

Network Application Platforms

Hardware platforms for next generation networking infrastructure



FW-7580

User's Manual Publication date:2010-04-15



About

Overview

Icon Descriptions

The icons are used in the manual to serve as an indication of interest topics or important messages. Below is a description of these icons:



NOTE: This check mark indicates that there is a note of interest and is something that you should pay special attention to while using the product.



WARNING: This exclamation point indicates that there is a caution or warning and it is something that could damage your property or product.

Online Resources

The listed websites are links to the on-line product information and technical support.

Resource	Website
Lanner	http://www.lannerinc.com
Product Resources	http://assist.lannerinc.com
RMA	http://eRMA.lannerinc.com

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Compliances

CE

This product has passed the CE test for environmental specifications. Test conditions for passing included the equipment being operated within an industrial enclosure. In order to protect the product from being damaged by ESD (Electrostatic Discharge) and EMI leakage, we strongly recommend the use of CE-compliant industrial enclosure products.

FCC Class A

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

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Chapter 1: Introduction

Thank you for choosing the FW-7580. The Fw-7580 is a 1U network communication appliance that is designed to meet your demand for high quality network application platform with its high port density. The FW-7580 comes with 1 FE and 6 Gb Ethernet ports with one pair capable to be an abnormal state packet bypass.

This network appliance is an ideal platform for applications such as load balancing and UTM management.

Please refer to the following chart below for a summary of the system's specifications.

System Specification

FEATURES	DESCRIPTION	
Form Factor		1U Rackmount
	Processor	Supports Intel Core 2 Duo, Pentium D, Celeron proces- sors, LGA 775
Platform	Chipset	Intel G41 + ICH7R
	Front Side Bus	1333/1066/800 MHz
	Max Speed	3.0 GHz
	Technology	Dual-channel DDR2 800/667 MHz
System Memory	Max Capacity	8GB
	Socket	240P DIMM x 2
OS Support		Windows, Linux, OpenBSD, FreeBSD
	HDD Bay(s)	2.5" x 1
Storage	Storage Interface	Serial ATA x 2 CompactFlash (type II) x 1
Networking	Ethernet Port Density	7 onboard (RJ45 x 7) 1 pair support by-pass function
	Controller	Intel 82574L GbE x 6, Intel 82562ET FE x 1
I/O Interface	Console	RJ45 x 1
1/0 interface	USB 2.0	_ 2
Expansion*	PCI-E	(x)8 x 1
Cooling	Processor	1U CPU passive heatsink with duct to 2 fans
Cooling	System	Cooling fan x 1 with Smart Fan
	Temperature, ambient operating / storage	0°C ~40°C / -20°C~60°C
Environmental Parameters	Humidity (RH), ambient op- erating and non-operating	5 ~ 95%, non condensing
	LCD Module	2 x 20 character
Miscellaneous	Watchdog	Yes
	Internal RTC with Li Battery	Yes
Physical	Dimensions (WxHxD)	431x44.4x276 mm (17x1.7x10.9 in)
Diménsions	Weight	7 kg (15.4 lbs)
	Type / Watts	1U ATX SPS / 220W
Power	Input	AC 100~240V@50~60Hz
	Output	+3.3V 16.8A, +5V 12A, +12V 10A, -12V 0.8A, +5VSB 2A
Approvals & Compliance		CE Emission, FCC Class A, RoHS

Introduction

Package Contents

Your package contains the following items:

- FW-7580 Network Security Platform
- Power cable
- 1 crossover Ethernet cable (1.8 meter)
- 1 straight-through Ethernet cable (1.8 meter)
- 1 RJ-45 to DB-9 female console cable
- Serial-ATA hard drive cable
- 1 threaded-screw set
- 1 ear bracket set
- Drivers and user's manual CD.



Front Panel Features



F1 Power/Status/HDD LED

Power: If the LED is on it indicates that the system is powered on. If it is off, it indicates that the system is powered off.

Status: If the LED is green, it indicates that the system's operational state is normal. If it is red, it indicates that the system is malfunctioning.

HDD: If the LED is on, it indicates that the system's storage is functional. If the LED blinks, it indicates data access activities. If it is off, it indicates that there is no hard disk present or functional.

F2 System Panel: LCD System Panel

The LCD System Panel can be programmed to display operating status and configuration information. For more details or sample programming code, please refer to *Appendix B Programming the LCM*.

F3 Reset Switch

The reset switch can be used to reboot the system without turning off the power.

F4 Console Port

By using suitable rollover cable or RJ-45 to DB-9 Female (Cisco console cable), you can connect to a computer terminal for diagnostic or configuration purpose. Terminal Configuration Parameters: 115200 baud, 8 data bits, no parity, 1 stop bit, no flow control.

F5 Two USB 2.0 Ports

It connects to any USB devices; for example, a flash drive.

F6 Management Port

This FastEthernet port can be connected for configuration or troubleshooting purpose. Or it can be used as a WAN port.

6 Gigabit LAN ports

Left LED: If the LED is green, it indicates that the connection speed is 100Mbps. If the LED is orange, it indicates that it indicates that the connection speed is 1000Mbps.

Right LED: If the LED is on, it indicates that the port is active. If it blinks, it indicates there is traffic.

Using suitable RJ-45 cable, you can connect FW-7580 System to a computer, or to any other piece of equipment that has an Ethernet connection; for example, a hub or a switch. Moreover, 1 pair (LAN5-LAN6) can be configured as LAN Bypass when failure events occur. This feature is implemented in hardware using watch dog timer functionality. Refer to *Appendix D Programming Lan Bypass* for a sample implementation of this feature.



- 1. The number of LAN ports varies depending on the model.
- 2. The availability of LAN Bypass varies depending on the model.

Rear Panel Features



- R1 AC Power-in socket: A 100/240VAC Switching Single Power Supply.
- R2 Power-on Switch: A switch to turn on or off the power.
- R3 Chassis Fans 1, 2 and 3
- R4 VGA Port: A VGA connector for connecting the monitor.*
- R5 RS-232 Serial Port: It can be connected to a terminal computer for diagnostic purpose.*
- R6 USB2.0 Port: It connects to any USB devices; for example, a flash drive.*
- R7 Low profile PCI-E slot: A slot for connecting the extended PCI-E card

The slot is for installing an additional adapter card which is connected to the main board via a riser card.



Introduction

Chapter 2: Hardware Setup

Preparing the Hardware Installation

To access some components and perform certain service procedures, you must perform the following procedures first.

WARNING: To reduce the risk of personal injury, electric shock, or damage to the equipment, remove the power cord to remove power from the server. The front panel Power On/Standby button does not completely shut off system power. Portions of the power supply and some internal circuitry remain active until AC power is removed.

- 1. Unpower the FW-7580 and remove the power cord.
- 2. Unscrew the 3 threaded screws from the top cover of the FW-7580 System.
- 3. Slide the cover backwards and open the cover upwards.



Installing the System Memory

The motherboard supports DDR2 memory that features data transfer rates of 667 and 800 MHz to meet the higher bandwidth requirements of the latest operating system and Internet applications. It comes with two Double Data Rate(DDR2) Dual Inline Memory Modules (DIMM) sockets.

- 1. Open the DIMM slot latches.
- 2. Install the DIMM.





- 1. All DIMMs installed must be the same speed (DDR2 667 or 800). Do not install DIMMs supporting different speeds.
- 2. The motherboards can support up to 8 GB memory capacity in maximum. However, due to the memory address limitation on 32-bit Windows OS, when you install 4GB or more memory on the motherboard, the actual usable memory for the OS can be about 3GB or less. For effective use of memory, we recommend that you do any of the following:

Use a maximum of 3GB system memory if you are using a 32-bit Windows OS.

OR

Install a 64-bit Windows OS when you want to install 4GB or more on the motherboard. For more details, refer to the Microsoft[©] support site.

Installing the Hard Disk

The system can accomdate two Serial-ATA disks. Follow these steps to install a hard disk into the FW-7580:

- 1. Unsrew the 4 screws on the hard disk tray to take out the hard disk tray from the system.
- 2. Place hard disk on the hard disk tray and align the holes of the hard disk with the mounting holes on the tray.
- 3. Secure the hard disk with 4 mounting screws on the hard disk tray.
- 4. Connect the Serial-ATA power and hard disk cables to the hard disk's connectors respectively.
- 5. Plug the Serial-ATA cable to the Serial-ATA Connector on the main board.
- 6. Repeat steps 2 to 5 to install a second disk (if there is one).
- 7. Put the hard disk tray with the installed hard disk back to the system and secure it with the mounting screws.

Introduction





Installing a CompactFlash Card

FW-7580 provides one CompactFlash slot(CF1). Follow the procedures bellow for installing a CompactFlash card.

- 1. Align CompactFlash card and the card slot with the arrow pointing toward the connector.
- 2. Push the card to insert into the connector.



Note: The Compact Flash Card has a jumper setting (J2) to set itself as a primary or slave device. It is only useful when there are other storage devices such as a CD-ROM installed in the system which is not applicable in the FW-7580. For more details, please refer to *Chapter 3 Motherboard Information*.

CPU and the Heat Sink Installation

The FW-7580 sever system is powered by the MB-75807580 sever board, which comes with one ZIF type LGA775 CPU socket.

Follow the procedures bellow for installing a CPU

- 1. Remove the CPU socket cap.
- 2. Press the load lever and release it from the retention tab.
- 3. Lift the load lever and then the plate.
- 4. Align the cut-out of the CPU and the notch on the socket. The CPU should fit perfectly into the socket. Note that the CPU fits in the socket in only one direction.
- 5. Close the plate and push the load lever to lock it back to the retention tab.
- 6. Peel off the sticker on the CPU to expose the thermal compound.
- 7. Put the heat sink on top of the installed CPU, match the screws with the screw holes on the board. Fasten two screws which are opposite to each other at a time and then the other two. It is easier this way because of the springiness of the bracket.
- 8. Place the heat sink cover on top of the installed heat sink and screw the two screws to fasten it on the case.







- 1. The CPU heat sink could only be installed in only one direction as shown in the picture.
- 2. To protect the CPU socket pins, retain the CPU cap when the CPU is not installed.

Network Application Platforms

Introduction

Riser Card Installation

To provide a PCI-E connector for installing an additional adaptor in a compact system lke the FW-7580, a riser card has to be installed.

- 1. Align the riser card with the PCI-E golden finger connector.
- 2. Insert the card into the connector firmly.
- 3. Fasten the screws to fix the card to the board.



Chapter 3: Motherboard Information

Block Diagram

The block diagram depicts the relationships among the interfaces or modules on the motherboard. Please refer to the following figure for your motherboard's layout design.



Motherboard Layout

The motherboard layout shows the connectors and jumpers on the board. Refer to the following picture as a reference of the pin assignments and the internal connectors.



Motherboard Information

Jumper Settings

^{M1}VGA Interface (J1): It is for connecting the VGA interface cable.

Function	GND	GND	GND	GND	GND	DDCCLK
PIN NO.	2	4	6	8	10	12
		24	6 8 10	12		
				_		
		1 3	579	11		
PIN NO.	1	3	5	7	9	11
Function	Red	Green	Blue	HSYNC	VSYNC	DDC-
						DATA

^{M2} USB Connector(J8) : It is for connecting the USB module cable. It complies with USB2.0 and support up to 480 Mbps connection speed.



PIN NO.	1	3	5	7	9
Function	USB_VCC	USBD-	USBD+	GND	GND

- M3 PCI-Ex8 Golden Finger(J1): It is for connecting the riser card to add the expansion cards which might be an AGP or RAID controller to the system. Refer to *Chapter* 2 Hardware Setup for an installing illustration.
- AT Mode Power Button Connector (CONN1): It is for connecting the power switch in AT mode in lieu of the following jumper selections, ie, you don't need to adjust the AT/ATX Mode Selection or AT Mode jumper settings.

M5 AT/ATX Mode Selection Jumper(J11): Please adjust the jumpers (J10 and J11) respectively as described in the following jumper settings when connecting the



power switch in AT mode.

M6 AT Mode Jumper(J10): It is for adjusting the jumper setting for the power mode. Note that you have to adjust the jumper J11 accordingly.



CF Master/Slave Selection Jumper(J2): It is for selecting the CF card as a master or slave drive. Note that the default setting of J2 jumper is set to Master. Note that this jumper only useful when there are other storage devices such as a CD-ROM installed in the system which is not applicable in the FW-7580.



- CompactFlash Connector (CF1): It is for connecting a Compact Flash card to be served as your system's storage. For details of pin assignment, please refer to the User's Manual.
- M9 Keyboard and mouse interface Connectors(J16): It is for connecting the PS/2 keyboard and mouse interface cable.

Pin No.	Function	. —	Pin No.	Function
VCC	1		2	MSCLK
MSDATA	3	3 4	4	KEY
KBDATA	5	5 6	6	KEY
GND	7	7 🛄 8	8	KBCLK

- M10 Front LCD Module Connector(J9): The 24-pin connector is for connecting the front system panel.
- M11 SPI-ROM Update Connector: Using the appropriate cable to connect this 10-pin ISP in header connector, the user can update the SPI Flash soldered on board.

Function	Pin No.		Pin No.	Function
NC	1	1 2	2	NC
ICH_SPI_CSO#	3	3 4	4	V_3P3_SPI_R
SB_SPI_MISO	5	5 6	6	SPI_HD_N
KEY	7	7 8	8	ICH_SPI_CLK
GND	9	9 10	10	ICH_SPI_MOSI

M12 This connector is for the system power button. Pressing the power button turns the system on or puts the system in sleep or soft-off mode depending on the BIOS settings.



2

Pin No.	Pin name
1	PANSW
2	GND

M13 Hardware or Software Reset Jumper(JP2): The jumper can be adjusted to be in either hardware or software reset mode when the reset switch is pressed. The hardware reset will reboot the system without turning off the power. The software reset can be programmed to reset a software to its default setting.

1	Pin No.	Function
$-\frac{2}{3}$	1-2 (Default)	Software Reset
	2-3	Hardware Reset

Motherboard Information

M14 ATX Power Connector(ATX1, ATX2): These 20-pin and 4-pin connectors are for connecting ATX power supply plugs. Find the proper orientation when inserting the plugs, for the supply plugs are designed to fit these connectors in only one orientation.

^{M15}DIMM Socket: The 200-pin DDR2 SO-DIMM is for connecting the DDR2 800/667 memory. The system can support up to 8 GB in maximum.

M16 SATA 1 and 2 Connectors(J3, J4): It is for connecting a 2.5" SATA harddisk to be served as your system's storage. The system can support up to 2 disks in maximum.

Clear CMOS jumper (J19): It is for clearing the CMOS memory and system setup parameters by erasing the data stored in the CMOS RAM such as the system passwords.

	Pin No.	Function
1		Normal (Default)
	1-2	Clear CMOS

^{M18} Serial Interface Connectors(J13, COM2): It is for connecting the RS-232 serial port module cable.

Function	Data Set	Request to	Clear to	Ring Indicator	Signal
	Ready	Send	Send		Ground
PIN NO.	2	4	6	8	10
		2 4 6	8 10		
		1 3 5	7 9		

PIN NO.	1	3	5	7	9
Function	Data Carrier	Received	Transmitted	Data Terminal	Signal
	Detected	Data	Data	Ready	Ground

^{M19} CPU Socket: The LGA 775 socket is for connecting the CPU.

M20 CPU Fan Connectors(CON1/CON2/CON3): The 4-pin connector is for connecting the CPU fan.

M21 System Fan Connector(CON5): The 4-pin connector is for connecting the system fan.

Function GND

+12VDC

Sense Control

	Pin No.
4 2 2 4	1
4321	2
	3
	4

M22 LPC I/O bus (Port 80) (LPC1): It is a proprietary connector for connecting a checkpoint device to output checkpoints throughout bootblock and Power-On Self Test (POST) to indicate the task the system is currently executing.

	Function	AD1	AD0	VCC	GND	GND	
	PIN NO.	2	4	6	8	10	
	2 4 6 8 10						
	2 . 3 0 10						
			1 3 5	79			
[PIN NO.	1	3	5	7	9	
[Function	CLK	PLTRST#	FRAME#	AD3	AD2	
- 1							

Chapter 4: BIOS Settings

Updating the BIOS

The Basic Input/Output System (BIOS) can be updated using the designated Flash Utility. To obtain the utility, please contact us either through the sales rep or technical support.



Note:

For the update version of the BIOS image, please visit Lanner's support page at

http://assist.lannerinc.com. Then select *support center* from the Main Menu and look under the folder for the desired product category . The resources for each product including the BIOS image will be contained within a folder named by the product model.

Bios Settings

Accessing the BIOS menu

When you are installing a motherboard, use the BIOS Setup program to reconfigure the system, or when the system prompts "Run Setup" during start-up. This section explains how to configure your system using this program.

Even if you are not prompted to enter the BIOS Setup program when you are installing a motherboard, you can change the configuration of your computer in the future. For example, you may want to enable the security password feature or change the power management settings. This requires you to reconfigure your system using the BIOS Setup program so that the computer can recognize these changes and record them in the CMOS RAM.

When you start up the computer, the system provides you with the opportunity to run this program. Press <Delete> during the Power-On-Self-Test (POST) to enter the Setup utility (There are a few cases that other keys are used, such as <F1>, <F2>, and so forth.); otherwise, POST continues with its test routines.

If you wish to enter Setup after POST, restart the system by pressing <Ctrl+Alt+Delete>, or by pressing the reset button on the system chassis. You can also restart by turning the system off and then back on. Do this last option only if the first two failed.

The Setup program is designed to make it as easy to use as possible. Being a menu-driven program, it lets you scroll through the various sub-menus and make your selections from the available options using the navigation keys.

Note: This manual describes the standard look of the setup screen. There may be some instances in which the motherboard features can vary from one to another due to customization. This means that some of the options described in this manual mays not match that of your motherboard's AMIBIOS.

Navigating the BIOS menu

The BIOS setup utility uses a key-based navigation system called hot keys. Most of the BIOS setup utility hot keys can be used at any time during the setup navigation process.

These keys include <F1>, <F10>, <Enter>, <ESC>, <Arrow> keys, and so on.

Main <mark>Advan</mark>	ed Boot	Security	Exit	
System Overview			Use [ENTER], [TAB]	
AMIBIOS Ruild Data:02	TIBIOS			select a field.
Processor	237 10			Use [+] or [-] to configure system Time
Speed :25 Count :25	ōMHz ō			
System Memory Size :47	BMB			0.1.(.0)
Sustem Time		[00:06:	491	← Select Screen
System Date		IThu 03	/25/2010]	+- Change Field
				Tab Select Field
				F10 Save and Exit
				ESC Exit

Keys	Description		
-><- Left/Right	The Left and Right <arrow> keys</arrow>		
	allow you to select an setup screen		
	For example: Main screen, Advanced		
	screen, Boot screen, and so on.		
ຸ∧ √ Up/Down	The Up and Down <arrow> keys</arrow>		
	allow you to select an setup item or		
	sub-screen.		
+- Plus/Minuss	The Plus and Minus <arrow> keys</arrow>		
	allow you to change the field value		
	of a particular setup item. For		
	example: Date and Time.		
Tab	The <tab> key allows you to select</tab>		
	setup fields.		

Note: The <F8> key on your keyboard is the Fail-Safe key. It is not displayed on the key legend by default. To set the Fail-Safe settings of the BIOS, press the <F8> key on your keyboard. It is located on the upper row of a standard 101 keyboard. The Fail-Safe settings allow the motherboard to boot up with the least amount of options set. This can lessen the probability of conflicting settings.

Bios Settings

The Main Menu

The main BIOS setup menu is the first screen that you can navigate. Each main BIOS setup menu option is described in this chapter.

The Main BIOS setup menu screen has two main frames. The left frame displays all the options that can be configured. "Grayed-out" options are configured parameters and cannot be modified. On the other hand, Options in blue can be modified.

The right frame displays the key legend. Above the key legend is an area reserved for a text message. When an option is selected in the left frame, it is highlighted in white. Often a text message will accompany it.

	BIOS SETUP UTILITY	
nain Havancea	boot security Exit	
System Overview		Use [ENTER], [TAB]
AMIBIOS Build Date:03/25/10)	Use [+] or [-] to
Speed :255MHz Count :255		conrigure system rime.
System Memory Size :478MB		t Select Screen
System Time System Date	100:06:45] [Thu 03/25/2010]	14 Select Item Change Field Tab Select Field F1 General Help F10 Save and Exit ESC Exit
02 61 /0	") Comminist 1995 2006 Anomia	

System Time/System Date

Use this option to change the system time and date. Highlight System Time or System Date using the <Arrow> keys. Enter new values through the keyboard. Press the <Tab> key or the <Arrow> keys to move between fields. The date must be entered in MM/DD/YY format. The time is entered in HH:MM:SS format.



Bios Settings

Advanced Settings

Select the Advanced tab from the setup screen to enter the Advanced BIOS Setup screen. You can select any of the items in the left frame of the screen, such as SuperIO Configuration, to go to the sub menu for that item. You can display an Advanced BIOS

Setup option by highlighting it using the <Arrow> keys. All Advanced BIOS Setup options are described in this section. The Advanced BIOS Setup screen is shown at the right. The sub menus are described on the following pages.



IDE Configuration Settings

You can use this screen to select options for the IDE Configuration Settings. Use the up and down <Arrow> keys to select an item. Use the <Plus> and <Minus> keys to change the value of the selected option. A description of the selected item appears on the right side of the screen. The settings are described on the following pages. An example of the IDE Configuration screen is at the right.

Primary IDE Master, Primary IDE Slave, Secondary IDE Master, Secondary IDE Slave:

Select one of the hard disk drives to configure it. Press <Enter> to access its the sub menu. The options on the sub menu are described as in the following..





Bios Settings

Primary /Secondary IDE Master and Slave Sub Menu

From the IDE Configuration screen, press <Enter> to access the sub menu for the primary/secondary IDE master and slave drives. Use this screen to select options for the Primary and Secondary IDE drives. Use the up and down <Arrow> keys to select an item. Use the <Plus> and <Minus> keys to change the value of the selected option. The settings are described on the following pages. The screen for the Primary IDE Master is shown at the right.

Туре

This option sets the type of device that the AMIBIOS attempts to boot from after the Power-On-Self-Test (POST) has completed. The Optimal and Fail-Safe default setting is Auto.

Option	Description				
Not Installed	Set this value to prevent the BIOS from				
	searching for an IDE disk drive on the specified				
	channel.				
Auto	Set this value to allow the BIOS to automatically				
	detect the IDE disk drive type attached to the				
	specified channel. This setting should be used				
	if an IDE hard disk drive is attached to the				
	specified channel. This is the default setting.				
CDROM	This option specifies that an IDE CD-ROM drive				
	is attached to the specified IDE channel. The				
	BIOS will not attempt to search for other types				
	of IDE disk drives on the specified channe.				
ARMD	This option specifies an ATAPI Removable				
	Media Device.				
	This includes, but is not limited to:				
	• ZIP				
	• LS-120				

LBA/Large Mode

LBA (Logical Block Addressing) is a method of addressing data on a disk drive. The Optimal and Fail-Safe default setting is Auto.

Option	Description		
Disabled	Set this value to prevent the BIOS from using		
	Large Block Addressing mode control on the		
	specified channel.		
Auto	Set this value to allow the BIOS to automatically		
	detect the Large Block Addressing mode control		
	on the specified channel. This is the default		
	setting.		

Block (Multi-Sector Transfer)

This option sets the block mode multi sector transfers option. The Optimal and Fail-Safe default setting is Auto.

Advanced	IUS SETUP UTILITY		
Primary IDE Master			
Device : Uendor : Size : LBA Mode : Block Mode : PIO Mode : Async DMA : Ultra DMA : S.M.A.R.T.: Type LBA/Large Mode	Hard Disk ST30410A 8-6GB Supported 32Sectors 4 MultiWord DMA-2 Ultra DMA-2 Supported IAutoJ	↔ 11	Select Screen Select Item
Block (Multi-Sector Transfer) PIO Mode DMA Mode	(Auto) (Auto) (Auto)	+- F1 F10	Change Option General Help Save and Exit
S.M.A.R.T. 32Bit Data Transfer	[Auto] [Disabled]	ESC	Exit

u02.61 (C)Commight 1985-2006. American Megatrends. Tr

Bios Settings

Option	Description
Disabled	Set this value to prevent the BIOS from using
	Multi-Sector Transfer on the specified channel.
	The data to and from the device will occur one
	sector at a time.
Auto	Set this value to allow the BIOS to automatically
	detect device support for Multi-Sector Transfers
	on the specified channel. If supported, Set this
	value to allow the BIOS to automatically detect
	the number of sectors per block for transfer
	from the hard disk drive to the memory. The
	data transfer to and from the device will occur
	multiple sectors at a time. This is the default
	setting.

PIO Mode

IDE PIO (Programmable I/O) mode programs timing cycles between the IDE drive and the programmable IDE controller. As the PIO mode increases, the cycle time decreases. The Optimal and Fail-Safe default setting is Auto.

Option	Description
Auto	Set this value to allow the BIOS to auto detect
	the PIO mode. Use this value if the IDE disk
	drive support cannot be determined. This is the
	default setting.
0	Set this value to allow the BIOS to use PIO mode
	0. It has a data transfer rate of 3.3 MBs.
1	Set this value to allow the BIOS to use PIO mode
	0. It has a data transfer rate of 5.2 MBs.
2	Set this value to allow the BIOS to use PIO mode
	0. It has a data transfer rate of 8.3 MBs.
3	Set this value to allow the BIOS to use PIO mode
	0. It has a data transfer rate of 11.1MBs.
4	Set this value to allow the BIOS to use PIO
	mode 4. It has a data transfer rate of 16.6 MBs.
	This setting generally works with all hard disk
	drives manufactured after 1999. For other disk
	drive, such as IDE CD-ROM drives, check the
	specifications of the drive.

DMA Mode

This setting allows you to adjust the DMA (Direct memory access) mode options. The Optimal and Fail-Safe default setting is Auto.

Option	Description		
Auto	Set this value to allow the BIOS to automatically		
	detect the DMA mode. Use this value if the IDE		
	disk drive support cannot be determined. This is		
	the default setting.		
SWDMA0	Set this value to allow the BIOS to use Single		
	Word DMA mode 0. It has a data transfer rate of		
	2.1 MBs.		

Hdvanced			
rimary IDE Master			
evice : endor : ize : BA Mode : lock Mode : ID Mode : symc DMA : ltra DMA : .M.A.K.T.:	Hard Disk ST30410A 8.66B Supported 32Sectors 4 MultiVord DMA-2 Ultra DMA-2 Supported		
upe DA/Large Mode lock (Multi-Sector Transfer) IO Mode MA Mode .M.A.R.T. 2Bit Data Transfer	(Auto) (Auto) (Auto) (Auto) (Auto) (Auto) (Disabled)	<pre> ++ t1 +- F1 F10 ESC </pre>	Select Screen Select Item Change Option General Help Save and Exit Exit

Bios Settings

Option	Description
SWDMA1	Set this value to allow the BIOS to use Single
	Word DMA mode 1. It has a data transfer rate of
	4.2 MBs.
SWDMA2	Set this value to allow the BIOS to use Single
	Word DMA mode 2. It has a data transfer rate of
	8.3 MBs.
MWDMA0	Set this value to allow the BIOS to use Multi Word
	DMA mode 0. It has a data transfer rate of 4.2
	MBs.
MWDMA1	Set this value to allow the BIOS to use Multi Word
	DMA mode 1. It has a data transfer rate of 13.3
	MBs.
MWDMA2	Set this value to allow the BIOS to use Multi Word
	DMA mode 2. It has a data transfer rate of 16.6
	MBs.
UDMA0	Set this value to allow the BIOS to use Ultra DMA
	mode 0. It has a data transfer rate of 16.6 MBs.
	It has the same transfer rate as PIO mode 4 and
	Multi Word DMA mode 2.
UDMA1	Set this value to allow the BIOS to use Ultra DMA
	mode 1. It has a data transfer rate of 25 MBs.
UDMA2	Set this value to allow the BIOS to use Ultra DMA
	mode 2. It has a data transfer rate of 33.3 MBs.
UDMA3	Set this value to allow the BIOS to use Ultra DMA
	mode 3. It has a data transfer rate of 44.4 MBs. To
	use this mode, it is required that an 80-conductor
	ATA cable is used.
UDMA4	Set this value to allow the BIOS to use Ultra DMA
	mode 4. It has a data transfer rate of 66.6 MBs. To
	use this mode, it is required that an 80-conductor
	ATA cable is used.
UDMA5	Set this value to allow the BIOS to use Ultra DMA
	mode 5. It has a data transfer rate of 99.9 To use
	this mode, it is required that an 80-conductor
	ATA cable is used.
UDMA6	Set this value to allow the BIOS to use Ultra DMA
	mode 6. It has a data transfer rate of 133.2 MBs. To
	use this mode, it is required that an 80-conductor
	ATA cable is used.

S.M.A.R.T. for Hard disk drives

Self-Monitoring Analysis and Reporting Technology (SMART) feature can help predict impending drive failures. The Optimal and Fail-Safe default setting is Auto.

Option	Description
Auto	Set this value to allow the BIOS to automatically
	detect hard disk drive support. Use this setting if
	the IDE disk drive support cannot be determined.
	This is the default setting.
Disabled	Set this value to prevent the BIOS from using the
	SMART feature.
Enabled	Set this value to allow the BIOS to use the SMART
	feature on support hard disk drives.

32Bit Data Transfer

Augmond			
Havancea			
rimary IDE Master			
evice : endor : ize : BA Mode : lock Mode : IO Mode : symc DMA : ltra DMA : .M.A.R.T.:	Hard Disk ST30410A 8.66B Supported 32Sectors 4 MultiWord DMA-2 Ultra DMA-2 Supported		
ype BA/Large Mode lock (Multi-Sector Transfer) IO Mode MA Mode .M.A.R.T. 2Bit Data Transfer	(Auto) (Auto) (Auto) (Auto) (Auto) (Auto) (Auto) (Disabled)	<pre> ++ +- F1 F10 ESC </pre>	Select Screen Select Item Change Option General Help Saue and Exit Exit

Bios Settings

This option sets the 32-bit data transfer option. The Optimal and Fail-Safe default setting is Enabled.

Option	Description		
Disabled	Set this value to prevent the BIOS from		
	using 32-bit data transfers.		
Enabled	Set this value to allow the BIOS to use 32-bit		
	data transfers on support hard disk drives.		
	This is the default setting.		

B	IOS SETUP UTILITY		
Advanced			
Primary IDE Master		Select the type	
Device :Not Detected		to the system.	
Туре			
LBA/Large Mode	[Auto]		
Block (Multi-Sector Transfer)	[Auto]		
PIO Mode	[Auto]		
DMA Mode	[Auto]		
S.M.A.R.T.	LAutol		
32Bit Data Transfer	lEnabledl		
		 Select Screen Select Item Change Option General Help F10 Gave and Exit ESC Exit 	
00.64.7000	1005 000 A		
002.61 (C)Copyright	1985-2006, Hmerican Me	gatrends, INC.	

Hard disk drive Write Protect

Set this option to protect the hard disk drive from being overwritten. The Optimal and Fail-Safe default setting is Disabled.

Option	Description
Disabled	Set this value to allow the hard disk drive to be
	used normally. Read, write, and erase functions
	can be performed to the hard disk drive. This is
	the default setting.
Enabled	Set this value to prevent the hard disk drive from
	being erased.

IDE Detect Time Out (Seconds)

Set this option to stop the AMIBIOS from searching for IDE devices within the specified number of seconds. Basically, this allows you to fine-tune the settings to allow for faster boot times. Keep adjusting this setting until a suitable timing in which all all IDE disk drives attached. are detected is found. The Optimal and Fail-Safe default setting is 35.

Option	Description
0	This value is the best setting to use if the onboard
	IDE controllers are set to a specific IDE disk drive
	in the AMIBIOS.
5	Set this value to stop the AMIBIOS from searching
	the IDE bus for IDE disk drives in 5 seconds. A
	large majority of ultra ATA hard disk drives can be
	detected well within five seconds.
10	Set this value to stop the AMIBIOS from searching
	the IDE bus for IDE disk drives in 10 seconds.





Bios Settings

Option	Description
15	Set this value to stop the AMIBIOS from searching
	the IDE bus for IDE disk drives in 15 seconds.
20	Set this value to stop the AMIBIOS from searching
	the IDE bus for IDE disk drives in 20 seconds.
25	Set this value to stop the AMIBIOS from searching
	the IDE bus for IDE disk drives in 25 seconds.
30	Set this value to stop the AMIBIOS from searching
	the IDE bus for IDE disk drives in30 seconds.
35	Set this value to stop the AMIBIOS from searching
	the IDE bus for IDE disk drives in 35 seconds.

IDE Configuration		Options
ATA/IDE Configuration Legacy IDE Channels	[Compatible] [SATA Pri, PATA Sec]	Disabled Compatible Enhanced
 Primary IDE Master Primary IDE Slave Secondary IDE Master Secondary IDE Slave 	: [Not Detected] : [Not Detected] : [Not Detected] : [Not Detected]	
Hard Disk Write Protect IDE Detect Time Out (Sec)	(Disabled) [35]	 Select Screen Select Item Change Option General Help Fi0 Saue and Exit ESC Exit

SuperIO Configuration

In this screen, you will be able to modify the IRQ address of the serial and parallel ports which are provided by the Winbond 83627THG chip.

Configure Win627THF Super IO ChipSet

You can use this screen to select options for the Super I/O settings. Use the up and down <Arrow> keys to select an item. Use the <Plus> and <Minus> keys to change the value of the selected option. The settings are described on the following pages. The screen is shown at right.

Serial Port1 Address

This option specifies the base I/O port address and Interrupt Request address of serial port 1. The Optimal setting is 3F8/IRQ4. The Fail-Safe default setting is Disabled.



BIOS SETUP UTILITY	
Configure Win627THF Super IO Chipset	Allows BIOS to Select
Serial Port1 Address (3967/TQ41) Serial Port2 Address (2967/TQ43) Parallel Port Address (378) Parallel Port Mode (Normal) Parallel Port IRQ (1NQ7)	 Select Screen Select Item Select Item Change Option General Help F10 Save and Exit ESC Exit
v02.61 (C)Copyright 1985-2006, American Me	gatrends, Inc.

Bios Settings

Option	Description	
Disabled	Set this value to prevent the serial port from	
	accessing any system resources. When this	
	option is set to Disabled, the serial port physically	
	becomes unavailable.	
3F8/IRQ4	Set this value to allow the serial port to use 3F8	
	as its I/O port address and IRQ 4 for the interrupt	
	address. This is the default setting. The majority of	
	serial port 1 or COM1 ports on computer systems	
	use IRQ4 and I/O Port 3F8 as the standard setting.	
	The most common serial device connected to this	
	port is a mouse. If the system will not use a serial	
	device, it is best to set this port to Disabled.	
2F8/IRQ3	Set this value to allow the serial port to use 2F8	
	as its I/O port address and IRQ 3 for the interrupt	
	address. If the system will not use a serial device,	
	it is best to set this port to Disabled.	
3E8/IRQ4	Set this value to allow the serial port to use 3E8	
	as its I/O port address and IRQ 4 for the interrupt	
	address. If the system will not use a serial device,	
	it is best to set this port to Disabled.	
2E8/IRQ3	Set this value to allow the serial port to use 2E8	
	as its I/O port address and IRQ 3 for the interrupt	
	address. If the system will not use a serial device,	
	it is best to set this port to Disabled.	

Configure Win627THF Super IO Chipset		Allows BIOS to Select
Serial Portl Address Serial Port2 Address Parallel Port Address Parallel Port Mode Parallel Port IRQ	13F8/1RQ41 12F8/1RQ31 13781 1Norma 13 11RQ71	Addresses.
		 Select Screen Select Item Change Option F1 General Help F10 Save and Exit ESC Exit

Serial Port2 Address

This option specifies the base I/O port address and Interrupt Request address of serial port 2. The Optimal setting is 2F8/IRQ3. The Fail-Safe setting is Disabled.

Option	Description
Disabled	Set this value to prevent the serial port from
	accessing any system resources. When this
	option is set to Disabled, the serial port physically
	becomes unavailable.
3F8/IRQ4	Set this value to allow the serial port to use 3F8
	as its I/O port address and IRQ 4 for the interrupt
	address. This is the default setting. The majority of
	serial port 1 or COM1 ports on computer systems
	use IRQ4 and I/O Port 3F8 as the standard setting.
	The most common serial device connected to this
	port is a mouse. If the system will not use a serial
	device, it is best to set this port to Disabled.
2F8/IRQ3	Set this value to allow the serial port to use 2F8
	as its I/O port address and IRQ 3 for the interrupt
	address. If the system will not use a serial device,
	it is best to set this port to Disabled.

Configure Win627THF Super	IO Chipset	Allows BIOS to Select
Serial Portl Address Serial Port2 Address Parallel Port Address Parallel Port Address Parallel Port Mode Parallel Port IRQ	1388/18Q41 1288/18Q31 13783 1Norma11 118Q71	Serial Portl Base Addresses.
		 Select Screen Select Item Change Option Fi General Help Fi0 Save and Exit ESC Exit

Bios Settings

Option	Description
3E8/IRQ4	Set this value to allow the serial port to use 3E8
	as its I/O port address and IRQ 4 for the interrupt
	address. If the system will not use a serial device,
	it is best to set this port to Disabled.
2E8/IRQ3	Set this value to allow the serial port to use 2E8
	as its I/O port address and IRQ 3 for the interrupt
	address. If the system will not use a serial device,
	it is best to set this port to Disabled.

Configure Win627THF Super IO Chipset		Allows BIOS to Select
Serial Portl Address Serial Port2 Address Parallel Port Address Parallel Port Mode Parallel Port IRQ	E3F6/TRQ4] E2F6/TRQ31 E378] [Norma1] ETRQ7]	Addresses.
		 ← Select Screen ↑4 Select Iten ← Change Option F1 General Help F10 Save and Exit ESC Exit

Parallel Port Address

This option specifies the I/O address used by the parallel port. The Optimal setting is 378. The Fail-Safe setting is Disabled.

Option	Description
Disabled	Set this value to prevent the parallel port from
	accessing any system resources. When the value
	of this option is set to Disabled, the printer port
	becomes unavailable.
378	Set this value to allow the parallel port to use 378
	as its I/O port address. This is the default setting.
	The majority of parallel ports on computer
	systems use IRQ7 and I/O Port 378H as the
	standard setting.
278	Set this value to allow the parallel port to use 278
	as its I/O port address.
3BC	Set this value to allow the parallel port to use 3BC
	as its I/O port address.

Parallel Port Mode

This option specifies the parallel port mode. The Optimal setting is Normal. The Fail- Safe setting is Disabled

Option	Description
Normal	Set this value to allow the standard parallel port
	mode to be used. This is the default setting.
Bi-	Set this value to allow data to be sent to and
Directional	received from the parallel port.

Bios Settings

Option	Description
EPP	The parallel port can be used with devices that
	adhere to the Enhanced Parallel Port (EPP)
	specification. EPP uses the existing parallel port
	signals to provide asymmetric bi-directional data
	transfer driven by the host device.
ECP	The parallel port can be used with devices that
	adhere to the Extended Capabilities Port (ECP)
	specification. ECP uses the DMA protocol to
	achieve data transfer rates up to 2.5 Megabits per
	second. ECP provides symmetric bi-directional
	communication.

Configure Win627THF Super IO Chipset		Allows BIOS to Select
Serial Portl Address Serial Port2 Address Parallel Port Address Parallel Port Mode Parallel Port IRQ	(3F8/1RQ4) (2F8/1RQ3) (378) (Normal) (1RQ7)	Serial Porti Base Addresses.
		 Select Screen Select Iten Change Option F1 General Help F10 Save and Exit ESC Exit

Parallel Port IRQ

This option specifies the IRQ used by the parallel port. The Optimal and Fail-Safe default setting is 7.

Option	Description
5	Set this value to allow the serial port to use
	Interrupt 5.
7	Set this value to allow the serial port to use
	Interrupt 7. This is the default setting. The
	majority of parallel ports on computer systems
	use IRQ7 and I/O Port 378H as the standard
	setting.

USB Configuration

In this screen, you will be able to configure the USB controller.

Advanced Settings		Configure the IDE
WARNING: Setting wrong value may cause system to	es in below sections malfunction.	
 IDE Configuration SuperIO Configuration Hardware Health Configuration USB Configuration Remote Access Configuratic Trusted Computing Lan ByPass Control 	: ion m	School Survey
Restore on AC Power Loss	[Last State] [Disabled]	→ ← Select Screen ↑↓ Select Item Enter Go to Sub Scree

Bios Settings

USB Configuration Setting

You can use this screen to select options for the USB Configuration. Use the up and down <Arrow> keys to select an item. Use the <Plus> and <Minus> keys to change the value of the selected option. The settings are described on the following pages.



Note: The device listed under the **USB Devices Enabled** indicates the auto-detected values. If no device is detected, the item shows None.

USB Configuration	Enables support for
Module Version - 2.24.3-13.4	option disables
USB Devices Enabled : 1 Drive	legacy support if no USB devices are connected.
Legacy USB Support (Enabled) USB 2.0 Controller Mode (HiSpeed) BIOS EHCI Hand-Off (Enabled)	
▶ USB Mass Storage Device Configuration	 Select Screen Select Item Change Option General Help F10 Save and Exit ESC Exit

Legacy USB Support

This option enable or disable the support ofr USB devices on legacy operating systems (OS), e.g., Windows ME/98/ NT, and MS-DOS.Normally if this option is not enabled, any attached USB mouse or USB keyboard will not become available until a USB compatible operating system is fully booted with all USB drivers loaded. When this option is enabled, any attached USB mouse or USB keyboard can be used on the system even when there is no USB drivers loaded on it.

Option	Description
Auto	Allow the system to detect the presence of USB
	devices at startup. If detected, the USB controller
	legacy mode is enabled If it is not detected, the
	USB control er legacy mode is disabled.
Enabled	Enable the support for USB devices on legacy
	operating system
Disabled	Disable this function.

BIOS SETUP UTILITY	
Advanced	
USB Configuration Module Version - 2.24.3-13.4 USB Devices Enabled : 1 Drive	Enables support for legacy USB. AUTO option disables legacy support if no USB devices are connected.
Legacy USB Support [Enabled] USB 2.0 Controller Mode [HiSpeed] BIOS EHCI Hand-Off [Enabled] > USB Mass Storage Device Configuration	 Select Screen Select Item Change Option F1 General Help F10 Save and Exit ESC Exit
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USB 2.0 Controller Mode

This option set the USB 2.0 controller to operate in HiSpeed(480 Mbps) or Full Speed (12Mbps).

Bios Settings

BIOS EHCI Hand-off

This option enable or disable the support for the operating systems which does not have an EHCI Hand-Off feature.

Option	Description
Enabled	Enable the support for the OS without EHCI
	Hand-Off feature.
Disabled	Disable the support for the OS without EHCI
	Hand-Off feature.

BIOS SETUP UTILITY Advanced	
USB Configuration	Enables support for
Module Version - 2.24.3-13.4 USB Devices Enabled : 1 Drive	option disables legacy support if no USB devices are connected.
Legacy USB Support Enabled] USB 2.0 Controller Mode [HiSpeed] BIOS EHCI Hand-Off [Enabled] > USB Mass Storage Device Configuration	 Select Screen Select Item Change Option F1 General Help F10 Save and Exit ESC Exit
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Hardware Health Configuration

This menu shows the hardware monitor configuration settings. Select an item then press <Enter> to display the configuration options.

CPUFan Mode Setting

It allows you to configure the smart fan feature. You can manually turn on the CPU fan or set the target CPU temperature at which the CPU fan will start running if the fan is not yet turned on. Refer to *Motherboard Layout* on Chapter 3 *Block Diagram* for CPU fan connectors.

SysFan Mode Setting

It allows you to configure the smart fan feature. You can manually turn on the system fan or set the target system temperature at which the system fan will start running if the fan is not yet turned on. Refer to *Motherboard Layout* on Chapter 3 *Block Diagram* for system fan connectors.

tion	4	Fan confiruration
[Full Speed [Full Speed	1 1	mode setting
:68°C/154°F :32°C/89°F :39°C/102°F :39°C/102°F		
:9371 RPM :N/A :9371 RPM :8878 RPM		 ← Select Screen ↑↓ Select Item
:1.236 V :12.012 V :-12.463 V :3.435 V :5.107 V	Ţ	+- Change Option F1 General Help F10 Save and Exit ESC Exit
	tion Full Speed Full Speed :66°C/154°F :32°C/102°F :39°C/102°F :39°C/102°F :39°C/102°F :39°C/102°F :39°C/102°F :39°C/102°F :39°C/102°F :120°C :12.012 U :12.012 U :12.012 U :12.463 U :3.435 U :5.107 U	tion IFull Speed 1 Full Speed 1 :68°C/154°F :32°C/80°F :33°C/102°F :39°C/102°F :9371 RPM :N/A :9371 RPM :N/A :9371 RPM :8878 RPM :1.236 U :12.012 U :12.463 U :3.435 U :5.107 U



Bios Settings

USB Mass Storage Device Configuration

In this screen, you can configure the attached USB drive to be used as the system's hard drive.

USB mass storage Device Configuration	Number of seconds
JSB Mass Storage Reset Delay [20 Sec]	USB mass storage
Device #1 T.sonic 310 Emulation Type [Auto]	device after start unit command.
	← Select Screen ↑↓ Select Item
	+- Change Option F1 General Help
	F10 Save and Exit

USB Mass Storage Reset Delay

This option sets the reset timing for the USB Mass Storage to be initialized.

Option	Description
10 Sec	When set to 10 Sec, the BIOS will wait for up to 10
	seconds for the USB flash drive to initialize.
20 Sec	When set to 10 Sec, the BIOS will wait for up to 10
	seconds for the USB flash drive to initialize.
30 Sec	When set to 10 Sec, the BIOS will wait for up to 10
	seconds for the USB flash drive to initialize.
40 Sec	When set to 10 Sec, the BIOS will wait for up to 10
	seconds for the USB flash drive to initialize.

Emulation Type

USB Emulation refers the system being able to boot to a USB drive. Normally if this option is not enabled, any attached USB drive will not become available until a USB compatible operating system is fully booted with all USB drivers loaded. When this option is enabled, any attached USB drive can boot the system even when there is no USB drivers loaded on the system. Set this value to allow the system to select the Emulation type for a USB drive.

Option	Description
Auto	Set this value to allow the system to automatically
	detect a USB drive emulation type.
Floppy	Set this value to allow the system to select floppy
	emulation type.
Hard Disk	Set this value to allow the system to select hard
Drive	disk drive emulation type.

BIOS SETUP UTILITY	
Advanced	
USB Mass Storage Device Configuration	Number of seconds
USB Mass Storage Reset Delay [20 Sec]	USB mass storage
Device #1 T.sonic 310 Emulation Type [Auto]	unit command.
	← Select Screen
	↑↓ Select Item +- Change Option
	F1 General Help F10 Save and Exit
	ESC Exit
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Advanced	
Configure Remote Access type and parameters Remote Access [Enabled] Serial port number [COH1] Base Address, IRQ [3F8h, 4] Serial Port Hode [09600 8,n,1] Flow Control [None] Redirection After BIOS POST [Always] Terminal Type [ANS1] UT-UTF8 Combo Key Support [Enabled] Sredir Memory Display Delay [No Delay]	 Select Remote Access type. Select Screen Select Item Change Option General Help F10 Save and Exit ESC Exit

Bios Settings

Remote Access Settings

You can use this screen to select options for the Remote Access Configuration. Use the up and down <Arrow> keys to select an item. Use the <Plus> and <Minus> keys to change the value of the selected option. The settings are described on the following pages. The screen is shown at right.

Configure Remote Access type a	nd parameters	Select Remote Access
Remote Access Serial port number Base Address, IRQ Serial Port Mode Flow Control Redirection After BIOS POST Terminal Type UT-UTF8 Combo Key Support Sredir Memory Display Delay	[Enabled] [COH1] [3F8h, 4] [09600 8.n,1] [None] [A luays] [ANSI] [Enabled] [No De lay]	 type. * Select Screen * Select Iten * Change Option F1 General Help F10 Save and Exit ESC Exit

Remote Access

You can disable or enable the BIOS remote access feature here.

Option	Description
Disabled	Set this value to prevent the BIOS from using
	Remote Access.
Serial	Set the value for this option to Serial to allow
	the system to use the remote access feature.
	The remote access feature requires a dedicated
	serial port connection.

BIOS SETUP UTILITY		
Main Advanced Boot Security Exit		
Advanced Settings	Configure the IDE	
WARNING: Setting wrong values in below sections may cause system to malfunction. > IDE Configuration > SuperIO Configuration > Hardware Health Configuration > USB Configuration > Remote Access Configuration > Trusted Computing > Lan ByPass Control	 Select Screen Select Iten Enter Go to Sub Screen F1 General Help F10 Save and Exit ESC Exit 	
Restore on AC Power Loss [Last State] SB LAN PXE ROM [Disabled]		
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TCG/TPM SUPPORT INol Clearing the TPM IPress E	in BIOS
Clearing the TPM IPress E	nter]
	← Select Screen ↑↓ Select Item
	+- Change Option F1 General Helm
	F10 Save and Exit

Serial Port Number

Select the serial port you want to use for console redirection. You can set the value for this option to either COM1 or COM2.

Option	Description
115200 8,n,1	Set this value to allow you to select 115200 as
	the baud rate (transmitted bits per second) of
	the serial port.
57600 8,n,1	Set this value to allow you to select 57600 as the
	baud rate (transmitted bits per second) of the
	serial port.
19200 8,n,1	Set this value to allow you to select 19200 as the
	baud rate (transmitted bits per second) of the
	serial port

Trusted Computing

In this screen, you can configure the TCG (Trusted Computing Group) and TPM (Trusted Platform Module) setting.

TCG/TPM Support

This option lets you turn on or off of the TCG/TPM (Trusted Computing Group/Trusted Platform Module) support).

Clearing the TPM

Press Enter to clear the TPM. Clearing the (TPM) resets the TPM to an unowned state. After clearing the TPM, you

Bios Settings

need to complete the TPM initialization process before using software that relies on the TPM, such as BitLocker Drive Encryption. After the TPM is cleared, it is also turned off.



Note: Clearing the TPM can result in the loss of data. To avoid data loss, make sure you have a backup or recovery method for any data protected or encrypted by the TPM.

Trusted Computing	Enable/Disable TPM	
TCG/TPM SUPPORT	[No]	in BIOS
Clearing the TPM	[Press Enter]	
		← Select Screen ↑↓ Select Item
		+- Change Option
		F10 Save and Exit

Lan Bypass Control

In this screen, you can configure the Lan Bypass functionality.

	BIOS SETUP UTILITY	
Main Advanced Boot	Security Exit	
Advanced Settings	Configure the IDE	
WARNING: Setting wrong valu may cause system t	deo ice (5) .	
 IDE Configuration SuperIO Configuration Hardware Health Configura USB Configuration Renote Access Configurati Trusted Computing Lan ByPass Control 	tion on	
Restore on AC Power Loss SB LAN PXE ROM	 Select Screen Select Iten Enter Go to Sub Screen F1 General Help F10 Save and Exit ESC Exit 	
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Lan Bypass for Port 1 and Port 2

You can activate or deactivate the Lan Bypass ports which are designated to Port 5 and Port 6. For the description of the physical ports that are equipped with the LAN Bypass function, refer to the Front Panel Feature in Chapter 1 Introduction.



Lan Bypass for Port1 and Port 2 when power off

You can enable or disable the automatic activation of hardware Lan Bypass function in the event of a power failure. Hardware Bypass can automatically activate to allow network traffic to continue.

Restore on AC Power Loss

This option lets you set the state of the system when it has just recovered from a power outage.

Option	Description
Power Off	When setting to Power Off, the system goes into
	"off state" after an AC power interruption.
Power On	When setting to Power on, the system turns on
	automatically after a power interruption
Last State	When setting to Last State, the system goes
	into whatever the state was before the power
	interruption.





SB LAN PXE ROM

This option let you enable or disable the LAN Preboot eXecution Environment which allows booting computers by using a network interface independently of available data storage devices. Select from the listed LAN ports to enable this function. SB LAN means the Management port ; Lan 1 to 6 means the Gigabit Ethernet ports 1 to 6. For the description of the physical ports, refer to the *Front Panel Feature* in *Chapter 1 Introduction*.

Bios Settings

Boot Setup

Select the Boot tab from the setup screen to enter the Boot BIOS Setup screen. You can select any of the items in the left frame of the screen, such as Boot Device Priority, to go to the sub menu for that item. You can display an Boot BIOS Setup option by highlighting it using the <Arrow> keys. All Boot Setup options are described in this section. Select an item on the Boot Setup screen to access the sub menu for:

- Boot Settings Configuration
- Boot Device Priority
- USB Drives

Main	Advanced	Boot	BIOS SETU Security	P UTILITY Exit	
Boot S	lettings				Configure Settings
▶ Boot	: Settings Co	mfigurat	ion		— during system Boot.
► Boot ► USB	Device Pric Drives	rity			
					 ← Select Screen ↑↓ Select Item
					Enter Go to Sub Scree F1 General Helm
					F10 Save and Exit
					LOC LXII
	v02.61 ((C) Copyr i	ght 1985-200	6, American	Megatrends, Inc.

Boot Settings Configuration

In this screen, you will be able to configure the boot procedures and the related elements.

Quick Boot

Enabling this item allows the BIOS to skip some poweron self-tests (POST) while booting to decrease the time needed to boot the system. When set to [Disabled], BIOS performs the complete series of tests. Select Enabled or Disabled to enable or disable the quick boot

Quiet Boot

Enabling this item allows the BIOS to suppress the messages displayed during the POST.

AddOn ROM Display Mode

This option controls the display of ROM messages form the BIOS of add-on devices such as the graphics card or the SATA controller during the start-up sequence.

Option	Description		
Force BIOS	When setting to Force BIOS,		
	third-party ROM messages will		
	be forced to display during the		
	start-up sequence.		
Keep Current	When setting to Keep Current,		
	third-party ROM messages will		
	only be displayed if the device's		
	manufacturer has set the add-		
	on device to do so.		

Bootup Num-Lock

This option lets you to enable or disable the function of the NumLock key.

Boot		
oot Settings Configuration	Allows BIOS to skip	
iick Boot iiet Boot IdOn ROM Display Mode optup Num-Lock 3/2 Mouse Support Ait For 'F1' If Error it 'DEL' Message Display iterrupt 19 Capture	Enabled] Disabled] Force BIOS] On] Fauto] Enabled] Enabled] Disabled]	booting. This will decrease the time needed to boot the system.
		 Select Screen Select Item Change Option F1 General Help F10 Save and Exit ESC Exit

PS/2 Mouse Support

It lets you enable or disable support for PS/2 mouse. **Wait for 'F1' if error**

It determines whether the message, "Press F1 to continue" should be displayed when error occurs during start-up.

Option	Description
Enabled	When setting to enabled, the system dis-
	plays the message, "Press F1 to continue"
	and waits for the input. when error occurs
	during start-up.
Disabled	When setting to Disabled, the system will
	not halt the start-up sequence even when
	an error is detected.

Hit 'DEL' Message Display

When this item is set to Enabled, the system displays the message , "Press DEL to run Setup" during the start-up sequence.

Interrupt 19 Capture

Set this value to allow option ROMs such as network controllers to trap BIOS interrupt 19.

Option	Description
Disabled	The BIOS prevents option ROMS from trap-
	ping interrupt 19.
Enabled	The BIOS allows option ROMs to trap inter-
	rupt 19.

Boot Device Priority

Use this screen to specify the order in which the system checks for the device to boot from. To access this screen, select Boot Device Priority on the Boot Setup screen and press <Enter>. The following screen is displayed at right:



Bios Settings

Security Settings

Select Security Setup from the Setup main BIOS setup menu. All Security Setup options, such as password protection and virus protection, are described in this section. To access the sub menu for the following items, select the item and press <Enter>:

		BIOS SETU	P UTILITY	
Main Advanced	Boot	Security	Exit	
Security Settings				Install or Change the
Supervisor Password User Password Change Supervisor I Change User Password Clear User Password	1 :Not] :Not] Password r d 1	Installed Installed		password .
				 Select Screen Select Item Enter Change F1 General Help F10 Save and Exit ESC Exit
u02.51_0		int 1985_200	S. Amorican M	ratronde Tre

Supervisor Password

It indicates whether a supervisor password has been set. If the password has been installed, it displays, "Installed ". If not, it displays, "Not Installed".

The system provides both a Supervisor and a User password. If you use both passwords, the Supervisor password must be set first.

The system can be configured so that all users must enter a password every time the system boots or when Setup is executed, using either the Supervisor password or User password. If you select password support, you are prompted to enter a password with one to six characters.

Type the password on the keyboard. The password does not appear on the screen when typed. Make sure you write it down. If you forget it, you must clear the CMOS ram and reconfigure it.

User Password

It indicates whether a user password has been set. If the password has been installed, it displays, "Installed". If not, it displays, "Not Installed".

Bios Settings

Change Supervisor Password

Select this option and press <Enter> to access the sub menu. You can use the sub menu to change the supervisor password.

BIOS SETUP UTILITY	
Main Advanced Boot <mark>Security</mark> Exit	
Security Settings	Install or Change the
Supervisor Password :Not Installed User Password :Not Installed	- μαρομοτιά -
Change Supervisor Password Change User Password Clear User Password	
	 Select Screen Select Iten Enter Change F1 General Help F10 Save and Exit ESC Exit
uA2 61 (C)Comminst 1985-2006, American M	eratrends. Inc

Change User Password

Select this option and press <Enter> to access the sub menu. You can use the sub menu to change the user password.

Clear User Password

Select this option and press <Enter> to access the sub menu. You can use the sub menu to clear the user password.

Bios Settings

Exit Menu

Select the Exit tab from the setup screen to enter the Exit BIOS Setup screen. You can display an Exit BIOS Setup option by highlighting it using the <Arrow> keys. All Exit BIOS Setup options are described in this section. The Exit BIOS Setup screen is at right.

Saving Changes and Exit

When you have completed the system configuration changes, select this option to leave Setup and reboot the computer so the new system configuration parameters can take effect.

Main Alument Dest Committee Mart	
nath Havancea boot security Exit	
Exit Options Saue Changes and Exit Discard Changes and Exit Discard Changes Load Optimal Defaults	Exit system setup after saving the changes. F10 key can be used for this operation.
	 ← Select Screen ↑↓ Select Item Enter Go to Sub Screen F1 General Help F10 Save and Exit ESC Exit

Discard Changes and exit

Select this option to discard changes and exit.

Discard Changes and Exit Setup Now?

Select this option to quit Setup without making any permanent changes to the system configuration. Select this option and press <Enter>.

Load Optimal Defaults

It automatically loads a complete set of default settings to all Setup options when you Select this option. The Optimal settings are designed for maximum system performance, but may not work best for all computer applications. In particular, do not use the Optimal Setup options if your computer is experiencing system configuration problems. Select Load Optimal Defaults from the Exit menu and press <Enter>.

Appendix A

Appendix A: Programming Watchdog Timer

A watchdog timer is a piece of hardware that can be used to automatically detect system anomalies and reset the processor in case there are any problems. Generally speaking, a watchdog timer is based on a counter that counts down from an initial value to zero. The software selects the counter's initial value and periodically restarts it. Should the counter reach zero before the software restarts it, the software is presumed to be malfunctioning and the processor's reset signal is asserted. Thus, the processor will be restarted as if a human operator had cycled the power.

For sample watchdog code, see *watchdog* folder on the *Driver and Manual CD*



To program the watchdog timer, you must write a program which writes I/ O port address 443 (hex). The output data is a value of time interval. The value range is from 01 (hex) to 3E (hex), and the related time interval is 1 sec. to 62 sec.

Data Time Interval

01 1 sec.

02 2 sec.

03 3 sec.

04 4 sec.

..

...

3E 62 sec.

After data entry, your program must refresh the watchdog timer by rewriting the I/O port 443 (hex) while simultaneously setting it. When you want to disable the watchdog timer, your program should read I/O port 443 (hex).

For sample watchdog code, see *watchdog* folder on the *Driver and Manual CD*

Appendix B

Appendix B: Setting up Console Redirections

Console redirection lets you monitor and configure a system from a remote terminal computer by re-directing keyboard input and text output through the serial port. This following steps illustrate how to use this feature.

- 1. Connect one end of the console cable to console port of the system and the other end to serial port of the Remote Client System.
- 2. Configure the following settings in the BIOS Setup menu for FW-7580: Please refer to the *Remote Access Settings* on Chapter 4 *BIOS Settings*.

BIOS > Advanced > Remote Access Configuration > Serial Port Mode > [115200, 8, n, 1]

- 3. Configure Console Redirection on the client system. The following illustration is an example on Windows platform:
 - a. A. Click the start button, point to Programs > Accessories > Communications and select Hyper Terminal.
 - b. B. Enter any name for the new connection and select any icon.
 - c. Click OK.
 - d. From the "Connect to". Pull-down menu, select the appropriate Com port on the client system and click OK.
 - e. Select 9600 for the Baud Rate, None. for Flow contorl, 8 for the Data Bit, None for Parity Check, and 1 for the Stop Bit.

Appendix C

Programming the LCM

Appendix C: Digital Input/Output Control on the GPIO port

The LCD panel module (LCM) is designed to provide realtime operating status and configuration information for the system. For sample LCM code, see *LCM* foler on the *Driver and Manual CD*. The driver and the program library can also be found in the folder.

LCM & KeyPad Function Libary For Linux

File: LLCM1

Copy LCM1.O to your make tool directory.

Ex. if your test program file name is 'LLCM2

Compile: 'gcc LLCM1 -o LLCM2 LLCM2.c'

then switch to a root account to run ./LLCM2 for excution.

Function:

Clear_LCM();

=>This Function is Clear the LCD Module.

=>Direct write the function to your program.

Read_KeyPad();

=>This Function get the KeyPad number if user pressed key.

=>Direct write function to your program.

Ex.

int a;

a=Read_KeyPad();

Return Value: "1"=>The Upper Key

"2"=>The Down Key

"3"=>The Enter Key

```
"4"=>The ESC Key
```

3.Show_Data(int Dp_Type1,int Dp_Type2,int Dp_Type3,int Dp_Type4, char *Showdata1, char *Showdata2);

=>Show string Function.

=>Dp_type1 => Entry Mode Set

=>Dp_type2 => Display On/Off

=>Dp_type3 => Shift

=>Dp_type4 => Set Function

Please refer the Data Sheet about LCM and Use Decimal to input

=>Showdata1 & Showdata2 are the strings that you want to show.

=>Showdata1 Shown on Line1 Limited between 20 Character

=>Showdata2 Shown on Line2 Limited between 20 Character

Ex.

Show_data(0,15,0,56,"1234","5678");

Appendix D

Appendix D: Programming LAN Bypass

The bypass function is used to link two independent Ethernet ports when the system crash or powers off. This means if your system is equipped with a LAN Bypass function, a condition in your system will not interrupt your network traffic. There are typically two communication states for the bypass function, one is "Normal" state and another is "Bypass" state. Lanner provides three methods for enabling the LAN Bypass function:

- When the system powers off, it can be forced to enable the LAN Bypass function through the BIOS settings.(See BIOS Settings)
- 2. User can enable or disable the LAN Bypass function which is Controlled by GPIO by programming.
- 3. A watchdog timer can be used to control the LAN Bypass function by programming.

Please refer to the LAN_Bypass_Watchdog folder on the Driver and Manual CD.

To compiler:

gcc wdbp.c -o wdbp

then switch to a root account to run ./LLCM2 for excution:

./wdbp

For sample LAN bypass code, please see the LAN_Bypass folder on the Driver and Manual CD.

Fro a description of the physical LAN ports equipped with this function, refer to *Front Panel Features* in *Chapter 1 Introduction*.