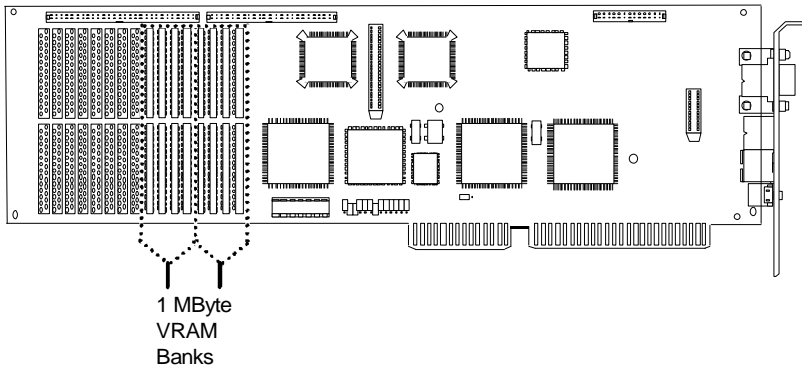


Figure 2-1. Location Of VRAM Banks

Basic Playback Hardware Requirements

To play back audio and video from the ActionMedia II Delivery Board, your system must have the following hardware in addition to the minimum host requirements:

- An RGB Overlay Cable for analog merging of RGB graphics and board output. Optionally, a VGA Feature Connector Cable can be used for digital merging. These cables are supplied in the Delivery Board Kit. To determine the cable suitable for your multimedia needs, refer to the section in this chapter entitled, "Video And Graphics Merging Options" (page 2-8).
- If you are going to use sound, a stereo amplifier or self-amplified stereo device that can accept standard LINE-level audio output (0-2.0 Vp-p.) from the Delivery Board. The audio device must have an input impedance level of approximately 10 KOhms or greater.

Headphones are generally low-impedance devices. To use headphones, plug them into an audio amplifier rather than directly into the Delivery Board socket.

Basic Capture Hardware Requirements

In addition to playing back full motion video images and audio, it is possible to capture video and audio. You must have the following equipment for audio and video capture capability, in addition to the minimum host and basic playback requirements:

- An ActionMedia II Capture Module daughter board for audio and video capture. This module can be purchased from your Delivery Board vendor.
- A video source device (NTSC or PAL) that provides data in one of these formats:
 - ◆ Composite
 - ◆ S-Video (Y/C)
 - ◆ RGB with composite sync
 - ◆ RGB with sync on green

Examples of such devices include S-VHS VCRs, consumer-grade VCRs, RGB video cameras, and laserdisc players.

- An audio source device that provides data at one of these levels:
 - ◆ High LINE level output of 6.0 Vp-p. maximum (audio CD interface).
 - ◆ Low LINE level output of 2.0 Vp-p. maximum (standard LINE interface).
 - ◆ MIC output of 60 mVp-p. maximum. If your microphone does not meet this specification, a preamp may be necessary.

Examples of such devices include CD players, VCRs, and microphones. Error! Bookmark not defined.

Optional Equipment

The following optional equipment can interface with the ActionMedia II Delivery Board:

- A VGA board with a VGA Feature Connector (or an equivalent connector on the motherboard).
- An internal SCSI CD-ROM drive for video playback. Only 1X CD-ROM drives are presently supported. Consult your multimedia software for details about installing the Microsoft CD-ROM extension driver, MSCDEX.EXE. An internal SCSI cable is provided with the ActionMedia II Delivery Board Kit.
- S-Video (Y/C) equipment (NTSC or PAL) that can accept the standard S-Video format output from the Delivery Board. Examples of S-Video equipment are S-VHS VCRs, camcorders, and compatible TV monitors.

Not all multimedia software supports S-Video output. Refer to the documentation supplied with your software for compatibility.

Power Requirements

The total power consumed by all installed devices, including the ActionMedia II boards, should be calculated to determine whether or not your current power supply is sufficient.

CAUTION
IF THE TOTAL POWER CONSUMED BY ALL DEVICES EXCEEDS THE POWER BUDGET OF YOUR COMPUTER, YOUR COMPUTER COULD SHUT OFF, AND LOSS OF DATA COULD RESULT.

Maximum power consumed by the ISA-compatible ActionMedia II board is provided in Table 2-1. These figures assume 2 MBytes of VRAM on the Delivery Board.

Table 2-1. ActionMedia II Board Power Requirements

Voltage	Delivery Board (2 MBytes VRAM)	Capture Module	Total Power
+5 V	1200 mA	400 mA	8.0 W
+12 V	140 mA	190 mA	4.0 W
-12 V	60 mA	40 mA	1.2 W

Video And Graphics Merging Options

The ActionMedia II hardware is intended to coexist with a VGA graphics system. The merging (keying) of a graphics source (VGA or XGA output) and the video data processed by the ActionMedia II hardware and driver produces a high quality display of graphics overlay on video. The video is only visible on the monitor screen when the graphics is black in the case of analog keying, or from a programmed value in the case of digital keying. Figure 2-2 illustrates keying.

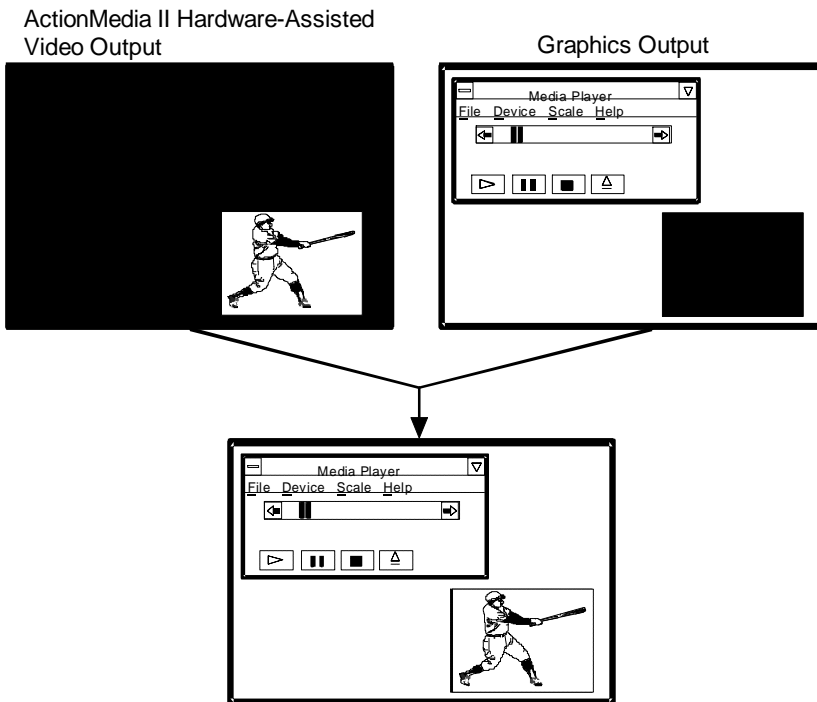


Figure 2-2. Example Of Keying

The ActionMedia II Delivery Board Kit provides cables that can supply either analog or digital keying signals:

- RGB Overlay Cable for analog VGA or XGA graphics source.
- VGA Feature Connector Cables for digital VGA graphics source.

Check the requirements of your multimedia software to determine the type of keying that is supported. Table 2-2 provides some advantages and disadvantages for using analog and digital keying methods. Refer also to the hardware configuration setups described in this chapter (pages 2-11 and 2-13).

Table 2-2. Choosing A Video Keying Cable

Keying Method	Cable To Use	Advantages/Disadvantages
Analog (recommended method)	RGB Overlay Cable	<p>Advantages:</p> <ul style="list-style-type: none"> ○ Provides ActionMedia II board compatibility with the greatest number of graphics boards ○ Provides higher resolution and better color depth of the video image. ○ A VGA Feature Connector is not required on the video board. ○ Connects externally to the video graphics and monitor for ease of troubleshooting. <p>Disadvantages:</p> <ul style="list-style-type: none"> ○ May not be supported by all DOS, third-party software products used with the ActionMedia II boards.
Digital	Edge Card or Header VGA Feature Connector Cable	<p>Advantages:</p> <ul style="list-style-type: none"> ○ Keying is programmable. ○ Cable is connected internally between the VGA board, or a VGA connector on the motherboard, and the Delivery Board. <p>Disadvantages:</p> <ul style="list-style-type: none"> ○ Some high-performing graphics boards may not support digital keying. ○ If you encounter a problem with video display, you may have to open the computer to check the VGA Feature Connector Cable connection. ○ Digital keying supports only 256 colors from the graphics board.

Setup # 1: Analog RGB System

This is the preferred hardware configuration for:

- Systems using VGA graphics.
- Systems using an RGB graphics source other than VGA (for example, an XGA board).

This setup enables analog keying (merging) of RGB-source graphics and Indeo video on the same screen.

As shown in Figure 2-3, an RGB Overlay Cable is installed externally to route output generated by the RGB source to the Delivery Board.

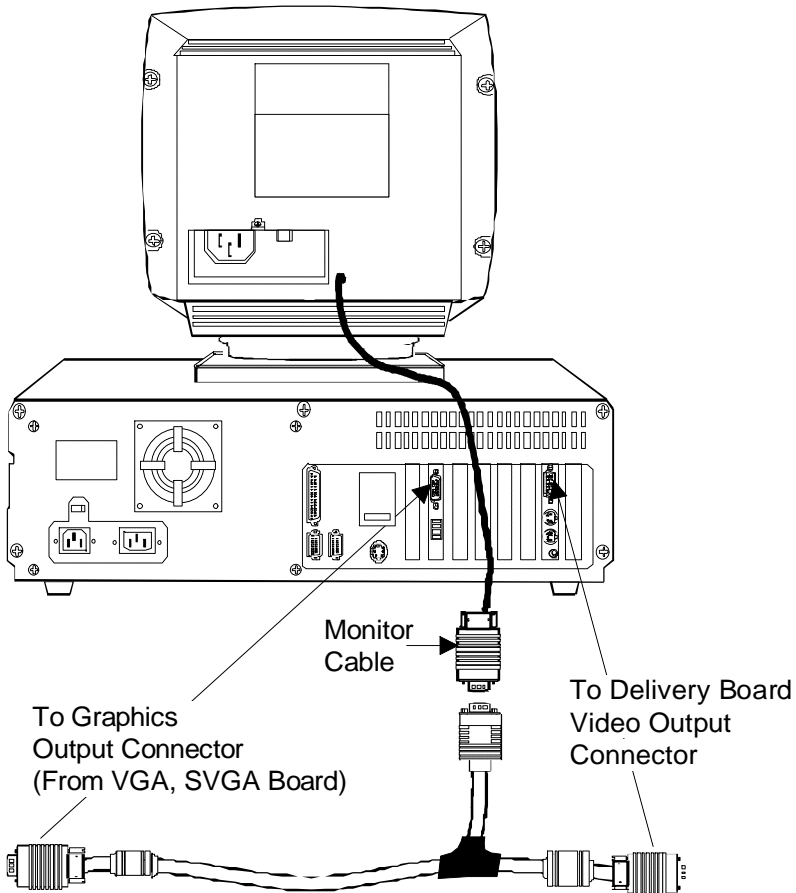


Figure 2-3. Setup #1 - RGB Overlay System (Analog Keying)

Setup #2: Digital VGA System

This is an alternative hardware configuration for VGA systems when the RGB Overlay Cable (Setup #1) is not going to be used. Setup #2 enables programmable, digital keying (merging) of VGA graphics and Indeo video on the same screen. The digital cable, however, only supports keying of up to 256 VGA colors.

To use this setup, your VGA board or motherboard must have a VGA Feature Connector. The connector allows for transmission of the digital VGA signals to other graphics boards. If this connector is not available, you can use Setup #1 to provide analog keying for similar results.

An Edge Card or Header VGA Feature Connector Cable, provided in the Delivery Board Kit, routes VGA graphics from the VGA board or motherboard to the Delivery Board. The Edge Card VGA Feature Connector Cable is used when the VGA board has an edge card connector at its top edge. The Header VGA Connector Cable is for a VGA board with a 26-pin VGA Feature Connector on the face of the board.

Figure 2-4 shows an example of the connection of a VGA Feature Connector Cable between the VGA board and the Delivery Board.

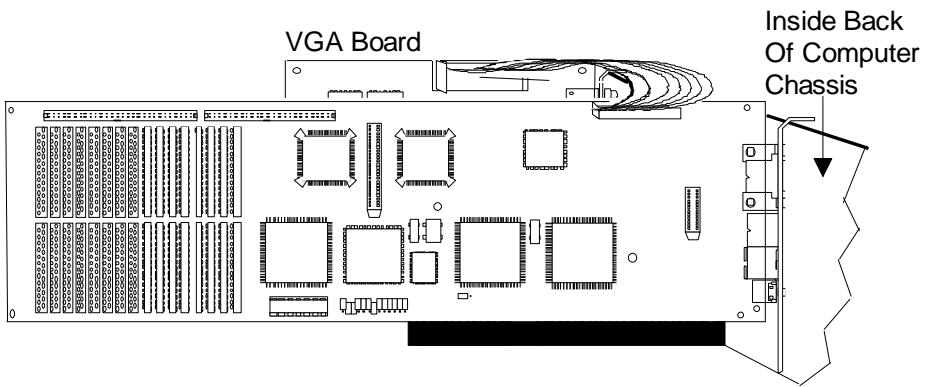


Figure 2-4. Setup #2 - VGA Feature Connector System (Digital Keying)

Compatible Peripherals

The following sections provide listings of PC peripherals that have been tested and proven compatible with the ActionMedia II hardware. The three groups of peripherals that were tested are:

- Hard drives
- VGA boards
- CD-ROM drives

Carefully check whether or not the peripheral you are planning to use is in the respective table. A peripheral that is not listed in the table may either be incompatible or untested. If you use a peripheral that is not in the table, performance may not be as expected, due to a compatibility problem.

Hard Drives

Table 2-3 lists the hard drives, and their specifications, that have been tested and proven to be compatible with the ActionMedia II Delivery Board.

Table 2-3. Compatible Hard Drives

Manufacturer	Model	Type	Capacity (MBytes)	Drive Controller
Quantum*	ProDrive LP240S	SCSI	240	Adaptec 1740A
Quantum*	ProDrive LP120	IDE	120	Dell onboard IDE
Quantum*	ProDrive LPS 160	IDE	160	NCR onboard IDE
Conner	CP30061	IDE	60	Compaq onboard IDE
Conner	CP30101	IDE	120	Compaq onboard IDE
Western - Digital	Piranha	IDE	200	CompuAdd IDE interface
Seagate	ST251	MFM	43	ST506 add-in FD/HD
Maxtor	P-17S	SCSI	1642	Adaptec 1542B
Seagate	WREN V	SCSI	613	Adaptec 1542B

- * These drives use a technique called optical encoding to re-calibrate head reposition due to temperature-dependent metal deformation. The repositioning occurs every one degree Celsius temperature change. Therefore, temperature fluctuations will cause data flow interruptions. This is not a problem when using applications that do not rely on the constant, uninterrupted flow of data.

Table 2-4 lists the hard drives, and their specifications, that are reported to work with the ActionMedia II Delivery Board but have not been tested by Intel.

Table 2-4. Hard Drives Reported As Compatible

Manufacturer	Model	Type	Capacity (MBytes)	Drive Controller
Seagate	ST11200N	SCSI	1200	Adaptec 1542B/C
Seagate	ST41650N	SCSI	1600	Adaptec 1542B/C
Micropolis	2112	SCSI	1200	Adaptec 1542B/C
Maxtor	P0-12S	SCSI	1200	Adaptec 1542B/C
Seagate	43400N	SCSI	2900	Adaptec 1542B/C
Maxoptix	Tahiti-II	SCSI	1000	Adaptec 1542B/C Magneto Optical

VGA Boards

Table 2-5 lists the VGA boards that have been tested and proven to be compatible with the ActionMedia II Delivery Board. Other drives that are available through the Bulletin Board may be compatible but have not been tested by Intel.

The tests were implemented using the standard Microsoft Windows™ 3.1 VGA driver, which is shipped with every Windows package. The VGA mode 640x480 16-color was used in all test cases. All VGA boards were terminated and digitally keyed.

Table 2-5. VGA Boards And Test Results

Manufacturer/Model	Test Results
Orchid ProDesigner II	Passed all tests. Uses the TSENG LABS ET4000A VGA controller.
Orchid ProDesigner IIs	Passed all tests. Uses the TSENG LABS ET4000A VGA controller.
Diamond SpeedStar Plus	More susceptible to noise than the other boards. The characters on the screen become jittery. This problem goes away when a new VGA Feature Connector Cable is used. You can obtain new cables from the ActionMedia II hardware supplier.
Diamond SpeedStar Plus Hi Color	Passed all tests. Uses the Sierra RAMDAC, which makes it possible to display up to 32,768 simultaneous colors on the screen.
Cardinal VGA 742	Passed all tests.
ATI VGA WONDER XL	Playing video for 15 minutes or longer causes the loss of lip synch.
STB PowerGraph	Passed all tests.
AHEAD VGA WIZARD DELUXE	Passed all tests.
Sigma Legend	Experienced problems with Windows compatibility.

Table 2-5. VGA Boards And Test Results (Continued)

Manufacturer/Model	Test Results
Trident Impact III	Passed all tests.
GENOA SuperVGA 6400A	Passed all tests.
VIDEO SEVEN VRAM II	Passed all tests.
VIDEO SEVEN VGA 1024i	Passed all tests.
VIDEO SEVEN VGA 16	Passed all tests.
PARADISE VGA 1024	Passed all tests.
ATI VGA BASIC	Passed all tests.

CD-ROM Drives

Table 2-6 lists the CD-ROM drives that have been tested and proven to be compatible with the ActionMedia II Delivery Board.

CD-ROM drives can be connected to the ActionMedia II Delivery Board or to any SCSI controller (even sound boards with SCSI support) and proprietary connections. Performance differs depending on the controller used.

Table 2-6. Compatible CD ROM Drives

Manufacturer	Model	Type	Description	System *
Toshiba	TXM-3301	SCSI	Standard	A,B,C, D,E,F
Sony	CDU-541	SCSI	Standard	A,B,C, D,E,F
Creative Labs/ Panasonic		Prop.	Standard	A

* System Configurations Tested:

A=Dell 320sx

B=Dell 450DE

C=Intel 302-25

D=NCR 3331

E=Compaq 325e

F=Compaq320sx

Chapter 3

Setting Up The Hardware Configuration

This chapter provides procedures for configuring your system for the ActionMedia II board(s) using the hardware configuration utility, AMSETUP, and for changing the Delivery Board jumper settings.

Overview

The hardware configuration utility, AMSETUP, is provided with the ActionMedia II Delivery Board Kit. The utility determines the best configuration settings for the ActionMedia II hardware, and creates a configuration file in the root directory of your C drive: AM.CFG. The configuration values contained in AM.CFG are read by some multimedia software installation programs to initialize parameters used by the software, such as VRAM window size and base I/O address.

Reasons For Running AMSETUP

AMSETUP must be run anytime a change is made that affects the configuration values in the AM.CFG file, especially:

- Before installing the ActionMedia II Delivery Board into your computer.
- When the Delivery Board jumper settings are changed.
- When the keying (merging of graphics) configuration is changed (refer to Chapter 2, "Planning A Multimedia Environment").

Setting Up The Hardware Configuration

You need the following information for AMSETUP:

- The keying configuration you will be using, either analog or digital.
- The software environment you will use for your multimedia applications, whether Windows, DOS, or both.
- The base I/O Port address if you will not be using the default address of 2E4.

Utilization Of Upper Memory Space

AMSETUP determines the location of the Power-On Self Test (POST) ROM and VRAM window addresses in upper memory. To make this determination, it is necessary to temporarily disable a memory manager that is installed in your system. Memory managers utilize upper memory space to increase the performance of your computer. With the memory manager disabled, the entire range of upper memory becomes available to the hardware configuration utility.

Summary Of Configuration Procedures

Table 3-1 summarizes the hardware configuration procedures. If you are experienced with hardware configuration, you can use this summary as a checklist. The procedures are detailed within the chapter.

CAUTION
THE ActionMedia II BOARD(S) AND ACCESSORIES MUST NOT BE INSTALLED WHEN RUNNING THE HARDWARE CONFIGURATION UTILITY!

Table 3-1. Summary of Configuration Procedures

Step	Procedure
1	Disable any installed upper memory manager.
2	Copy the files on the ActionMedia II Hardware Setup diskette to the hard disk.
3	Run the hardware configuration utility, AMSETUP, to get the recommended jumper settings and upper memory addresses to exclude.
4	Set the jumpers on the Delivery Board according to the recommended jumper settings in AMSETUP.

Disabling The Memory Manager

If you do not have a memory manager, continue with the section entitled, "Running AMSETUP" (page 3-8).

There are many memory managers on the market, today, and it would be impossible to describe how to disable all of them. The procedure provided below shows examples for the most common memory managers in use:

- EMM386 supplied with DOS 5.0 and Windows
- QEMM-386
- 386MAX

Intel does not recommend the use of a specific memory manager. For illustration purposes only, the figures in this chapter show examples for 386MAX.

1. Before making changes to the CONFIG.SYS and AUTOEXEC.BAT files, make a backup copy of the original CONFIG.SYS and AUTOEXEC.BAT files to a diskette (for file recovery purposes, only, should either of these files become unusable).

At the C: drive DOS prompt (C:>), copy the CONFIG.SYS and AUTOEXEC.BAT files to a diskette by entering commands similar to the following example (assuming a: is the diskette drive):

Example:

```
copy config.sys a: <CR>  
copy autoexec.bat a: <CR>
```

2. At the DOS prompt, use an ASCII text processor such as the MS-DOS Editor, to open CONFIG.SYS. (If you are unfamiliar with the CONFIG.SYS file, refer to your DOS documentation.)

Example:

edit config.sys <CR>

3. To disable the memory manager, type *rem* at the beginning of each line that was added by the memory manager (including device driver lines). Figure 3-1 shows a sample CONFIG.SYS file with 386MAX lines disabled.

```
rem device=c:\386max\386max.sys
rem device=c:\386max\386load.sys size=11504 flexframe
    prog=c:\dos\setver.exe
rem device=c:\386max\386load.sys size=9040 flexframe
    prog=c:\dos\ansi.sys
shell=c:\dos\commnad.com c:\dos /p /e:1024
dos=high
files=40
buffers=8
stacks=10,512
```

Figure 3-1. Sample CONFIG.SYS With The 386MAX Lines Disabled

4. If you disabled a memory manager line that loaded the ANSI.SYS driver (similar to lines 4 and 5 in Figure 3-1), add the following line to CONFIG.SYS:

device=c:\dos\ansi.sys <CR>

The ANSI.SYS line enables AMSETUP to return your monitor to the mode it was in prior to running AMSETUP.

5. Save and exit the file. If you are using the DOS Editor:
 - a. Select File from the DOS Editor menu bar.
 - b. Select Save from the File menu.
 - c. Select File from the menu bar.
 - d. Select Exit from the File menu.
6. At the DOS prompt, use an ASCII text processor such as the MS-DOS Editor, to open the AUTOEXEC.BAT file in the C: drive directory. (If you are not familiar with the AUTOEXEC.BAT file, refer to your DOS documentation.)

Example:

```
edit autoexec.bat <CR>
```

7. To disable the memory manager, type `rem` at the beginning of each line that was added by the memory manager. Figure 3-2 shows a sample AUTOEXEC.BAT with the 386MAX lines disabled.

```
rem C:\WINDOWS\386max\QCache /s:1792
rem C:\386max\386load size=43360 flexframe
prog=C:\WINDOWS\SMARTDRV.EXE
echo off
prompt=$p$g
break=on
PATH=C:\WINDOWS;C:\BIN
rem C:\386max\386load size=6400 flexframe prog=doskey
```

Figure 3-2. Sample AUTOEXEC.BAT With The 386MAX Lines Disabled

8. Save and exit the file. If you are using the DOS Editor:
 - a. Select File from the DOS Editor menu bar.
 - b. Select Save from the File menu.
 - c. Select File from the menu bar.
 - d. Select Exit from the File menu.
9. Reboot the system (press Ctrl-Alt-Delete keys simultaneously).

Running AMSETUP

DO NOT RUN AMSETUP WITH AN ActionMedia II BOARD INSTALLED IN YOUR COMPUTER. ANY MEMORY MANAGER RUNNING IN YOUR SYSTEM MUST BE DISABLED BEFORE RUNNING AMSETUP.

AMSETUP is a user-interactive, DOS program. This hardware configuration utility allows you to control the hardware configuration parameters.

1. Run AMSETUP from either the ActionMedia II Hardware Setup diskette or from the hard drive:

- ◆ From the diskette.

At the C:drive DOS prompt, type the following command (assuming a: is the diskette drive):

```
a:\amsetup <CR>
```

A title and trademark screen appears.

- ◆ From the hard disk.
 - a. At the C: drive DOS prompt (C:>), set up a directory on your hard disk for the AMSETUP files.

Example:

```
mkdir amsetup <CR>
```

- b. Insert the ActionMedia II Hardware Setup diskette into the appropriate diskette drive, and copy the files on the diskette into the directory (in the example below, a: indicates the diskette drive).

Example:

```
cd amsetup <CR>  
copy a:\*. * <CR>
```

- c. Remove the ActionMedia II Hardware Setup disk from the disk drive.
- d. In the AMSETUP directory, activate AMSETUP by entering:

```
amsetup <CR>
```

A title and trademark screen appears.

2. Press any key to continue.

A message screen appears explaining:

- ◆ The purpose of the program.
- ◆ That AM.CFG is created by AMSETUP.

3. Press any key to continue.

A screen displays a summary of the Delivery Board installation instructions. The instructions are detailed in this guide. If desired, print the screen for future reference.

4. Press any key to continue.

The Configuration screen appears. The system displays the following prompt:

Enter [W]indows, [D]os, or [B]oth to specify the environment(s) in which your ActionMedia II software will run. [default W]:

NOTE

If you plan to operate your ActionMedia II software in a DOS environment, or in both DOS and Windows environments, 40 KBytes of upper memory must be available for use by the ActionMedia II Delivery Board.

For better resource utilization, use a Windows-only environment.

5. Indicate the environment where you will run the multimedia software:
 - ◆ In a Windows environment, press the W key or press the Enter key (this is the default option).
 - ◆ In a DOS environment, press the D key, then press the Enter key.
 - ◆ In a DOS and Windows environment, press the B key, then press the Enter key.

The system displays the following prompt:

**Enter how you merge (key) VGA and video displays:
[A]nalog merging (using RGB Overlay Cable)
[D]igital merging (using VGA Feature Connector
Cable) [default A]:**

6. Indicate the type of video keying (merging) you will be using (refer to the section in Chapter 2 entitled, "Video And Graphics Merging Options," for assistance):
 - ◆ For analog keying using the RGB Overlay Cable (recommended setup), press the A key or press the Enter key (A is the default).
 - ◆ For digital keying using a VGA Feature Connector Cable, press the D key, then press the Enter key.

The system displays the following prompt:

Enter the board's base I/O address, in hexadecimal [default 2E4]:

9. You have two options:
 - ◆ Press the Enter key to assign the default address of 2E4. AMSETUP determines the I/O port address. 2E4 is the first of four (4) contiguous addresses that will be assigned to the ActionMedia II board's I/O ports. Intel recommends 0x3EC as a substitute I/O address.

OR

- ◆ If you are using 2E4 for another device, enter another address for the Delivery Board's base (first) I/O address, and then press the Enter key.

Your entry must also be a multiple of four, with the last digit of the hex address either 0, 4, 8, or C. The table displayed at the bottom of the screen lists acceptable addresses. Refer to the section in Appendix B entitled, "Changing The Base I/O Address," to a different base I/O address and its corresponding jumper configuration.

Setting Up The Hardware Configuration

The Selection Summary screen appears (Figure 3-3). Make sure you have the Delivery Board available, and print out or record all of the information on the screen.

If AMSETUP does not run successfully, IMMEDIATELY refer to Appendix A, "Handling Error Messages And Problems."

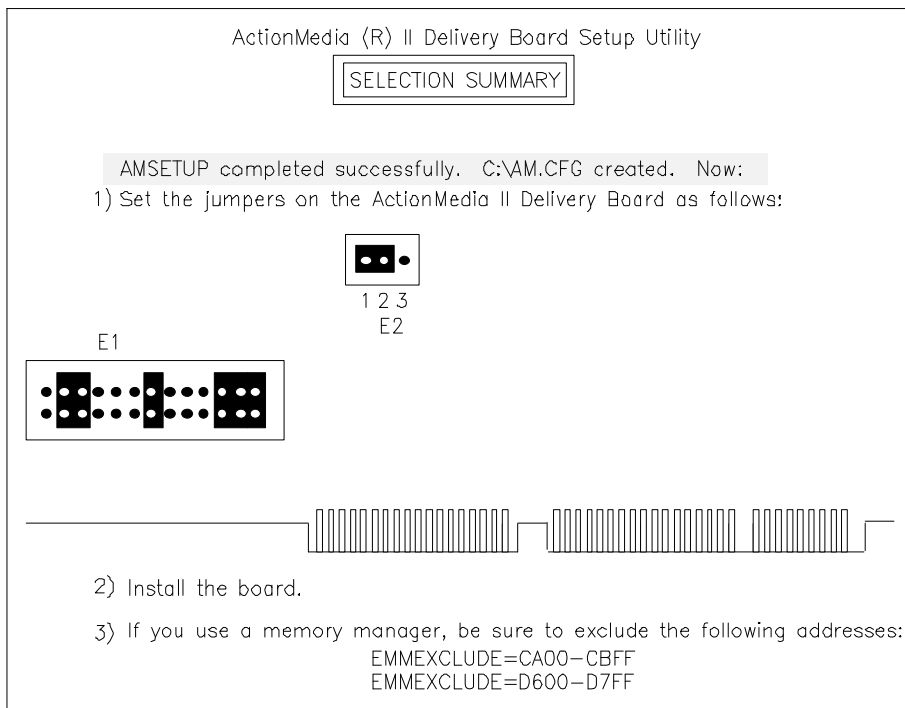


Figure 3-3. Example Of A Selection Summary Screen

The Selection Summary screen displays:

- ◆ A highlighted message indicating AMSETUP completed successfully and AM.CFG was created.
- ◆ Instructions, including a graphical representation of the Delivery Board. The jumper block diagrams (E1, E2) show where jumper shunts should be placed on the Delivery Board jumper blocks to support your configuration. A boxed, white set of dots represents a jumper shunt over a pin pair. The numbers are pin numbers.
- ◆ Addresses that must be excluded from upper memory. These addresses are reserved for VRAM and POST ROM (in Figure 3-3, CA00-CBFF will be used for VRAM, and DE00-DFFF will be used for POST ROM).

The system displays the DOS prompt below the Selection Summary screen.

You may want to keep the Selection Summary screen displayed while checking the jumpers on the Delivery Board.

10. Go to the next sections in the following order:
 - a. "Checking And Setting Jumpers" section (page 3-14), to compare the jumpers on the Delivery Board with the diagrams in the Selection Summary screen, and to move the jumper shunts, if necessary.
 - b. "Adding Excluded Addresses" section (page 3-17), to add the excluded addresses provided in the Selection Summary screen to the SYSTEM.INI and CONFIG.SYS files.

Checking And Setting Jumpers

This section describes how to check and change the jumper shunts on the Delivery Board, according to the diagrams provided in the Selection Summary screen of AMSETUP.

1. To prevent damage to the board due to static, ground yourself by wearing an anti-static wrist strap or by touching an unpainted metal area on the computer's frame.
2. Remove the Delivery Board's protective bag. Be careful not to touch the connectors or components.
4. Place the Delivery Board component-side up onto a flat, static-free work surface.
5. Locate jumper blocks E1 and E2 on the Delivery Board (see Figure 3-4). (The location of the jumper blocks in Figure 3-4 matches the graphic in the Selection Summary screen.)

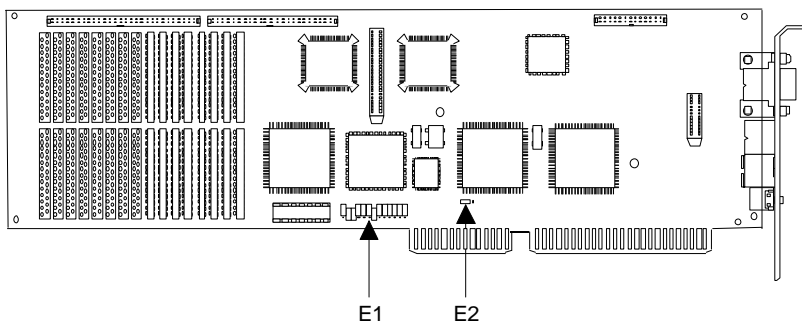


Figure 3-4. Location Of Jumpers

A jumper shunt placed over a pin pair indicates a jumpered pin pair. A pin pair with no shunt or with only one pin covered by a shunt is not jumpered. The original placement of the shunts on the Delivery Board are factory-installed jumpers.

6. Compare the factory-set jumper shunt locations in the E1 jumper block (Figure 3-5) to the diagram shown on the Selection Summary screen (a boxed, white set of dots in the Selection Summary graphic represents a jumper shunt over a pin pair; the numbers are pin numbers). If the board jumper block has a different configuration, change the jumper shunts (use a needle-nosed plier) to conform to the Selection Summary screen diagram.

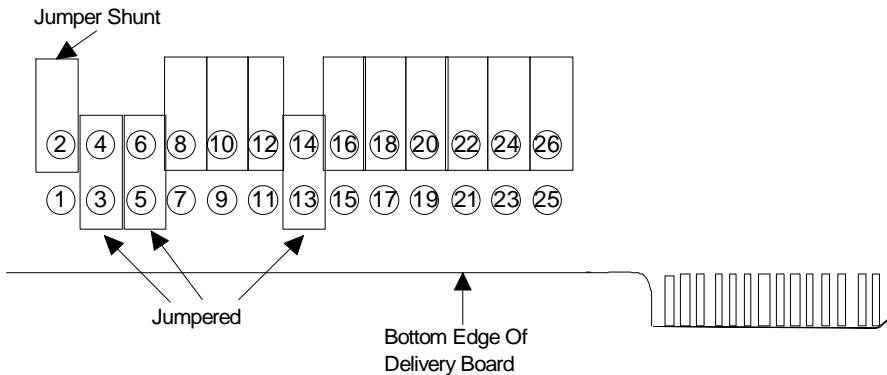


Figure 3-5. Factory-Set Jumper Block E1 (Top View)

7. Compare the factory-set jumper shunt location in the E2 jumper block (Figure 3-6) to the diagram shown on the Selection Summary screen. If the board jumper block has a different configuration, change the jumper shunts (use a needle-nosed plier) to conform to the Selection Summary screen diagram.

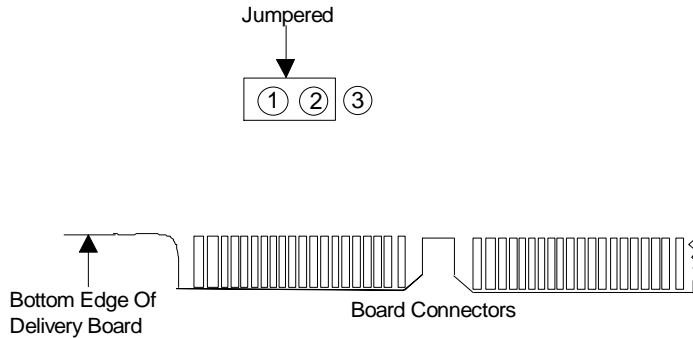


Figure 3-6. Factory-Set Jumper Block E2 (Top View)

Adding Excluded Addresses

The first procedure in this section explains how to edit the SYSTEM.INI file. Complete this procedure whether or not you are going to use a memory manager.

The second procedure should be followed after the first procedure ONLY when a memory manager was disabled before AMSETUP, and needs to be enabled.

Adding Excluded Addresses To SYSTEM.INI

Use the procedure below to add the excluded addresses from the Selection Summary screen in AMSETUP to the SYSTEM.INI file. Explicitly excluding the VRAM and POST ROM addresses in SYSTEM.INI prevents the system from using these addresses for any other purpose.

1. Return to the C: drive prompt.

Example:

```
cd \ <CR>
```

2. Use an ASCII text processor, such as the MS-DOS Editor, to open the SYSTEM.INI file in the Windows directory.

Example:

```
cd windows <CR>
```

```
edit system.ini <CR>
```

3. Page down or scroll to the end of the section in the file entitled "[386enh]" and add the excluded addresses provided in the Selection Summary screen (see Figure 3-7). The 386enh section may appear differently from the sample in Figure 3-7, depending on your configuration.

```
[ 386enh]
device=Vswitch D386
32BitDiskAccess=OFF
device=*int13
device=*wdctrl
mouse=*vmd
.
.
.
emmexclude=c800-c9ff
emmexclude=de00-dfff
```

Figure 3-7. Sample Entry Of Excluded Addresses In A SYSTEM.INI File

4. Save and exit the file. If you are using the DOS Editor:
 - a. Select File from the DOS Editor menu bar.
 - b. Select Save from the File menu.
 - c. Select File from the menu bar.
 - d. Select Exit from the File menu.
5. If you disabled a memory manager, continue with the next section to enable the manager.

If you are not going to utilize a memory manager, reboot your system (press Ctrl-Alt-Delete keys simultaneously) at this time, for the SYSTEM.INI change to take effect. Continue with hardware installation procedures in Chapter 4, "Installing The ActionMedia II Boards And Cables."

Enabling The Memory Manager

Use this procedure to enable the memory manager installed in the system, and to exclude the VRAM and POST ROM upper memory addresses from use by the manager.

1. Return to the C: drive prompt, if you are not already there.

Example:

```
cd \ <CR>
```

2. At the C: prompt (C:\>), use an ASCII text processor such as the MS-DOS Editor, to open the AUTOEXEC.BAT file.

Example:

```
edit autoexec.bat <CR>
```

3. Delete rem from the beginning of all memory manager lines.
4. Save and exit the file. If you are using the DOS Editor:
 - a. Select File from the DOS Editor menu bar.
 - b. Select Save from the File menu.
 - c. Select File from the menu bar.
 - d. Select Exit from the File menu.
5. At the C: prompt, open the CONFIG.SYS file and perform the following operations:
 - ◆ Delete rem from the beginning of all memory manager lines.

If the memory manager has a line for ANSI.SYS, delete the line you added when you disabled the manager: "device=c:\dos\ansi.sys."

Setting Up The Hardware Configuration

- ◆ Add the the exclude statements from the Selection Summary screen in AMSETUP to a memory manager line in CONFIG.SYS. Memory managers differ on the EXCLUDE statement syntax for the CONFIG.SYS file. Refer to Figure 3-8 for sample EXCLUDE statements for three different memory managers. (Refer to the documentation provided with your memory manager for specific instructions on how to write the EXCLUDE statement.)

CAUTION
IF YOU ARE USING 386MAX OR ANOTHER MEMORY MANAGER THAT EXCLUDES 16-KBYTE ADDRESS RANGES, REFER TO THE NEXT SECTION, "USING 386MAX" (page 3- 21), BEFORE REBOOTING.

To exclude address ranges from the EMM386 memory manager

```
device=c:\windows\emm386.exe x=CA00-CBFF x=D600-D7FF
```

To exclude address ranges from the QEMM memory manager:

```
device=c:\qemm\qemm.sys x=CA00-CBFF x=D600-D7FF
```

To exclude address ranges from the 386MAX memory manager:

```
device=c:\386max\386max.sys exclude=C800-CBFF exclude=D600-D9FF
```

Figure 3-8. Sample Excluded Address Statements In CONFIG.SYS

In Figure 3-8, note that EMM386 and QEMM exclude 8-KByte address ranges. 386MAX excludes 16-KByte address ranges.

6. Save and exit the file.
7. Reboot the system for the changes to take effect (press Ctrl-Alt-Delete keys simultaneously).

Using 386MAX Or Similar Manager

If you are using 386MAX or another 16-KByte range memory manager, you need to exclude 16-KByte address ranges rather than 8-KByte addresses. The Selection Summary screen ranges must fit within the ranges listed in Table 3-2. The addresses in the CONFIG.SYS and the SYSTEM.INI files must be changed to reflect the 16-KByte range.

Table 3-2. 16-KByte Address Ranges For Use By POST ROM And VRAM

C000-C3FF	D000-D3FF
C400-C7FF	D400-D7FF
C800-CBFF	D800-DBFF
CC00-CFFF	DC00-DFFF

Example:

If the range on the Selection Summary screen shows C800-C9FF, you need to enter C800-CBFF into your exclude statements.

Chapter 4 Installing The ActionMedia II Boards And Cables

This chapter provides hardware installation procedures for the ActionMedia II Delivery Board, optionally the ActionMedia II Capture Module, accessory cables, and peripheral devices.

Overview

The installation procedures in this chapter are for both required hardware and optional equipment. Refer to Chapter 2, "Planning A Multimedia Environment," to determine the type of equipment you need for your requirements.

Summary Of Hardware Installation Procedures

Hardware installation procedures are detailed within this chapter. If you are familiar with PC hardware installation, Table 4-1 may help you as a quick reference listing of the procedures.

CAUTION
DO NOT INSTALL THE ActionMedia II DELIVERY BOARD UNTIL AFTER YOU RUN AMSETUP! REFER TO CHAPTER 3, "SETTING UP THE HARDWARE CONFIGURATION."

Table 4-1. Summary of Hardware Installation Procedures

Step	Procedure
1	If available, attach the ActionMedia II Capture Module to the Delivery Board. <i>Delivery Board jumpers must be set correctly for your hardware configuration prior to this step.</i>
2	Install the Delivery Board into any 16-bit or 32-bit slot in your computer.
3	Install a SCSI CD-ROM drive (optional).
4	Connect the appropriate video keying cable: RGB Overlay Cable or optionally a VGA Feature Connector Cable.
5	Connect optional devices that interface externally with the Delivery Board: a VGA or XGA monitor , audio output equipment , S-Video (Y/C) device, audio/video source equipment (for capture).
6	Turn the system power on. The system and ActionMedia II Power On Self Tests (POST) run automatically (if enabled).

Connecting The Capture Module

If you do not have an ActionMedia II Capture Module, continue with the next procedure, "Removing The Computer Cover" (page 4-5)

If you purchased an ActionMedia II Capture Module, it must be connected to the Delivery Board before installing the Delivery Board into your computer. Use the following procedure to connect the Capture Module to the Delivery Board:

1. Open the Capture Module's protective bag.
2. If you are not wearing an anti-static wrist strap, discharge any built-up static by touching an unpainted metal area on the computer's frame.
3. Remove the Capture Module's protective bag. Be careful not to touch the connectors or components.
4. Orient the Capture Module and the Delivery Board so that the support posts and strip pin connectors on both boards align (Figure 4-1).

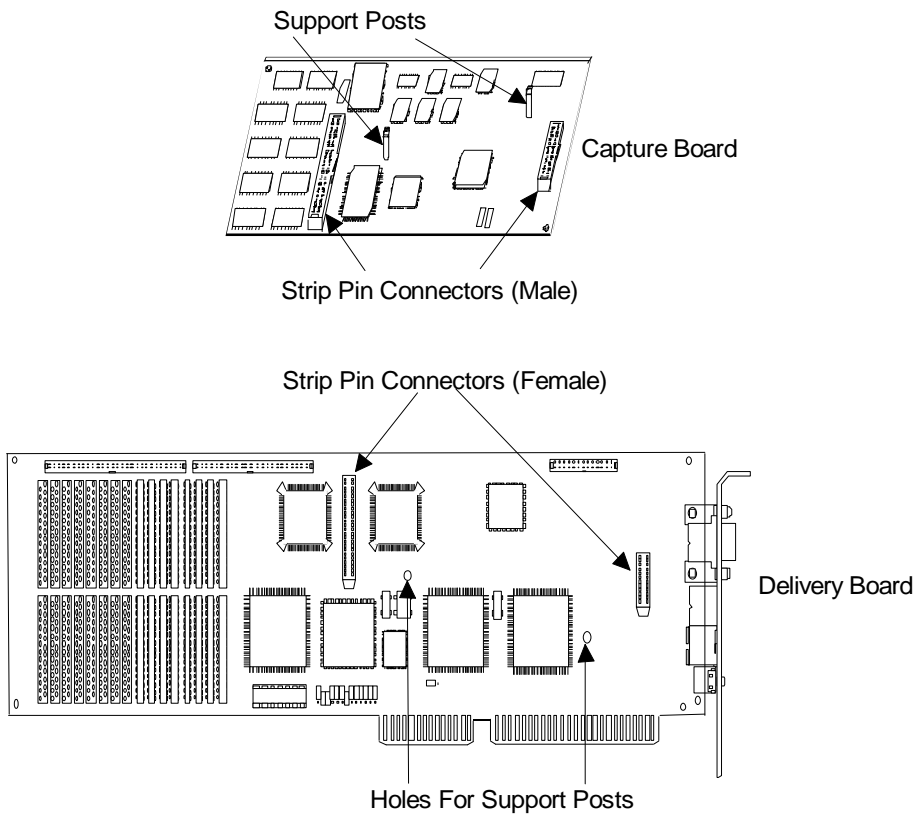


Figure 4-1. Location Of Support Posts And Strip Pin Connectors

5. Apply even pressure to the boards until the Capture Module support posts lock into the Delivery Board holes.
6. Proceed to the "Removing The Computer Cover" section (page 4-5).

Removing The Computer Cover

Since PCs differ in construction, refer to your PC hardware manual to remove the cover. The following is a typical procedure to remove a computer cover:

1. Shut off power to all peripheral devices.
2. Turn off the system power, but leave the power cable connected to the wall so the computer is grounded.
3. Remove the screws on the back of the computer (Figure 4-2) . To avoid stripping the screws, use the correct size and type of screwdriver.

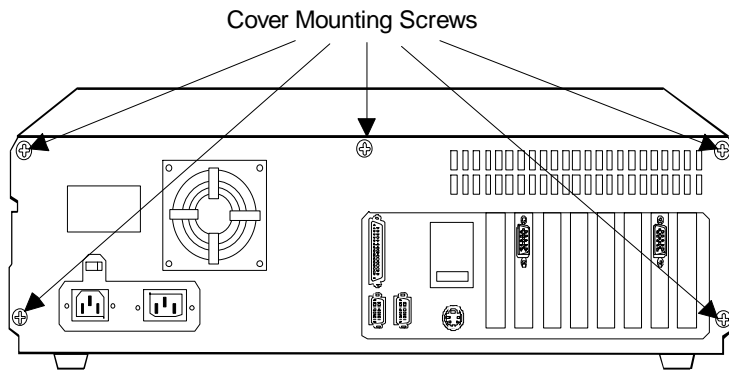


Figure 4-2. The Back Of A Typical Computer

4. Carefully remove the cover by sliding it towards the front of the computer. Be careful not to let the ribbon cables get caught on the inside of the machine. It might be necessary to lift the cover slightly in the back to clear the brackets at the rear of the chassis.
5. Proceed to the "Installing The Delivery Board" section (page 4-6).

Installing The Delivery Board

The following procedure describes how to install the Delivery Board (with or without the Capture Board attached) into your computer.

WARNING
MAKE SURE THE COMPUTER POWER IS TURNED OFF BEFORE BEGINNING THIS PROCEDURE.

1. Select any unused full-length 16- or 32-bit expansion slot inside the computer.
2. Using the proper screwdriver, remove the screw and the expansion slot's metal retaining bracket (Figure 4-3). Save the screw to secure the Delivery Board metal bracket to the chassis.

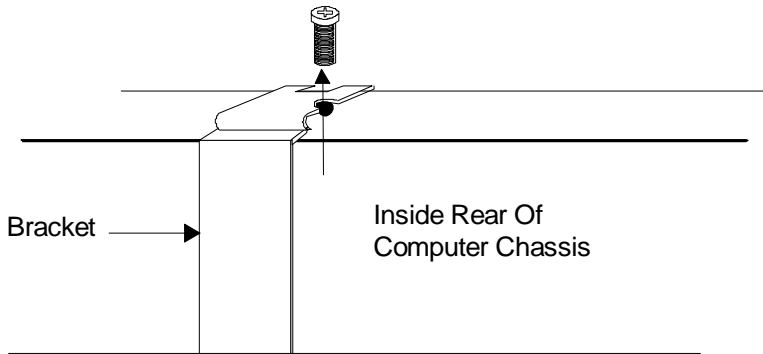


Figure 4-3. Metal Retaining Bracket

3. If you are not wearing an anti-static wrist strap, touch an unpainted metal area on the computer's frame to discharge any built-up static.

- Carefully insert the Delivery Board into the expansion slot, with the gold connectors on the board positioned down (Figure 4-4). Press the board down so the gold connectors are firmly seated into the slot connector.

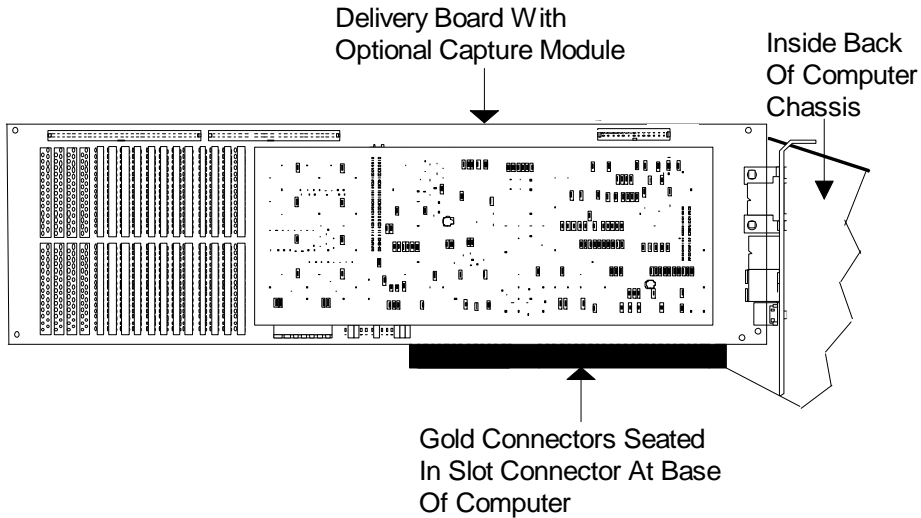


Figure 4-4. Delivery Board Inserted Into Expansion Slot

- Install the screw you removed from the retaining bracket into the Delivery Board bracket.
- For later reference, note the location of the Delivery Board bracket connectors in the back of the computer. Also locate the graphics source connector at the back of the computer (from a VGA or XGA board, or motherboard).
- Proceed to the "Connecting CD-ROM Drive And Cable" section (page 4-100).

Connecting The CD-ROM Drive And Cable

If you are not installing a SCSI CD-ROM drive or a CD-ROM drive is connected in some other manner to the system, proceed to the "Connecting Video Keying Cable" section (page 4-122).

NOTES
<i>The CD-ROM should be connected inside the computer to the Delivery Board for better CD-ROM capture and playback performance.</i>
<i>Consult your multimedia system software for supported versions of the Microsoft CD-ROM Extension driver, MSCDEX.EXE.</i>

Most multimedia system software supports only one (unchained) SCSI CD-ROM drive. The recommended configuration for a single drive is: PARITY ON, DRIVE SELECT ZERO.

Any SCSI bus interface boards, 50-pin SCSI interface ribbon cables, or any other special software supplied with the drive SHOULD NOT BE USED. Demonstration CD-ROM discs supplied with the drive might not work with the ActionMedia II hardware configuration.

Use the following procedure to connect the SCSI cable provided with the Delivery Board to the CD-ROM drive and to the Delivery Board.

1. Connect the SCSI cable (a wide cable compared to other cables in the Delivery Board kit) to the back of the CD-ROM drive (Figure 4-5).

If the CD-ROM drive is already installed in your system, it may be easier to remove the drive according to manufacturer's instructions, and then connect the SCSI cable to it.

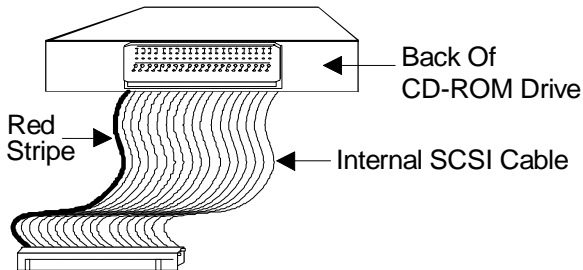


Figure 4-5. Internal SCSI Cable Attached To CD-ROM Drive

2. Feed the cable through the drive bay (if the CD-ROM drive is not installed) and install the drive according to the manufacturer's installation procedures.
3. Attach the other end of the Internal SCSI Cable to the appropriate connector on the Delivery Board (see Figure 4-6). The red stripe on the cable should be located on the side of the connectors as shown in Figure 4-6, and not twisted. The CD-ROM drive may be oriented differently than the position shown in Figure 4-6.

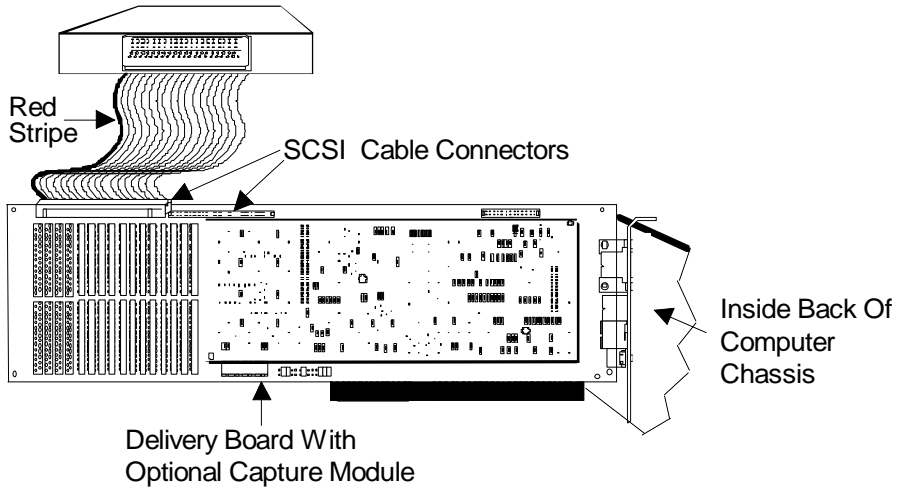


Figure 4-6. CD-ROM Drive Connection To Delivery Board

4. Proceed to the "Connecting Video Keying Cable" section (page 4-122).

Connecting Video Keying Cable

Keying (merging) VGA graphics with ActionMedia II video output on one single screen is facilitated by video keying cables. The keying cables provided with the Delivery Board kit allow you to use either analog or digital keying. Use Table 4-2 to determine the procedure appropriate for your keying configuration (see the "Video And Graphics Merging Options" section in Chapter 2 for more details on selecting the proper keying method).

Table 4-2. Choosing Keying Cable Procedure

Keying Method	Cable To Use	For Installation Procedure...
Analog (recommended method)	RGB Overlay Cable	Go to section entitled, "Connecting The RGB Overlay Cable" (page 4- 133).
Digital	Edge Card or Header VGA Feature Connector Cable	Go to section entitled, "Connecting A VGA Feature Connector Cable" (page 4- 155).

Connecting The RGB Overlay Cable

The following procedure describes how to connect the RGB Overlay Cable to the computer and monitor.

WARNING

OPERATING YOUR SYSTEM WITH THE RGB OVERLAY CABLE INSTALLED INCORRECTLY MAY DAMAGE THE ActionMedia II BOARD(S).
--

1. Replace the computer cover.
2. Referring to Figure 4-7, at the back of the computer, attach the center female connector **(A)** to the monitor cable.
3. Attach the male connector **(B)** at the short end of the RGB Overlay Cable to the top connector on the Delivery Board bracket at the back of the computer. This socket, as a reference, has 15 pins.
4. Attach the male connector **(C)** on the longer section of the RGB Overlay Cable to the output connector of the RGB graphics source (connector may not be in the same location as in Figure 4-7). The graphics source can be either an XGA or VGA board, or a VGA display connector on the motherboard. This socket, as a reference, has 14 pins.

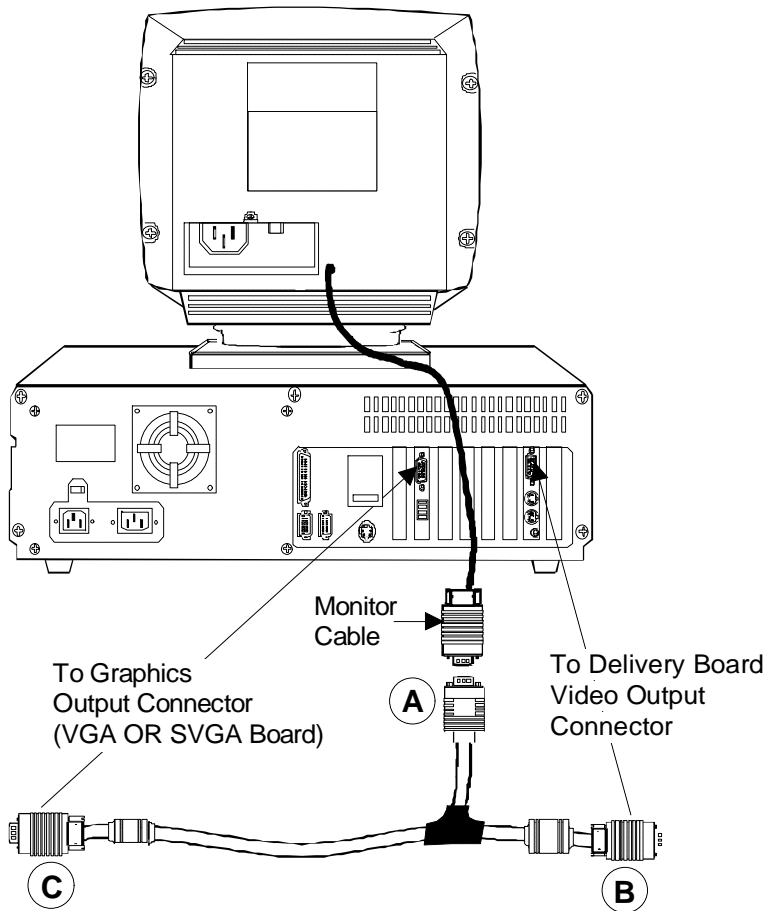


Figure 4-7. Example Of RGB Overlay Cable Connections

5. If you plan to connect optional equipment for audio output, S-Video, or capture source, continue with the section entitled, "Connecting Other Optional Equipment" (page 4-21).

If you are not going to connect any other equipment, proceed to the last section in this chapter, "Power On" (page 4-35).

Connecting A VGA Feature Connector Cable (Optional)

WARNING

DO NOT ATTACH THIS CABLE WHEN YOU ARE USING AN RGB OVERLAY CABLE.
--

The following procedure describes how to connect a VGA Feature Connector Cable to the VGA board or motherboard, and to the Delivery Board.

1. Look at the board where the monitor cable is connected, and determine the type of VGA connector on this board (either edge card or 24-pin connector). Refer to Figures 4-8 and 4-9 for examples of VGA connectors and the appropriate VGA Feature Connector Cables.
2. Select the proper cable from the Delivery Board Kit (either the Edge Card or Header VGA Feature Connector Cable).

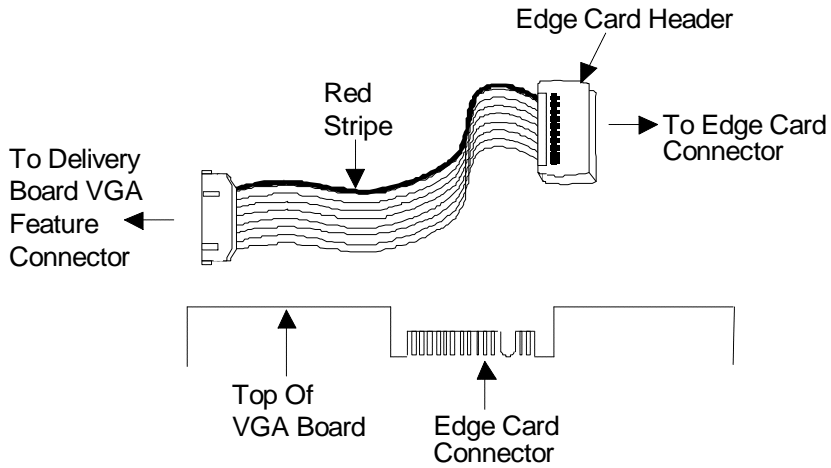


Figure 4-8. Edge Card VGA Feature Connector And Cable

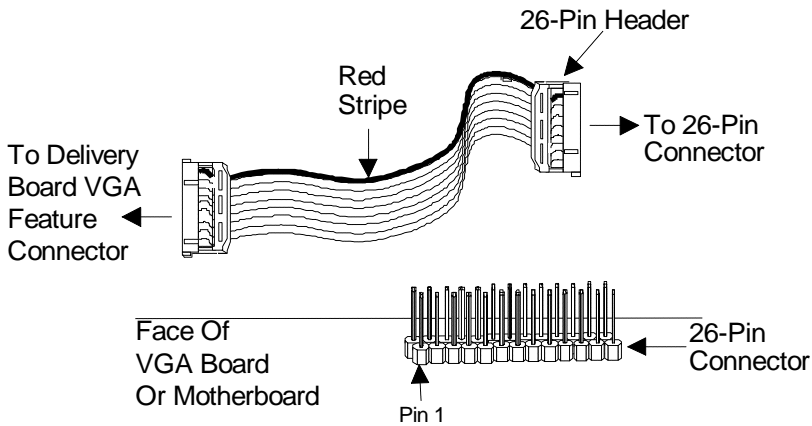


Figure 4-9. Header VGA Feature Connector And Cable

3. Connect the VGA Feature Connector Cable to the Delivery Board by plugging the cable's 26-pin connector into the 26-pin connector on the Delivery Board (Figure 4-10).

Make sure the red stripe on the VGA Feature Connector Cable is located over Pin 1 of the 26-pin connector on the Delivery Board.

(Pin 1 may be opposite to what is shown in Figure 4-10. Some VGA Feature Connector Cables may have Pin 1 reversed, or some VGA boards do not have Pin 1 marked. If there is no screen display after powering up the computer or you get an error message, you may have to go back into the computer and twist the cable so the cable header becomes reversed when re-connected.)

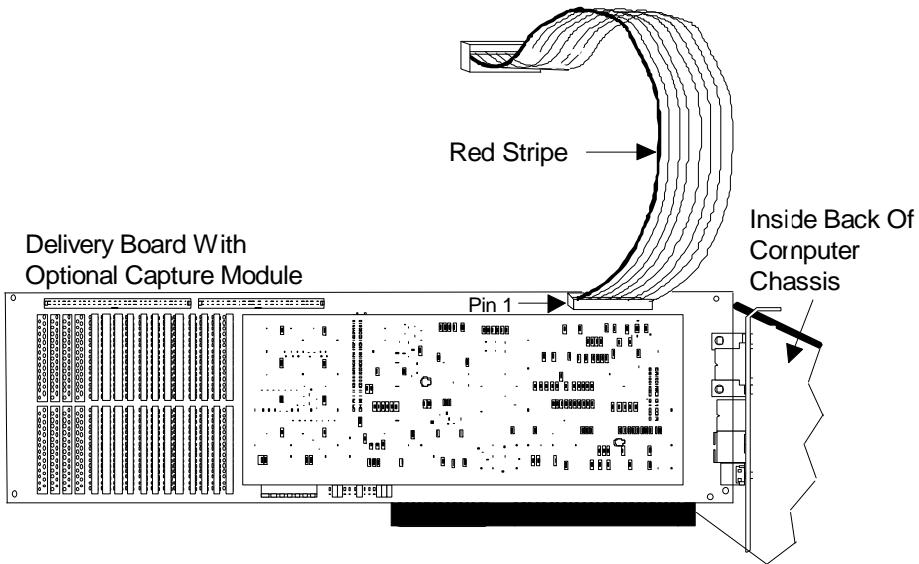


Figure 4-10. VGA Feature Connector Cable Connection On The Delivery Board

Installing The ActionMedia II Boards And Cables

4. Connect the VGA Feature Connector Cable to the VGA board or motherboard VGA Feature Connector. The cable, in general, should not be twisted, and the red stripe aligned with Pin 1 on the VGA Feature Connector (Figure 4-11).

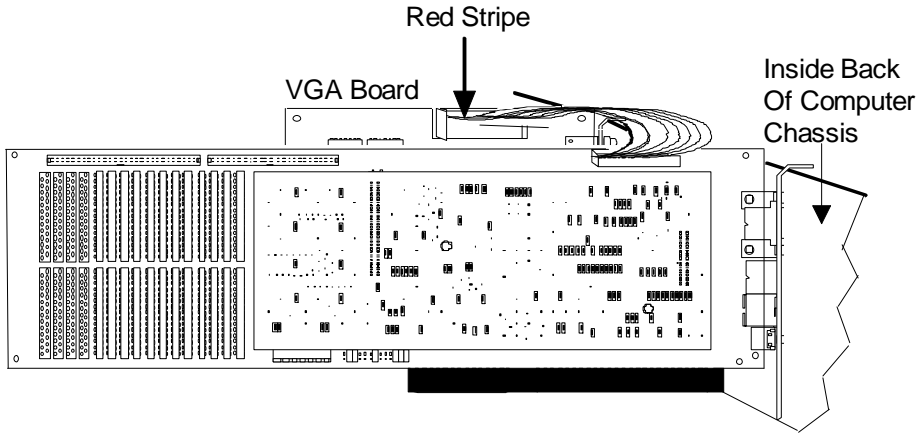


Figure 4-11. VGA Feature Connector Connection

5. Replace the computer cover.
6. Plug the monitor plug into the top connector on the Delivery Board bracket at the back of the computer (Figure 4-12).

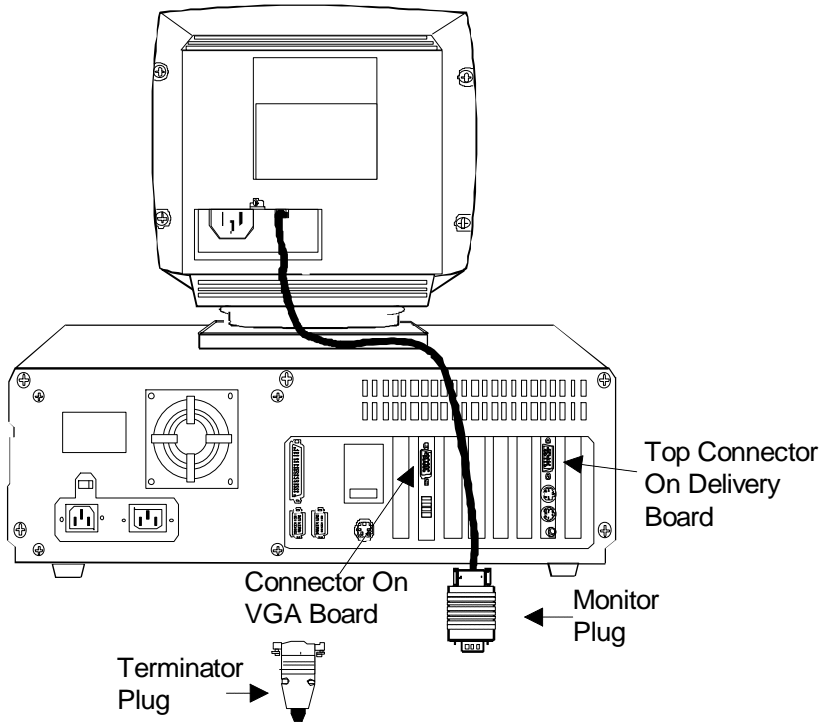


Figure 4-12. Monitor and Terminator Plug Connection

7. Connect the Terminator Plug supplied with the VGA Feature Connector Cables into the connector at the back of the computer where the monitor plug was connected. (Connector may be in a different location at the back of the computer than shown in Figure 4-12).

The Terminator Plug prevents the system from defaulting to monochrome upon startup. The Terminator Plug also enables the monitor to display in color after a warm reboot (Ctrl+Alt+Delete keys pressed simultaneously).

8. If you plan to connect optional equipment for audio output, S-Video, or capture source, continue with the section entitled "Connecting Other Optional Equipment" (page 4-21).

If you are not going to connect any other equipment, proceed to the last section in this chapter, "Power On" (page 4-35).

Connecting Other Optional Equipment

If you are not going to use audio output, S-Video, or capture source equipment, proceed to the "Power On" section (page 4-35).

Connecting audio output, S-Video, and capture source equipment to your computer is optional, depending on your multimedia needs (refer to Chapter 2, "Planning A Multimedia Environment"). To connect any of this equipment, refer to Table 4-3 to help you determine the next procedure.

Table 4-3. Procedure Selection For Optional Equipment

Connect Cables And Hardware For:			Continue With Section....
Audio Output	S-Video Output	Capture Source	
Yes	No	No	"Connecting Optional Audio Output Equipment" (page 4-21)
Yes	Yes	No	"Connecting Optional Audio Output Equipment" (page 4-21)
Yes	Yes	Yes	"Connecting Optional Audio Output Equipment" (page 4-21)
No	Yes	No	"Connecting Optional S-Video Output Equipment" (page 4-24)
No	Yes	Yes	"Connecting Optional S-Video Output Equipment" (page 4-24)
No	No	Yes	"Connecting Optional Capture Source Equipment" (page 4-27)
No	No	No	"Power On" (page 4-35)

Connecting Optional Audio Output Equipment

If you are not connecting equipment for amplified audio output, skip this section.

The following procedure describes how to connect audio equipment (stereo plug, amplifier) to the Delivery Board.

1. Verify that your audio equipment is compatible with the audio output levels of the Delivery Board. Refer to the "Basic Playback Hardware Requirements" section in Chapter 2 and the technical specifications supplied with your audio equipment.

Your audio equipment must have an audio cable with a 3.5 mm stereo plug for connection to the Delivery Board bracket. The cable can be purchased from an audio equipment distributor.

2. Insert the 3.5 mm stereo plug into the stereo audio jack on the Delivery Board bracket at the back of the computer (Figure 4-13).

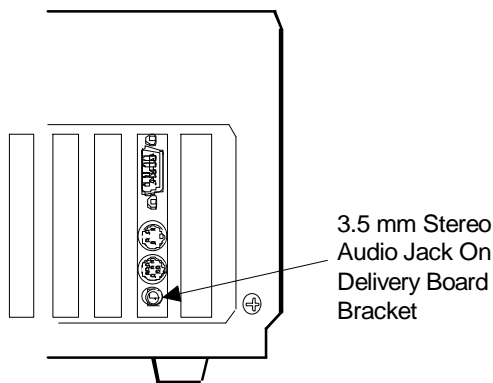


Figure 4-13. Audio Jack

3. If you have an audio amplifier, locate the left- and right-channel audio input jacks (sometimes referred to as "RCA plugs") on the back panel of the amplifier (Figure 4-14). The input jacks should be capable of accepting LINE-level input. (Connectors may not necessarily be marked "LINE." They might be marked "LINE/TAPE/AUX".)

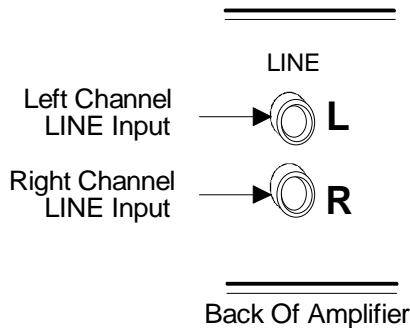


Figure 4-14. Amplifier LINE Input

4. Plug the right- and left-channel speaker plugs into the corresponding sockets on the back of the amplifier. Refer to the manufacturer's instructions.
5. Set up the amplifier. Refer to the manufacturer's instructions.
6. If you are going to use S-Video equipment such as a VCR, continue with the "Connecting Optional S-Video Output Equipment" section (page 4-24).

If you are not using S-Video source and have other types of audio/video capture hardware, proceed to the "Connecting Optional Capture Source Equipment" section (page 4-27).

If you are not going to use external video or audio equipment, go to the "Power On" section (page 4-35).

Connecting Optional S-Video Output Equipment

If you are not connecting S-Video equipment to your computer, skip this section.

The following procedure describes how to connect S-video equipment (also known as Y/C, S-VHS VCR, Super VHS VCR).

1. Check the technical specifications of your NTSC or PAL S-Video equipment to make sure it can accept standard S-Video (Y/C) output from the Delivery Board.
2. Make sure the following cables have been provided with your S-Video equipment:
 - ◆ An S-VHS connection cable. This cable has a 4-pin mini DIN S-type connector at each end.
 - ◆ An audio input cable with a 3.5 mm stereo plug at one end.

If these cables have not been provided with your video equipment, they can be purchased from a video equipment distributor.

3. Plug one end of the S-VHS connection cable into the 4-pin mini DIN connector on the Delivery Board bracket at the back of the computer (Figure 4-15).

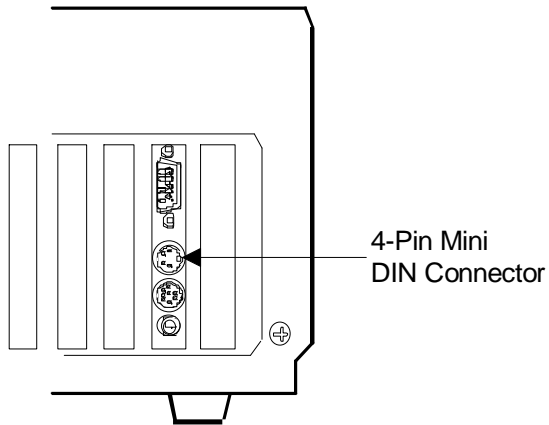


Figure 4-15. S-Video Connector On The Delivery Board Bracket

4. Plug the other end of the cable into the input connector labeled "S Video IN" or "S-VHS IN" on the back of the video equipment (Figure 4-16).

Back of S-Video Equipment

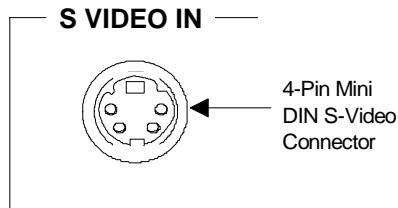


Figure 4-16. S-Video Input

5. Plug the audio equipment (amplifier, microphone, speakers) into the input connectors on the back of the S-Video equipment. Refer to the S-Video equipment manufacturer's instructions.
6. Setup the S-Video equipment. Refer to the manufacturer's instructions.
7. Continue with the "Connecting Optional Capture Source Equipment" section (page 4-27).

If you are not going to capture audio and/or video, proceed with the "Power On" section (page 4-35).

Connecting Optional Capture Source Equipment

If you are not going to capture video and/or audio, proceed to the "Power On" section (page 4-35).

The following procedures describe how to connect video and audio capture sources (VCRs, laser disc players, CD players, video cameras, microphones) to your computer.

Connecting The Capture Cable

Connect the 8-pin male connector of the Capture Cable to the 8-pin mini DIN connector on the Delivery Board bracket at the back of the computer. Figure 4-17 shows the connector at the back of the computer for the Capture Cable.

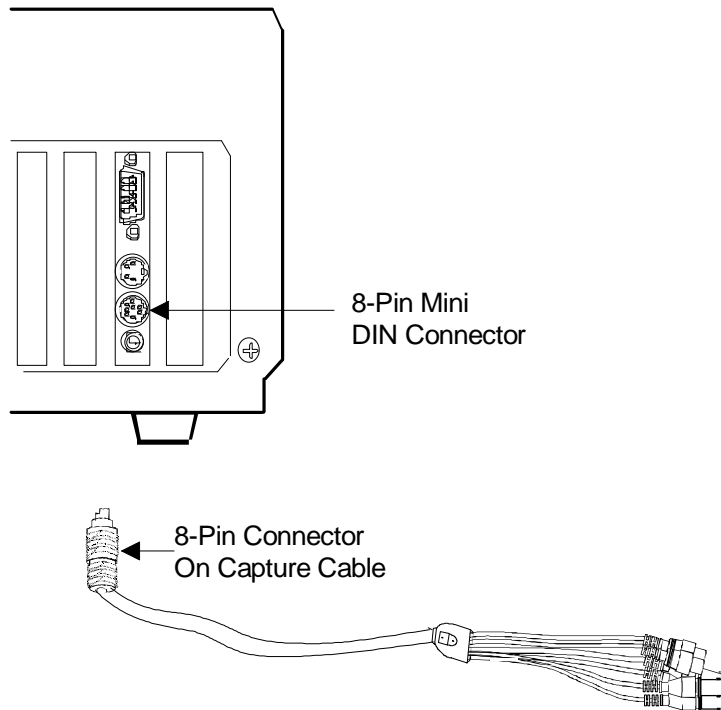


Figure 4-17. Delivery Board Connector For Capture Cable

Connecting The Video Capture Source

This procedure describes how to connect a video capture source to your computer.

1. Locate the video device cable that will provide video data to the ActionMedia II boards.
2. Connect the cable to the video device. Refer to the manufacturer's instructions.
3. Determine the video output format used by the device. Refer to the manufacturer's specifications.
4. Continue with the procedure indicated in Table 4-4 that corresponds to the device's video output format.

Table 4-4. Video Format Reference s

Video Output Format	Proceed To Section Entitled...
Composite	Composite Video Format (page 4-30)
S-Video (Y/C)	S-Video Format (page 4-31)
RGB With Composite Sync	RGB Composite Sync Format (page 4-32)
RGB With Sync On Green	RGB Sync On Green Format (page 4-33)

Composite Video Format

1. Connect a Composite Video Adapter supplied with the Capture Module (if phono-to-BNC plug conversion is necessary) and the video device's cable to the red connector on the Capture Cable, as shown in Figure 4-18..

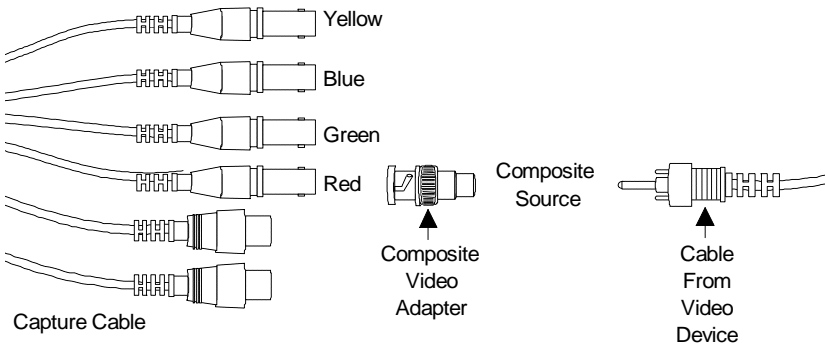


Figure 4-18. Cable Connections For Composite Video

2. If you are going to do audio capture, continue with the section, "Connecting The Audio Capture Source." If you are not going to do audio capture, continue with the "Power On" section.

S-Video Format

1. Connect the red and green connectors on the Capture Cable to the corresponding color-coded S-Video Adapter (Y=red, C=green) supplied with the Capture Module, as shown in Figure 4-19.
2. Connect the video device cable's 4-pin DIN connector to the S-Video Adapter's 4-pin DIN connector..

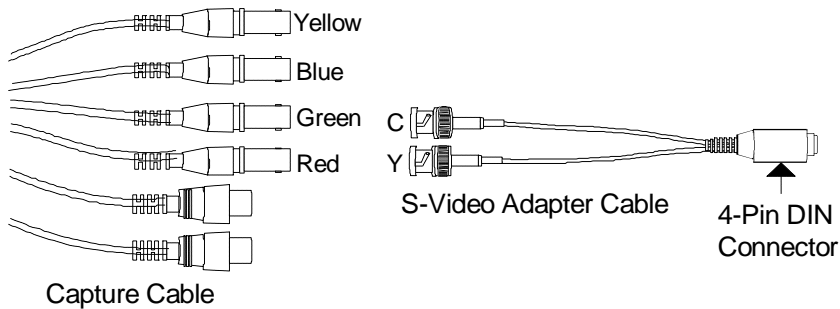


Figure 4-19. Cable Connections For S-Video (Y/C)

3. If you are going to do audio capture, continue with the section, "Connecting The Audio Capture Source." If you are not going to do audio capture, continue with the "Power On" section.

RGB Composite Sync Format

1. Connect the red, green, blue, and sync connectors on the Capture Cable (sync=yellow) to the corresponding color-coded connectors on the video device, as shown in Figure 4-20.

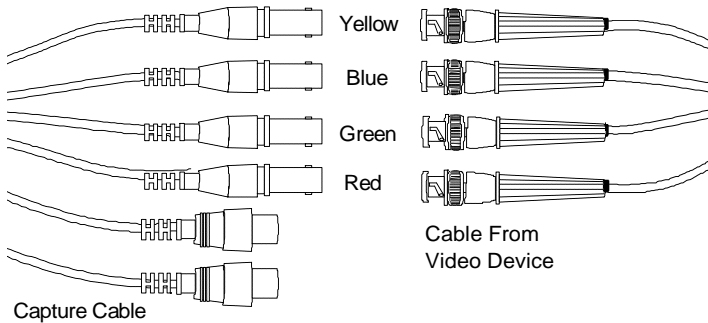


Figure 4-20. Cable Connections For RGB Composite Sync Video

2. If you are going to do audio capture, continue with the section, "Connecting The Audio Capture Source." If you are not going to do audio capture, continue with the "Power On" section.

RGB Sync On Green Format

1. Connect the red, green, and blue connectors on the Capture Cable to the corresponding color-coded connectors on the video device, as shown in Figure 4-21.

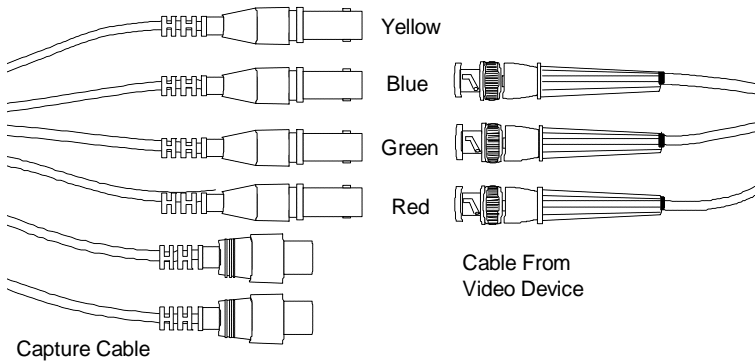


Figure 4-21. Cable Connections For RGB Sync On Green Video

2. If you are going to do audio capture, continue with the section, "Connecting The Audio Capture Source." If you are not going to do audio capture, continue with the "Power On" section.

Connecting The Audio Capture Source

This procedure describes how to connect the audio capture source to your computer.

1. Locate the audio device cable that will provide audio data to the ActionMedia II boards.
2. Connect the cable to the audio device. Refer to the manufacturer's instructions.
3. Identify the left- and right-output channels on the device's cable. Refer to the manufacturer's instructions.
4. Connect the audio device's left- and right-channel phono ("RCA") connectors to the Capture Cable connectors (black=left, white=right), as shown in Figure 4-22.

If you have a mono device, you may need to purchase a Y-adaptor cable.

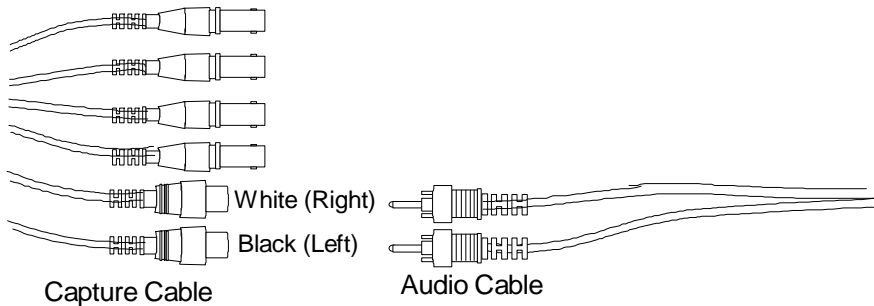


Figure 4-22. Cable Connections For Stereo Audio Source

5. Continue with the "Power On" section.

Power On

This procedure is performed after all hardware installation is complete.

1. Make sure all external cables are secure.
2. Turn on all peripherals and the system power in the sequence described in your computer's hardware reference manual.

As the system powers up, the Power-On Self Test (POST) runs automatically to check the system hardware and the ActionMedia II boards (assuming that POST is enabled in Jumper Block E1 on the Delivery Board). POST reports a diagnostic code if a speaker is plugged in and turned on, or an input video signal is applied to the capture connector; this code is not an error code.

When the POST finishes without errors, the DOS system prompt appears.

If the POST detects a hardware problem, the system screen remains blank or an error code displays. One long and two short beeps are also sounded. To determine and fix a problem, record the problem or error code, and go to Appendix A, "Handling Error Messages And Problems," for possible causes and recommended corrective action.

If an error code does not begin with "0109...", check your computer's Quick Reference document or the documentation supplied with other installed add-in boards for troubleshooting.

Congratulations on successfully installing the Intel ActionMedia II Delivery Board! You are now ready to start enjoying accelerated Indeo video on your PC. Refer to the ActionMedia II Driver for Indeo Video Installation Guide for details on installing the ActionMedia II software.

Appendix A

Handling Error Messages, Error Codes, And Problems

This appendix lists error messages, error codes, and general problems that may occur while running AMSETUP or when powering up your computer after the ActionMedia II hardware installation.

AMSETUP Error Messages

This section lists error messages and general problems you may encounter during AMSETUP configuration utility. Try the corrective action. If you receive the same error message after following the procedure, contact your board reseller.

Error Message	Possible Cause	Corrective Action
<p><i>The ActionMedia II Delivery Board is already installed. Please remove it from the system, reboot your system and run this utility again.</i></p>	<p>An ActionMedia II board is already installed. You can not run AMSETUP with the board installed.</p>	<ol style="list-style-type: none"> 1. Remove the ActionMedia II Delivery Board. 2. Edit C:\CONFIG.SYS using a DOS editor: type rem and press the space bar one time to the left of the DEVICE line. The line should read similar to: rem DEVICE=C:\WINDOWS\EMM386.EXE 3. Save and exit the file. 4. Reboot the system and run AMSETUP.
<p><i>The software you selected requires either IRQ 10 or IRQ 11. Other devices use both of these IRQs.</i></p>	<p>Required IRQs are not available. The ActionMedia II board needs IRQ 10 or IRQ 11 to operate in a Windows environment.</p>	<ol style="list-style-type: none"> 1. Change the IRQ jumper/switch settings on the other devices to free IRQ 10 or 11 (refer to the appropriate device documentation to change the IRQs for the devices that are using 10 and 11). 2. Run AMSETUP.
<p><i>The software you selected requires two IRQs from IRQ 9, 10 and 11. Other devices use too many of these IRQs.</i></p>	<p>Required IRQs are not available. The ActionMedia II board needs two IRQs to operate in both DOS and Windows environments.</p>	<ol style="list-style-type: none"> 1. Change the IRQ jumper/switch settings on other devices connected to the system to free two IRQs (9 and 10, 9 and 11, or 10 and 11) (refer to the appropriate device documentation). 2. Run AMSETUP.

Error Message	Possible Cause	Corrective Action
<p><i>The software you selected requires 16 KB of free upper memory. Other devices/software use too much address space. Common reasons are:</i></p> <ul style="list-style-type: none"> <i>* EMS page frame location</i> <i>* use of upper memory blocks by TSRs and/or device drivers</i> <i>* already installed ActionMedia II Delivery Board</i> 	<p>AMSETUP is recognizing a memory manager using the required address space. AMSETUP can not locate enough free upper memory.</p>	<ol style="list-style-type: none"> 1. Edit C:\CONFIG.SYS using a DOS editor: type rem and press the space bar one time to the left of the DEVICE line similar to: <pre>rem DEVICE=C:\WINDOWS\EMM386.EXE</pre> 2. Save and exit the file. 3. Remove the ActionMedia II Delivery Board, if it is installed. 4. Reboot the system and run AMSETUP. AMSETUP searches for free memory space. Be sure to record the addresses to exclude. 5. Delete rem from the DEVICE line in C:\CONFIG.SYS. 6. For QEMM and 386MAX, add exclude statements to CONFIG.SYS. Refer to Figure 3-8 for examples of the statements. 7. Save and exit the file. 8. Edit the SYSTEM.INI file in your Windows directory using your DOS editor: add the exclude lines you copied from the AMSETUP program to the end of the section titled "[386enh]" Example: <pre>emmexclude= DE00-DFFF emmexclude= DC00-DDFF</pre> 9. Save and exit the file. 10. Install the ActionMedia II Delivery Board according to installation procedures in Chapter 4, "Installing The ActionMedia II Boards And Cables."

Error Message	Possible Cause	Corrective Action
<p>The software you selected requires 40 KB of free upper memory. Other devices/software use too much address space. Common reasons are:</p> <ul style="list-style-type: none"> * EMS page frame location * use of upper memory blocks by TSRs and/or device drivers * already installed ActionMedia II Delivery Board 	<p>AMSETUP is recognizing a memory manager using the required address space. AMSETUP can not locate enough free upper memory.</p>	<ol style="list-style-type: none"> 1. Edit C:\CONFIG.SYS using a DOS editor: type rem to the left of the DEVICE line similar to: rem DEVICE=C:\WINDOWS\EMM386.EXE 2. Save and exit the file. 3. Remove the ActionMedia II Delivery Board, if it is installed. 4. Reboot the system and run AMSETUP. AMSETUP searches for free memory space. Be sure to record the addresses to exclude. 5. Delete rem from the DEVICE line in C:\CONFIG.SYS. 6. For QEMM and 386MAX, add exclude statements to CONFIG.SYS. Refer to Figure 3-8 for examples of the statements. 7. Save and exit the file. 8. Edit the SYSTEM.INI file in your Windows directory using your DOS editor: insert the exclude lines you copied from the AMSETUP program to the end of the section titled "[386enh]" Example: emmexclude= DE00-DFFF emmexclude= DC00-DDFF 9. Save and exit the file. 10. Install the ActionMedia II Boards according to installation procedures in Chapter 4, "Installing The ActionMedia II Boards And Cables."

AMSETUP Error Messages

Error Message	Possible Cause	Corrective Action
<i>BIOS reports no display present. Try restarting your computer, then run AMSETUP.</i>	The most likely cause for this error is a loose cable connecting the monitor to the system when the system was booted.	<ol style="list-style-type: none">1. Since the message was displayed on the monitor, the proper connection was made after the BIOS information was updated.2. Make sure the pins in the monitor connector are straight.3. Check that the monitor cable is securely attached to the system.4. Reboot the system and run AMSETUP.
<i>Old C:\AM.CFG is read-only, could not be replaced.</i>	The Read-Only attribute of the C:\AM.CFG file has been set to read-only.	<ol style="list-style-type: none">1. Change the attribute using the DOS ATTRIB command or a similar program.2. Run AMSETUP.
<i>Problem writing C:\AM.CFG.</i>	Bad hard disk or not enough available memory on the C: drive. AMSETUP was unable to create or replace C:\AM.CFG.	<ol style="list-style-type: none">1. Check that the C: drive is functioning properly and space is available on the disk.2. Run AMSETUP.
<i>Problem closing C:\AM.CFG.</i>	Bad hard disk or not enough available memory on the C: drive. AMSETUP was unable to close the C:\AM.CFG file.	<ol style="list-style-type: none">1. Check that the C: drive is functioning properly and space is available on the disk.2. Run AMSETUP.
<i>Unknown problem opening C:\AM.CFG.</i>	Bad hard disk or not enough available memory on the C: drive. AMSETUP was unable to open the C:\AM.CFG file.	<ol style="list-style-type: none">1. Check that the C: drive is functioning properly and space is available on the disk.2. Run AMSETUP.

AMSETUP Problems

Problems	Corrective Action
The VGA board does not have a VGA Feature Connector	Use the external RGB Overlay Cable. Refer to installation procedures for this cable. For analog keying, be sure to jumper pin pair 1-2 in Jumper Block E2 on the ActionMedia II Delivery Board are jumpered (refer to Figure 3-6 or B-6).
I/O address of 0x2E4 is being used by another device in the system	Try another address when prompted for the I/O address in AMSETUP. Intel recommends using 0x3EC (place jumper shunt over pin pair 3-4).

System Startup (POST) Error Codes

This section describes the error codes that you may receive from the Power On Self Test (POST) at system startup. Typically, an error code generated by the POST indicates a board problem. If the corrective action is to replace a board, use the following procedure :

1. Record the error code and make a note of the possible cause from the list below.
2. Turn off the computer and remove power cord to computer.
3. Check the board for proper connection inside the computer.
4. Connect power cord and try powering up the computer. If you still receive an error code, turn off the computer and remove the Delivery Board. Send the board and the error information to your ActionMedia II Delivery Board vendor.

The POST can be disabled by placing a jumper shunt over pin pair 17-18 in Jumper Block E1 on the ActionMedia II Delivery Board (refer to Figure B-3). If you disable the POST, you do not need to exclude the second range of addresses shown in AM.CFG (if any range is shown). You do not need to edit AM.CFG or AVK.INI.

System Startup (POST) Error Codes

Codes	Possible Cause	Corrective Action
01090100	Video Random Access Memory (VRAM) might be accessible to Expanded/Extended Memory (EMS).	Replace the Delivery Board (use the procedure on page A- 9 of this section).
01090200 - 01090201	Delivery Board base I/O address and POST address are not the same, indicating potential problem with the mechanism that reads the addresses.	Replace the Delivery Board (use the procedure on page A- 9 of this section).
01090300 - 01090302	Checksum values in Read-Only Memory (ROM) are not correct, indicating that the memory might be unreliable.	Replace the Delivery Board (use the procedure on page A- 9 of this section).
01090400	Reserved	Replace the Delivery Board (use the procedure on page 9 of this section).
01090500 - 01090509	Page Address Register (PAR) test failed, indicating the paging mechanism to VRAM is unreliable.	Replace the Delivery Board (use the procedure on page A- 9 of this section).
01090600 - 01090609	FIFO Register test failed, indicating a problem exists with the memory access mechanism.	Replace the Delivery Board (use the procedure on page A- 9 of this section).
01090700 - 01090703	Video Capture Register test failed, in the Video SCSI Capture (VSC) gate array.	Replace the Delivery Board (use the procedure on page A- 9 of this section).
01090800 - 01090807	Quick Access Register (QAR) test failed, indicating the access mechanism in the host gate array is unreliable.	Replace the Delivery Board (use the procedure on page A- 9 of this section).

System Startup (POST) Error Codes

Codes	Possible Causes	Corrective Action
01090900 - 01090904	Palette test failed, indicating the VGA Feature Connector Cable may not be properly installed or that a problem exists with the base VGA system.	<ol style="list-style-type: none"> 1. Turn off the computer. 2. Open computer and check that pin 1 (red striped edge) of the VGA Feature Connector Cable is connected to pin 1 of the VGA connector on the VGA board or motherboard. Generally, the cable should not be twisted. 3. Power up the monitor. If you still receive the same code, try the following steps: <ol style="list-style-type: none"> a. Remove the VGA Feature Connector Cable from the VGA board or motherboard connector. b. Twist the cable one time, and reconnect the cable to the VGA board or motherboard connector so the cable header is reversed. c. Close the computer and turn the power on.
01091000 - 01091009	SCSI test failed, indicating a potential problem with the Video SCSI Capture (VSC) gate array.	Replace the Delivery Board (use the procedure on page A- 9 of this section).
01091100 - 01091400	Host memory test failed, indicating potential problem with a VRAM bank (first - fourth MByte).	Replace the Delivery Board (use the procedure on page A- 9 of this section).
01091500 - 01091509	82750DB Display Processor clock not in sync with other internal clock mechanisms.	Replace the Delivery Board (use the procedure on page A- 9 of this section).
Codes	Possible Cause	Corrective Action
01091600	82750PB Pixel Processor memory test TimeOut Error, indicating the memory test or the Pixel Processor is not functioning reliably.	Replace the Delivery Board (use the procedure on page A- 9 of this section).

System Startup (POST) Error Codes

01091700 - 01091709	Digital Signal Processor (DSP) audio test failed, indicating either an internal problem with the DSP or an output device connected to the Delivery Board does not have the correct audio impedance.	Make sure your speakers or an audio amplifier have an input impedance level of 10 KOhms or greater. If you are using headphones, make sure they are plugged into an audio amplifier, rather than directly into the Delivery Board bracket. <i>The Delivery Board will work normally even when you receive any of these codes.</i>
01091800	Reserved	Replace the Delivery Board (use the procedure on page A- 9 of this section).
01091900 - 01091903 (Continued on next page)	Monitor test failed, indicating that there is a difference between all-black or all-white on the VGA and the ActionMedia II boards. One possible cause can be improper monitor connection or setup.	Check the following: <ol style="list-style-type: none">1. Make sure the pins in the monitor connector are straight.2. The monitor cable is securely connected to the ActionMedia II board external monitor connector at the back of the computer.3. If you are using a VGA Feature Connector Cable, the Terminator Plug should be securely attached to the connector on the VGA card bracket at the back of the computer. <i>Some VGA boards (8514 emulators) will always display this error with digital keying, even when corrective action is taken.</i>

Codes	Possible Cause	Corrective Action
01091900 - 01091903 (Continued)	Improper cable connections	Check the following: <ol style="list-style-type: none">1. Make sure the pins in the monitor connector are straight.2. All cable connections are properly connected and secure for your monitor configuration. Refer to Chapter 4, "Installing The ActionMedia II Boards And Cables," for details on cable connections.
	RGB Overlay Cable	Make sure the male connector at the short end of the RGB Overlay Cable is connected to the top connector on the Delivery Board bracket at the back of the computer (see Figure 4-7).

System Startup (POST) Error Codes

Codes	Possible Cause	Corrective Action
01092000	Reserved	Replace the Delivery Board (use the procedure on page A- 9 of this section).
01092100 - 01092400	82750PB Pixel Processor memory test failed, indicating a potential problem with a VRAM bank (first - fourth MBytes).	Replace the Delivery Board (use the procedure on page A- 9 of this section).
01094100 - 01094109	VICTOR Registers test failed	Replace the Capture Module (use the procedure on page A- 9 of this section).
01094200 - 01094209	CHROMA Registers test failed	Replace the Capture Module (use the procedure on page A- 9 of this section).
01094300 - 01094302	Microcontroller test failed	Replace the Capture Module (use the procedure on page A- 9 of this section).
01094400 - 01094402	Control Register test failed	Replace the Capture Module (use the procedure on page A- 9 of this section).
01094500	CHROMA test is not running	Replace the Capture Module (use the procedure on page A- 9 of this section).

Monitor Problems

This section lists general problems you may have with the monitor display. Try the corrective action. If you get the same problem after following the procedure, contact your board reseller.

Problem	Possible Cause	Corrective Action
No screen display	Check the following causes in the order given in this column: Monitor is not connected properly.	<ol style="list-style-type: none">1. Refer to the hardware reference manual supplied with your computer.2. Make sure the pins in the monitor connector are straight.3. Make sure the monitor cable is securely connected to the ActionMedia II external monitor connector.
(Continued on next page)	If being used, the RGB Overlay Cable may not be properly connected.	Check that the RGB Overlay Cable is properly connected to the monitor and computer. Refer to the section in Chapter 4 entitled, "Connecting The RGB Overlay Cable," for details and pictures.

Monitor Problems

Problem	Possible Cause	Corrective Action
<p data-bbox="205 300 417 326">No screen display</p> <p data-bbox="205 505 373 562">(Continued on next page)</p>	<p data-bbox="469 300 700 491">Installed the VGA Feature Connector Cable when you are also using the RGB Overlay Cable. Only one cable can be used.</p>	<p data-bbox="732 300 1089 357">Recommended setup is to use the RGB Overlay Cable.</p> <p data-bbox="732 361 1065 413">If you are going to use the RGB Overlay Cable:</p> <ol data-bbox="732 416 1083 1090" style="list-style-type: none"><li data-bbox="732 416 969 442">1. Turn off computer.<li data-bbox="732 446 1083 664">2. Open the computer and detach the VGA Feature Connector cable from the VGA board and the ActionMedia II Delivery Board (you may have to remove the Capture Module, first, if it is in the way).<li data-bbox="732 668 1056 720">3. Remove the ActionMedia II Delivery Board.<li data-bbox="732 723 1056 775">4. Run AMSETUP and select the analog keying option.<li data-bbox="732 779 1079 918">5. Make sure the jumper setting in Jumper Block E2 on the Delivery Board are set correctly according to AMSETUP.<li data-bbox="732 921 1079 1090">6. Install the Delivery Board and software according to installation procedures in Chapter 4, "Installing The ActionMedia II Boards And Cables" <p data-bbox="780 1093 1079 1119"><i>(Continued on next page)</i></p>

Problem	Possible Cause	Corrective Action
No screen display (Continued)		<p>If you are going to use the VGA Feature Connector Cable (and you configured AMSETUP for digital keying):</p> <ol style="list-style-type: none">1. Remove the RGB Overlay Cable.2. Make sure the Terminator Plug is installed in the VGA card bracket at the back of the computer.3. Reboot the computer. <p>If you need to configure AMSETUP for VGA Feature Connector Cable:</p> <ol style="list-style-type: none">1. Turn off computer and remove RGB Overlay Cable.2. Open computer and remove the ActionMedia II Delivery Board.3. Run AMSETUP for VGA Feature Connector Cable (digital keying).4. Make sure the jumper setting on the Delivery Board is correct according to AMSETUP.5. Install the board and software according to installation procedures in Chapter 4, "Installing The ActionMedia[®] II Boards And Cables."

Monitor Problems

Problem	Possible Cause	Corrective Action
No color (black and white only), and using the digital VGA Feature Connector cable.	Terminator Plug is not connected. The Terminator Plug prevents the system from defaulting to monochrome upon startup.	<ol style="list-style-type: none">1. Connect the Terminator Plug to the connector on the VGA board bracket at the back of the computer. See Figure 4-12.2. Reboot the computer.
No color, and using the analog RGB Overlay Cable.	Bad cable connection.	Make sure that the RGB Overlay Cable is securely plugged into the VGA board connector at the back of the computer.

Appendix B

Technical Reference

This appendix provides reference information for the ActionMedia II Delivery Board.

Overview

The following information is provided in this appendix:

- Procedure for separating the Capture Module from the Delivery Board (if attached).
- Jumper descriptions.
- Procedure for changing the base I/O address.
- Contents of the AM.CFG file that is set up by AMSETUP.
- Connector descriptions.

Removing The Boards

To change the jumper configuration in Jumper Blocks E1 or E2, the Delivery Board must first be removed from the computer. If the Capture Module is attached to the Delivery Board, it is necessary to separate the boards to gain access to the jumpers.

Use the following procedure to remove the Delivery Board from the computer, and to separate the Capture Module from the Delivery Board:

1. Turn off your computer. Leave the power cord plugged into the wall socket to maintain ground.
2. Disconnect all connectors attached to the Delivery Board bracket.
3. Remove the computer cover. Be careful not to let the ribbon cables get caught on the inside of the machine.
4. Remove any cables that are attached to the Delivery Board.
5. Remove the screw from the Delivery Board bracket.
6. Carefully remove the Delivery Board with the attached Capture Module.
7. Use needle-nose pliers to squeeze the split ends of each support post to loosen the boards.

8. Hold the edges of the boards and gently rock the Capture Module from side to side. At the same time move the Capture Module away from the Delivery Board until the strip pin connectors separate.
9. Place the boards on a flat, static-free work surface.
10. Change the jumper shunts appropriately (refer to the other sections in this appendix).
11. If the hardware configuration has changed, you need to run AMSETUP. Continue with Chapter 3, "Setting Up The Hardware Configuration."

Jumper Block E1 Description

Jumper block E1 (Figure B-1) sets the Delivery Board's base I/O address, POST disable status, and POST ROM address.

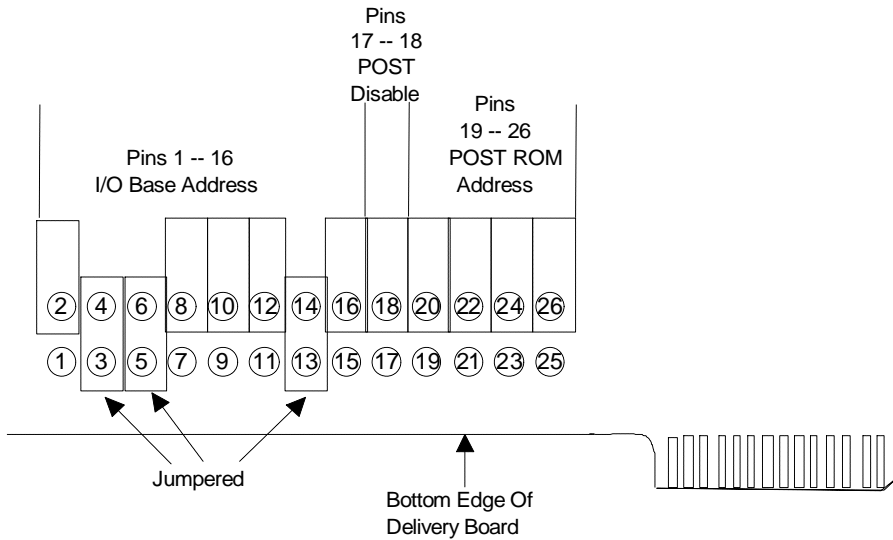


Figure B-1. Jumper Block E1 (Factory-set)

The Factory-Set Base I/O Address Jumpers

The ActionMedia II system uses four consecutive input/output (I/O) port addresses. The ports are used by all installed boards to communicate with the host CPU.

The base I/O address is set by pins 1 through 16 in jumper block E1. The combination of jumpered and unjumpered pin pairs provide a physical link to the hexadecimal memory addresses used by the Host CPU.

The factory-set base I/O address is 2E4 hex. The jumper configuration associated with this address is determined according to the following formula:

1. The hexadecimal value is converted to binary values (refer to Table B-1).

Table B-1. Hexadecimal-To-Binary Conversion

Hex	Binary	Hex	Binary
0	0000	8	1000
1	0001	9	1001
2	0010	A	1010
3	0011	B	1011
4	0100	C	1100
5	0101	D	1101
6	0110	E	1110
7	0111	F	1111

2. Pins 1-16 are divided into groups of four, as shown in **Ⓐ** in Figure B-2, starting from the right (notice the orientation of the pins). Two zeroes are appended to the right-most position **Ⓑ**.

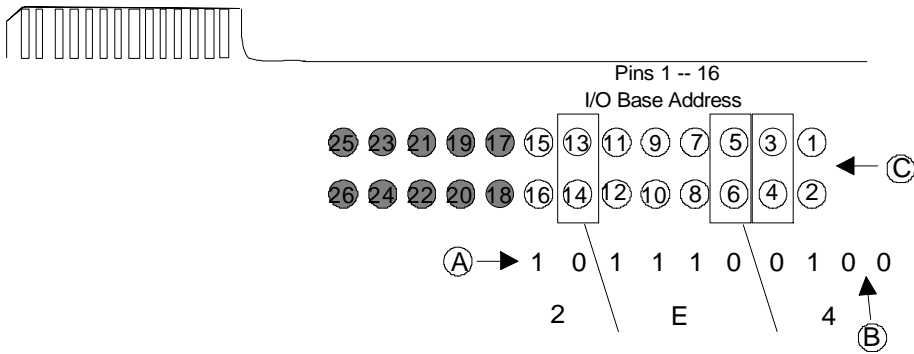


Figure B-2. Configuring The Factory-Set Base I/O Address Jumpers

3. A jumper shunt is placed over a pin pair for every zero (0), as indicated by (C) in Figure B-2. One (1) represents an unjumpered pin pair. Typically, a pin pair covered by a jumper shunt is a jumpered pin pair. No shunt over a pin pair or only one shunt covered by the shunt is an unjumpered pin pair.

Changing The Base I/O Address Jumpers

If the I/O addresses, 2E4 - 2E7, are already used in your system, follow the procedure below to change the base I/O address and change the jumpers on the Delivery Board:

1. Locate a free block of four I/O addresses. Record the first address of the free block, below:

New base I/O address: _____

2. Remove the Delivery Board from your computer, according to the procedure in the section in this appendix entitled, "Removing The Boards."
3. Run AMSETUP.
4. When prompted in AMSETUP for the base I/O address, enter the first address of the free block you recorded in Step 1.
5. Using a needle-nosed plier, change the jumper shunts according to the Selection Summary screen in AMSETUP.
6. Replace the Delivery Board according to procedures in Chapter 4, "Installing The ActionMedia II Boards And Cables."

The POST Disable Jumper

Pins 17 and 18 in jumper block E1 enable and disable the execution of the Delivery Board POST.

If the pin pair is not jumpered (no shunt or the shunt is installed over one pin), the POST executes upon bootup (POST enabled) (Figure B-3). The Delivery Board is factory-set with the POST enabled. The POST address jumpers must also be set properly to enable the POST.

If it is necessary to disable the POST, place a jumper over both pins 17 and 18). The Delivery Board POST will not execute at boot up (POST disable).

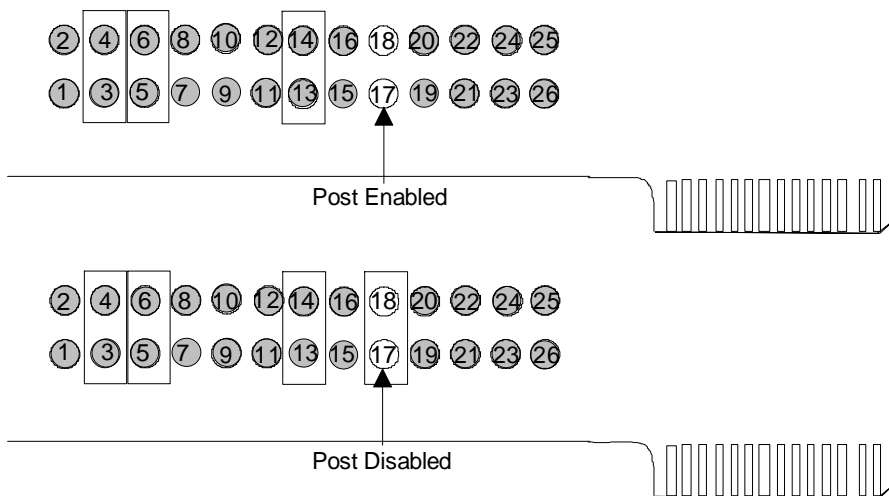


Figure B-3. POST Enabled/Disabled

The Factory-Set POST ROM Address

The Delivery Board POST (Power-On Self Test) ROM address is a block of microcode that is loaded into your system's upper memory area (commonly referred to as 'high memory'). This code is executed at system start up to check the ActionMedia II board hardware.

The POST ROM address is the base (starting) location of the microcode after it has been loaded. The POST ROM address is set by pins 19 through 26 in Jumper Block E1. The default POST ROM address is DE000 hex. The POST ROM address jumpers are set as described below:

1. Hold the Delivery Board up-side down, as shown in Figure B-1.
2. A zero (0) is assigned to each jumpered pin pair (covered by a jumper shunt), and a one (1) is assigned to each unjumpered pin pair. An unjumpered pin pair has no shunt over them, or the shunt may be installed over one pin in a pair. For the default address, DE000 hex, all of the POST ROM address pins are unjumpered (indicating a binary value of 1111), as shown in Figure B-4.

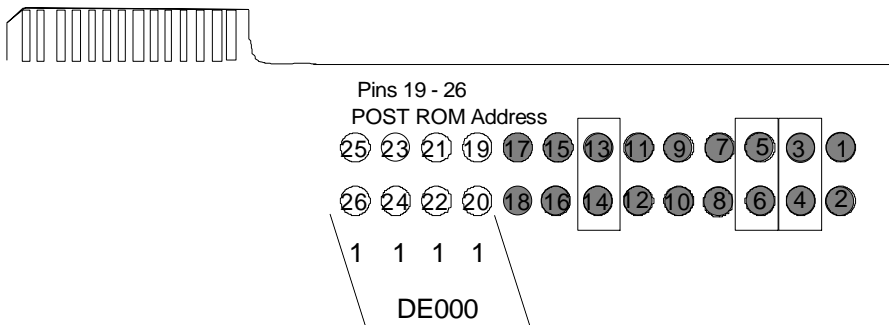


Figure B-4. The Factory-Set POST ROM Address And Jumpers

Changing The POST ROM Address Jumpers

If another installed board uses the same range of addresses as used by the Delivery Board's POST ROM, a conflict arises. To resolve the conflict, either the POST ROM address for the Delivery Board or the address used by the other board must be changed. Use the following procedure to change the POST ROM address jumpers on the Delivery Board:

1. Select an address from Table B-2 that is not used by another device.

Table B-2. POST ROM Address To Binary Conversion

POST ROM Address	Binary Value	POST ROM Address	Binary Value
C0000	0000	D0000	1000
C2000	0001	D2000	1001
C4000	0010	D4000	1010
C6000	0011	D6000	1011
C8000	0100	D8000	1100
CA000	0101	DA000	1101
CC000	0110	DC000	1110
CE000	0111	DE000	1111

2. Note the corresponding binary value.
3. Hold the board so the flat, gold connector is away from you.
4. Assign pin pairs a zero or one, according to the binary value in Table B-2, similar to the example in Figure B-5.
5. Place a jumper over each pin pair that is assigned a zero (0). Figure B-5 shows an example of the POST ROM address changed to D4000 (1010).

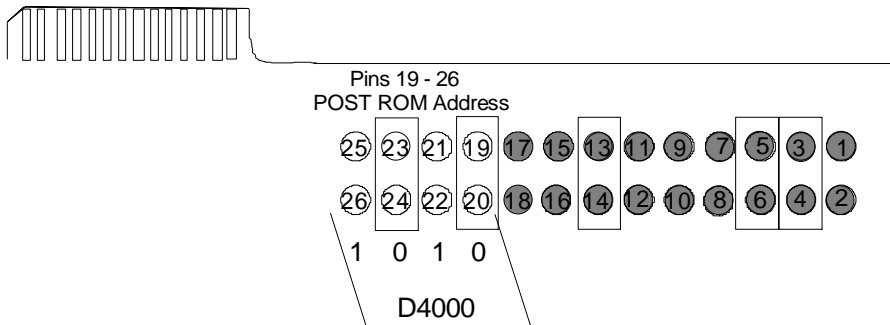


Figure B-5. Example Of Changed POST ROM Address Jumpers

Jumper Block E2

When a jumper shunt is placed over pins 1 and 2 in Jumper Block E2 (Figure B-6), an RGB Overlay Cable is installed and connected to the system's primary video source. Analog keying is supported.

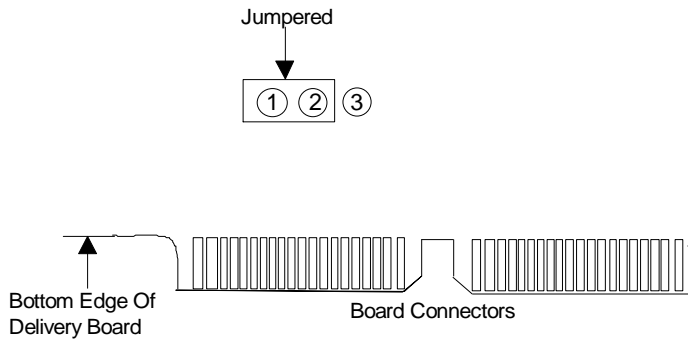


Figure B-6. Jumper Block E2 (Factory-set)

When the jumper shunt is placed over pins 2 and 3, the Delivery Board is configured for digital keying. A VGA Feature Connector Cable should be connected between the Delivery Board and the VGA connector on a VGA board or motherboard.

Only one type of keying should be used.

AM.CFG File Contents

AMSETUP generates and updates a hardware configuration file, AM.CFG. This text file resides in the root directory of the C drive (C:\). The AM.CFG file specifies the configuration settings chosen for the ActionMedia II boards. The values in this file are read by some multimedia software installation programs for initial configuration settings for the ActionMedia II boards.

A typical AM.CFG file is shown in Figure B-7.

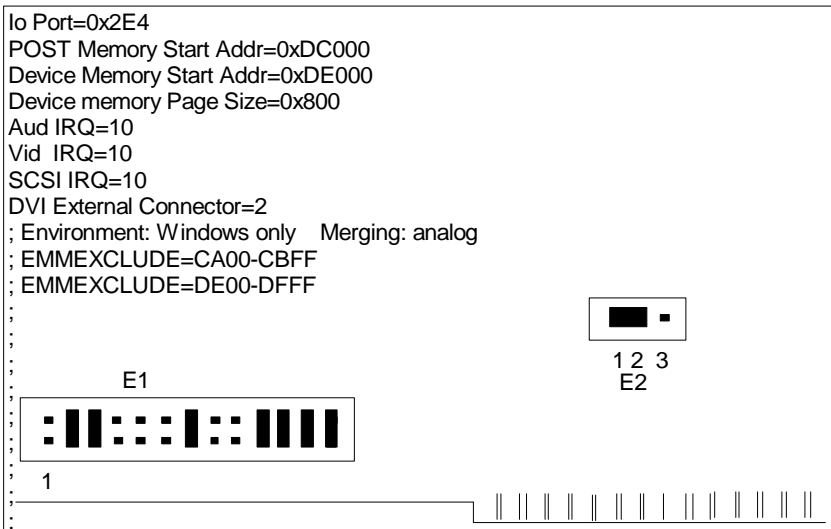


Figure B-7. Typical AM.CFG File

Table B-3 describes the information provided in the AM.CFG file. Only the values of items not beginning with a semicolon (;) are included in the table. A line that begins with a semicolon is a comment, and is not read by multimedia software installation programs.

Table B-3. AM.CFG File Values

Field	Indicates...	Jumper Configuration
I/O Port	The first of four I/O addresses used by the Delivery Board (in hex). This address cannot be used by any other installed device.	Delivery Board jumper block E1, pins 1 through 16.
POST Memory Start Address	The starting address (in hex) in upper memory for the Delivery Board POST. This address cannot be used by any other installed device.	Delivery Board jumper block E1, pins 19 through 26.
Device Memory Start Address	The address in upper memory for VRAM window. WARNING: make sure that the address you have selected is available.	Software selectable.
Device Memory Page Size	The size of the VRAM window in upper memory. WARNING: make sure that the space you have selected is available.	Software selectable.
Video IRQ	Video interrupt level. Must differ from SCSI interrupt level.	Software selectable.
Audio IRQ	Audio interrupt level. Must differ from SCSI interrupt level.	Software selectable.
SCSI IRQ	SCSI interrupt level. Must differ from Video interrupt level and any other SCSI device.	Software selectable.
DVI External Connector	The type of cable used for keying: 1 = RGB Overlay Cable 2 = VGA Feature Connector Cable	Delivery Board jumper block E2, pins 1, 2, and 3.

Table B-3. AM.CFG File Values (Continued)

Field	Indicates...	Jumper Configuration
Environment	The environment you will be running your multimedia software: Windows, DOS, or DOS and Windows.	User-specified in AMSETUP.
Merging	The type of keying: Analog = RGB Overlay Cable Digital = VGA Feature Connector Cable	Delivery Board jumper block E2, pins 1, 2, and 3.
Graphic representation of the Delivery Board jumpers	Shows the recommended positions for jumper shunts on jumper blocks E1 and E2.	

Delivery Board Connector Descriptions

This section describes the connectors on the Delivery Board bracket. Figure B-8 shows an example of the connectors along the Delivery Board bracket at the back of the computer.

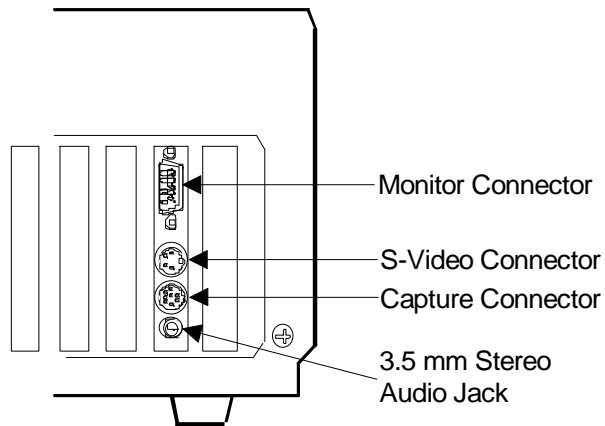


Figure B-8. Delivery Board Connectors

Monitor Connector

The monitor connector is a standard 15-pin high-density D type that supplies data to a VGA, XGA, or RGB multisync color monitor that runs at NTSC or PAL rates. Figure B-9 describes the pin designations for the monitor connector.

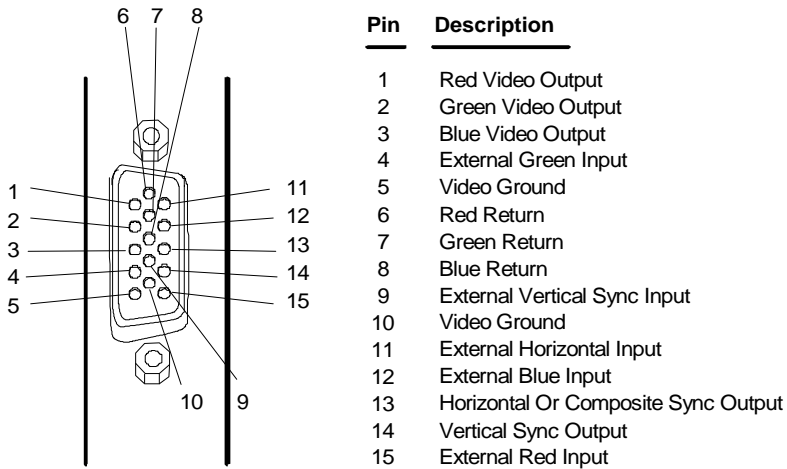


Figure B-9. Monitor Connector

S-Video Connector

The S-Video connector is a 4-pin mini DIN type that supplies S-Video (Y/C) format output from the Delivery Board to S-Video equipment that uses NTSC or PAL rates, such as a Super-VHS VCR, camcorder, or TV monitor.

Not all multimedia software supports this feature. Refer to the documentation supplied with the software for details.

Figure B-10 describes the pin designations for the S-Video connector.

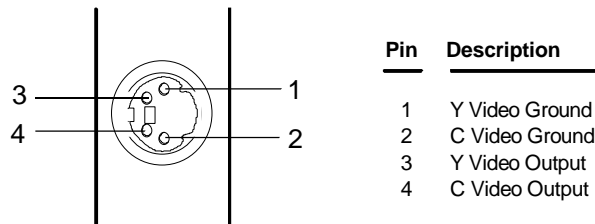


Figure B-10. S-Video Connector

Capture Connector

The Capture Connector is an 8-pin mini DIN connector that feeds audio/video data into the ActionMedia II boards for capture and storage.

Video sources use NTSC or PAL rates, and supply data in one of the following formats:

- S-Video (Y/C)
- Composite
- RGB with composite sync
- RGB with sync on green format

Examples of S-Video equipment are: S-VHS and consumer-grade VCRs, RGB video cameras, and laser disc players.

Audio capture devices supply either MIC or LINE audio input. Examples are CD players, VCRs, and microphones.

Figure B-11 describes the pin designations for the capture connector.

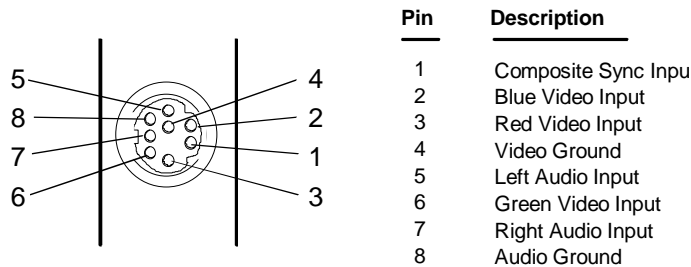


Figure B-11. Capture Connector

Audio Connector

The audio connector is a 3.5 mm stereo jack that supplies standard stereo LINE level output (0-2.0 V_{p-p}) to an audio amplifier or a self-amplified device..

If a self-amplified device is used, it must have an input impedance level of approximately 10 KOhms or greater to connect directly to the Delivery Board bracket.

Figure B-12 describes the pin designations for the audio connector.

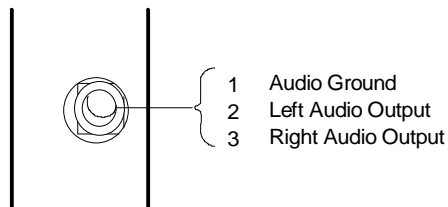


Figure B-12. Audio Connector

Appendix C

Package Contents

This chapter shows the ActionMedia II Delivery Board Package and optional Capture Module Package items.

Delivery Board Package Contents

The following items are provided in the Delivery Board Package (see Figure C-1):

- An ActionMedia II Delivery Board **(A)**.
- An RGB Overlay Cable **(B)**.
- An Edge Card VGA Feature Connector Cable **(C)**.
- A Header VGA Feature Connector Cable **(D)**.
- A Terminator Plug **(E)**.
- An Internal SCSI Cable for a CD-ROM drive **(E)**.
- One ActionMedia II Hardware Setup diskette provided in 3.50-inch (1.44 MB) format **(G)**.
- A Warranty Registration Card.

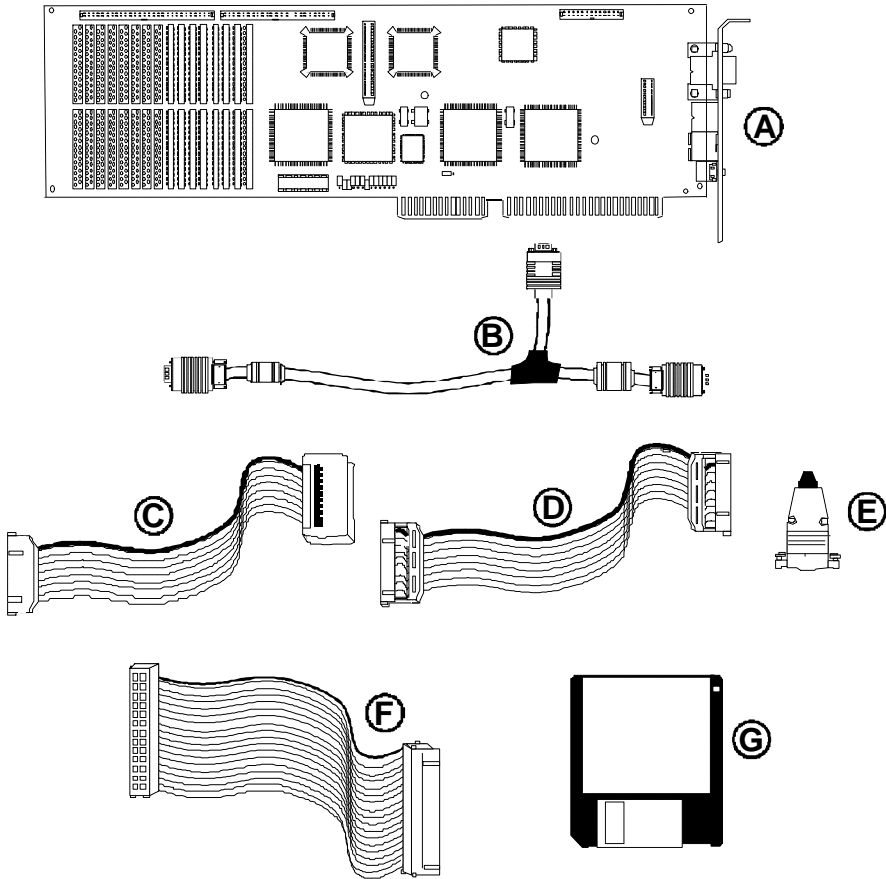


Figure C-1. Delivery Board Package Contents

Capture Module Package Contents (Optional)

If you purchased an Actionmedia II Capture Module, the following items are provided in the Capture Module Package (see Figure C-2):

- A Capture Module **Ⓐ**..
- A Capture Cable **Ⓑ**.
- An S-Video Adapter **Ⓒ**.
- Two Composite Video Adapters **Ⓓ**.
- A Warranty Registration Card.

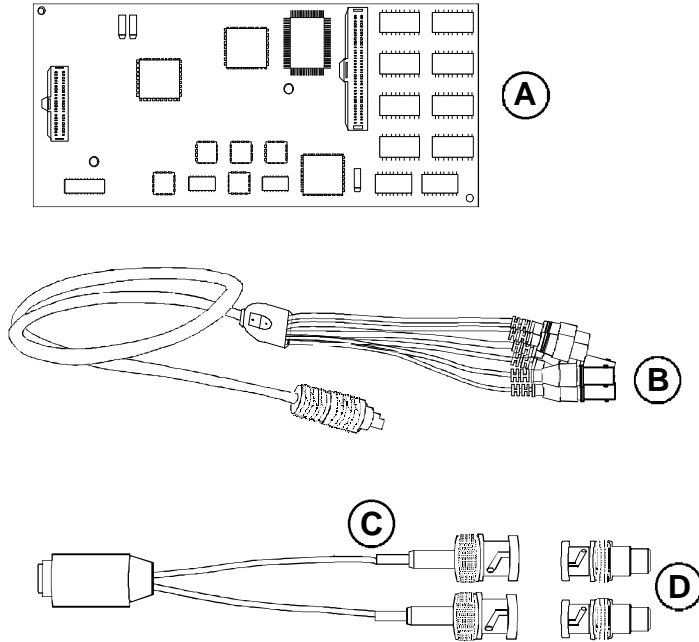


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FCC COMPLIANCE STATEMENT

This equipment has been type tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of these measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult an authorized Intel dealer or service representative for help.

Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. Proper cables and connectors are available from Intel authorized dealers. Intel is not responsible for any radio or television interference caused by using other than recommended cables and connectors or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference, including interference that may cause undesired operation.

Note: Safety procedures must be observed at all times.

Warning: The use of switching communications transceivers within 0.5 meters of this product may cause interference to this product.
