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ETX-LX05

ETX Compliant Intel PIII/Celeron
Single Board Computer

Configuration Guide

Rev 1.0

Diversified Technology Incorporated ®

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DIVERSIFIED TECHNOLOGY, INC.
Service Department
476 Highland Colony Parkway
P. O. Box 748
Ridgeland, MS, 39157
RMA# _____

To contact the Service Department:
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Revision History

Revision	Date	Description
1.0	06-20-2003	Initial Draft.



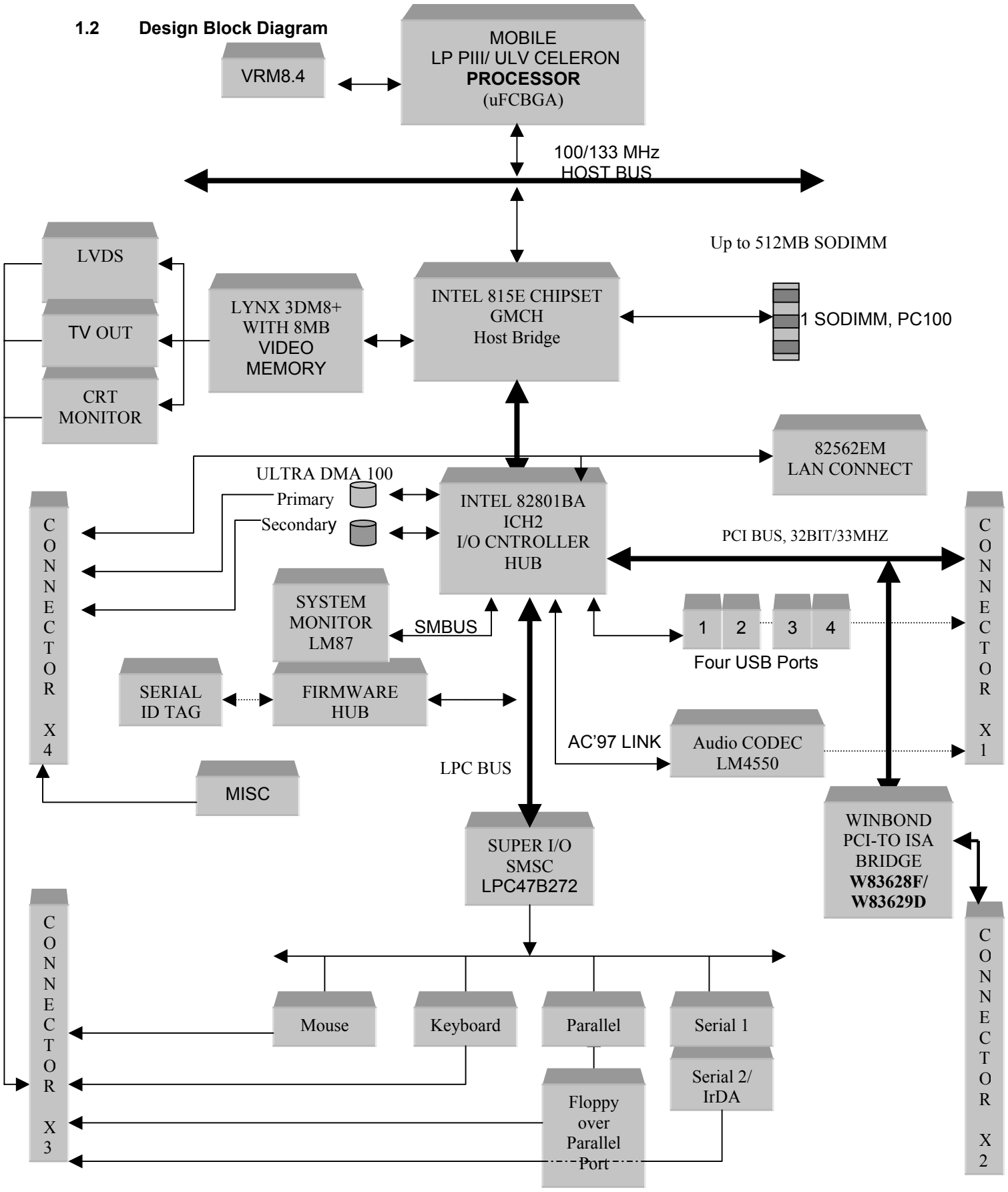
1 Product Overview

1.1 ETX-LX05 Overview
1.2 Design Block Diagram
1.3 Processor Support
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1.13 USB
1.14 Audio
1.15 Video Support
1.16 RTC
1.17 Keyboard and Mouse Port

1.1 ETX-LX05 Overview

The ETX-Lx05 CPU module will provide the scalability, flexibility, and stability of Applied Computing Platforms that utilize Celeron and Pentium III processors. This embedded application will employ the Embedded Technology eXtended (ETX) compliant standard. The board is designed for use with various ETX compatible baseboards. Along with CPU flexibility, the ETX-Lx05 CPU module offers LVDS flat panel and TV out support, PCI/ISA support, and on-board system monitoring.

1.2 Design Block Diagram



1.3 Processor Support

ETX-Lx05 may utilize either an Intel Celeron or a Pentium III processor. The Intel Celeron processors supported are 400/650 MHz at 100 MHz FSB with 256KB integrated L2 Cache. The Intel Pentium III processors supported are 800/933 MHz at 133 MHz FSB with 512KB integrated L2 Cache.

1.4 Chipset

The Intel 815E provides the option to use the Celeron or PIII processor. The Processor side bus speed can be set for 100 or 133 MHz depending on the type of processor used. The 815E supports PC100 or PC133 SDRAM memory. The 815E chipset supports 0.13-micron technology for the Celeron and PIII processors. This chipset utilizes a single driver featuring full backward compatibility and reliability. Coupled with the ICH2, the 815E also offers an integrated AC'97 controller, integrated LAN capability, and four USB ports.

1.5 Memory

The ETX-Lx05 supports up to 512MB of SDRAM via one right-angled SODIMM socket. ECC is not supported by the chipset. (Note: Excessively tall memory modules are not suitable for this design).

1.6 ETX-LX05 I/O Overview

The ETX-LX05 provides the standard ETX specified I/O. All I/O is passed to an ETX baseboard through defined X1-X4 connectors. These connectors are fine-pitched, high pin count connectors called for by the ETX Design specification. X1 passes the PCI bus, audio, and USB; X2 passes the ISA bus; X3 passes the Video, Serial, parallel or floppy, IrDA, Mouse and Keyboard; X4 passes IDE, ethernet, and other miscellaneous signaling. Further pin-outs for the ETX connectors (X1-X4) are defined in section 3 of the manual.

1.7 System Integration

The ETX-Lx05 CPU module, through the ETX connector, has two serial ports and one configurable parallel port/floppy drive port. An onboard floppy controller supports drive sizes from 360KB to 2.88MB. Floppy functionality is available over the parallel port interface. The system also offers four USB ports, IrDA 1.1, AC'97 sound, hardware monitoring and flat panel interface.

1.8 System Environment Monitor

This module provides a hardware interface for monitoring the status of the system environment. The hardware monitor controller monitors the system input voltage, ambient board temperature, and CPU temperature.

1.9 10/100 Base-Tx Ethernet

The fast ethernet on the ETX-Lx05 CPU module is based on the Intel 82562EM PCI LAN connect device. The 82562EM controller supports 10/100 Base-Tx ethernet implemented through the ETX interface to the baseboard.

1.10 PCI Bus

The ETX-Lx05 CPU module supports a PCI expansion bus fully compliant with the PCI specification. This design offers sufficient output drive capability and input buffering and termination to properly operate with a fully populated 4-slot 32/33MHz ETX baseboard. The PCI interface is implemented through the ETX connector to the baseboard.

1.11 ISA Bus

The ETX-LX05 supports an off board ISA expansion bus with enhanced buffering to enable driving expansion slots on a long backplane.

1.12 IDE Drive Interface

The ETX module provides PCI EIDE ATA/100 controller. This PCI IDE controller supports all DMA IDE and ATAPI compliant devices. The EIDE interface is implemented through the ETX connector to the baseboard.

1.13 USB

The ETX-Lx05 CPU module provides support for up to four USB ports. These ports are implemented through the ETX interface to the baseboard.
The USB interface can be used to connect with a wide variety of peripherals including keyboards and pointing devices.

1.14 Audio

The ETX-LX05 utilizes the National LM4550 to provide a high quality audio path within the PC system. The LM4550 performs the analog intensive functions of the AC97 Rev 2.1 architecture. Audio is accessible only through connectors on an ETX baseboard.

1.15 Video Support

The ETX-LX05 incorporates a Silicon Motion Lynx 3DM+ video controller. The Lynx 3DM+ includes 8MB of memory and supports multiview by simultaneously driving a CRT and an LCD panel.

1.16 Real Time Clock

The ETX-Lx05 CPU module provides support for an onboard RTC (real time clock). The RTC has support for 256 bytes of battery backup CMOS RAM. The CMOS battery is located on the ETX baseboard, and the battery voltage is passed though the ETX connector.

1.17 Keyboard and Mouse Port

The ETX-Lx05 CPU module provides support for PS/2 style keyboard and PS/2 pointing devices through the ETX connector to the baseboard.



2 Configuration Information

2.1 System Clock Frequency
2.2 System Memory
2.3 IDE Hard Disk Interface
2.4 Floppy Disk Interface
2.5 10/100 Ethernet Interface
2.6 Video
2.7 Parallel Port
2.8 Serial Ports
2.9 Keyboard and Mouse
2.10 System Environment Monitor

2.1 System Clock Frequency

The type of processor used determines the system core clock speed for the system. The eTX-Lx05 supports Intel uFCBGA package processors for both the Low Power Pentium III and the Ultra Low Voltage Celeron Processors. The core frequency can be 100MHz or 133MHz and is set by BSEL1 and BSEL0 straps to the processor and clock generator chip. This frequency will be permanently set from the factory.

2.2 System Memory

The eTX-Lx05 supports a single 144-pin SODIMM module. Memory support can range up to 512MB. Memory is installed via the right-angle SODIMM connector denoted by reference designator U11 within this manual. The eTX-Lx05's BIOS will auto-size the memory module at boot-up. ECC memory is not supported by the chipset.

2.3 IDE Hard Disk Interface

The ETX-LX05 provides an ATA100 interface for both primary and secondary channels. The ATA100 interface supports two devices per connection. All IDE configurations are handled by the ETX-LX05 configuration utility. When enabled, the primary IDE interface utilizes IRQ14, and the secondary IDE interface utilizes IRQ15. The standard IDE drive is connected via a 40-pin, 40-wire ribbon cable and the ultra ATA100 drive is connected via a 40-pin, 80 wire ribbon cable (NOTE: An Ultra ATA100 cable should not exceed 18"). IDE functionality is passed through the X4 (J10) ETX connector.

2.4 Floppy Disk Interface

The ETX-LX05 supports /AT compatible floppy disk drives. The floppy disk interface supports 360k, 720k, 1.2M, 1.44MB and 2.88MB disk drives. The floppy interface can be enabled or disabled using the ETX-LX05 configuration utility. When enabled, the floppy interface utilizes IRQ6 and DMA channel 2. The ETX-LX05 supports Floppy over Parallel Port; meaning, floppy and parallel port functionality are multiplexed; consequently, the desired functionality must be selected before boot-up using a jumper on ETX baseboards. This feature is passed to the baseboards through the X3 (J9) ETX connector. Note: The ETX-LX05 uses only floppy drive 1 signals (not drive 0); hence, when using the floppy interface, connect a **NON-TWISTED** cable to the floppy drive.

The implementation of the floppy disk interface as Drive 1 complies with the ETX Specification. Refer to the ETX Design Guide and Specification for additional information.

2.5 10/100 Ethernet Interface

The ETX-LX05 supports one auto switching 10/100 base-t ethernet interface. The Intel 82562EM ethernet controller provides this interface. Functionality is passed to ETX baseboards via the X4 (J10) connector. The NIC address programmed into the controller is located on labels on the backside of the board. Link and activity LED signals are also passed to the baseboard.

2.6 Video

The video is controlled by the Silicon Motion Lynx 3DM+, which has support for CRT, flat panel, or multiview (drives CRT and flat panel) display. The ETX-LX05 offers several options for video through the configuration utility. The user can select to use the CRT only, flat panel only, or use multiview. The video can also be disabled through a hardware jumper (See section 3-1). This functionality is passed to the baseboard through the X3 (J9) connector.

2.7 Parallel Port

The ETX-LX05 also includes a standard parallel port. The address of the port may be set to any standard printer port address by using the ETX-LX05 configuration utility. It may also be disabled entirely through the same utility. Some parallel port signals are multiplexed with floppy signals; hence, the interface setup should be selected at boot-up by use of a jumper on the baseboard. The parallel port of the SIO chip is hardware strapped to act as a parallel port by default instead of a floppy port. This functionality is passed to the baseboard through the X3 (J9) connector. The selector signal LPT/FLPY~ is passed to the baseboard through the X4 (10) connector.

2.8 Serial Ports

Two standard RS-232 serial ports are available on the ETX-LX05. The serial ports are also configurable through the ETX-LX05 configuration utility. Serial port 1 can be configured as COM1 (3F8h) or COM3 (3E8h), and utilizes IRQ4. Serial port 2 can be configured as COM2 (2F8h) or COM4 (2E8h), and utilizes IRQ3. Both ports can be also disabled entirely. Both serial ports' signals are passed to the baseboard through the X2 (J8) connector.

2.9 Keyboard and Mouse

Mouse and Keyboard signals are passed to the ETX baseboard through the X3 (J9) ETX connector.

2.10 System Environment Monitor

The environment monitor is provided via the National LM87. The nominal values for voltages and temperatures are set to default values by the BIOS. These settings can only be changed by software written specifically to interface with the LM87 hardware monitor.

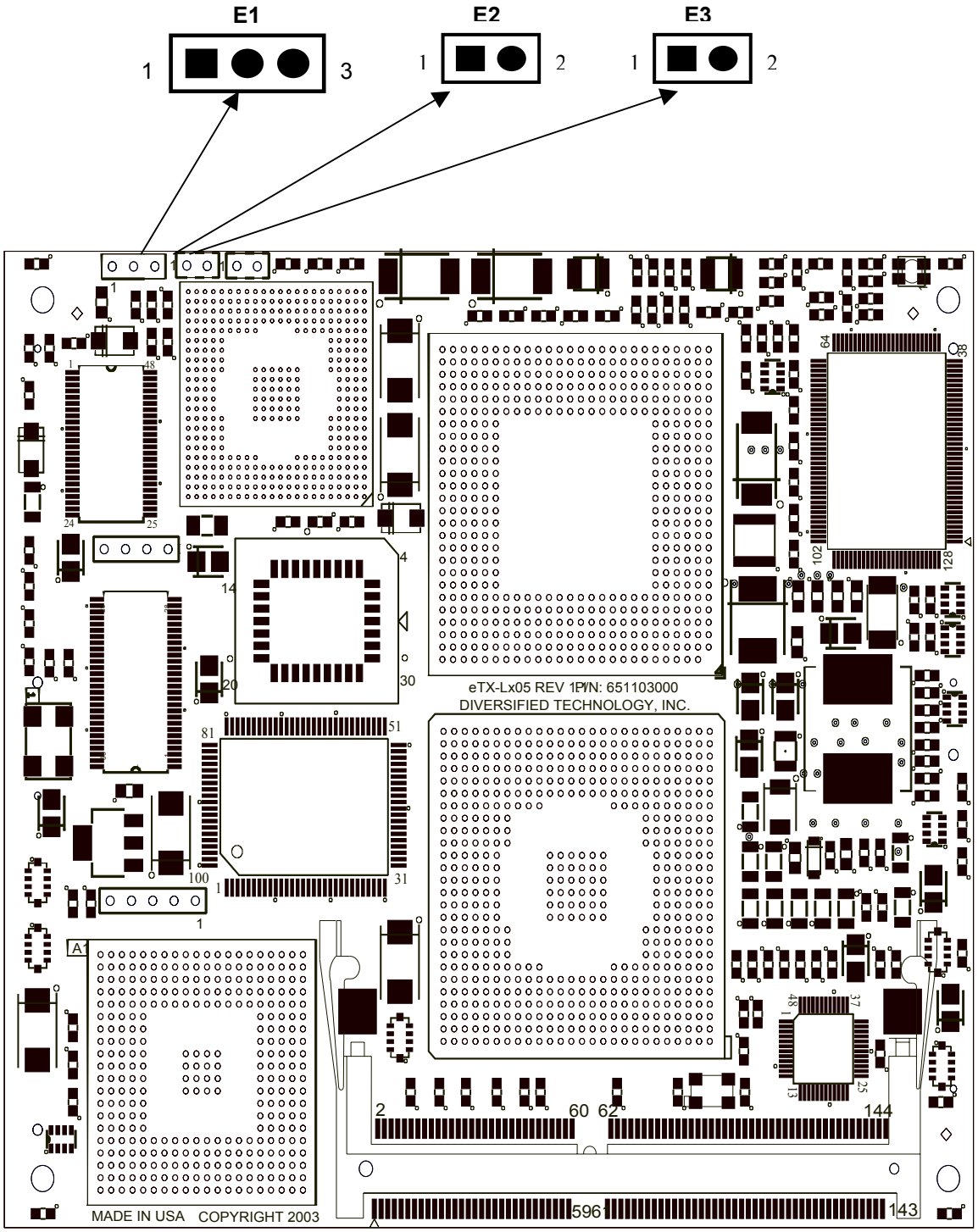


3 Quick Reference

3.1 ETX-LX05 Jumper Locations
3.2 ETX-LX05 Jumper Settings
3.3 ETX-LX05 Connector Locations (Topside)
3.4 ETX-LX05 Connector Pin-outs

This section is intended to be a quick reference or for users who are already familiar with the ETX-LX05. Reading the entire manual is recommended.

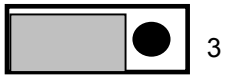
3.1 ETX-LX05 Jumper Locations



3.2 ETX-LX05 Jumper Settings

1-2 Both 5v and 5VSTBY Operating Environment
2-3 Single 5V only Operating Environment

E1



NOTE: Jumper must be on 1-2 for normal operation

1-2 Manufacturing Mode

E2

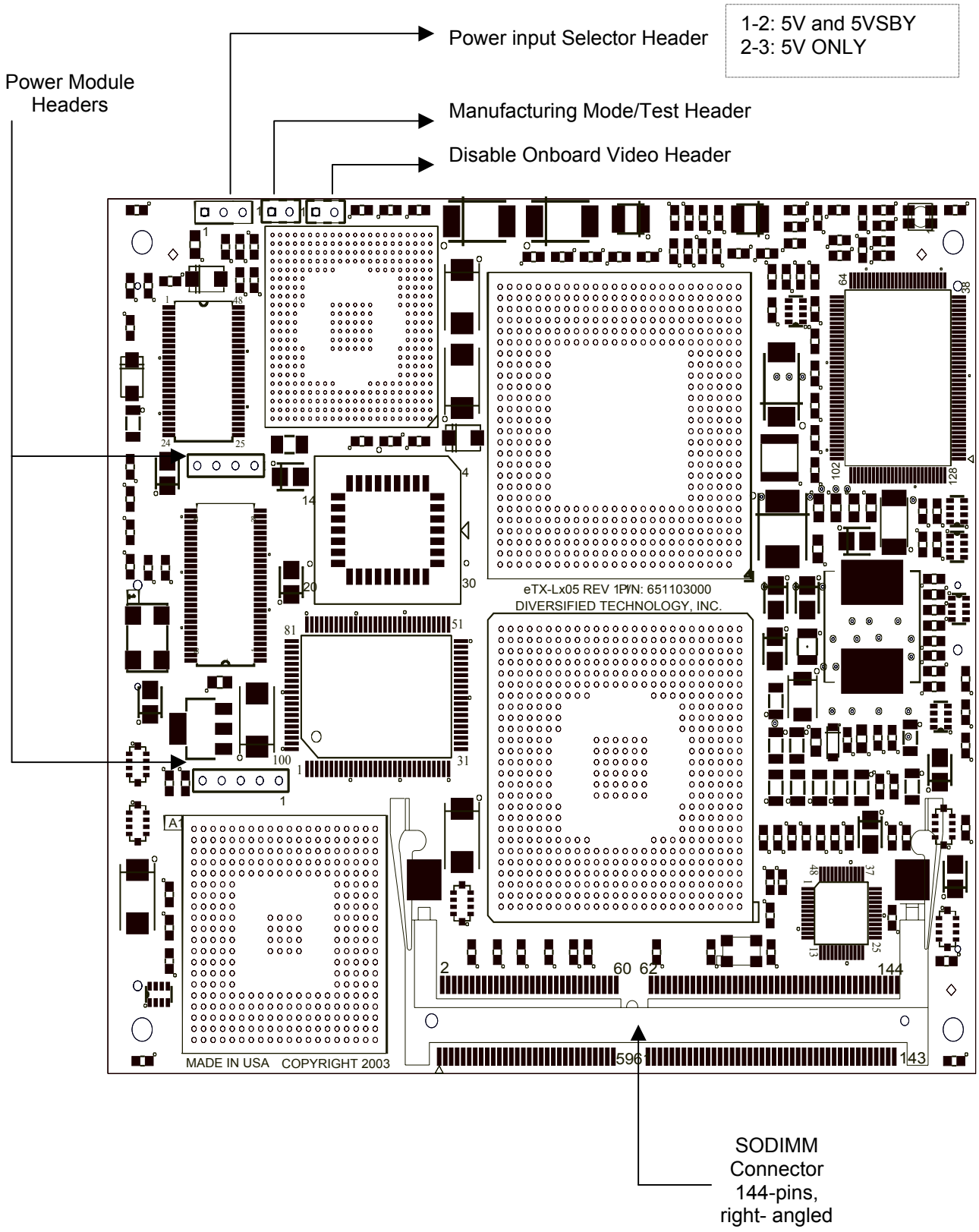


1-2 Disable Onboard Video

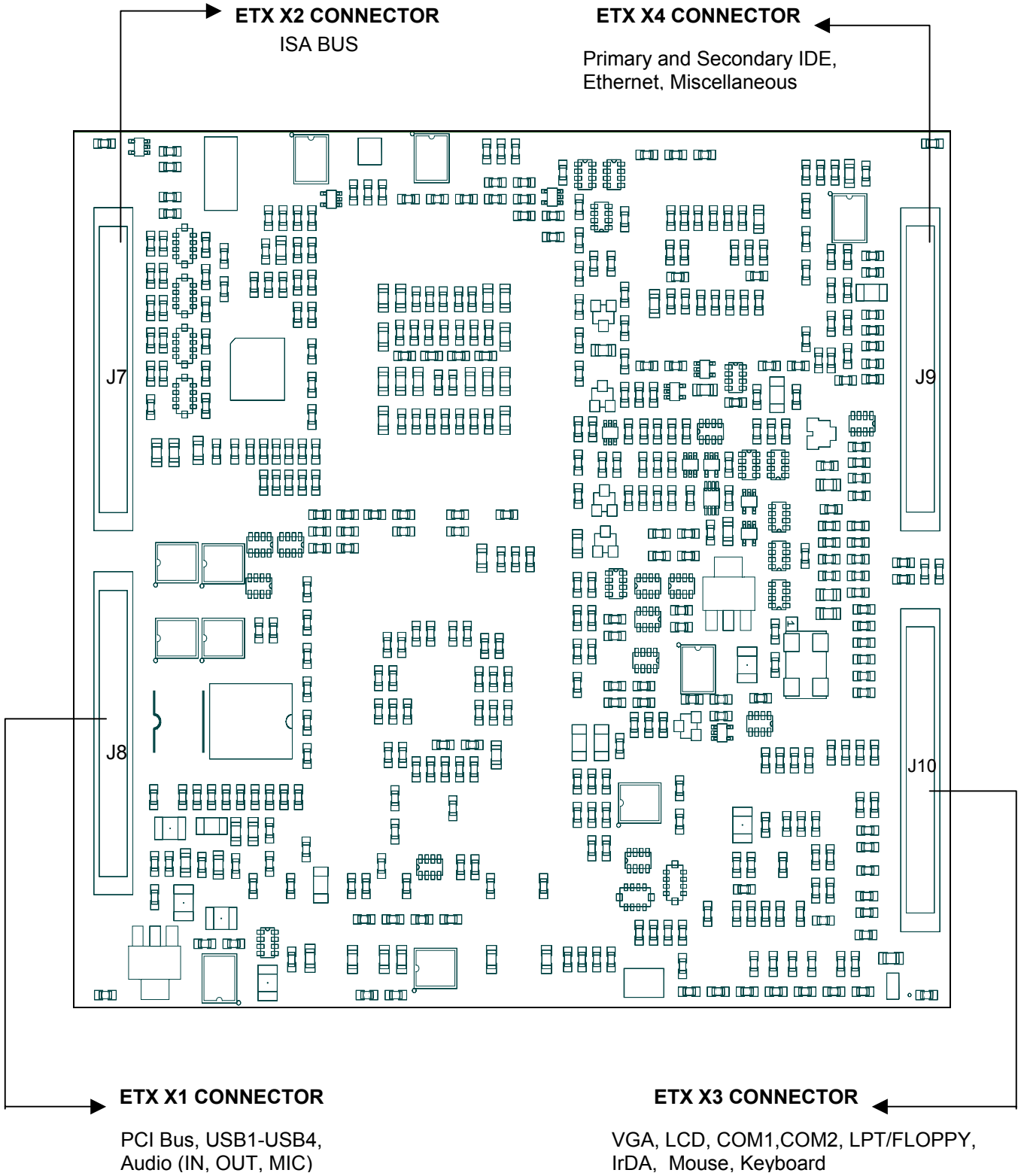
E3



3.3 ETX-LX05 Connectors Locations (Topside)



(Backside) (Bottom-View)



3.4 ETX-LX05 Connector Pin-outs

E1 – Clear CMOS	
1	VCC5_STBY
2	STBY Plane
3	VCC

Note:
1-2: Normal Operation
2-3: 5V only

E2 – Manufacturing Mode	
1	GND
2	MMode_GPI

E3 – Disable Onboard Video	
1	3.3V
2	VIDEO Disable

X1 ETX CONNECTOR (J8)

Pin	Signal	Pin	Signal
1	GND	2	GND
3	PCICLK3	4	PCICLK4
5	GND	6	GND
7	PCICLK1	8	PCICLK2
9	REQ3#	10	GNT3#
11	GNT2#	12	3V
13	REQ2#	14	GNT1#
15	REQ1#	16	3V
17	GNT0#	18	RESERVED
19	VCC	20	VCC
21	SERIRQ	22	REQ0#
23	AD0	24	3V
25	AD1	26	AD2
27	AD4	28	AD3
29	AD6	30	AD5
31	CBE0#	32	AD7
33	AD8	34	AD9
35	GND	36	GND
37	AD10	38	AUXAL
39	AD11	40	MIC
41	AD12	42	AUXAR
43	AD13	44	ASVCC
45	AD14	46	SNDL
47	AD15	48	ASGND
49	CBE1#	50	SNDR

Pin	Signal	Pin	Signal
51	VCC	52	VCC
53	PAR	54	SERR#
55	GPERR#	56	RESERVED
57	PME#	58	USB2#
59	LOCK#	60	DEVSEL#
61	TRDY#	62	USB3#
63	IRDY#	64	STOP#
65	FRAME#	66	USB2
67	GND	68	GND
69	AD16	70	CBE2#
71	AD17	72	USB3
73	AD19	74	AD18
75	AD20	76	USB0#
77	AD22	78	AD21
79	AD23	80	USB1#
81	AD24	82	CBE3#
83	VCC	84	VCC
85	AD25	86	AD26
87	AD28	88	USB0
89	AD27	90	AD29
91	AD30	92	USB1
93	PCIRST#	94	AD31
95	INTC#	96	INTD#
97	INTA#	98	INTB#
99	GND	100	GND

X2 ETX CONNECTOR (J7)

Pin	Signal	Pin	Signal
1	GND	2	GND
3	SD14	4	SD15
5	SD13	6	MASTER#
7	SD12	8	DREQ7
9	SD11	10	DACK7#
11	SD10	12	DREQ6
13	SD9	14	DACK6#
15	SD8	16	DREQ5
17	MEMW#	18	DACK5#
19	MEMR#	20	DREQ0
21	LA17	22	DACK0#
23	LA18	24	IRQ14
25	LA19	26	IRQ15
27	LA20	28	IRQ12
29	LA21	30	IRQ11
31	LA22	32	IRQ10
33	LA23	34	IO16#
35	GND	36	GND
37	SBHE#	38	M16#
39	SA0	40	OSC
41	SA1	42	BALE
43	SA2	44	TC
45	SA3	46	DACK2#
47	SA4	48	IRQ3
49	SA5	50	IRQ4

Pin	Signal	Pin	Signal
51	VCC	52	VCC
53	SA6	54	IRQ5
55	SA7	56	IRQ6
57	SA8	58	IRQ7
59	SA9	60	SYSCLK
61	SA10	62	REFSH#
63	SA11	64	DREQ1
65	SA12	66	DACK1#
67	GND	68	GND
69	SA13	70	DREQ3
71	SA14	72	DACK3#
73	SA15	74	IOR#
75	SA16	76	IOW#
77	SA18	78	SA17
79	SA19	80	SMEMR#
81	IOCHRDY	82	AEN
83	VCC	84	VCC
85	SD0	86	SMEMW#
87	SD2	88	SD1
89	SD3	90	NOWS#
91	DREQ2	92	SD4
93	SD5	94	IRQ9
95	SD6	96	SD7
97	IOCHK#	98	RSTDRV
99	GND	100	GND

X3 ETX CONNECTOR (J10)

Pin	Signal	Pin	Signal
1	GND	2	GND
3	R	4	B
5	HSY	6	G
7	VSY	8	DDCK
9	DETECT#	10	DDDA
11	LCDDO16/B4	12	LCDDO18/SHFCLK
13	LCDDO17/B5	14	LCDDO19/EN
15	GND	16	GND
17	LCDDO13/B1	18	LCDDO15/B3
19	LCDDO12/B0	20	LCDDO14/B2
21	GND	22	GND
23	LCDDO8/G2	24	LCDDO11/G5
25	LCDDO9/G3	26	LCDDO10/G4
27	GND	28	GND
29	LCDDO4/R4	30	LCDDO7/G1
31	LCDDO5/R5	32	LCDDO6/G0
33	GND	34	GND
35	LCDDO1/R1	36	LCDDO3/R3
37	LCDDO0/R0	38	LCDDO2/R2
39	VCC	40	VCC
41	JILI_DAT	42	LTGIO0/VSNYC
43	JILI_CLK	44	BLON#
45	BIASON/HSYNC	46	DIGON
47	COMP	48	Y
49	SYNC	50	C

Pin	Signal	Pin	Signal
51	LPT/FLPY#	52	RESERVED
53	VCC	54	GND
55	STB#/RSVD	56	AFD#/DENSEL
57	RESERVED	58	PD7/RSVD
59	IRRX	60	ERR#/HDSEL#
61	IRTX	62	PD6/RSVD
63	RXD2	64	INIT#/DIR#
65	GND	66	GND
67	RTS2#	68	PD5/RSVD
69	DTR2#	70	SLIN#/STEP#
71	DCD2#	72	PD4/DSKCHG#
73	DSR2#	74	PD3/RDATA#
75	CTS2#	76	PD2/WP#
77	TXD2#	78	PD1/TRK0#
79	RI2#	80	PD0/INDEX#
81	VCC	82	VCC
83	RXD1	84	ACK#/DRV
85	RTS1#	86	BUSY#/MOT
87	DTR1#	88	PE/WDATA#
89	DCD1#	90	SLCT#/WGATE#
91	DSR1#	92	MSCLK
93	CTS1#	94	MSDAT
95	TXD1	96	KBCLK
97	RI1#	98	KBDAT
99	GND	100	GND

X4 ETX CONNECTOR (J9)

Pin	Signal	Pin	Signal
1	GND	2	GND
3	5V_SB	4	PWGIN
5	PS_ON	6	SPEAKER
7	PWRBTN#	8	BATT
9	KBINH	10	LILED
11	RSMRST#	12	ACTLED
13	ROMKBCS#	14	SPEEDLED
15	EXT_PRG	16	I2CLK
17	VCC	18	VCC
19	OVCR#	20	GPCS#
21	EXTSMI#	22	I2DAT
23	SMBCLK	24	SMBDATA
25	SIDE_CS3#	26	SMBALRT#
27	SIDE_CS1#	28	DASP_S
29	SIDE_A2	30	PIDE_CS3#
31	SIDE_A0	32	PIDE_CS1#
33	GND	34	GND
35	PDIAG_S	36	PIDE_A2
37	SIDE_A1	38	PIDE_A0
39	SIDE_INTRQ	40	PIDE_A1
41	BATLOW#	42	GPE1#
43	SIDE_AK#	44	PIDE_INTRQ
45	SIDE_RDY	46	PIDE_AK#
47	SIDE_IOR#	48	PIDE_RDY
49	VCC	50	VCC

Pin	Signal	Pin	Signal
51	SIDE_IOW#	52	PIDE_IOR#
53	SIDE_DRQ	54	PIDE_IOW#
55	SIDE_D15	56	PIDE_DRQ
57	SIDE_D0	58	PIDE_D15
59	SIDE_D14	60	PIDE_D0
61	SIDE_D1	62	PIDE_D14
63	SIDE_D13	64	PIDE_D1
65	GND	66	GND
67	SIDE_D2	68	PIDE_D13
69	SIDE_D12	70	PIDE_D2
71	SIDE_D3	72	PIDE_D12
73	SIDE_D11	74	PIDE_D3
75	SIDE_D4	76	PIDE_D11
77	SIDE_D10	78	PIDE_D4
79	SIDE_D5	80	PIDE_D10
81	VCC	82	VCC
83	SIDE_D9	84	PIDE_D5
85	SIDE_D6	86	PIDE_D9
87	SIDE_D8	88	PIDE_D6
89	GPE2#	90	CBLID_P#
91	RXD#	92	PIDE_D8
93	RXD	94	SIDE_D7
95	TXD#	96	PIDE_D7
97	TXD	98	HDRST#
99	GND	100	GND



4 Rom Utilities

4.1 Features
4.2 ROM Utilities
4.3 System Summary
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4.14 Exit

4.1 Features

- ROM Based Utilities
- Automatic IDE Hard Disk Detection and Configuration
- Help Windows
- Plug and Play Support
- System Password Protection

DTI BIOS

The DTI BIOS Software supports all of the IBM /AT standard functions and several DTI specific functions and features. Features of the DTI BIOS include built-in utilities, help windows, and system monitoring functions.

Upon initial power up or after a hardware reset, the processor begins executing code out of the onboard BIOS. The BIOS contains all of the software needed to boot the board to a working state so an operating system can be loaded. The first order of business for the BIOS is to initialize crucial system components, such as timers and chipset parts. The BIOS then performs basic components checks to ensure their presence and then sets them to a default state. Next, the cache and memory controllers must be initialized and configured for the type and configuration of the cache and memory found in the system.
Once the memory is present, the compressed portions of the BIOS are de-compressed into the shadow memory occupying the standard BIOS memory ranges. The BIOS can now scan for and initialize other interfaces such as I/O devices and items on the PCI or ISA busses.

If a video adapter is in the system it is located and initialized. The video adapter will sign-on and its manufacturer, chip type, and creation date will appear on the screen. The BIOS will then display its sign-on information giving copyright information, the board name, and the version of the BIOS present in the system. At this point the following message will appear at the bottom of the screen giving the hotkey that will invoke the setup engine.

<F2> Enter Setup <SPACE> Skip Memory <ESC> BOOT Menu

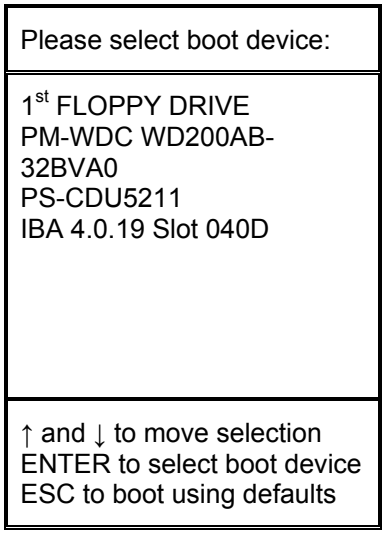
If the F2 key is pressed, the message below will be displayed and the ROM UTILITIES will be entered after the option ROM scan.

Entering Setup . . .

The BIOS now starts to size and clear all system memory, displaying its progress on the screen. The amount of cache in the system is also displayed along with the BIOS lower limit. The BIOS lower limit gives the lowest memory segment used by the BIOS. This information can be used to configure memory managers to remap memory and load programs into Upper Memory Blocks (UMBs). The BIOS will now sign-on any ISA or PCI option ROMs found on devices in the system. The BIOS will now check to see if the F2 key was pressed during POST. If it was, the ROM Utilities will be executed.

BOOT MENU

During POST display, the ESC key can be pressed to invoke the multi-boot menu. The menu will appear near the end of POST, before the system summary screen is displayed, and after the option ROMs have signed on. The multi-boot menu allows interactive selection of the boot device. The list is typically in the following categorical order:



The up and down arrows on the keyboard can be used to highlight the device to boot from, and then press <Enter> to boot from it. Removable devices are the floppy drive, or other installed removable media, e.g., ZIP drives. Hard drives are any fixed disk (IDE, SCSI) in the system. Other devices may appear in the list, such as Ethernet boot ROM agents from add-in cards. To change the boot order of devices within a category (such as to boot from IDE hard drive instead of SCSI), or to permanently change the boot order, you will have to enter SETUP and change the boot options.

If any errors are detected up to this point they will now be displayed on the screen along with the following prompt to direct further actions. Pressing F1 will ignore the errors and continue with the boot process. The F2 key can be pressed to enter the ROM UTILITIES and possibly resolve any configuration error that may have been made.

Press F2 to Run SETUP
Press F1 to load default values and continue

If the F2 key was not pressed, and no errors were detected, the system summary screen will be displayed. After 10 seconds or upon a key press the BIOS will attempt to boot the installed operating system.

The System BIOS is compatible with the Plug and Play Specification Version 1.0A. The two areas that are addressed by the System BIOS are Resource Management and Runtime Services.

Resource Management provides the ability to manage the fundamental system resources which include DMA, Interrupt Request Lines (IRQs), I/O and Memory addresses. These resources, termed system resources, are in high demand and commonly are over allocated or allocated in a conflicting manner in ISA systems, leading to system configuration failures.

The resource manager takes on the responsibility for configuring Plug and Play cards, as well as system board devices during the power up phase. After the Power-On Self Test (POST) process is complete, control of the Plug and Play device configuration passes from the system BIOS to the system software. The BIOS does, however, provide configuration services for system board devices even after the POST process is complete. These services are known as Runtime Services.

Runtime Services provide a mechanism whereby a Plug and Play operating system, such as Windows 2000, may perform resource allocation dynamically at runtime. The operating system may directly manipulate the configuration of devices which have traditionally been considered static.

4.2 ROM Utilities

The ROM Utilities consist of various easy-to-use utilities required in the configuration of the board. The function of each utility is briefly described below. Battery backed CMOS RAM is used to store the configuration/setup parameters selected in the ROM Utilities. On power-up the CMOS RAM parameters are used to configure the system. If the CMOS RAM is corrupt, default parameters stored in ROM are used to configure the system. If no errors occurred during the POST, the System Configuration Summary Screen will be displayed as shown on the next page. Else, ROM Utility configuration errors detected during the POST will be displayed and the default values loaded. As each utility is selected using the arrow keys, the contents of the utility will be displayed. This allows the user to view the current settings of each utility without having to actually execute the utility. To execute a specific utility, either press the function key associated with the utility or move the highlighted bar onto the utility and press <ENTER>.

ROM Utilities	
SYSTEM SUMMARY	Displays various information about the system installed
SYSTEM SETUP	Used to configure the time/date and floppy drive types
HARD DISK SETUP	Used to configure the hard drive types
BOOT ORDER	Used to specify boot device ordering
BIOS OPTIONS	Used to setup various BIOS features
PERIPHERALS	Used to enable/disable onboard I/O devices
PCI/PNP CONFIG	Configure PCI interrupt lines
PNP EXCLUSIONS	Specify used non-PNP ISA resources
EVENT LOGGING	Used to view and control the system event log
SECURITY/VIRUS	Used to set system passwords and anti-virus options
EXIT	Used to exit ROM utilities

4.3 System Summary

The System Configuration Summary utility provides valuable information about the system. The information supplied can also be useful in determining items that are present in the systems and how they are configured. The System Configuration Summary screen is shown below, followed by a brief description of information supplied.

```
                    SYSTEM CONFIGURATION SUMMARY
SYSTEM SUMMARY
                          Diversified Technology, Inc - ETX-LX05
SYSTEM SETUP
                    CPU Type      : Pentium III Floppy A  : 1.44 MB 3 1/2
HARD DISK SETUP     CPU Speed     : 933MHz      IDE Disk 0: 20.0GB
                    L2 Cache      : 512KB       IDE Disk 1: Not Detected
BOOT ORDER          Base RAM      : 639KB       IDE Disk 2: ATAPI CDROM
                    Extended RAM  : 256MB       IDE Disk 3: Not Detected
BIOS OPTIONS        Build Date    : 08/25/03    LPT Ports : None
                    Core Version  : 08.00.10    COM Ports : 3F8 2F8
PERIPHERALS         PCB Revision  : 1.0         PS/2 Mouse: Present

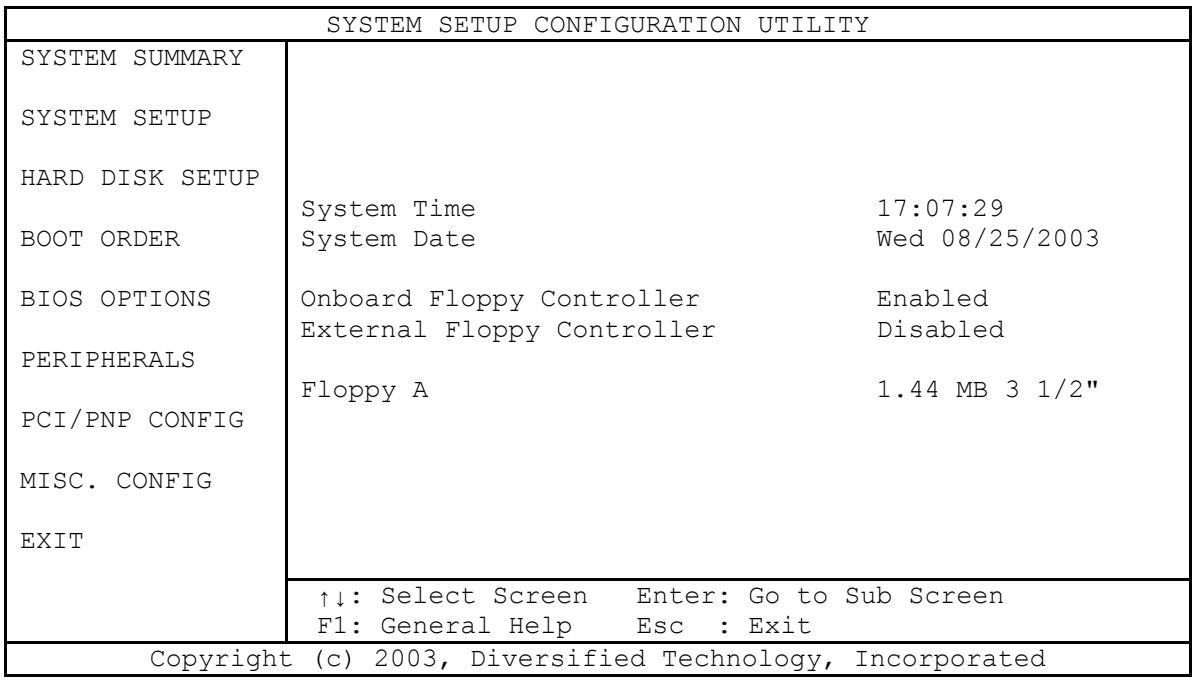
PCI/PNP CONFIG      Volts     (+5): +5.02V      Volts(CPU): +1.06V
                           (+2.5): +2.51V      CPU Temp  : 60°C
MISC. CONFIG               (+3.3): +3.32V      Sys Temp  : 43°C
                          (+1.25): +1.24V
EXIT
                     ↑↓: Select Screen   Enter: Go to Sub Screen
                     F1: General Help    Esc  : Exit
          Copyright (c) 2003, Diversified Technology, Incorporated
```

System Summary Descriptions

CPU Type:	Displays the type of processor installed.
CPU Speed:	Displays the speed of logical processor installed.
L2 Cache:	Displays the amount of L2 cache detected.
Base RAM:	Displays the amount of installed system RAM up to 640KB.
Extended RAM:	Displays the amount of installed extended RAM beyond 1024 KB.
Build Date:	Displays the date on which the BIOS was generated.
Core Version:	Displays the version of the AMI BIOS core.
PCB Revision:	Displays the PCB board revision level.
Floppy A:	Displays the media type selected for the floppy drive.
IDE Disk 0 - 3:	Displays the drive type selected for the IDE drive.
COM Ports:	Displays the I/O addresses of all installed serial ports.
LPT Ports:	Displays the I/O addresses of all installed parallel ports.
PS/2 Mouse:	Displays whether or not a mouse was detected by the BIOS during the POST.
Volts	Displays the current status of the system and CPU voltage sources.
Temperatures:	Displays the current CPU and ambient temperatures of the board.

4.4 System Setup

The System Setup Configuration Utility is used to configure the system time/date and the type of floppy disk installed.



System Setup Descriptions

System Time: A new time is set by typing in the HOUR, MINUTE, and SECONDS each followed by pressing < ENTER >. The time is displayed in 24 hour format; therefore, AM hours range from 0 through 11 and the PM hours range from 12 through 23. Invalid times cannot be entered.

System Date: A new date is set by tying in the MONTH, DAY, and YEAR each followed by pressing <ENTER >. If one of the parameters is out of range, the new date will not be entered.

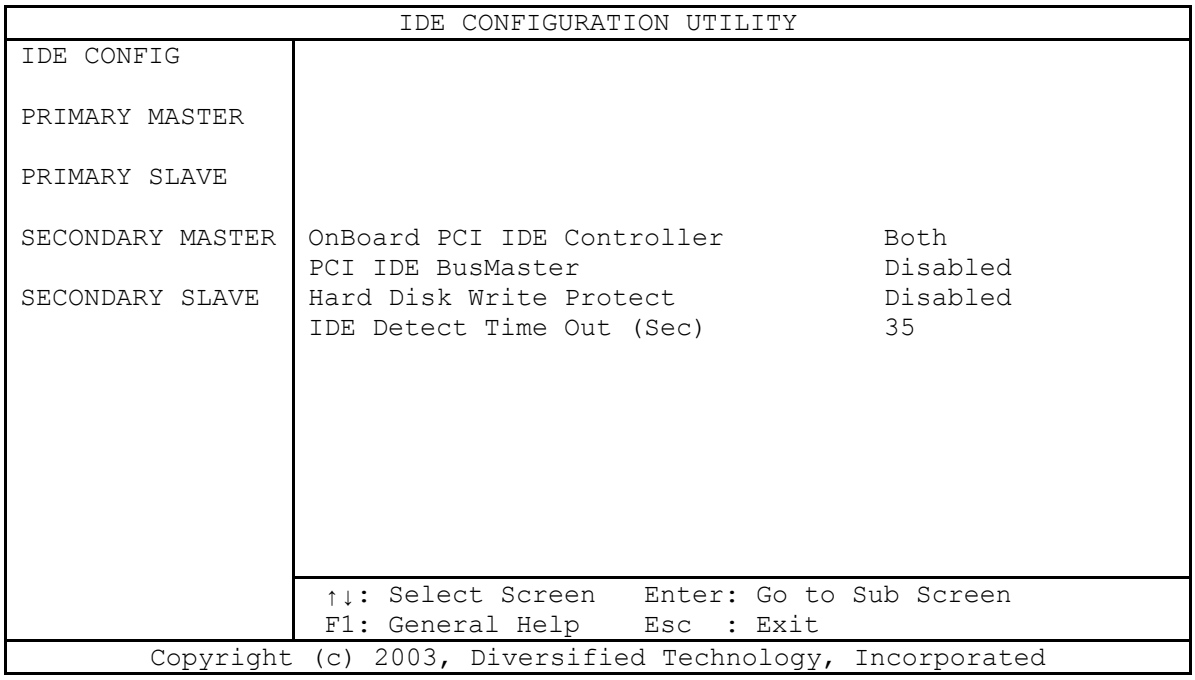
Onboard Floppy: The onboard floppy controller is enabled and disabled with this option.

External Floppy: The external floppy controller is enabled and disabled with this option. This item will only be visible if a supported external SIO controller is detected.

Floppy A: Drive types 360K, 720K, 1.2M, 1.44M and 2.88M are supported. A DISABLED option is also available for diskless workstations. No floppy error messages will be displayed if DISABLED is selected.

4.5 IDE Config

The IDE Configuration Utility is used to configure the hard drive controller and interface properties for the system. The following page describes the configuration options.

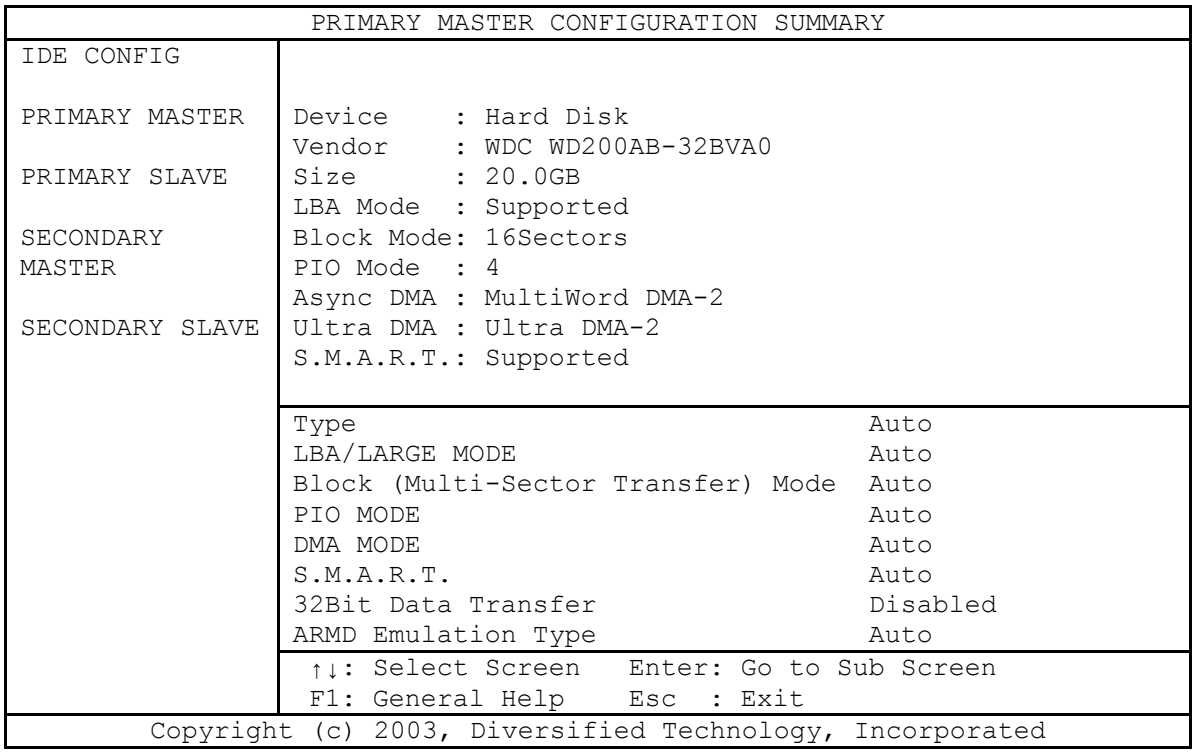


IDE Config Descriptions

Onboard PCI IDE Controller:	This item enables or disables the onboard PCI IDE controllers. Supported options include disabled, enable primary only, enable secondary only, and enable both controllers.
PCI IDE BusMaster:	When this item is enabled, the BIOS uses PCI bus mastering for accesses to IDE drives.
Hard Disk Write Protect:	When this item is enabled, the BIOS protects the IDE drives from write accesses. This is only effective for operating systems that access the hard drives using BIOS interfaces.
IDE Detect Time Out:	This item specifies the maximum amount of time that the BIOS will attempt to search for IDE devices.

4.6 Hard Disk Setup

The Hard Drive Configuration Utility is used to configure the hard drives installed in the system. The following page describes the configuration options.



Hard Drive Setup Descriptions

The configuration options described below work identically for HARD DRIVES 0 - 3.

Device:	Displays the type of IDE device currently installed. Type choices include Not Installed, Hard Disk, ATAPI CDROM, and ARMD.
Vendor:	Displays the manufacturer device identification information.
Size:	Displays the storage capacity of the device.
LBA Mode:	Displays support for Logical Block Accessing. LBA uses 28-bit addressing of the hard disk instead of CHS (Cylinder/Head/Sector) addressing for supporting drives up to 137GB.
Block Mode:	Displays the maximum Block Mode transfer for the device.
PIO Mode:	Displays the maximum PIO supported by the device.
Async DMA:	Displays the highest support Asynchronous DMA Mode.
Ultra DMA:	Displays the highest support Synchronous DMA Mode.
S.M.A.R.T.:	Displays device support for Self-Monitoring Analysis and Reporting Technology. This protocol allows detection of drive errors.

Type:	Selects the type of IDE device. Type choices include Not Installed, Auto, CDROM, and ARMD. If AUTO type is selected, the hard drive parameters are read during boot-up, and are configured automatically. The hard drive information, such as manufacturer and model number, is displayed during POST. The CDROM type will enable bootable CD-ROM support for an IDE CDROM drive attached as a master or slave. An IDE CD-ROM can be made the boot device through the BOOT OPTIONS screen. The ARMD type is selected when an ATAPI Removable Media Device is present. This includes drives for high capacity floppies that can be formatted as floppies or hard disks, e.g., LS120, IOMega Zip, Fujitsu MO, and certain FLASH devices.
32BIT Data Transfer:	Controls support for 32Bit IDE transfers.
ARMD Emulation Type:	Specifies the type of emulation used.

4.7 Boot Order

The Boot Order Configuration Utility is used to determine the order in which the BIOS attempts to boot from devices. The BIOS attempts to boot from the devices at the top of the list first. If the device is not bootable, then the next item down in the list is tried. Removable Devices and Hard Disks have further ordering within their category. The following page describes the configuration options. The ESC key can be pressed during POST to display a boot device menu. This will over-ride the boot order chosen in the CMOS Setup Utility and boot from the device selected.

```
                    BOOT ORDER CONFIGURATION SUMMARY
SYSTEM SUMMARY
                    Boot Device Priority
SYSTEM SETUP        1st Boot Device                  1st FLOPPY DRIVE
                    2nd Boot Device                  PM-WDC WD200AB-32BV
HARD DISK SETUP     3rd Boot Device                  PS-CDU5211
                    4th Boot Device                  IBA 4.0.19 Slot 040
BOOT ORDER
                    Removable Devices
BIOS OPTIONS        1st Removable Device             1st FLOPPY DRIVE

PERIPHERALS         Hard Disk Drives
                    1st Hard Drive                   PM-WDC WD200AB-32BV
PCI/PNP CONFIG
                    ATAPI CDROM Drives
MISC. CONFIG        1st ATAPI CDROM                 PS-CDU5211

EXIT

                     ↑↓: Select Screen   Enter: Go to Sub Screen
                     F1: General Help    Esc  : Exit
          Copyright (c) 2003, Diversified Technology, Incorporated
```

Boot Order Descriptions

Boot Device Priority:	Selects the boot order for installed boot devices. The BIOS attempts to boot from items at the top of the list first.
Removable Devices:	Boot from legacy floppy diskette, removable LS-120, or ZIP drives. The desired removable device must be selected.
Hard Disk Devices:	Boot from hard disk drive. The desired hard drive must be selected through Hard Disk Drives.
ATAPI CDROM Drives:	Boot from an IDE CDROM.

4.8 BIOS Options

The BIOS Options Configuration Utility provides various features which affect features provided by the BIOS.

```
                    BIOS OPTIONS CONFIGURATION SUMMARY
SYSTEM SUMMARY
                    BIOS OPTIONS
SYSTEM SETUP        Quick Boot                          Disabled
                    Quiet Boot                          Disabled
HARD DISK SETUP     AddOn ROM Display Mode              Force BIOS
                    AddOn ROM Display Delay             Disabled
BOOT ORDER          Parity Check                        Disabled
                    Pause on POST Errors                Disabled
BIOS OPTIONS        SETUP Prompt During Post            Enabled
                    Summary Screen At Boot              Enabled
PERIPHERALS         After Power Loss                    Power On
                    Memory Hole                         Disabled
PCI/PNP CONFIG
                    CONSOLE REDIRECTION
MISC. CONFIG        Remote Access                       Serial
                    Serial Port                         COM1
EXIT                Serial Port Mode                    115200 8,n,1
                    Flow Control                        None
                    Terminal Type                       ANSI
                    Send Carriage Return                Disabled
                    Redirection After BIOS POST         Boot Loader

                    KEYBOARD OPTIONS
                    System Keyboard                     Present
                    Typematic Rate                      Fast
                    Bootup Num-Lock                     On

                     ↑↓: Select Screen   Enter: Go to Sub Screen
                     F1: General Help    Esc  : Exit
          Copyright (c) 2003, Diversified Technology, Incorporated
```

Bios Options Descriptions

Quick Boot:	Allows the BIOS to skip certain tests while booting. This decreases the amount of time needed to boot the system.
Quiet Boot:	When enabled displays a graphic during POST instead of the normal POST information.
AddOn ROM Display Mode:	Selects the display mode used by the BIOS when signing on option ROMs.
AddOn ROM Display Delay:	When this item is enabled, the BIOS will insert a brief pause after each option ROM signs on. This is useful to allow viewing any errors or messages that may otherwise be missed.
Parity Check:	Enable system support for parity error checking.
Pause On Post Errors:	This option determines whether the POST will pause and wait for user input when an error occurs.
Prompt During Post:	When this option is enabled, the prompt that displays the key needed to enter SETUP will be displayed during the POST.
Summary Screen At Boot:	When this option is enabled, the system summary information will be displayed before the system boots.

After Power Loss:	This option will determine the power state after a total power loss. The possible states include power on, last state, and stay off.
Memory Hole:	This item enables a 1MB memory hole to the ISA bus in the 15-16 MB range.

Console Redirection Descriptions

Remote Access:	This item allows serial console redirection to be enabled. This allows all video output to be redirected through the serial port during the POST and DOS. In addition, input through the serial port will be used through the POST and DOS.
Serial Port::	Specifies the serial port to be used for console redirection.
Serial Port Mode:	Selects the baud rate for console redirection. The possible baud rates are: 9600, 19200, 38400, and 115200.
Flow Control:	This item allows hardware flow control to be used.
Terminal Type:	Selects between ANSI and VT100 terminal types.
Send Carriage Return:	This item is needed for a terminal with more than 80 columns or for terminals that do not wrap when the end of a line is reached.
Redirection After BIOS Post:	Control if console redirection is to be used after POST.

Keyboard Options Descriptions

System Keyboard:	Used to specify if a keyboard is present to the system.
Typematic Rate:	Specifies the rate at which keys repeat if a key is held down.
Bootup Num-Lock:	Specifies the state of the Num-Lock key to be set when the system boots.

4.9 Peripherals

The Peripheral Configuration Utility allows onboard devices to be enabled, disabled, or configured. The onboard programmable I/O adapter includes a floppy disk interface, two serial ports, and a parallel printer port.

```
                    PHERIPHERAL CONFIGURATION SUMMARY
SYSTEM SUMMARY      |
                    | ONBOARD PERIPHERAL CONTROL
SYSTEM SETUP        | VGA Boot Display                    Simultaneous
                    |   TFT Interface Type                18-bit
HARD DISK SETUP     | Ethernet Controller                 Enabled
                    |   Ethernet Boot ROM                 Disabled
BOOT ORDER          | USB Controller 1                    Enabled
                    | USB Controller 2                    Enabled
BIOS OPTIONS        |   Legacy USB Support                Enabled
                    | AC'97 Audio Controller              Enabled
PERIPHERALS         |
                    | I/O PORT CONTROL
PCI/PNP CONFIG      | Serial Port1 Address                3F8/IRQ4
                    | Serial Port2 Address                2F8/IRQ3
MISC. CONFIG        |   Serial Port2 Mode                 IrDA Sir-A
                    |     IR Duplex Mode                  Half Duplex
EXIT                |     IR I/O Pin Select               SINB/SOUTB
                    |     COMB Receiver Polarity          High
                    |     COMB Xmitter Polarity           High
                    | Parallel Port Interface             BaseBoard
                    | Parallel Port Address               378
                    |   Parallel Port IRQ                 IRQ7
                    |   Parallel Port Mode                ECP
                    |     ECP Mode DMA Channel            DMA3
                    |   Parallel Port Mode                EPP
                    |     EPP Version                     1.9
                    |
                    | ↑↓: Select Screen   Enter: Go to Sub Screen
                    | F1: General Help    Esc  : Exit
        Copyright (c) 2003, Diversified Technology, Incorporated
```

Onboard Peripheral Control Descriptions

VGA Boot Display:	Selects the boot display used by the video controller. The available options are CRT, Flat Panel, and Simultaneous.
TFT Interface Type:	Selects the color TFT flat panel interface type. The available options are 9-bit, 12-bit, 18-bit, 24-bit, 12+12-bit, analog, 18+18-bit, and 24+24-bit.
Ethernet Controller:	This item is defaulted to enabled. The onboard ethernet controller can not be disabled.
Ethernet Boot ROM:	Controls the embedded Ethernet boot ROM allowing for remote network booting.
USB Controller 1-2:	This item controls the onboard USB functions. The USB ports are not usable when this item is disabled.
Legacy USB Support:	Controls whether legacy USB keyboard and mouse are available during POST or not at all.
AC'97 Audio Controller:	Controls whether the onboard AC'97 Audio controller is enabled.

I/O Port Control Descriptions

Serial Port 1 & 2 Address: The two serial ports can be configured to one of four possible settings or disabled.

I/O Address	Interrupt	COM Port
3F8h	IRQ4	COM1
2F8h	IRQ3	COM2
3E8h	IRQ4	COM3
2E8h	IRQ3	COM4

Serial Port 2 Mode: This item allows the user to select the mode for serial port 2. Options include Normal, IrDA Sir-A, ASK IR, IrDA Sir-B, Consumer, and Raw Ir.

IR Duplex Mode: This item allows for the selection of full or half duplex for serial port 2.

IR I/O Pin Select: This item allows for receive and transmit pin selection for serial port 2. SINB/SOUT selects the serial port TXD2 and RXD2 pins. IRRX/IRTX selects the alternate IRRX and IRTX pins.

ComB Receiver Polarity: This item allows for the selection of active high or active low for serial port 2 receiver polarity.

ComB Xmitter Polarity: This item allows for the selection of active high or active low for serial port 2 transmitter polarity.

Parallel Port Interface: The parallel port interface can be used to function as a parallel interface or a floppy interface. Both onboard interfaces can not function at the same time. Options include force to floppy, force to parallel, and Baseboard. The Baseboard option allows the parallel interface functionality to be configured by an ETX defined jumper on the baseboard.

Parallel Port Address: Use this item to enable or disable the onboard parallel port. Three possible I/O base addresses are 378h, 3BCh, or 278h.

Parallel Port IRQ: Use this item to select the interrupt for the parallel port. The possible interrupts are IRQ5 or IRQ7.

Parallel Port Mode: In “Output Only” mode the LPT port functions like a standard printer port. Three other available modes are Bi-Directional, ECP, and EPP.

ECP Mode DMA Channel: The DMA channel used in ECP mode can be routed to DMA channel 0, 1, or 3.

EPP Version: When in EPP mode the EPP version can be selected. The possible options are 1.7 and 1.9.

4.10 PCI/PNP Config

The PCI and PNP Configuration Utility allows configuration of the PCI bus, PNP options, as well as ACPI related items.

```
                    PCI AND PNP CONFIGURATION SUMMARY
SYSTEM SUMMARY
                    PCI OPTIONS
SYSTEM SETUP        PCI Latency Timer                   64
                    Allocate IRQ to PCI VGA             Yes
HARD DISK SETUP     Palette Snooping                    Disabled
                    OffBoard PCI/ISA IDE Card           Auto
BOOT ORDER          Interrupt 19 Capture                Disabled

BIOS OPTIONS        PNP OPTIONS
                    Plug & Play O/S                     No
PERIPHERALS         Reset Config Data                   No

PCI/PNP CONFIG

MISC. CONFIG

EXIT
                    ↑↓: Select Screen   Enter: Go to Sub Screen
                    F1: General Help    Esc  : Exit
          Copyright (c) 2003, Diversified Technology, Incorporated
```

PCI Options Descriptions

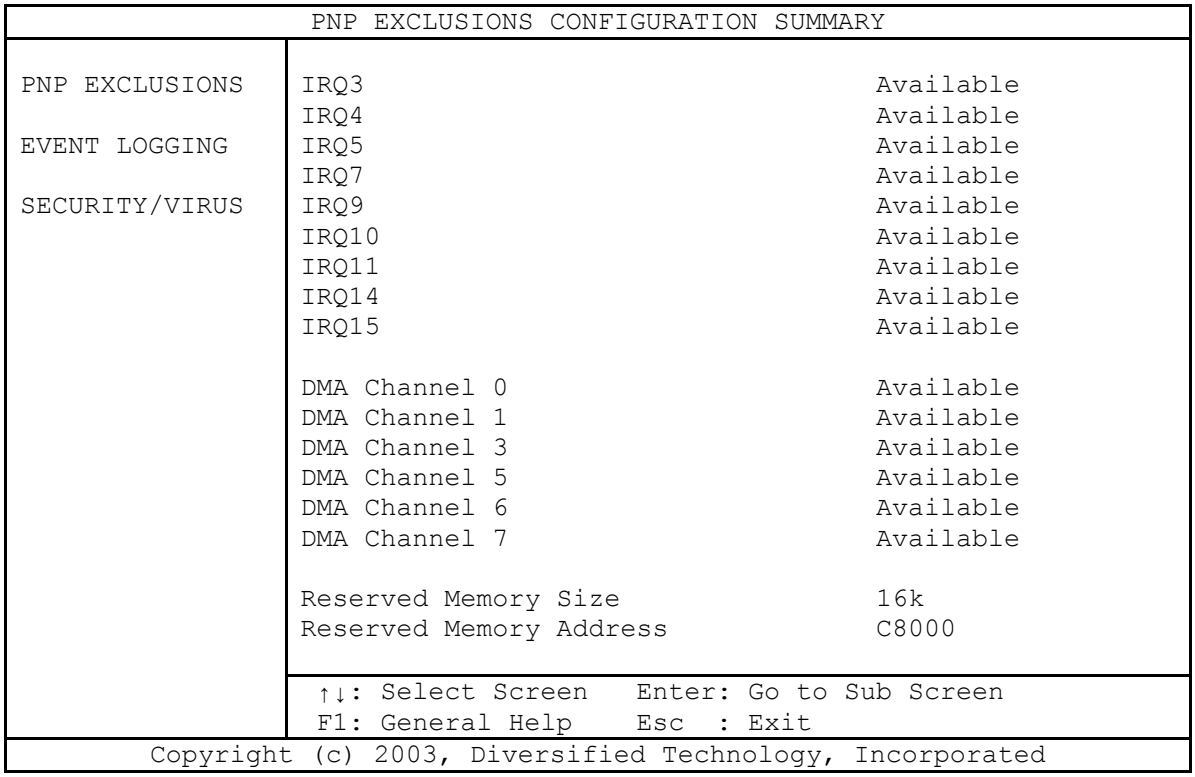
PCI Latency Timer:	This option is used to set the desired PCI latency for all devices on the PCI bus.
Allocate IRQ to PCI VGA:	This item allows the system to restrict PCI video from being assigned an interrupt.
Palette Snooping:	This item allows some PCI card to operate in combination with an ISA video card. Only enable this item if instructed to by the video card manufacturer.
OffBoard PCI/ISA IDE Card:	Use this item to specify the presence of an offboard PCI IDE card.
Interrupt 19 Capture:	This item allows option ROMs to capture interrupt 19 for use in booting.

PNP Options Descriptions

Plug & Play O/S:	If disabled (default), the BIOS will set up any plug & play devices. If enabled, the operating system is assumed to configure plug & play devices.
Reset Configuration Data:	If set to “Yes”, the plug & play configuration is reset after leaving SETUP. This option is automatically reset to “No”.

4.11 PNP Exclusions

The PCI EXCLUSIONS CONFIGURATION UTILITY is used to tell the BIOS which resources are used by non-PNP ISA cards. This information is used by the BIOS to inform the user of resource conflicts. If non-PNP ISA resources are not specified, the BIOS could give resources to a PNP or PCI device that are already in use by some non-PNP ISA card. Set any memory, interrupts, or DMA resources used by non-PNP ISA cards to reserved.

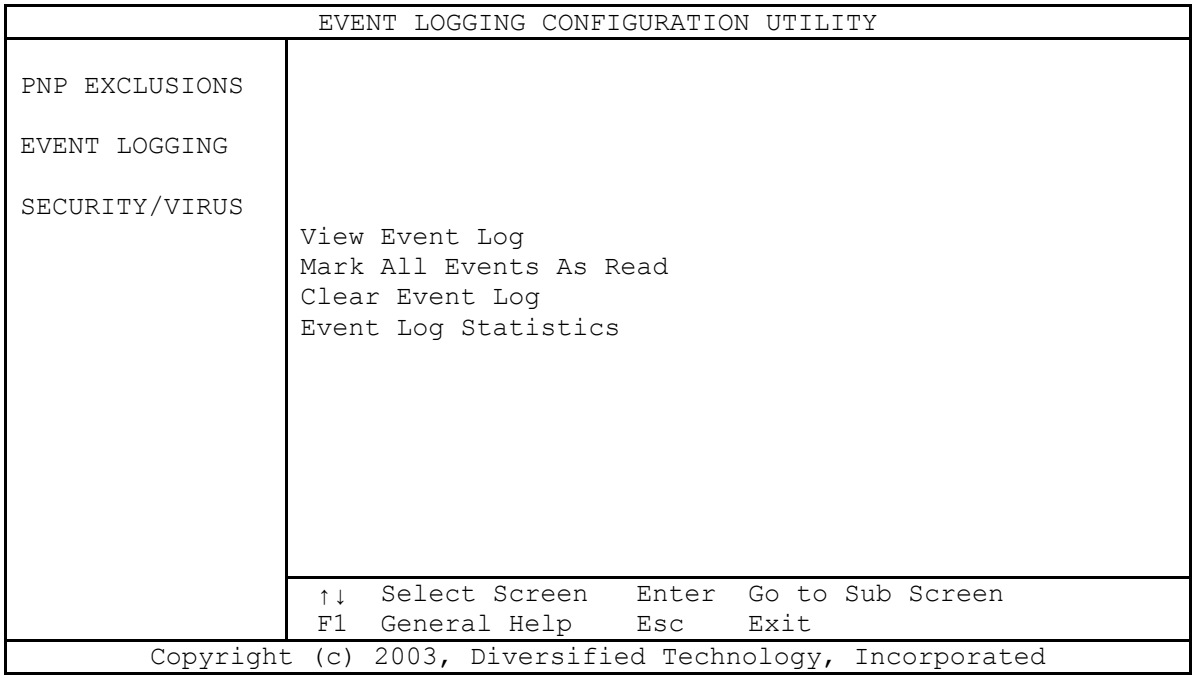


PNP Exclusions Descriptions

ISA IRQS:	This section is used to reserve interrupts for use by non-PNP ISA cards.
ISA DMA:	This section is used to reserve DMA channels for use by non-PNP ISA cards.
Reserved Memory:	This section is used to reserve upper memory blocks (UMBs) for use by non-PNP ISA cards. A block can be reserved in 16K increments from C000h to DFFFh.

4.12 Event Logging

The Event Logging Configuration Utility is used to configure and view system events that have been logged.

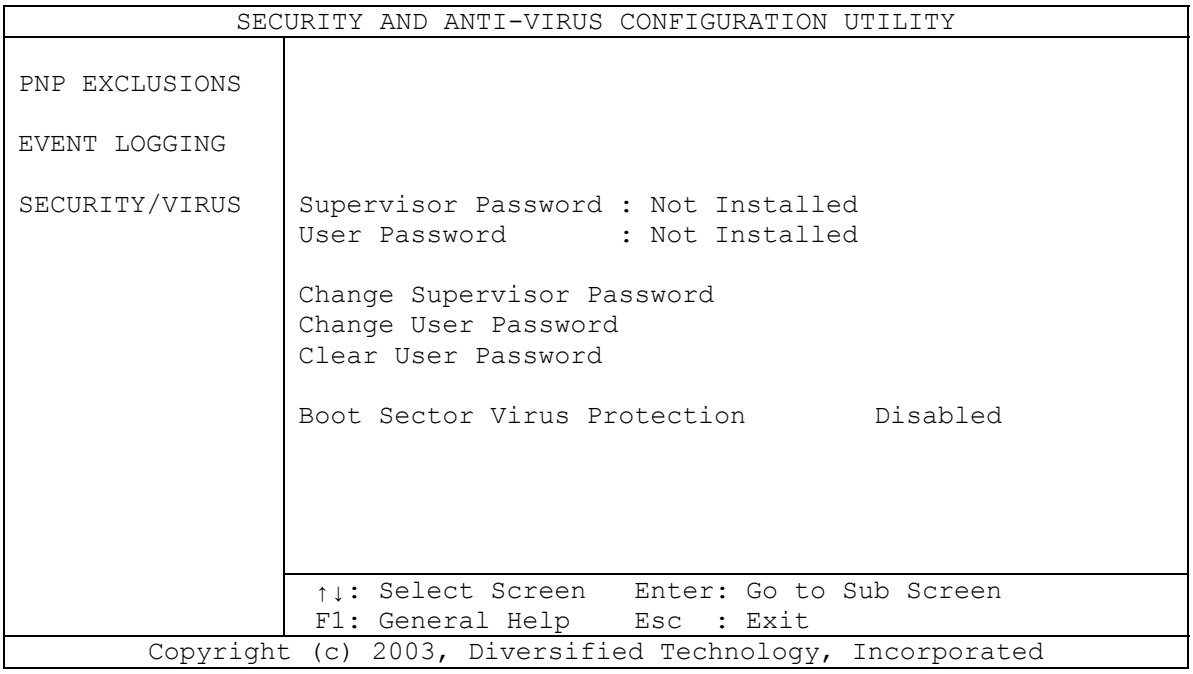


Event Logging Descriptions

View Event Log:	This item is used to open a window containing a list of the currently logged system events.
Mark All Events As Read:	This item is used the mark all system events in the log as read.
Clear Event Log:	This item is used to erase all events from the system log.
Event Log Statistics:	This item is used to view statistics about the system event log.

4.13 Security/Virus

The Security and Anti-Virus Configuration Utility is used to set system passwords and control system anti-virus items.

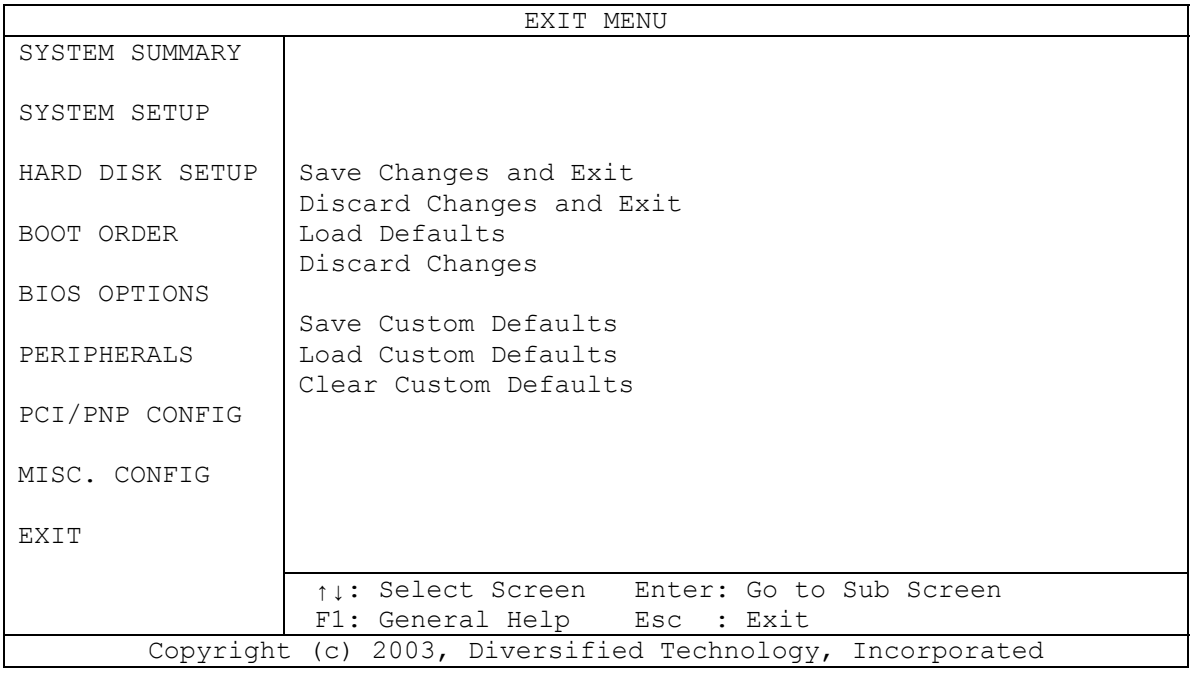


Security/Virus Descriptions

Supervisor Password:	This item indicates whether a supervisor password has been set.
User Password:	This item indicates whether a user password has been set.
Change Supervisor Password:	This item allows setting the supervisor password.
Change User Password:	This item allows setting the user password.
Clear User Password:	This item is used to clear the user password.
Boot Sector Virus Protection:	When this item is enabled, a warning message is displayed before any program tries to access the boot sector.

4.14 Exit

The Exit Menu provides a way to exit setup and save or discard changes. It also provides a way to load the default settings stored in the BIOS.



Exit Description

Save Changes and Exit:	Exits SETUP and saves all changes to CMOS.
Discard Changes and Exit:	Exits SETUP and discards any changes.
Load Defaults:	Loads the SETUP factory default values.
Discard Changes:	Discard any changes made during SETUP.
Save Custom CMOS:	Save current CMOS settings into non-volatile storage.
Load Custom CMOS:	Load previously stored CMOS settings from non-volatile storage.
Clear Custom CMOS:	Clear custom CMOS non-volatile storage area.



5 Troubleshooting Guide

5.1 Troubleshooting
5.2 POST LEDS

5.1 TROUBLESHOOTING

IN THIS TROUBLESHOOTING GUIDE

Capitalized, italicized statements within quotation marks are messages that are displayed on your screen. Italicized statements not in quotation marks are problems, or problem areas, that are encountered.

NO VIDEO

Verify that power is connected to the computer.
Verify that the monitor is ON and has power.
Verify that all of the add-in cards are fully inserted into the expansion slots of the baseboard.
Remove all connectors from reset, keylock, and speaker ports. If the video works after removing the connectors, review the port connections in the manual for the particular baseboard being used.
Verify that the monitor type is the same as the video card being used (i.e., a monochrome monitor with a monochrome card or a color monitor with a CGA card, etc.).
Verify that the "VGA Boot Display" option is set properly in the Setup Utility. The system can be reset 5 times to set the display mode for simultaneous display.

ETX-LX05 APPEARS TO HAVE LOCKED UP (NO ACTION GENERATED BY PRESSING A KEY)

If an add-in video card is installed (e.g., MONO or CGA), verify that the primary monitor is connected.
With the power OFF, remove the unused or secondary video card.

PARITY PROBLEMS

Verify that the SoDIMM Memory is inserted properly into its socket (refer to the ETX-LX05 memory configuration).

"KEYBOARD FAILURE"
"KEYBOARD CONTROLLER FAILURE"
"KEYBOARD DATA LINE FAILURE"
"KEYBOARD CLOCK LINE FAILURE"
"KEYBOARD STUCK KEY FAILURE"

These messages indicate that the POST was unable to complete the initialization of the keyboard.

Verify that there are no "stuck" keys on the keyboard.
Verify that the keyboard is properly connected to the computer.
If a switchable keyboard is used, verify that the switch is positioned for /AT computer.

“CMOS CONFIGURATION ERROR”

This message typically indicates that the CMOS SETUP information stored in CMOS RAM does not match the hardware identified by the POST.

Use the CMOS SETUP utility to verify that the FLOPPY DRIVE TYPE, FIXED DRIVE TYPE, VIDEO TYPE, and MEMORY SIZE are set correctly. If the memory configuration has changed, the CMOS SETUP information will appear to be correct. If everything appears to be correct, save the displayed configuration.
If an add-in memory card is used to extend the memory capabilities of the ETX-LX05, verify that the add-in card is properly configured and the CMOS SETUP utility reflects the size of the installed memory. The memory test, which executes on power-up, will indicate the size of both BASE and EXTENDED memory found by the Power-On-Self-Test (POST).
If this error only occurs on a power cycle, see CONFIGURATION INFORMAION.

“FLOPPY DRIVE CONTROLLER NOT FOUND”

This message indicates that the POST was unable to initialize the floppy disk controller.

Verify that only one floppy controller in the system is enabled.

“FLOPPY DRIVE 0 NOT FOUND”

This message indicates that the POST was unable to access the designated floppy disk drive.

Use the CMOS SETUP utility to verify that no drive type is specified for a drive that does not exist.
Verify that the floppy cable is properly connected to the drive and controller, and that conductors 10 through 16 are twisted between the controller and drive A.
Verify that the power connector is connected to the drive.

“INVALID SYSTEM CONFIGURATION DATA”

This message indicates that the storage space for the system configuration data does not checksum to zero.

Use the CMOS SETUP utility and change the CMOS setting “RESET CONFIGURATION DATA” to “YES”.

“FLOPPY DRIVE CONFIGURATION ERROR”

This message indicates that the drive(s) specified in the CMOS SETUP utility does not match the type of floppy detected by the POST.

Use the CMOS SETUP utility to select the appropriate floppy drive installed.
If no floppy drives are installed, use the CMOS SETUP utility to verify that no FLOPPY DISK TYPE is specified.

"NO BOOT DISK PRESENT"
PRESS F1 TO RETRY OR F2 TO ENTER ROM UTILITIES"

This message indicates that no floppy disk or hard disk could be found to boot from.

If booting from a floppy disk, verify that the disk is properly inserted and the drive door is closed.
Insert a different bootable floppy disk into the drive and press <F1>.
If attempting to boot from a hard disk, insert a bootable floppy disk into drive A and press ENTER. After booting from the floppy disk, verify that drive C is accessible. Use the FDISK (or similar) utility to verify that a bootable partition exists and is ACTIVE. Remove
the floppy disk from drive A and reset the system. If the drive cannot be accessed or partition cannot be found, the drive may need to be reformatted.

CAUTION: Reformatting a drive causes the data on the drive to be lost.

If attempting to boot from a hard disk, use the CMOS SETUP utility to verify that the correct FIXED DISK TYPE is configured.

"ERROR READING HARD DISK –
PRESS F1 TO RETRY OR F2 TO ENTER ROM UTILITIES"
or
"INVALID BOOT SECTOR ON HARD DISK"
PRESS F1 TO RETRY OR F2 TO ENTER ROM UTILIITES"

This message indicates that the POST was unable to access the hard disk using the FIXED DISK TYPE parameters specified in the CMOS SETUP utility.

Use the CMOS SETUP utility to verify that the correct FIXED DISK TYPE is configured.
Insert a bootable floppy disk into drive A and press <F1>. After booting from the floppy disk, verify that drive C is accessible. Use the FDISK (or similar) utility to verify that a bootable partition exists and is ACTIVE. Remove the floppy disk from drive A and reset the system.

If the drive cannot be accessed or a partition cannot be found, the drive may need to be reformatted.

CAUTION: Reformatting a drive causes the data on the drive to be lost.

"HARD DRIVE CONTROLLER NOT FOUND"

If no hard disk is installed, use the CMOS SETUP utility to specify NONE for FIXED DISK TYPE.
If an add-in /AT hard disk controller is being used, verify that it is properly inserted into the expansion slot on the baseboard.
Verify that the primary hard disk controller is configured for I/O address 1F0h and IRQ14, and the secondary controller is configured for I/O address 170h and IRQ15.
Make sure the power cable is connected properly.
Use the manufacturer's documentation to verify that all jumpers are configured correctly.

"HARD DRIVE FAILURE"

This message indicates that the POST was unable to access the hard disk using the FIXED DISK TYPE parameters specified in the CMOS SETUP utility.

Verify that the hard drive has power connected to it.
Verify that the hard disk cables are connected properly.
Enter the CMOS SETUP utility and verify the hard disk type. Refer to the manufacturer's specifications on the hard drive for configuration information.
The drive may need to be formatted.

CAUTION: Reformatting a drive causes the data on the drive to be lost.

"HARD DRIVE CONFIGURATION ERROR"

This message indicates that the FIXED DISK TYPE specified in the CMOS SETUP utility was not valid. This typically occurs when the specified type has 0 for the number of cylinders.

If no hard disk is being used, use the CMOS SETUP utility to set the FIXED DISK TYPE to NONE.
The parameters listed in the CMOS SETUP utility must never exceed the specifications for the number of cylinders or heads.

"REAL TIME CLOCK IS STOPPED"
"REAL TIME CLOCK IS NOT SET"

These messages indicate that the battery backed real time clock is not set correctly or has failed.

Use the CMOS SETUP utility to set the time and date.

"XXXX0h OPTIONAL BAD CHECKSUM = Y"

This message indicates that the POST identified an expansion ROM signature at segment XXXX, but the checksum was not 0. This typically indicates that the ROM is invalid or is too slow to be accessed by the ETX-LX05.

"I/O CARD PARITY ERROR"

This message indicates that an I/O card activated the I/O channel check signal, which is typically used to indicate a RAM parity error on an add-in card. This may occur if the card is too slow to be accessed by the ETX-LX05.

"NON-SYSTEM DISK OR DISK ERROR
REPLACE AND STRIKE ANY KEY WHEN READY"

This message indicates that a floppy disk appeared to be in the drive, but a valid boot sector could not be read from the disk.

Verify that the disk is properly inserted and the drive door is closed.
Insert a different bootable floppy disk into the drive and press a key.
Use the CMOS SETUP utility to verify that the correct FLOPPY DISK TYPE is configured.

SERIAL OR PARALLEL (PRINTER) PORT PROBLEMS

Verify that the peripheral device has power and is turned on.
Verify that the peripheral device is properly connected to the serial or parallel port.

RESET BUTTON DOES NOT WORK

Verify that the RESET button is connected to the reset header on the baseboard.

5.2 POST CODE LEDS

Four surface-mounted LEDS are located on the DTI ETX baseboard, eTF-001, for the ETX-LX05 that indicate the post/board status. The LEDS are arranged from the most significant bit (MSB) to the least significant bit (LSB), and a color scheme is used to identify the bit values. For instance, the LED will be lit RED when one of the upper four bits is high and will be lit GREEN when one of the lower bits is high. The upper and lower bits will be represented simultaneously by the LEDS. Thus, the LED will appear ORANGE if one of the upper and lower bits is both high in the same bit location. These eight bits represent a binary number, and if that binary number is converted into a hexadecimal number you'll have the failing code if the board fails to boot. An example illustrating this is provided below.

LED Color Description

R=RED G=GREEN F=OFF

Bit in the *upper nibble* is high:

POST CODE 20 --- BIT values (MSB to LSB) 0010 0000
| |
Upper nibble Lower nibble

LEDS Status MSB to LSB
Visible colors: FFRF (Off Off Red Off)

Bit in the *lower nibble* is high:

POST CODE 02 --- BIT values (MSB to LSB) 0000 0010
| |
Upper nibble Lower nibble

LEDS Status MSB to LSB
Visible colors: FFGF (Off Off Green Off)

Bits in the *same location* are both high:

POST CODE 33 --- BIT values (MSB to LSB) 0011 0011
| |
Upper nibble Lower nibble

LEDS Status MSB to LSB
Visible colors: FFRF (Off Off Orange Orange)

The following table is provided to show the most important POST CODES:

POST CODE	LED COLORS (MSB->LSB)	DESCRIPTION
E1	RRRG	MEMORY SIZE RAM
E9	ORRG	LOAD BB FROM FLOPPY
08	GFFF	CPU INIT
38	GFRR	USB INIT
0C	GGFF	KEYBOARD CONTLR TEST
2A	GFOF	PCI INIT
2A	GFOF	VIDEO
3A	GFOR	MEMORY SIZE RAM
28	GFRF	OPTION ROM SCAN
00	FFFF	INT19 (SWITCHES TO OS)

If the board fails to boot or hangs-up at any of these POST codes, please follow these steps.

Step1: Check all power connections and cables to verify they are fully inserted and there are not any loose connections.

Step2: Observe the indicating POST code and refer to the following section pertaining to the failure.

Indicating POST Codes: 08– Check the CPU to see if it is fully seated in its socket.

Indicating POST Codes: E1, 3A – Check the memory module to see if it is fully seated and that it is not inserted at an angle. The board may stay at post code 60 for a long time depending on the memory size; attach a monitor and confirm the board continues to count memory.

Indicating POST Codes: 2A, 78 – Check all PCI cards to verify they are fully seated in the backplane. Remove and replace any newly added PCI cards.

Indicating POST Codes: 0C – Check keyboard.

Indicating POST Codes: 38 – Check USB for USB keyboard or mouse.

Indicating POST Codes: E1– If BIOS has been recently flashed or changed out, check to see if it is fully seated in the BIOS socket or if a wrong size device has been used.

Indicating POST Codes: 00 – Board has attempted to load OS. Ensure OS is properly installed on boot media. If the OS is successfully loaded, this code may remain; however, differing Operating Systems may map the LED port for floppy access, and C0 will be overwritten with random codes. This occurrence is normal, and floppy functionality will not be affected.

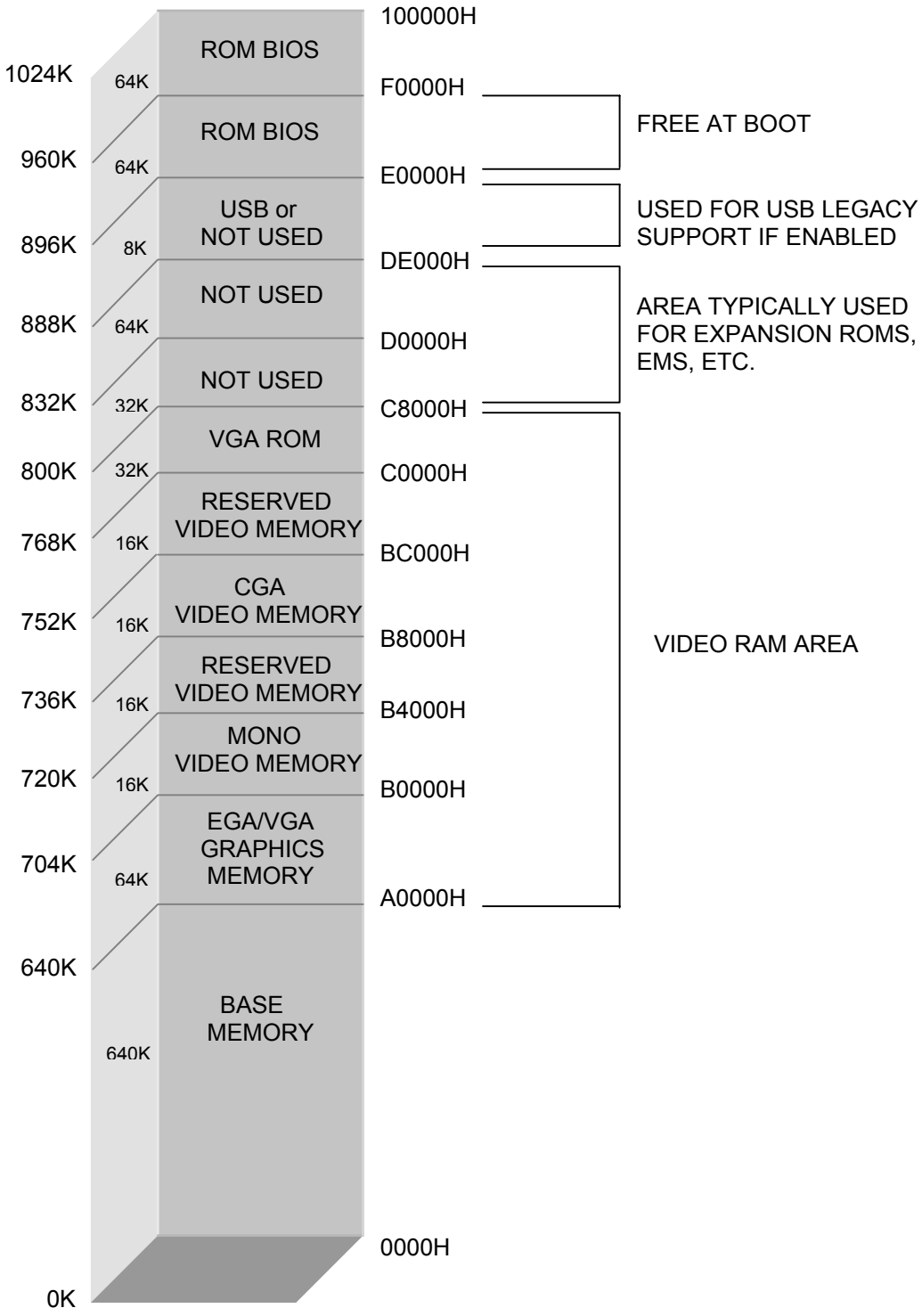
Step3: If board problems persist, contact Diversified Technology's Service Department.

6

6 System Resource Map

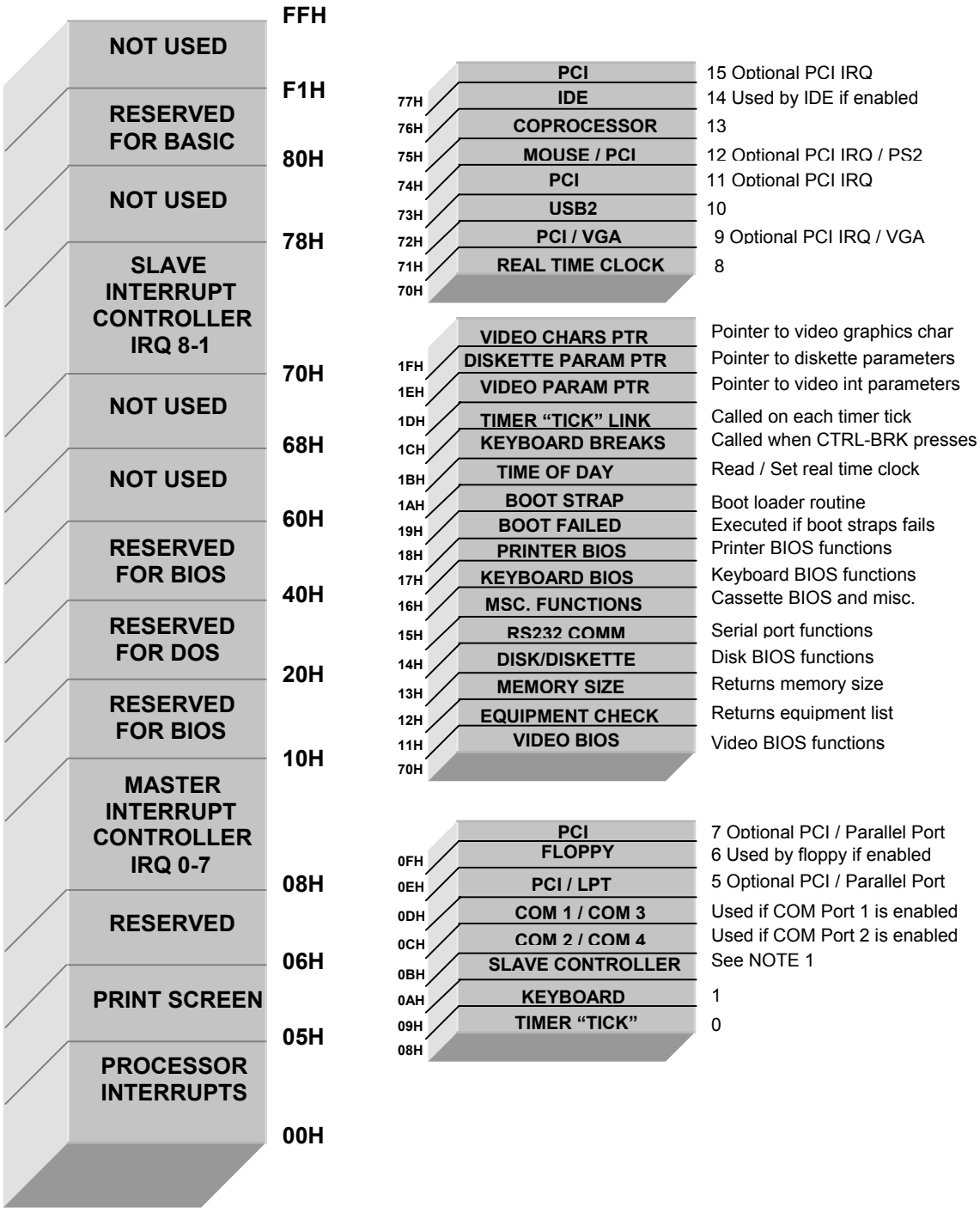
6.1 Memory Map
6.2 Interrupt Map
6.3 I/O Address Map
6.4 System I/O Map

6.1 Memory Map



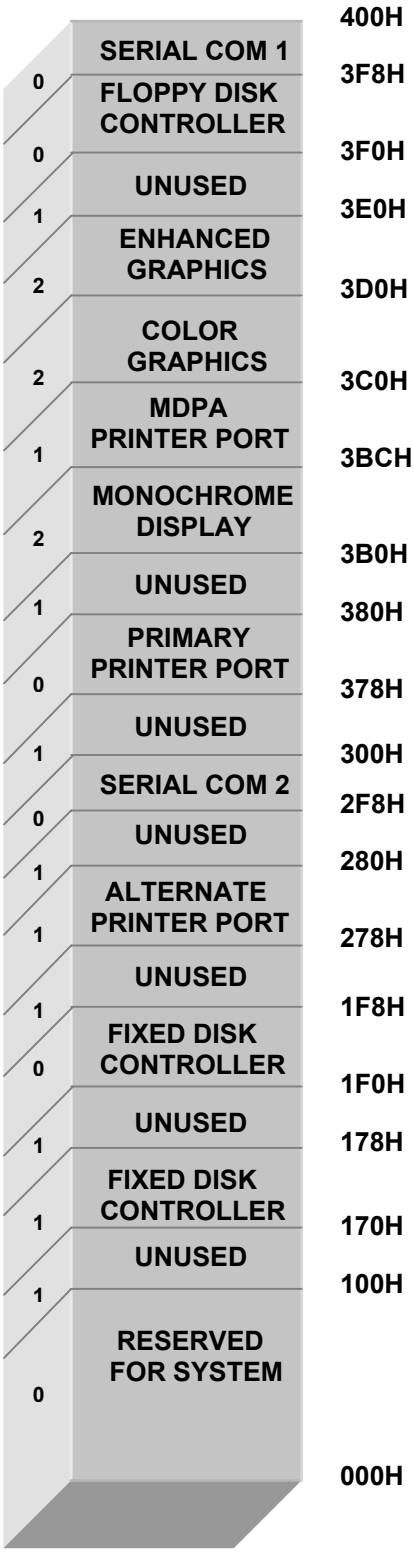
Note: The designated areas of memory for the video functions are occupied only if that specific type of adapter installed.

6.2 Interrupt Map



NOTE 1: IRQ 9 replaces IRQ12 on the I/O Channel. The BIOS redirects IRQ9 to IRQ12 to allow hardware and software designed to use IRQ12 to operate properly without modification.

6.3 I/O Address Map

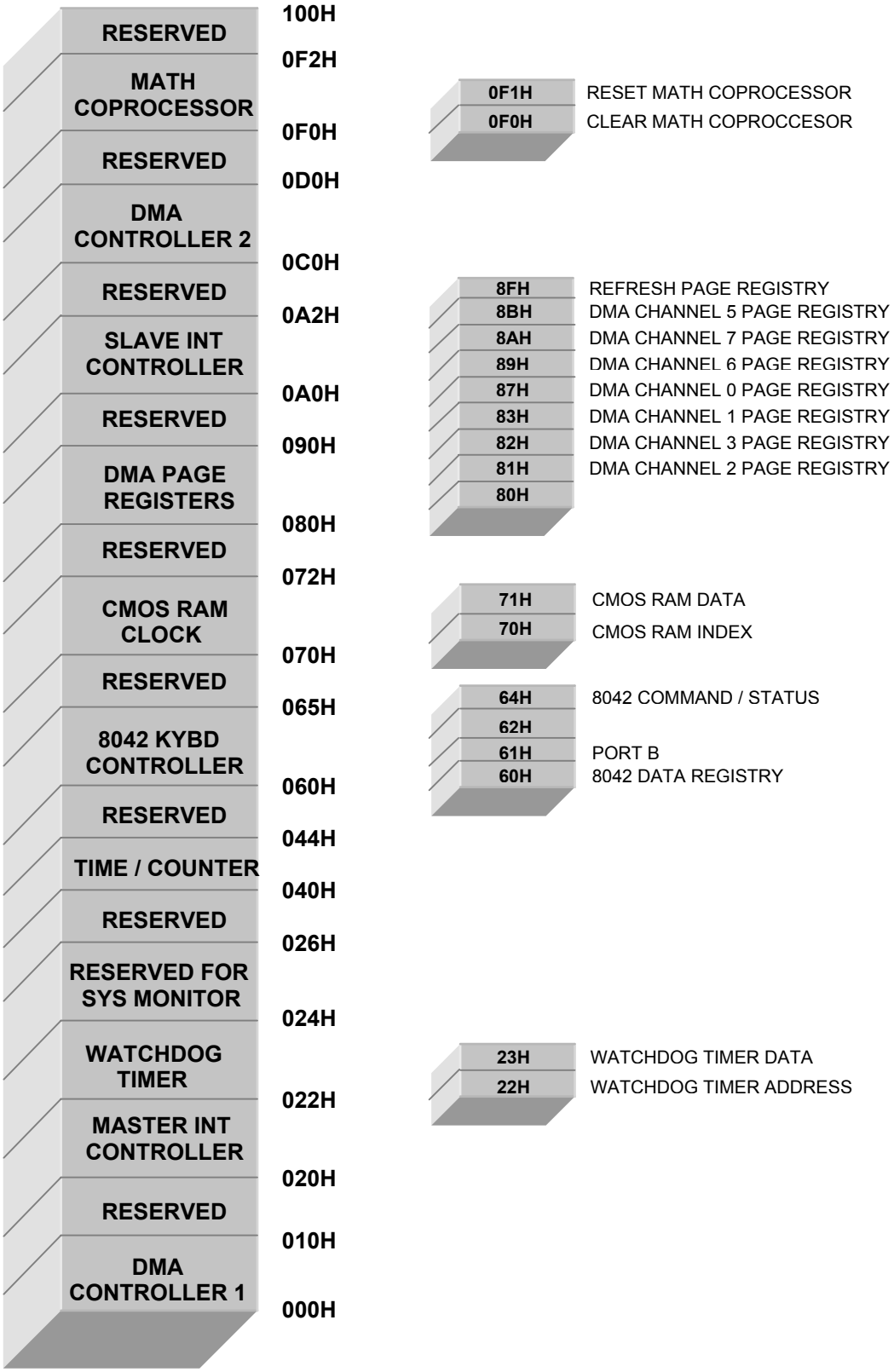


0 These I/O locations are reserved for onboard functions and must not be used by expansion I/O cards unless the onboard address is disabled.

1 These I/O locations are unused, and may be used by expansion I/O cards.

2 These I/O locations are unused, but are typically used by common expansion I/O cards.

6.4 System I/O Map





7 Peripheral Drivers

7.1 Introduction
7.2 Silicon Motion Lynx 3DM+
7.3 Intel 82562EM Ethernet Drivers
7.4 Unix Installations

7.1 Introduction

This appendix briefly describes where to obtain installation information for the video and Ethernet devices included on the ETX-LX05.

7.2 Silicon Motion Lynx 3DM+

The drivers are supplied by Silicon Motion and currently support Windows 98, Windows NT 4.0, Windows 2000, and Windows XP, and Linux.

The ETX-LX05 uses a generic design with the Lynx3DM+ and any equivalent or compatible drivers should work. For the latest driver releases visit http://www.siliconmotion.com.

7.3 Intel 8256EM Ethernet Drivers

The drivers are supplied by Intel and supported Operating Systems include Novell NetWare, Linux, Windows NT 4.0, Windows 2000, and Windows XP.

The ETX-LX05 uses a generic design with the Intel 82562EM and any equivalent or compatible drivers should work. The ETX-LX05 design does not utilize Wake-On-LAN, so drivers related to this feature should be avoided. For the latest driver release visit
http://downloadfinder.intel.com/scripts-df/Product_Filter.asp?ProductID=415

7.4 UNIX Installations

The appropriate UNIX vendor usually provides UNIX peripheral drivers. Check the web site for the distribution of UNIX that you are using for drivers and instructions. Some UNIX drivers are only available through third party driver companies and may be obtained for a fee.

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