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 received, including interference that may cause undesired operations.

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INTRODUCTION

EISA Host Bus

- 32-bit bus master DMA data transfers of up to 33 MBytes/sec
- Built-in drivers for UNIX™ and XENIX™, as well as optional drivers available for NetWare™, OS/2™, and DOS
- Scatter-gather data transfers permit non-contiguous memory storage and retrieval

SCSI Peripherals

- Up to 20MBytes/sec synchronous and up to 14 MBytes/sec asynchronous SCSI data transfers
- Support of the single-ended SCSI interface with active termination by the BT-757S. Support of the differential SCSI interface by the BT-757D.
- SCSI-2 command set compatibility
- One internal 50-pin SCSI connector
- Both internal and external 68-pin SCSI-3 connectors
  - Simultaneous support of 8- and 16-bit SCSI devices
- Support of a wide range of SCSI hard drives and other SCSI peripherals

ASIC Technology

- Bus master ASIC designed by BusLogic
- High-performance advanced SCSI controller ASIC
- 16-bit 80186 microprocessor that reduces the host's CPU overhead
**ASIC Technology (Continued)**

- Floppy controller chip for any combination of up to two 3.5” or 5.25” drives including the 2.88 MB floppies
- Reduced component count that yields greater reliability

---

**Figure I-1. The BT-757 Block Diagram**

---

**BT-757 ADVANTAGES**

**Unique Features**

- BusLogic-designed universal bus master ASIC provides the highest level of integration in the industry
- BusLogic's ASIC allows common architecture for a family of SCSI host adapter products across the popular industry standard buses: ISA, EISA, Micro Channel™, and VESA VL-Bus
- High-speed, 20 MHz 80186 on-board microprocessor
- Word-wide, on-board BIOS
- Fast and Wide SCSI support with active termination
- Optional single-ended or differential SCSI interface
- Floppy controller chip with 2.88 MByte floppy support
- Complete device driver support for all the popular operating systems: DOS, UNIX, XENIX, NetWare, OS/2, etc.

**Benefit**

- Exceptionally high product reliability due to reduced component count and lower power consumption
- Allows easy feature enhancements and device driver support for all industry standard buses
- Higher performance due to minimized command overhead and faster command execution
- Higher performance under the DOS environment and during the boot process
- Higher SCSI data transfer rate and higher data reliability
- Allows flexible system integration with complete driver / software transparency
- Supports newly emerging high capacity floppies
- Provides turn-key solution for system integration
PRODUCT OVERVIEW

The BT-757S and BT-757D (BT-757) host adapters are intelligent EISA to SCSI bus master host adapter products based on a BusLogic-designed, universal ASIC technology. They provide a high-performance interconnection between the Extended Industry Standard Architecture (EISA) bus and Small Computer System Interface (SCSI) peripheral devices. They are designed for multitasking operating systems such as UNIX, XENIX, NetWare, and OS/2. UNIX and XENIX both contain built-in driver support for the BT-757. Software drivers for NetWare, OS/2, and DOS are also available as optional items.

As Figure 1-1 indicates, the BusLogic-designed bus master controller ASIC, the SCSI interface controller, and a 16-bit microprocessor (MPU) provide higher speed, lower power consumption, fewer parts, and higher reliability.

Host Interface

The BT-757 uses BusLogic's high-speed bus master interface chip to provide bus master DMA operation. Bus master DMA reduces the number of interrupts generated per I/O command thus enhancing system performance. This interface chip contains a 128-byte FIFO to burst 32-bit wide data up to 33 MBytes/sec on the EISA bus. Selectable interrupt and DMA channels and I/O address ranges are available. Refer to Figures 1-2 and 1-3, respectively, for illustrations of the BT-757D and BT-757S boards.

SCSI Interface

Up to 20 MBytes/sec synchronous and 14 MBytes/sec asynchronous SCSI data transfers are supported by the SCSI interface controller. This chip reduces protocol overhead by performing common SCSI algorithms or sequences in response to any single SCSI-2 host command. SCSI-2 interface specifications for termination power and fusing are implemented. The board has both internal and external 68-pin connectors and one 50-pin internal connector for flexibility in attaching SCSI devices to the system.

Microprocessor

An 80186 16-bit MPU is used to supply the speed for low command overhead. This MPU coordinates all activity on the BT-757 under the direction of the board's firmware, including initialization, command decoding, interrupt generation, and control of the data flow among the board's components.
Floppy Controller

The floppy disk controller is fully IBM™ register set compatible. All combinations of up to two 3.5" and/or 5.25" devices are supported. It can also support the newly emerging 2.88 MB floppies.

Multitasking Operation

For operating systems such as UNIX, NetWare, and OS/2, the mailbox protocol of the BT-757 provides true multitasking operation. Through the use of a mailbox structure, the BT-757 can support up to 255 tasks with minimum host processor intervention. On-board firmware controls all of the SCSI activity that a task requires, including the Arbitration, Selection, Disconnection, Reconnection, and command completion status. This same mailbox protocol supports both initiator and target mode operation permitting high speed host-to-host communication and scatter-gather data transfers.

DOS Support

An on-board ROM BIOS enables single-tasking DOS operation; however, bus master DMA is still used to improve the data transfer performance. A storage capacity of up to 8 GBytes per disk is supported by the BIOS.

Specifications

Refer to Table I-I for a summary of the physical and electrical specifications.

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<td>SCSI Internal</td>
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<tr>
<td>SCSI External</td>
</tr>
<tr>
<td>Floppy Internal</td>
</tr>
<tr>
<td>To/From System</td>
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MTBF

90,000 hours

Reference Documents

To install the BT-757 in an EISA computer, you should have the following documentation:

- BusLogic’s EISA SCSI Host Adapter BT-757 Data Sheet
- EISA installation and set-up guide
- Operating system installation and user’s guide
- EISA computer technical reference manual (optional)
- Installation guide for third-party device drivers (optional)
HARDWARE AND SOFTWARE REQUIREMENTS

The BT-757 can be installed in any EISA compatible computer. To install the BT-757 successfully you must have the following hardware and software.

Hardware

To install the BT-757, you must have an EISA computer system with the following hardware:

- One or more 3.5” or 5.25” floppy drive
- One available EISA expansion slot
- DC power for an internal 3.5” or 5.25” SCSI drive or an external subsystem with the corresponding D-shell, 68-pin external cable
- One Common Command Set (CCS) SCSI-2 compatible disk drive
- One 50-pin, flat ribbon cable to connect internal SCSI devices to the BT-757
- One 68-pin, flat ribbon cable to connect internal SCSI-3 devices to the BT-757
- One 68-pin connector with a latch SCSI-3 type cable to connect external SCSI devices to the BT-757.

Software

To install the BT-757, you will need the enclosed EISA configuration diskette and the included or third-party device drivers for any of the following operating systems:

- PC-DOS™ or MS-DOS™
- IBM OS/2™ or MS-OS/2™
- Interactive UNIX or SCO UNIX/ XENIX “GT” version, or
- Novell NetWare 286/386.

UNPACKING AND INSTALLATION

This section describes how to unpack, inspect, configure, and install the BT-757S and BT-757D (BT-757) host adapter boards in an EISA host system. It also describes how to initialize the software and set the host adapter options for operation in EISA-compatible systems.

UNPACKING AND INSPECTION

Before handling the BT-757, please take the necessary electro-static discharge precautions. Touch your computer on a metal part to discharge static electricity before handling the board. The board should always be held by the edges even after static electricity is discharged.

While practicing appropriate anti-static precautions, remove the BT-757 from its protective envelope. Check that your shipment is complete according to the shipping list sent with the board. Then verify that no physical damage occurred during shipping by inspecting the board for bent pins, loose parts, broken traces, and chipped or broken connectors.

INSTALLATION TOOLS

The following items, available from any authorized dealer, may be needed to assist with the installation of the BusLogic BT-757 board for your EISA system:

- EISA technical manuals
- Hard disk drive(s) manuals
- Floppy disk drive(s) manuals
- EISA DOS diskette(s)
- EISA CF (Configuration) program
- SETUP, FDISK, and FORMAT programs
- Small screwdriver
- Small needle-nosed pliers.

**Configuration Instructions**

**General**

The BT-757 must be configured for use by performing the following actions:

- Configuring SCSI devices
- Verifying that the terminators are installed correctly
- Placing the BT-757 board into the EISA computer slot
- Setting host adapter software options
- Cabling the on-board connector to a SCSI target.

**Host Adapter Integration**

This section describes device termination, cabling requirements, and SCSI device ID selection.

**Device Termination**

SCSI devices are daisy chained together with a common cable. All SCSI devices operate on common signals, and both ends of the cable are terminated with hardware “terminators.” Terminators, which can be connected to either SCSI devices or SCSI cables, are required to make data transfers on the SCSI bus reliable.

Devices connected to SCSI chains must have the correct number of terminators for proper operation and to prevent damage to the SCSI chip on the BT-757 board. There can be no more than two terminators in a chain of SCSI devices—one at each end of the physical chain. This means that, if more than two SCSI devices are connected in a SCSI daisy chain, the middle device(s) in the control cable must have the terminator resistor packs on the device(s) removed.

For the BT-757D, RI'2 through RP13 are the terminators. RP2, RP4, RP6, RP8, RP10, and RP12 are resistor packs containing 5 isolated 150 ohm resistors. RP3, RP5, RP7, RP9, RP11, and RP13 are resistor packs containing 9 bused 330 ohm resistors. RP2 through RP5, and RP8 through RP11 resistor packs are for control and low byte data which are needed for 8 bit SCSI. RP6, RP7, RP12 and RP13 resistor packs are for high byte data which are needed for 16 bit SCSI. The BT-757D is shipped with terminators installed.

As the following two figures illustrate, J3 is the internal 50-pin SCSI connector for 8-bit device support. J4 is the internal 68-pin SCSI connector for 16-bit device support. J5 is the external 68-pin SCSI connector for 16-bit support on the BT-757.

![Figure 2-1. BT-757D Terminators and Connectors](image-url)
For the BT-757S, RP1 through RP3 are the terminators. RP1, RP2, and RP3 are resistor packs containing 9 bused 110 ohm resistors. RI’2 and RI’3 resistor packs are for low byte data and control which are needed for 8 bit SCSI. RP1 resistor pack is for high byte data which is needed for 16 bit SCSI. The BT-757S is shipped with terminators installed.

Figures 2-3 through 2-8 provide more information on proper termination.

**Only J4 Is Connected.** J4 is the internal 68-pin SCSI connector for 16-bit support. If only J4 is connected, refer to Figure 2-3 for termination information.

**Figure 2-2. BT-757S Terminators and Connectors**

**Figure 2-3. SCSI Terminator Configurations When Only J4 Is Connected**

**Figure 2-4. SCSI Terminator Configurations When Only J5 Is Connected**
J4 and J5 Are Connected. If J4 and J5 are connected, refer to Figure 2-5 for details on termination in a SCSI system.

**BT-757D:** Remove RP2 through RP13.
**BT-757S:** Remove RP1 through RP3.

![Figure 2-5. SCSI Terminator Configurations When J4 and J5 Are Connected](image)

**Only J3 Is Connected.** J3 is the internal 50-pin SCSI connector for 8-bit device support. If only J3 is connected, refer to Figure 2-6.

**BT-757D:**
- Install RP2 through RP5 and RP8 through RP11.
- Remove RP2 through RP5, and RP8 through RP11.

**BT-757S:**
- Install RP2 and RP3.

![Figure 2-6. SCSI Terminator Configurations When Only J3 Is Connected](image)

**J3 and J4 Are Connected.** If J3 and J4 are connected, refer to Figure 2-7 for information on termination.

**BT-757D:**
- Install RP6, RP7, RP12, and RP13.
- Remove RP2 through RP5, and RP8 through RP11.

**BT-757S:**
- Install RP1.
- Remove RP2, RP3.

![Figure 2-7. SCSI Terminator Configurations When J3 and J4 Are Connected](image)

**J3 and J5 Are Connected.** If J3 and J5 are connected, refer to Figure 2-8 for details on proper termination.

**BT-757D:**
- Install RP6, RP7, RP12, and RP13.
- Remove RP2 through RP5, and RP8 through RP11.

**BT-757S:**
- Install RP1.
- Remove RP2, RP3.

![Figure 2-8. SCSI Terminator Configurations When J3 and J5 Are Connected](image)
Table 2-1. BT-757D Termination

<table>
<thead>
<tr>
<th>Connector(s) Used</th>
<th>Terminators(s) Terminated</th>
<th>Terminators(s) Removed</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>J3 J4 J5</td>
<td>RP2 through RP13</td>
<td>Refer to Figure 2-3.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>RP2 through RP13</td>
<td>Refer to Figure 2-4.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>RP2 through RP5, RP8 through RP11</td>
<td>Refer to Figure 2-5.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>RP6, RP7, RP12, RP13</td>
<td>Refer to Figure 2-7.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>RP6, RP7, RP12, RP13</td>
<td>Refer to Figure 2-8.</td>
<td></td>
</tr>
</tbody>
</table>

Table 2-2. BT-757S Termination

<table>
<thead>
<tr>
<th>Connector(s) Used</th>
<th>Terminators(s) Terminated</th>
<th>Terminators(s) Removed</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>J3 J4 J5</td>
<td>RP1 through RP3</td>
<td>Refer to Figure 2-3.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>RP1 through RP3</td>
<td>Refer to Figure 2-4.</td>
<td></td>
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<tr>
<td></td>
<td>RP1 through RP3</td>
<td>Refer to Figure 2-5.</td>
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</tr>
<tr>
<td></td>
<td>RP2, RP3</td>
<td>Refer to Figure 2-6.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>RP1</td>
<td>Refer to Figure 2-7.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>RP1</td>
<td>Refer to Figure 2-8.</td>
<td></td>
</tr>
</tbody>
</table>

Cabling Requirements

Selecting the proper SCSI cable for a particular system configuration is very important. If two or more SCSI devices are configured in a SCSI daisy chain, the devices must be connected as described in Table 2-3.

Table 2-3. Cabling Requirements

<table>
<thead>
<tr>
<th>Type of Cable</th>
<th>Connector(s)</th>
<th>BT-757D</th>
<th>BT-757S</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daisy-chain, 50-conductor (0.050&quot;) ribbon cable</td>
<td>J3</td>
<td>J3</td>
<td></td>
</tr>
<tr>
<td>Daisy-chain, 68-conductor (0.025&quot;) ribbon cable</td>
<td>J4</td>
<td>J4</td>
<td></td>
</tr>
<tr>
<td>Shielded AMPLIMITE.050 series connector type, 68 position with latches, SCSI-P cable</td>
<td>J5</td>
<td>J5</td>
<td></td>
</tr>
</tbody>
</table>

Before plugging in cable connectors, check that the “▼” mark molded on the connector or the colored stripe on the cable (indicating the location of Pin 1) matches Pin 1 of the connector on the BT-757 board.

SCSI Device ID Selection

The SCSI ID is a number between 0 and 7 assigned to any SCSI device. The SCSI ID number is used by the computer to communicate with the devices connected to it. All SCSI devices must have a unique SCSI number to identify it on the SCSI chain. A SCSI device is usually fixed as either an initiator or a target, when two or more SCSI devices communicate, but some devices are capable of performing either role. Devices with higher ID numbers have a higher priority in communicating with the computer.

Most SCSI peripheral devices are shipped with a preassigned SCSI ID number. A SCSI ID switch is usually located on the back panel of such devices. Change the SCSI ID of other peripheral devices only as recommended in the owner’s manual. Refer to the heading, “EISA Configuration Settings,” later in this manual for information on setting the SCSI ID number of the BT-757.
INSTALLING THE **BT-757**

This section describes how to install the BT-757 in a 32-bit slot inside the EISA host system and how to connect it to other devices. Install the BT-757 in your computer by performing the following steps.

1. Remove power from the host system.

2. Referring to the host system owner’s manual, open the case to gain access to the motherboard and expansion slots. If the computer has been on, wait a few minutes until the power supply case has cooled down inside the computer. If the power supply case is cold, touch it to discharge any static electricity that may be on your clothes or body. If a disk controller drive board has been installed, remove all connecting cables to the board and then lift it out of the host computer.

3. Remove the mounting screw and the existing bracket from the rear panel behind the 32-bit slot that has been selected for insertion of the BT-757. The EISA slot closest to the disk drives is the best choice.

4. If the BT-757 will be installed in a host which is not at either end of the SCSI bus, terminators on the board will need to be removed.

   For the BT-757D, RP2 through RP13 are the terminators. RP2, RP4, RP6, RP8, RP10, and RP12 are resistor packs containing 5 isolated 150 ohm resistors. RP3, RP5, RP7, RP9, RP11, and RP13 are resistor packs containing 9 bused 330 ohm resistors.

   For the BT-757S, RP1 through RP3 are the terminators. RP1, RP2, and RP3 are resistor packs containing 9 bused 110 ohm resistors.

   The BT-757D and BT-757S boards are shipped with terminators installed. The BT-757 must have the correct number of terminators installed for proper operation and to prevent damage to its SCSI chip. WI-W3 provide terminator power to the SCSI devices. Refer to Tables 2-2 and 2-3 for information on proper termination.

5. Press the BT-757 downward into the selected 32-bit slot, align the mounting bracket, and reinstall the mounting screw.

6. If a 50-pin SCSI drive is used, connect the 50-pin connector within the host computer to the SCSI connector J3. J3 is the internal 50-pin SCSI connector for 8-bit device support. If a 68-pin SCSI drive is used, connect the 68-pin connector within the host computer to the SCSI connector J4. J4 is the internal 68-pin SCSI connector for 16-bit device support.

   Place the connector cable around the power supply and over any other boards. See the earlier heading, “Cabling Requirements,” for more details.

7. If the floppy controller on the BT-757 will be used, connect the smaller 34-pin connector from the floppy disk drive to the J2 connector marked Floppy. Make sure the ribbon cable is installed correctly. The dark stripe on the cable indicates where Pin #1 is connected.
8. Insert the four-pin header connector from the drive activity LED on the front panel of the host to connector J1 on the BT-757. This connector is reversible and may be plugged into J1 in either direction.

9. Verify that all connections are secure.

10. Reattach and close the cover of the host computer as described in the system owner's manual.

**Floppy Disk Controller Configuration**

The floppy disk controller on the BT-757 can be enabled by any one of the following two configuration options:

1. Installing a jumper at W8.

2. Enabling the floppy disk controller with the EISA configuration file.

The floppy disk controller is disabled only if all of the preceding two configuration options are disabled. The BT-757 is shipped with a jumper installed at W8 and with the floppy disk controller disabled in the EISA configuration file !BUS4201.CFG.

If the system's motherboard does not have a floppy disk controller, you can plug the BT-757 into the system with the W8 jumper installed and use the BT-757 floppy disk controller to access the EISA configuration file to configure the system.

If the system's motherboard already has a floppy disk controller, avoid the floppy conflict by removing the jumper at W8 when you first plug the BT-757 into the system. You can then use the EISA configuration file to configure the system.
EISA Configuration Settings

The BT-757 fully supports the EISA automatic configuration facility, and is operational with most computers using the default settings in the BT-757 configuration diskette supplied with the BT-757 board. The BT-757 configuration options will need to be changed if conflicting port assignments or memory allocation is encountered. Every BusLogic EISA controller comes with a floppy diskette which contains the BusLogic configuration file (IBUS4201.CFG).

Before starting, perform the following steps:

1. Copy the BusLogic!BUS4201.CFG file onto the configuration floppy diskette provided with your host system computer.

2. Place the configuration floppy diskette into your system floppy drive and type "CF" (or the name of your configuration program).

3. Follow the directions on your screen to select the configure computer option. An Auto Added prompt will advise you that the BT-757 has been installed into a previously empty EISA slot.

4. Follow the directions on your screen to select the BT-757.

The default settings for configuration options as shown on the screen are illustrated in Figure 2-9. Select the desired options by moving the cursor to the desired field and then press <RETURN>. A submenu for the options selected will appear. To set the option in the submenu, use the cursor keys to highlight the selection and then press <RETURN>.

Before operating the BT-757, verify that the configuration settings have been set according to the target system's operating requirements. The figures that follow show the settings for these option submenus.

---

Figure 2-9. Configuration Settings

Note: For details on greater than 1 GB support, refer to the heading, "Disk Drive Capacity," later in this section.

Host I/O Port Address

The host communicates with the BT-757 via the BT-757's three I/O registers. This setting lets you define the base I/O address of these three registers within the host I/O map. Note that each board within the same EISA host system must have its unique I/O register addresses to prevent hardware conflicts. The default starting address is 330H.
Host Interrupt Request

The BT-757 generates a hardware interrupt to the host whenever an interrupt condition exists. You can use this setting to specify the hardware interrupt line on the EISA bus that the BT-757 should use to generate interrupts to the host, or to disable interrupts.

Each selected hardware line can be either edge or level triggered. Edge-triggered interrupts assert interrupts high; whereas, level-triggered interrupts assert interrupts low. Level-triggered interrupts allow multiple boards to share the same hardware interrupt line on the EISA bus. Note that unless the device drivers have the capability of handling shared interrupts, each board in the EISA host system must be assigned a unique hardware interrupt line to prevent conflicts. The default setting for this option is Channel 11 edge triggered.

Host BIOS (16K Bytes) Address

The BIOS address resides within the host memory map and is executed by the host even though it is physically located on the BT-757. The BIOS intercepts host interrupt 13H and then dispatches a command to the BT-757 for all host to SCSI disk accesses under the DOS environment. This setting allows you to select the starting address of a 16K Byte memory slot within the host memory space for the BIOS.

If more than one host adapter is installed within the same EISA host system, only one can have the BIOS enabled. The BIOS on each additional host adapter must be disabled. The default setting for this option is 0DC000H.

Host BIOS (16K Bytes) Address

| 0DC000h | 0D8000h | 0CC000h | 0C8000h | Disabled BIOS |

ISA DMA Channel Emulation

The BT-757 performs bus arbitration and data transfers in EISA bus master mode. It does not use DMA channels on the EISA bus. Consequently, this setting is only needed for the downward compatibility of device drivers that require the assignment of a DMA channel. The default setting is DMA Channel 5.

ISA DMA Channel Emulation

| DMA Channel 5 |
| DMA Channel 6 |
| DMA Channel 7 |
| No DMA Channel |
**EISA Bus Burst Cycles**

The BT-757 is capable of transferring data across the EISA bus in bus master burst mode reaching the maximum EISA data rate of 33 MBytes/sec. This setting allows you to enable or disable the bus master burst mode feature depending upon the capability of the motherboard. The default is to have bursting disabled.

**SCSI Parity**

There are 8 bits of data plus one bit of parity on a standard SCSI bus. This setting allows you to enable or disable parity on the SCSI bus. The default setting is to have parity enabled.

**Host Adapter SCSI ID**

There are eight SCSI IDs (0-7) on a SCSI bus. SCSI ID 7 has the highest priority. Each initiator or target on a SCSI bus must be assigned a unique SCSI ID.

This setting enables you to define the SCSI ID for the BT-757 on the SCSI bus. Because the BT-757 is an initiator on the SCSI bus dispatching host commands to all SCSI targets on the bus, the default SCSI ID is 7. Note that the BT-757's on-board BIOS requires that your SCSI drives be configured for SCSI ID 0 and 1. This requirement is important only if you intend to boot your system from the BT-757. The as-shipped (default) SCSI ID is 7.

**Disk Drive Capacity**

**DOS Disk Space > 1 GBytes. In the DOS environment, when the BT-757’s on-board BIOS is enabled to service interrupt 13H for SCSI disk accesses, the BIOS intercepts host interrupt 13H calls and dispatches commands to the BT-757 to access the SCSI devices. If the overall DOS disk space is to exceed 1 GBytes, this option has to be enabled. When this option is enabled, the BT-757 BIOS allows DOS to access up to 8 GBytes per disk. Otherwise, DOS can only access the first 1 GBytes even if the formatted disk capacity is greater than 1 GBytes.**

For most operating systems other than DOS, for example, NetWare, UNIX, and OS/2, the 1 GByte limitation exists only during the boot process when interrupt 13H is used. Once booted, these operating systems can access the entire disk space without the 1 GByte limitation.

Therefore it is recommended that this option be enabled only if greater than 1 GBytes of disk space is needed under DOS. For all other operating systems, as long as the bootable image resides below the 1 GByte range, this option can be disabled without losing the accessibility of the entire drive. To enable the > 1 GByte DOS support, turn on this option.
Note: Before this option is changed, you must backup the entire disk image on those drives that have greater than 1 GBytes of capacity. After the option is changed, you must then reformat all those greater than 1 GByte drives and reinstall all the files.

Adapter Initiate Synchronous Negotiation

The SCSI protocol allows synchronous negotiation to determine the REQ/ACK offset, the data transfer rate for synchronous transfers, and the 8- or 16-bit data transfers between an initiator and a target on the SCSI bus. The actual data transfer rate is determined by the lower of the rates between the initiator and the target. Because the BT-757 is capable of up to 20 MBytes/sec SCSI data transfers, the actual data transfer rate is determined by the SCSI drive if the drive has a data transfer rate lower than or equal to 20 MBytes/sec. The default setting is disabled.

The default mode assumes that a SCSI target device connected to the BT-757 will initiate the synchronous negotiation. Some target devices require that they initiate the synchronous negotiation. Such devices may fail to respond to commands from the BT-757 if a synchronous negotiation occurs unexpectedly. Conversely, other target devices may expect an initiator to begin the synchronous negotiation sequence. If this class of SCSI target devices is connected to the BT-757, the option may be enabled to allow the host adapter board to initiate the negotiation for a synchronous data transfer with a selected SCSI target device.

Adapter Initiate Sync Negotiation

| Disable | Enable |

Note: In order for the BT-757 to negotiate for 16-bit SCSI transfers, the "Adapter Initiate Synchronous Negotiation" option has to be enabled. This enables the host adapter to negotiate for synchronous transfer parameters, as well as 8- or 16-bit device support. The BT-757 provides simultaneous support of 8- and 16-bit devices.

Maximum Synchronous Data Rate Allowed (For 8-Bit SCSI Only)

The SCSI controller chip on the BT-757 has the capability of supporting 8-bit SCSI data rates of up to 10 MBytes/sec. This option is applicable to 8-bit SCSI devices only. For all 16-bit SCSI devices, this option is ignored.

Note the following two points: (1) in order to achieve a 10 MBytes/sec transfer rate, this option and the Adapter Initiate Synchronous Negotiation option must both be enabled, and (2) some older SCSI drives that can only support a data rate of up to 5 MBytes/sec may misinform the BT-757 during the negotiation that it can transfer data above 5 MBytes/sec. When the BT-757 is connected to such drives, the 5 MBytes/sec option must be used. Otherwise, it will cause data transfer failure. The default setting is the 5 MBytes/sec option.

| 5 MBytes/sec - default | 10 MBytes/sec - FAST SCSI |

Floppy Subsystem

The default setting for this option is for the floppy drive to be disabled. When the floppy subsystem is disabled, the floppy disk controller will disregard read and write commands. When the floppy subsystem is enabled, the floppy disk controller is allowed to respond to read or write requests. Setting the floppy subsystem for Primary produces a primary floppy disk address of 3FX. The secondary address of 37X is set when the secondary option is selected.

Floppy Subsystem

| Disable Floppy | Primary Floppy | Secondary Floppy |
HARD DISK INITIALIZATION

This section describes the system set up, initialization, partitioning and formatting of hard disk drives used with the BT-757. These procedures will erase all data on your disk drives. Before following these procedures make sure that all necessary data is backed up on another drive.

Set-up, initialization, and Partitioning Procedure

To perform set up, initialization, and partitioning, proceed as follows:

1. After plugging in, connecting and configuring your BT-757 (see the previous parts of this section), reset and reboot your system.
2. Insert the system diagnostic diskette in the drive; or execute the host’s internal diagnostic/set-up program. See your particular system’s installation instructions.
3. In accordance with the menu that appears on the system monitor, run SETUP and configure the host CMOS RAM options. Set the hard disk option for SCSI drive to No Hard Drive Installed.
4. The following Steps 4 through 8 may not be necessary if your SCSI hard disk drive has already been formatted.
5. Reboot the system and insert the DOS diskette containing the DEBUG program.
6. After the DOS prompt, type the following for low-level format:

```plaintext
debug <RETURN>
```

The system responds with the "-" prompt.

A) Type `g=dc00:6<RETURN>` if the host BIOS address is set for this; otherwise, enter the correct BIOS address.

B) A list of all attached drives appears under the option prompt. Press the 2 key until the drive to be formatted is the current drive.

C) Press 3 <RETURN> to format the drive. The following prompt appears:

```plaintext
All data on this drive will be lost!  Proceed with low level formatting? (Y/N) __
```

Enter Y to proceed with low-level formatting and follow the instructions as they appear on the screen.

D) The system will format the SCSI drive selected. When the format is completed, press any key to go back to the main menu shown in the preceding Step 6A. Enter 4 to verify the drive and then press <RETURN>. The following prompt appears.

```plaintext
All data on this drive will be verified.  and bad data areas will be reassigned.  Proceed with low level verification? (Y/N) __
```

Enter Y to proceed with verification.
E) When the verification is finished, press any key to go back to the main menu shown in the preceding Step 6A. To exit to DOS, type:

5 <RETURN>

The following Steps 7 and 8 may not be necessary if the operating system to be installed is not DOS.

7. Run the DOS FDISK program to partition the disk for the number of cylinders to be used by DOS. The following steps are recommended for users who are not familiar with the DOS FDISK program. See your DOS manual for information on the FDISK command.

A) Enter `fdisk <RETURN>`. The following menu appears.

```
FDISK Options
Current Fixed Disk Drive: C
Choose one of the following:
1. Create DOS Partition
2. Change active Partition
3. Delete DOS Partition
4. Display Partition information
Enter Choice: [1]
```

B) Enter 1 <RETURN> to create a DOS partition. The following menu appears.

```
Create DOS Partition
Current Fixed Disk Drive: C
Choose one of the following:
1. Create Primary DOS Partition
2. Create Extended DOS Partition
Enter Choice: [1]
```

C) Enter 1 <RETURN> to create a primary DOS partition. The next menu appears.

```
Create Primary DOS Partition
Current Fixed Disk Drive: C
Choose one of the following:
Do you wish to use the maximum size for a DOS partition and make the DOS partition active (Y/N) ...............? [Y]
```

D) Enter Y <RETURN> to create a primary DOS drive partition with the maximum size. The following prompt appears.

```
System will now restart
Insert DOS diskette in drive A:
Press any key when ready . . .
```

When the partitioning has been completed (indicated by another prompt), press any key to return to DOS.

8. Install DOS by running the FORMAT program as instructed by DOS normal installation procedures. The next steps are recommended for operators who are not familiar with the DOS FORMAT program.
A) Run the **FORMAT** program by typing:

```
format c:/s/v <RETURN>
```

B) The system displays the following format warning:

```
WARNING: ALL DATA ON NON-REMOVABLE DISK
DRIVE C. WILL BE LOST!
Proceed with Format (Y/N)?
```

C) Type **Y** <RETURN>.

D) When the format has been completed, the following prompt appears.

```
Format complete
System transferred
Volume label (11 characters, ENTER for name)?
```

E) Enter any legal file name to label the volume just created. Refer to your system operator's manual for more details on the DOS format procedures.

This concludes the BT-757 hardware and software installation procedures.

**CLASS B EQUIPMENT**

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in 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 the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different than that to which the receiver is connected
- Consult the dealer or an experienced radio or television technician for help

**Modifications**

The FCC requires the user to be notified that any changes or modifications made to this device that are not expressly approved by **BusLogic Inc.** may void the user’s authority to operate the equipment.

**Cables**

External connections to this device must be made with shielded cables with metallic RFI/EMI connector hoods in order to maintain compliance with FCC Rules and Regulations.

**Modifications to Product Design**

The material in this **manual** is for information **only** and is subject to change without prior notice to its users. **BusLogic Inc.** reserves the right to make changes in the product design without notice to its users.

**WARRANTY INFORMATION**

If damage to the board has occurred, return it in the protective envelope with this manual to your **BusLogic** board supplier. The shipping agent should also be notified if the unit has been damaged during shipment. The **BusLogic** warranty conditions are given in the back of this manual.
PRODUCT SUPPORT RECORD

The information on this page should be compiled and provided to your supplier in writing to obtain technical support assistance. This will enable your supplier to respond more rapidly and more appropriately to your problem.

About BusLogic Product:

   BusLogic Product No: ________________________________
   Serial Number: ______________________________________
   Date of Purchase: ________________________________
   Firmware Version Number: __________________________
   BIOS Version Number: ______________________________

Purchased From:

   Company: __________________________________________
   Address: __________________________________________

Purchased By:

   Name/Title: _________________________________________
   Company: __________________________________________
   Address: __________________________________________
   Telephone #: ________________________________

About System Hardware Configuration:

   System Manufacturer: ________________________________
   System Model and Speed: ______________________________
   System BIOS Manufacturer: ___________________________
   Memory in System: __________________________________
   Hard Drives on System: ______________________________

About System Software Configuration:

   Operating System/Version: __________________________
   Application Program/Version: _______________________

Detailed Description of Problem:

   ___________________________________________________
   ___________________________________________________
   ___________________________________________________
STANDARD WARRANTY

BusLogic warrants that subject to the terms of this policy the Products shall be free from defects due to faulty material or workmanship on the part of BusLogic for a period of one year from the date of delivery.

This warranty shall not apply if the Products have been subject to misuse by Customer or any other party; if any material alteration, addition, amendment, or modification shall have been carried out without the prior written consent of BusLogic; failure to install or operate the Products in accordance to BusLogic’s Product reference manual; or failure caused by improper or inadequate maintenance of users.

BusLogic will make good by repair or at its option by replacement any Products which become defective within the warranty period. Repairs will be warranted for 90 days. Products or parts replaced under this provision shall become the property of BusLogic.

BEFORE RETURNING A PRODUCT FOR REPAIR, BUYER MUST REQUEST A RETURN MATERIAL AUTHORIZATION (RMA) NUMBER FROM BUSLOGIC.

All Products under warranty returned to BusLogic for repair shall be returned to Customer at BusLogic’s expense. Shipping costs for all Products returned to BusLogic for repair which are out of the warranty period shall be at Customer’s expense both to and from BusLogic.

Customer is expressly prohibited from issuing Debit Memos for material returned under the provisions of this warranty.

BusLogic shall notify Customer in the event that the Products returned for repair are not, in BusLogic’s sole opinion, within this Warranty condition and, unless disposition instructions are given for such Products within thirty (30) days of such notification, the Products will be returned to Customer freight collect.

EXCEPT FOR THE ABOVE EXPRESS LIMITED WARRANTY, BUSLOGIC MAKES NO WARRANTIES, EXPRESS, IMPLIED OR STATUTORY, AND BUSLOGIC SPECIFICALLY DISCLAIMS ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

The total liability of BusLogic for any claim or damage arising out of this Agreement, and whether in contract or in tort, shall not exceed the price of the individual Product(s) whose defect or damage is the basis of the claim.

IN NO EVENT SHALL BUSLOGIC BE LIABLE FOR ANY LOSS OF PROFITS OR FOR ANY OTHER INCIDENTAL OR CONSEQUENTIAL DAMAGES.

No action against BusLogic for breach of the warranty shall be commenced more than one (1) year after the accrual of the cause of action.

Customer also agrees to perform its duties and responsibilities under BusLogic’s Warranty Policy, which shall be updated from time to time.