

IA31 Motherboard

Ultra slim SBC w/ Intel[®]ATOM N270 1.6GHz Processor, VGA, LCD, Giga Ethernet, and Mini-PCI interface.

USER MANUAL Version 1.0

IMPORTANT NOTICE : The Euro CLS IA31 motherboard can be used for a large range of panel PC's from 8.4" to 42".

In order to know the complete range of products we propose, please clic this link :

http://www.eurocls.com/product/Panel_PC/Atom_N270/



FCC Statement



This device complies with part 15 FCC rules. Operation is subject to the following two conditions :

• This device may not cause harmful interference.

• This device must accept any interference received including interference that may cause undesired operation.

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 him own expense.

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Warranty

We warrant that each of its products will be free from material and workmanship defects for a period of one year from the invoice date. If the customer discovers a defect, We will, at its option, repair or replace the defective product at no charge to the customer, provided it is returned during the warranty period of one year, with transportation charges prepaid. The returned product must be properly packaged in its original packaging to obtain warranty service.

If the serial number and the product shipping data differ by over 30 days, the in-warranty service will be made according to the shipping date. In the serial numbers the third and fourth two digits give the year of manufacture, and the fifth digit means the month (e. g., with A for October, B for November and C for December).

For example, the serial number 1W07Axxxxxx means October of year 2007.

Packing List

Before using this Motherboard, please make sure that all the items listed below are present in your package :

- ► IA31 Motherboard
- ► IA31 SBC User Manual
- ➢ HDD IDE Cable
- ➢ User's Manual & Driver CD

If any of these items are missing or damaged, contact your distributor or sales representative immediately.

Customer Service

We provide service guide for any problem as follow steps : First, visit the website at to find the update information about the product. Second, contact with your distributor, sales representative, or our customer service center for technical support if you need additional assistance. You may have the following information ready before you call :

- Product serial number
- Peripheral attachments
- Software (OS, version, application software, etc.)
- Description of complete problem
- > The exact wording of any error messages

In addition, free technical support is available from our engineers every business day. We are always ready to give advice on application requirements or specific information on the installation and operation of any of our products. Please do not hesitate to call or e-mail us.

Safety Precautions Warning!



Always completely disconnect the power cord from your chassis whenever you work with the hardware. Do not make connections while the power is on. Sensitive electronic components can be damaged by sudden power surges. Only experienced electronic personnel should open the PC chassis.

• Caution!



Always ground yourself to remove any static charge before touching the CPU card. Modern electronic devices are very sensitive to static electric charges. As a safety precaution, use a grounding wrist strap at all times. Place all electronic components in a static-dissipative surface or static-shielded bag when they are not in the chassis.

Safety and Warranty

- 1. Please read these safety instructions carefully.
- 2. Please keep this user's manual for later reference.
- 3. Please disconnect this equipment from any AC outlet before cleaning. Do not use liquid or spray detergents for cleaning. Use a damp cloth.
- 4. For pluggable equipment, the power outlet must be installed near the equipment and must be easily accessible.
- 5. Keep this equipment away from humidity.
- 6. Put this equipment on a reliable surface during installation. Dropping it or letting it fall could cause damage.
- 7. The openings on the enclosure are for air convection. Protect the equipment from overheating. DO NOT COVER THE OPENINGS.
- 8. Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.
- 9. Position the power cord so that people cannot step on it. Do not place anything over the power cord.
- 10. All cautions and warnings on the equipment should be noted.
- 11. If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient over-voltage.
- 12. Never pour any liquid into an opening. This could cause fire or electrical shock.
- 13. Never open the equipment. For safety reasons, only qualified service personnel should open the equipment.
- 14. If any of the following situations arises, get the equipment checked by service personnel:
 - A. The power cord or plug is damaged.
 - B. Liquid has penetrated into the equipment.
 - C. The equipment has been exposed to moisture.
 - D. The equipment does not work well, or you cannot get it to work according to the user's manual.
 - E. The equipment has been dropped and damaged.
 - F. The equipment has obvious signs of breakage.
- 15. Do not leave this equipment in an uncontrolled environment where the storage temperature is below -20° C (-4° F) or above 60° C (140° F). It may damage the equipment.

Revision History

Version	Date	Note	Author
1.0	2009.03.25	✓ Initial Draft	Aladin Huang

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General Information

This chapter includes IA31 Motherboard background information.

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Sections include:

- Introduction
- Feature
- Motherboard Specification
- Function Block
- Board Dimensions

Chapter 1 General Information

1.1 Introduction

IA31 SBC integrates Intel 945GSE North Bridge and Intel ICH7M South Bridge which are designed for use with Intel's mobile platform. Intel's 945GSE platform delivers the performance and high scalability cutting-edge embedded computing application.

In peripheral connectivity, IA31 SBC with Mini-PCI I/O ports, Giga LAN, two SATA connectors, and four Hi-Speed USB connectors.

Thus, IA31 SBC is designed to satisfy most of the applications in the industrial computer market, such as Gaming, POS, KIOSK, Industrial Automation, and Programmable Control System. It is a compact design to meet the demanding performance requirements of today's business and industrial applications.

1.2 Feature

- Supports Intel® Atom N270 1.6GHz processors
- System memory up to 2GB DDR2 400/533, 1x SO-DIMM
- Integrated Intel 945GSE + ICH7M Chipset
- Intel® GMA950 graphic engine Integrated 224MB shared supports VGA
- Gigabit Ethernet
- 1 x Mini PCI, 4 x COM, 4 x USB2.0, 1 x CF 2 x SATA, 4DI/ 4DO

1.3 Motherboard Specifications

CPU Type	Intel® Atom N270 1.6GHz Processor
CPU FSB	533 MHz
Chipset	Intel 945GSE / ICH7M
BIOS	AMI 4Mbit Flash
VGA	Intel® GMA950 Graphic engine
	224MB shared with system memory
LVDS	Intel® 82945GSE built in single- or Dual-channel panel
	support up to 1600 x 1200, 24bit
LAN	1 x Giga LAN (Realtek RTL8111B Controller)
Memory Type	1 x DDR2 DIMM socket, supports up to 2GB DDR2
метногу туре	400/533 SDRAM
LPC I/O	Winbond W83627EHG
Keyboard/Mouse	1 x PS/2 Keyboard/Mouse connectors
IDE Interface	Dual channels; supports Ultra DMA 33/66/100
Sound	Realtek ALC655 (Line-in, Line-out, Mic in)
USB	4 ports, USB 2.0 (2 x USB Connector, 2 x USB pin-header)
	1 x +12V DC-IN Jack
	1 x PS/2 connector for keyboard/mouse
Edge Connectors	1 x DB9 for COM3
Euge connectors	1 x VGA out connector
	1 x Gigabit LAN RJ-45 + 1 x dual USB stack connector
	1 x 44 pins box-header
	2 x SATA connector for SATAI/II 3.0 Gb/s
	1 x 13pins pin-header for Front Panel2
	1 x 10pins pin-header for Front Panel1(2x5)
	1 x 3pins pin-header for CPU Fan
	1 x 3pins pin-header for System FAN
	1 x 8pins pin-header for 5V/12V external power
On Board	1 x 2pins pin-header for 5V external power
Pin-Header	1 x 2pins pin-header for 12V external power
Connectors	1 x 4pins ATX 12V connector
00111001013	2 x 2pins pin-header for Front Audio (with Amp.)
	1 x 8pins pin-header for USB 3/4(2x4)
	1 x 10pins pin-header for COM3(RS232)(2x5)
	1 x 20pins pin-header for COM1/2(RS232)(2x10)
	1 x 40pins DF13 Connector for LVDS
	1 x 3pins digital panel backlight brightness controller
	1 x 7pins digital panel backlight controller
	1 x 10pins pin-header for DIO(2x5)
Power Connector	Input: 4-pin ATX 12V Power input
Expansion Slots	1 x Mini-PCI
Form Factor	Ultra Slim Board
Dimensions	146mm x 126.6mm
2	Operating temperature: 0 deg. C to 60 deg. C
Mechanical &	Operating Humidity: 30 ~ 90% Relative humidity,
environmental	non-condensing
Christian	Certification: CE, FCC, RoHS
L	

1.4 Function Block



1.5 Board dimensions



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Installations

This chapter provides information on how to use the jumps and connectors on IA31 Motherboard. The Sections include:

- Memory Module Installation
- I / O Equipment Installation
- Setting the Jumpers
- Connectors on IA31 Motherboard

Chapter 2 Installations

2.1 Memory Module (DIMM) Installation

IA31 motherboard supports one 200-pin SODIMM slot. The socket supports up to 2GB DDR2 400/533 SDRAM.

Step.2. Press downwards on SODIMM until the retaining clips at both ends fully snap back in place and the SODIMM is properly seated.



➢ Caution!



The SODIMM only fits in one correct orientation. It will cause permanent damage to the development board and the SODIMM if the SODIMM is forced into the slot at the incorrect orientation.

2.2 I/O Equipment Installation

2.2.1 12V DC-IN

The Motherboard allows plugging 12V DC-IN jack on the board without another power module converter under powered consumption by Intel Atom N270 1.6GHz processor.

2.2.2 PS/2 Keyboard and PS/2 Mouse

The Motherboard provides one PS/2 interface. The PS/2 connector supports Keyboard and Mouse.

2.2.3 Serial COM ports

Four RS-232 connectors build in the rear I/O. Fourth optional COM ports support RS-232. When an optional touch-screen is ordered with PPC, serial com port can connect to a serial or an optional touch-screen. One optional COM port supports RS232/422/485 choice through jumper setting.

2.2.4 External VGA

The Motherboard has one VGA port that can be connected to an external CRT/ LCD monitor. Use VGA cable to connect to an external CRT / LCD monitor, and connect the power cable to the outlet. The VGA connector is a standard 15-pin D-SUB connector.

2.2.5 Ethernet interface

The Motherboard is equipped with Realtek RTL8111B chipsets which is fully compliant with the 10/100/1000 Mbps Ethernet protocol compatible. It is supported by major network operating systems. The Ethernet ports provide two standard RJ-45 jacks.

2.2.6 USB ports

Four USB devices (Two with pin headers) may be connected to the system though an adapter cable. Various adapters may come with USB ports. USB usually connect the external system to the system. The USB ports support hot plug-in connection. Whatever, you should install the device driver before you use the device.

2.2.7 Audio Jack (Pin-header)

The Audio 5.1 channel capabilities are provided by a Realtek ALC655 chipset supporting digital audio outputs. The audio interface includes Mic-in,: line-in and line-out.

2.3 Jumpers and Connectors

TOP



2.4 Jumper Setting

A pair of needle-nose pliers may be helpful when working with jumpers. If you have any doubts about the best hardware configuration for your application, contact your local distributor or sales representative before you make any changes. Generally, you simply need a standard cable to make most connections.

The jumper setting diagram is as below. If a jumper shorts pin 1 and pin 2, the setting diagram is shown as the right one.



The following tables list the function of each of the board's jumpers.

Label	Function	Note
JP1	Clear CMOS	3x1 header, pitch 2.0mm
JP2	CF CARD PRIORITY	3x1 header , pitch 2.0mm
JP6	RS232 / RS422 / RS485 Selector	2x3 header , pitch 2.0mm
JP7	LVDS VOLTAGE	2x3 header , pitch 2.0mm

2.4.1 JP1: Clear CMOS

User must make sure the power supply to turn off the power supply before setting Clear CMOS. Users remember to setting jumper back to Normal before turning on the power supply. Default: 2 short 3.



Pin No.	Functions
1 Short 2	Clear CMOS
2 Short 3	Normal

2.4.2 JP2 : CF Card Priority

JP901 can be configured to operate CF Card Priority in Master/Slave mode.



2.4.3 JP6: RS232 / RS422 / RS485 Selector

The jumper can be configured to operate COM2 in RS-232/422/485 mode. And the setting must be cooperated with the 2.4.3 settings.



Pin No.	Functions
1 Short 2	RS232
3 Short 4	RS422
5 Short 6	RS485

2.4.4 JP7 : LCD Panel Voltage Select

JP7 can be configured to operate in 3.3Volts / 5Volts / 12Volts mode.



Pin No.	Functions
1 Short 2	3.3Volts Selected
3 Short 4	5Volts Selected
5 Short 6	12Volts Selected

2.5 Connectors and Pin Assignment

The table below lists the function of each of the board's connectors.

Label	Function	Note
CON1	LVDS LCD Output Connector	DF13-40DP-1.25V
CON20	Digital Panel Backlight Brightness Control	3x1 header, pitch 2.54mm
CON3	Digital Panel Backlight Inverter Power	7x1 header, pitch 2.54mm
PSKBM1	PS2 Keyboard/Mouse Connector	Mini-DIN
VGA	VGA Output	15pin VGA
CON12(Right)	COM1 for RS232	2x5 header
CON12(Left)	COM2 for RS232	2x5 header
CON14	COM2 for RS422/485	1x5 header
J8	Audio Jack	3 Audio I/O
IDE1	IDE Connector	44Pin IDE Conn.
USB1	USB PIN HEADER	4x2 Pin Header, pitch 2.0mm
NB_FAN1	FAN CONNECTOR	3x1 Pin Header
CPU_FAN1	FAN CONNECTOR	3x1 Pin Header
PANEL1	System Function Connector	5x2 header ,pitch 2.0mm
PANEL2	System Function Connector	1x13 Pin Headers
CON10	12V External Power	2x1 header, pitch 2.0mm
CON11	5V External Power	2x1 header, pitch 2.0mm
CON19	12V/5V External Power	4x2 header ,pitch 2.54mm
ATX 12V 1	12V DC Jack	4 Pin Jack
CON6	Digital I/O	2x5 Pin header
CON16	COM3 for RS232	2x5 header

2.5.1 CON1: LVDS Connector



Pin Number	Signal Name	Pin Number	Signal Name
1	LCDVDD	2	LVDS_LTX0-
3	LCDVDD	4	LVDS_LTX0+
5	LCDVDD	6	LVDS_LTX1-
7	GND	8	LVDS_LTX1+
9	GND	10	LVDS_LTX2-
11	GND	12	LVDS_LTX2+
13	GND	14	LVDS_LCLK-
15	GND	16	LCDS_LCLK
17	GND	18	LVDS_LTX3-
19	GND	20	LVDS_LTX3+
21	GND	22	LVDS_UTX0-
23	GND	24	LVDS_UTX0+
25	GND	26	LVDS_UTX1-
27	GND	28	LVDS_UTX1+
29	GND	30	LVDS_UTX2-
31	GND	32	LVDS_UTX2+
33	GND	34	LVDS_UCLK-
35	GND	36	LVDS_UCLK
37	GND	38	LVDS_UTX3-
39	GND	40	LVDS_UTX3+

2.5.2 CON20: Digital Panel Backlight Brightness Control

	Pin No.	SYMBOL
<u>-</u> /	1	VCC
୬_ [−]	2	Black Light Control
501	3	GND

	Pin Number	Signal Name
0	1	+12V
0	2	+12V
\odot	3	+12V
	4	GND
õ	5	Black Light Control
	6	GND
	7	Black Light EN 5V

2.5.3 CON3: Digital Panel Backlight Inverter Power

2.5.4 PSKBM1: PS2 Keyboard/Mouse Connector

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Signal Name	Keyboard	Mouse	Signal Name
Keyboard data	1	1	Mouse data
N.C.	2	2	N.C.
GND	3	3	GND
5V	4	4	5V
Keyboard clock	5	5	Mouse clock
N.C.	6	6	N.C.

2.5.5 CON12: D-SUB Dual Output

CON12 is connecter for COM1 and COM2. COM1 is from pin 11 pin to pin 20), COM2 is from pin 1 to pin10.

Pin No.	SYMBOL	Pin No.	SYMBOL
20	GND	19	GND
18	NRI1A	17	NDTR1A
16	NCTS1A	15	NTXD1A
14	NRTS1A	13	NRXD1A
12	NDSR1A	11	NDCD1A
10	GND	9	GND
8	NRIA	7	NDTRA
6	NCTSA	5	NTXDA
4	NRTSA	3	NRXDA
2	NDSRA	1	NDCDA
-			

2.5.6 CON16: D-SUB Dual Output

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The CON16 is COM3 port, support standard RS-232.

2		Pin	SYMBOL	Pin	SYMBOL
4		2	NDSR2	1	NDCD2
6		4	NRTS2	3	NSIN2
8		6	NCTS2	5	NSOUT2
10	0 0 0 9	8	NRI2	7	NDTR1A
		10	GND	9	GND

2.5.7 IDE1: IDE Connector

	Pin No.	SYMBOL	Pin No.	SYMBOL
1 2	1	RESET	2	GND3
	3	DD7	4	DD8
	5	DD6	6	DD9
	7	DD5	8	DD10
	9	DD4	10	DD11
	11	DD3	12	DD12
	13	DD2	14	DD13
	15	DD1	16	DD14
	17	DD0	18	DD15
	19	GND1	20	NC
	21	DREQ	22	GND4
	23	DIOW#	24	GND5
	25	DIOR#	26	GND6
	27	IO_RDYD	28	CSEL
	29	DACK#	30	GND7
	31	IRQ	32	IOCS16#
	33	DA1	34	CBL_ID#
	35	DA0	36	DA2
	37	DCS#1	38	DCS#3
44	39	DASP#	40	GND8
	41	+5V1	42	+5V2
	43	GND	44	NC

2.5.8 USB1: USB Pin Header



Pin Number	Signal Name	Pin Number	Signal Name
2	USBVCC	1	USBVCC
4	USB_P-	3	USB_P-
6	USB_P+	5	USB_P+
8	GND	7	GND

2.5.9 NB_FAN1/CPU_FAN1: Fan Connector



2.5.10 PANEL1: Front Panel System Function Connector

-	Pin	SYMBOL	Pin	SYMBOL
	2	HD_LED+	1	PW_LED+
	4	HD_LED-	3	PW_LED-
	6	RT_BT1	5	PW_BT1
	8	RT_BT2	7	PW_BT2
22.4	10	5VSB	9	RSEV

2.5.11 Panel L2: System Function Connector JST-B13B-PH-KL

	1 13
Pin No.	SYMBOL
1	PWR Button
2	Ground
3	Reset Button
4	HD Led
5	5V
6	HD LED#
7	PWR LED
8	5V
9	Ground
10*	Volume Control +
11*	Volume Control -
12*	Brightness Control +
13*	Brightness Control -

*Not Default Setting

2.5.12 CON10/CON11/CON19: External Power



Pin 1 VCC Pin 2 GND

CON10

CON11

Pin 2 +12V Pin 1 +12V Pin 3 GND Pin 4 GND D Pin \$ GND Pin 6 GND Pin 7 VCC Pin 8 VCC

CON19

2.5.13 ATX12V 1: 12V DC Connector



2.5.14 CON6: Digital I/O Connector

2 4 6 8 10			1 3 5 7 9
------------------------	--	--	-----------------------

Pin	SYMBOL	Pin	SYMBOL
2	Vcc	1	GND
4	Out1	3	Out3
6	Out0	5	Out2
8	IN1	7	IN3
10	IN0	9	IN2

2.5.15 CON14: RS-422 / RS-485 Header

1)	422 RX2-	Pin No.	SYMBOL
2	422 RX2+	1	422 RX2-
30	485TXRX2-	2	422 RX2+
40	485TXRX2+	3	485 TXRX2-
50	Gnd	4	485TXRX2+
J)		5	Gnd

2.5.16 Audio Function

Pin	SYMBOL
	Pin-Header
C0~C4	Line in
B1~B4	Line out
A1~A4	Mic in







Graphic Driver Installation

This chapter offers information on the chipset software Installation utility

- Installation of Graphic Driver
- Panel Resolution Setting

Chapter 3 Graphic Driver Installation

3.1 Standard CMOS Feature

IA31 Motherboard is equipped with Intel 945GSE / ICH7M Companion Device. The Intel Graphic Drivers should be installed first, and it will enable "Video Controller (VGA compatible). Follow the instructions below to complete the installation. You will quickly complete the installation.

Step.1. Insert the CD that comes with the Motherboard. Open the file document "Graphic Driver ".



Step.2. Click on "win2K_xp1429" to execute the setup.



Step.3. Click on "Next " to install Driver.



Step.4. Click on "Next " to install Driver.



Step.5. Click on "Yes " to agree License.



Step.6. Click on "Next " to install Driver.

(intel)	Readme File Information Refer to the Readme file below to view the system requirements and installation information. Press the Page Down key to view the rest of the file.
	* * * * * * * * * * * * * * * * * * *
	< Back Next > Cancel Intel(R) Installation Framework

Step.7. Click on "Next " to install Driver.

(intel)	Setup Progress	
	Please wait while the following com	nponents are installed:
	Copying file: igxpun.exe Copying file: difxapi.dll Copying file: IScrNB.bmp Copying file: IScrNBR.bmp Copying file: HDMIENU.dll	
	Creating key: HKLM\System\Curre Creating key: HKLM\System\Curre Creating key: HKLM\SOFTWARE	
	Creating key: HKLM\System\Curre Creating key: HKLM\System\Curre Creating key: HKLM\SOFTWARE Creating key: HKLM\SOFTWARE Installing Driver: Mobile Intel(R) 94 Version: 6.14.10.4820	entControlSet\Services\ialm\Device0\System(entControlSet\Services\ialm\Device1\System(:\Microsoft\Windows\CurrentVersion\Uninstall :\Microsoft\Windows\CurrentVersion\Uninstall !SGM/GU Express Chipset Family

Step.8. Click on "Yes, I want to restart this computer now" to go on.

Intel(R) Graphics	Media Accelerator Driver
(intel)	The setup of the Intel(R) Graphics Media Accelerator Driver is complete.
	You must restart this computer for the changes to take effect, Would you like to restart the computer now?
	 Yes, I want to restart this computer now. No, I will restart this computer later.
	Click Finish, then remove any installation media from the drives.
	Finish Intel(R) Installation Framework

3.2 Panel Resolution Setting

Step.1. Right-click the desktop, and then click Properties.

Step.2. In the Display Properties dialog box, click the Settings tab.

B Device Manager	
File Action View Help	
$\leftarrow \rightarrow $	
 Illiada Computer Disk drives DVD/CD-ROM drives IDE ATA/ATAPI controllers Keyboards Mice and other pointing devices Other devices Mice and other pointing devices Mice and other pointing devices Shernet Controller SM Bus Controller SM Bus Controller SM Bus Controller Sound, video and game controllers System devices System devices Universal Serial Bus controllers 	
🖅 start 😫 Device Manager	🏂 🧐 11:48 AM

Step.3. Click on "Monitor".

ieneral	Adapter	Monitor	Troubleshoot	Color Management
- Monit	or type Digital f	Flat Panel	(640x480)	
				Properties
Monit	or settings			
Scree	en refresh r	ate:		
Use	hardware (default set	ting	¥
Ин	ide modes	that this m	ionitor cannot di	splay
monit		display co	rectly. This may	ct display modes that this lead to an unusable display
	. 96			

Step.4. Click on "Hide modes that this monitor cannot display" to remove this option.

Monitor type — Digital	Flat Panel	(640×480)		
			Propertie	s
Monitor setting	5			
Screen refresh	rate:			
Use hardware	default sei	tting		4
Hide modes	that this n	nonitor cannot d	isplay	
	display co	rrectly. This may	ect display modes that lead to an unusable	

Step.5. Click on "Setting", then could choose 32bit color qualify.





Chipset Driver Installation

This chapter offers information on the chipset software Installation utility

- Installation of Chipset Driver
- Further information
Chapter 4 Chipset Driver Installation

4.1 Standard CMOS Features

Setp.1. Insert the CD that comes with the motherboard. Open the file document "Chipset Driver".



Setp.2. Click on "infinst_auto.exe" to install driver.



Setp.3. Click on "Next" to install driver.



Setp.4. Click on "Yes " to agree License

tel® Chipset Device Software	
Intel® Chipset Device Software	P
You must accept all of the terms of the license agreement in order to continue the setup program. Do you accept the terms? INTEL SOFTWARE LICENSE AGREEMENT (OEM / IHV / ISV Distribution & Single User) IMPORTANT - READ BEFORE COPYING, INSTALLING OR USING. Do not use or load this software and any associated materials (collectively, the "Software") until you have carefully read the following terms and conditions. By loading or using the Software, you agree to the terms of this Agreement. If you do not wish to so agree, do not install or use the Software.	
Please Also Note: * If you are an Original Equipment Manufacturer (OEM), Independent Hardware Vendor (IHV), or Independent Software Vendor (ISV), this complete LICENSE AGREEMENT applies;	
Intel® Installation Frame	work

Setp.5. Click on "Next" to install driver.

tel® Chipset Devi	ce Software			
Intel® Chip Readme File	set Device So Information	ftware		(intel)
Press the Page Down * Product: 1 * Product: 1 * Release: I * Version: 6 * Target Ch: * Date: Marc	lpset#: Q33/G33,	hefile. **************** t Device Sof ion /G31/P35	********** tware	****
<				>
		< Back	Next >	Cancel

Setp.6. Click on "Next" to install driver.

ntel® Chipset Device Software Setup Progress	inte	
Please wait while the following setup operations are perfo	ormed:	
Installing Driver: Intel(R) 82801G (ICH7 Family) USB Univ Version: 8.2.0.1008 Installing Driver: Intel(R) 82801G (ICH7 Family) USB Univ Version: 8.2.0.1008 Installing Driver: Intel(R) 82801G (ICH7 Family) USB Univ Version: 8.2.0.1008 Installing Driver: Intel(R) 82801G (ICH7 Family) USB2 Enl Version: 8.2.0.1008	versal Host Controller - 27CA versal Host Controller - 27CB	

Step.7. Click on "Yes, I want to restart this computer now" to go on.



CHAPTER

Ethernet Driver Installation

This chapter offers information on the Ethernet software installation utility.

- Sections include:
- Introduction
- Installation of Ethernet Driver

Chapter 5 Ethernet Driver Installation

5.1 Introduction

IA31 Motherboard is equipped with the Realtek RTL8111B Gigabit Ethernet controller combines a triple-speed IEEE 802.3 compliant Media Access Controller (MAC) with a triple-speed Ethernet transceiver, PCI Express bus controller, and embedded memory. With state-of-the-art DSP technology and mixed-mode signal technology, it offers high-speed transmission over CAT 5 UTP cable or CAT 3 UTP (10Mbps only) cable. Functions such as Crossover Detection & Auto-Correction, polarity correction, adaptive equalization, cross-talk cancellation, echo cancellation, timing recovery, and error correction are implemented to provide robust transmission and reception capability at high speeds.

The device supports the PCI Express 1.0a bus interface for host communications with power management and is compliant with the IEEE 802.3u specification for 10/100Mbps Ethernet and the IEEE 802.3ab specification for 1000Mbps Ethernet. It also supports an auxiliary power auto-detect function, and will auto-configure related bits of the PCI power management registers in PCI configuration space.

5.1 Installation of Ethernet Driver

The Users must make sure which operating system you are using in the IA31 Motherboard before installing the Ethernet drivers. Follow the steps below to complete the installation of the Realtek RTL8111B LAN drivers. You will quickly complete the installation.

Step.1. Insert the CD that comes with the motherboard. Open the file document "LAN Driver".



Step.2 Click on "Setup" to execute the setup.



Step.3. Click on "Next" to install driver.



Step.3. Click on "Install" to install driver.

Ready to Install the Program The wizard is ready to begin ins	
	Click Install to begin the installation. If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.
InstallShield	K Back [Instal] Cancel

Setp.3. Click on "Finish" and go on.



CHAPTER 9

Audio Driver Installation

This chapter offers information on the Audio software installation utility.

Sections include:Introduction

Installation of Audio Driver

Chapter 6 Audio Driver Installation

6.1 Introduction

The IA31 Motherboard is equipped with the ALC655 is a 16-bit, full-duplex AC'97 Rev. 2.3 compatible six-channel audio CODEC designed for PC multimedia systems, including host/soft audio and AMR/CNR-based designs..

The ALC655 CODEC provides three pairs of stereo outputs with 5-bit volume control, a mono output, and multiple stereo and mono inputs, along with flexible mixing, gain, and mute functions to provide a complete integrated audio solution for PCs.

6.2 Installation of Audio Driver

The users must make sure which operating system you are using in the IA31 Motherboard before installing the Audio drivers. Follow the steps below to complete the installation of the Realtek ALC655 Audio drivers. You will quickly complete the installation.

Step.1. Insert the CD that comes with the motherboard. Open the file document "alc655_driver" and click on "Setup.exe" to execute the setup.



Step.2. Click on "Next" to install driver.



Step.3. Click on "Yes, I want to restart my computer now" to finish installation.



Ľ CHAPTE 7

AMI BIOS Setup

This chapter describes how to set BIOS configuration

Chapter 7 AMI BIOS SETUP

7.1 Starting Setup

Your computer comes with a hardware configuration program called BIOS Setup that allows you to view and set system parameters.

The BIOS (Basic Input / Output System) is a layer of software, called 'firmware', that translates instructions from software (such as the operating system) into instructions that the computer hardware can understand. The BIOS settings also identify installed devices and establish special features.

> ENTERING BIOS SETUP

You can access the BIOS program just after you turn on your computer. Just press the DEL key when the following prompt appears:

Press to enter Setup.

When you press to enter BIOS Setup, the system interrupts the Power-On Self-Test (POST).

When you first enter the BIOS Setup Utility, you will enter the Main setup screen. You can always return to the Main setup screen by selecting the Main tab. There are two Main Setup options. They are described in this section. The Main BIOS Setup screen is shown below.

			BIOS SE	TUP UTILITY		
Main	Advanced	PCIPnP	Boot	Security	Chi	ipset Exit
System	Overview					Use [ENTER], [TAB] or [SHIFT-TAB] to
	ersion :08.0 Version:IA70					select a field. Use [+] or [-] to configure system Time.
opoou	:255MHz :255					
<mark>System</mark> Size	Memory :1016MB					← Select Screen 14 Select Item
System System			[17:3 [Tue	6 : 18] 12/16/2008]		+- Change Field Tab Select Field F1 General Help F10 Save and Exit ESC Exit
	v02.61 (C) Copyr igh	t 1985-2	006, America	n Meç	jatrends, Inc.

The Main BIOS setup screen has two main frames. The left frame dis- plays all the

options that can be configured. Grayed-out options cannot be configured; options in blue can be. The right frame displays the key leg- end.

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.

7.2 System Overview

		BIOS SE	TUP UTILITY		
Main <mark>Advanc</mark> o	ed PCIPnP	Boot	Security	Chi	ipset Exit
System Overvie	ı				Use [ENTER], [TAB] or [SHIFT-TAB] to
AMIBIOS Core Version : Build Version:					select a field. Use [+] or [-] to configure system Time.
Processor					
Speed :255 Count :255	1Hz				
System Memory Size :1010	5MB				← Select Screen 14 Select Item
System Time System Date			6:18] 12/16/2008]		+- Change Field Tab Select Field F1 General Help F10 Save and Exit ESC Exit
v02.1	51 (C) Copyrig	ht 1985-2	006, America	n Meg	gatrends, Inc.

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 must be entered in HH:MM:SS format

7.3 Advanced Setting

CPU Configuration

		BIOS SE	TUP UTILITY			
Main Advanced	PCIPnP	Boot	Security	Chi	ipset	Exit
Advanced Settings					Confi	gure CPU.
WARNING: Setting w may cause						
 CPU Configuration IDE Configuration SuperIO Configuration Hardware Health ACPI Configuration APM Configuration MPS Configuration PCI Express Configuration Smbios Configuration USB Configuration 	m ation Configurat on n n `iguration tion	ion			t↓	Select Screen Select Item Go to Sub Screen General Help Save and Exit Exit

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Press "Enter" to CPU Configuration setting.

BIOS SETUP UTILITY Advanced	
Configure advanced CPU settings Module Version:3F.0E	Disabled for WindowsXP
Manufacturer:Intel Frequency :255MHz FSB Speed :532MHz Cache L1 :0 KB Cache L2 :0 KB Ratio Actual Value:12	
Max CPUID Value Limit [Disabled] Execute-Disable Bit Capability Hyper Threading Technology [Enabled]	 ← Select Screen ↑↓ Select Item +- Change Option F1 General Help F10 Save and Exit ESC Exit
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CPU configuration differs from writing an executable program. It is equivalent to setting dip switches or jumpers on a circuit board. The executing program has no way

to change this configuration.

IDE/SATA Configuration

		BIOS SE	TUP UTILITY			
Main Advanced	PCIPnP	Boot	Security	Ch	ipset	Exit
Advanced Settings					Confi devic	gure the IDE
WARNING: Setting wr may cause :		uevic	e (57 -			
 CPU Configuration IDE Configuration SuperIO Configuration 	tion					
 Hardware Health C ACPI Configuratio APM Configuration MPS Configuration 		ion				
 PCI Express Config Smbios Configurat 					_t↓	Select Screen Select Item
▶ USB Configuration					Enter F1 F10 ESC	Go to Sub Screen General Help Save and Exit Exit
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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] : [Hard Disk] : [Not Detected]	
Hard Disk Write Protect IDE Detect Time Out (Sec) ATA(PI) 80Pin Cable Detection		 Select Screen Select Item Change Option General Help Save and Exit ESC Exit

IDE Channel IO Master

While entering setup, the BIOS automatically detects the presence of IDE devices. This displays the status of IDE device auto-detection.

IDE Channel IO Slave

While entering setup, the BIOS automatically detects the presence of IDE devices. This displays the status of IDE device auto-detection.

Туре

Select the type of IDE drive. Setting to Auto allows automatic selection of the appropriate IDE device type. Select CDROM if you are specifically configuring a CD-ROM drive. Select ARMD (ATAPI Removable Media Device) if your device either is ZIP, LS-120, or MO drive. The options: [Not Installed], [Auto], [CD/DVD], [ARMD].



LBA/Large Mode

Enabling LBA causes Logical Block Addressing to be used in place of Cylinders, Heads and Sectors. The options: [Disabled], [Auto].

BIOS SETUP UTILITY Advanced	
Primary IDE Master	Disabled: Disables LBA
Device :Hard Disk Vendor :Hitachi HTS541680J9AT00 Size :80.0GB LBA Mode :Supported Block Mode:16Sectors PIO Mode :4 Async DMA :MultiWord DMA-2 Ultra DMA :Ultra DMA-2 S.M.A.R.T.:Supported Disabled Auto	Auto: Enables LBA Mode if the device supports it and the device is not already formatted with LBA Mode disabled.
TypeIAutolLBA/Large ModeIAutolBlock (Multi-Sector Transfer)IAutolPIO ModeIAutolDMA ModeIAutolS.M.A.R.T.IAutol32Bit Data TransferIDisabled	 Select Screen Select Item Change Option General Help Save and Exit ESC Exit
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Block (Multi-Sector Transfer)

Controls enabling of multi-sector transfer, if supported. The options: [Disabled],[Auto].

	BIOS SETUP UTILITY	
Advanced		
Primary IDE Master		Disabled: The Data transfer from and to
Device :Hard Disk		the device occurs one
Vendor :Hitachi HTS54168	0J9AT00	sector at a time.
Size :80.0GB		Auto: The Data
LBA Mode :Supported Block Mode:16Sectors		transfer from and to the device occurs
PIO Mode :4		multiple sectors at a
Async DMA :MultiWord DMA-2	— Options —	time if the device
Ultra DMA :Ultra DMA-2	Disabled	supports it.
S.M.A.R.T.:Supported	Auto	
Туре	[Auto]	← Select Screen
LBA/Large Mode	[Auto]	↑↓ Select Item
Block (Multi-Sector Transfe		+- Change Option
PIO Mode DMA Mode	[Auto] [Auto]	F1 General Help F10 Save and Exit
S.M.A.R.T.	[Auto]	ESC Exit
32Bit Data Transfer	[Disabled]	LOU LATU
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PIO Mode

Indicates the type of PIO (Programmed Input/Output).

Advanced	
Primary IDE Master	Select PIO Mode.
PIO Mode DMA Mode S.M.A.R.T.	Options

DMA Mode

Indicate the type of Ultra DMA. The options: [Auto], [SWDMan], [MWDMAn], [UDMAn].

	BIOS SETUP UTILITY	
Advanced		
Primary IDE Master		Select DMA Mode.
Device :Hard Disk Vendor :Hitachi HTS541680 Size :80.06B LBA Mode :Supported Block Mode:16Sectors PIO Mode :4 Async DMA :MultiWord DMA-2 Ultra DMA :Ultra DMA-2 S.M.A.R.T. :Supported Type LBA/Large Mode Block (Multi-Sector Transfe PIO Mode DMA Mode S.M.A.R.T. 32Bit Data Transfer	Options — Auto SWDMA0 SWDMA1 SWDMA2 MWDMA2 MWDMA1 MWDMA2 UDMA0 UDMA0 UDMA1	Auto : Auto detected SWDMAn: SingleWordDMAn MWDMAn: MultiWordDMAn UDMAn : UltraDMAn + Select Screen t4 Select Item +- Change Option F1 General Help F10 Save and Exit ESC Exit
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S.M.A.R.T

This allows you to activate the S.M.A.R.T. (Self-Monitoring Analysis & Reporting

Technology) capability for the hard disks. S.M.A.R.T is a utility that monitors your disk status to predict hard disk failure. This gives you an opportunity to move data from a hard disk that is going to fail to a safe place before the hard disk becomes offline.

BIOS SETUP UTILITY Advanced	
Primary IDE Master	S.M.A.R.T. stands for Self-Monitoring,
Device :Hard Disk Vendor :Hitachi HTS541680J9AT00 Size :80.06B LBA Mode :Supported Block Mode:16Sectors	Analysis and Reporting Technology.
PIO Mode :4 Async DMA :MultiWord DMA-2 Ultra DMA :Ultra DMA-2 S.M.A.R.T.:Supported Disabled Enabled	
Type [Auto] LBA/Large Mode [Auto] Block (Multi-Sector Transfer) [Auto]	 ← Select Screen ↑↓ Select Item +- Change Option
PIO Mode[Auto]DMA Mode[Auto]S.M.A.R.T.[Auto]32Bit Data Transfer[Disabled]	F1 General Help F10 Save and Exit ESC Exit
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32Bit Data Transfer

Enable 32-bit communication between CPU and IDE card. The options: [Enabled], [Disabled].

BIOS SETUP UTILITY	
Advanced	
Primary IDE Master	Enable/Disable 32-bit Data
Device :Hard Disk Vendor :Hitachi HTS541680J9AT00 Size :80.0GB LBA Mode :Supported Block Mode:16Sectors	Transfer.
PIO Mode :4 Async DMA :MultiWord DMA-2 Ultra DMA :Ultra DMA-2 S.M.A.R.T.:Supported Disabled Enabled	
TypeIAutolLBA/Large ModeIAutolBlock (Multi-Sector Transfer)IAutolPIO ModeIAutolDMA ModeIAutolS.M.A.R.T.IAutol32Bit Data TransferIDisabled	 Select Screen Select Item Change Option General Help Save and Exit ESC Exit
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Super IO Configuration



Serial Port 1 Address

Allows you to select the Serial Port1 base address. Configuration options: [Disabled] [3F8/IRQ4] [2F8/IRQ3] [3E8/IRQ4] [2E8/

IRQ3].



Serial Port 2 Address

Allows you to select the Serial Port2 base address. The options: [Disabled], [3F8/IRQ4], [2F8/IRQ3], [3E8/IRQ4], [2E8/IRQ3].

	BIOS SETUP UTILITY	
Advanced		
Configure Super IO Chipset		Allows BIOS to Select Serial Port2 Base
Serial Port1 Address Serial Port2 Address Serial Port3 Address Serial Port3 IRQ Serial Port4 Address Serial Port4 IRQ	I3F8/IRQ41 I2F8/IRQ31 I3E81 I111 I2E81 Disabled 2F8/IRQ3 3E8/IRQ4 2E8/IRQ3	 ← Select Screen ↑↓ Select Item +- Change Option F1 General Help F10 Save and Exit ESC Exit
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Serial Port 3 Address

Allows you to select the Serial Port3 base address. The options: [Disabled], [3E8], [2E8].



Serial Port 3 IRQ

Allow BIOS to select Serial Port 3 IRQ. The options: [4], [9], [10], [11]

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Serial Port 4 Address

Allows you to select the Serial Port4 base address. The options: [Disabled], [3E8], [2E8].



Serial Port 4 IRQ Allow BIOS to select Serial Port 4 IRQ. The options: [3], [9], [10], [11].

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	BIOS SETUP UTILITY	
Advanced		
Configure Super IO Chipset		Allows BIOS to Select
Serial Port1 Address Serial Port2 Address Serial Port3 Address Serial Port3 IRQ Serial Port4 Address Serial Port4 IRQ	(3F8/IRQ4) (2F8/IRQ3) (3E8) [111] [2E8] Options 3 9 10 11	 Serial Port4 IRQ. Select Screen Select Item Change Option General Help F10 Save and Exit ESC Exit
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Hardware Health Configuration

			BIOS SE	TUP UTILITY			
Main	Advanced	PCIPnP	Boot	Security	Pou	ver	Exit
Advanc	ed Settings						nfigure/monitor
 CPU IDE Supe: Hardi ACPI 	G: Setting w may cause Configuratio Configuratio rIO Configur ware Health Configurati Configuratio	system to n ation Configurat on	malfunc			€ †↓) Save and Exit
						1.50	
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CPU Temperature

The onboard hardware monitor automatically detects and displays the CPU temperatures. Select [Disable] if you do not wish to display the detected temperatures.

Hardware Health Configur	Hardware Health Configuration	
H/W Health Function	[Enabled]	Health Monitoring Device.
CPU Temperature	:76°C/168°F	
CPUFANO Speed	:4720 RPM	
CPU Core	:0.976 V	
Vcc +3.30V	:1.216 V :3.312 V	
+5.000	:4.757 V	
+12.0V	:11.904 V	← Select Screen
		↑↓ Select Item
		+- Change Option F1 General Help
		F10 Save and Exit
		ESC Exit

ACPI Configuration

		BIOS SE	TUP UTILITY			
Main Advanced	PCIPnP	Boot	Security	Pow	ler	Exit
Advanced Settings						tion for Advanced [Configuration.
 WARNING: Setting way cause CPU Configuration IDE Configuration SuperIO Configuration Hardware Health 	e system to m m ration	malfunc				
 ▶ ACPI Configurati ▶ USB Configuratic 	on				÷	Select Screen
					†↓ Ente F1 F10 ESC	
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General ACPI Configuration

ACPI Settings ▶ General ACPI Configuration ▶ Advanced ACPI Configuration	General ACPI Configuration settings
	← Select Screen ↑↓ Select Item Enter Go to Sub Screen F1 General Help F10 Save and Exit ESC Exit

Suspend Mode

This item specifies the power saving modes for ACPI function. If your operating system supports ACPI, you can choose to enter the Standby mode in S1 (POS) or S3 (STR) fashion through the setting of this field.

	BIOS SETUP UTILITY	
Advanced		
General ACPI Configuration		Select the ACPI state used for
Suspend mode Repost Video on S3 Resume	[S3 (STR)] [No]	System Suspend.
	Options S1 (POS) S3 (STR) Auto	 ← Select Screen ↑↓ Select Item ← Change Option F1 General Help F10 Save and Exit ESC Exit
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These options:

[S1 (POS)] The S1 sleep mode is a low power state. In this state, no system context is lost (CPU or chipset) and hardware maintains all system contexts. [S3 (STR)] The S3 sleep mode is a lower power state where the information of system configuration and

open applications/files is saved to main memory that remains powered while most other hardware components turn off to save energy. The information stored in memory will be used to restore the system when a "wake up" event occurs.

Repost Video on S3 Resume Determine whether to invoke VGA BIOS post on S3/STR resume. The options: [No], [Yes].



ACPI Version Features

Allows adding more tables for Advanced Configuration and Power Interface (ACPI) 2.0 specifications. The options: [ACPI V1.0], [ACPI V2.0], [ACPI V3.0].



ACPI APIC Support

Allows you to enable or disable the Advanced Configuration and Power Interface (ACPI) support in the Application-Specific Integrated Circuit (ASIC). When set to Enabled, the ACPI APCI table pointer is included in the RSDT pointer list. The options: [Disabled], [Enabled].

Advanced	BIOS SETUP UTILITY	
Advanced ACPI Configuration ACPI Version Features ACPI APIC support	on [ACPI_v3.0] [Enabled]	Include ACPI APIC table pointer to RSDT pointer list.
	Options Disabled Enabled	 ← Select Screen ↑↓ Select Item ← Change Option F1 General Help F10 Save and Exit ESC Exit
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USB Configuration



Support

Allows you to enable or disable support for USB devices on legacy operating system (OS). Setting to Auto allows the system to detect the presence of USB devices at startup. If detected, the USB controller legacy mode is enabled. If no USB device is detected, the legacy USB support is disabled. The options: [Disabled], [Enabled], [Auto].USB 2.0 Controller Allows you to enable or disable the USB 2.0 controller. The options: [Disabled] [Enabled].



USB 2.0 Controller Mode

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Allows you to configure the USB 2.0 controller in [HiSpeed (480 Mbps)] or [Full Speed (12 Mbps)]. The options: [FullSpeed], [HiSpeed].



BIOS EHCI Hand-Off

Allows you enable support for operating systems without an EHCI hand-off feature. The options: [Disabled], [Enabled].



7.4 PCI/PnP

The PCI PnP menu items allow you to change the advanced settings for PCI/PnP devices. The menu includes setting IRQ and DMA channel resources for either PCI/ PnP or legacy ISA devices, and setting the memory size block for legacy ISA devices

BIOS SETUP UTILITY									
Main Advanced <mark>PCIPnP</mark>	Boot Security	Power Exit							
Advanced PCI/PnP Settings		Clear NVRAM during							
WARNING: Setting wrong values may cause system to									
Clear NURAM Plug & Play O/S PCI Latency Timer Allocate IRQ to PCI VGA Palette Snooping PCI IDE BusMaster OffBoard PCI/ISA IDE Card IRQ3 IRQ4 IRQ5 IRQ7 IRQ9 IRQ10 IRQ11	Diol INol IG41 IYes] Disabled] IEnabled] IAutol IAutol IAuailable] IAuailable] IAuailable] IAuailable] IAuailable] IAuailable] IAuailable] IAuailable]	 Select Screen Select Item Change Option General Help F10 Save and Exit ESC Exit 							
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Clear NVRAM

Clear NVRAM during system boot. The options: [No], [Yes].

BIOS SETUP UTILITY							
Main Advanced PCI	PnP <mark>Boot</mark>	Security	Pov	ler	Exit		
Advanced PCI/PnP Settin	ıgs		4		r NVRAM during em Boot.		
WARNING: Setting wrong may cause syst				Jyst			
Clear NURAM Plug & Play O/S PCI Latency Timer	[No] [No] [64]						
Allocate IRQ to PCI VGF Palette Snooping PCI IDE BusMaster		tions —					
OffBoard PCI/ISA IDE Ca IRO3		lablel		← 11	Select Screen Select Item		
IRQ4		lablel		+-	Change Option		
IRQ5		lable]		F1	General Help		
IRQ7		lable]		F10			
IRQ9		lablel		ESC	Exit		
IRQ10 IRQ11		lable] lable]					
TVQTT	LHVdI	laulei	1				
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Plug & Play O/S

When set to [No], BIOS configures all the devices in the system. When set to

[Yes] and if you install a Plug and Play operating system, the operating system configures the Plug and Play devices not required for boot.

The options: [No] [Yes].



PCI Latency Timer

Allows you to select the value in units of PCI clocks for the PCI device latency timer

register. The options: [32] [64] [96] [128] [160] [192] [224] [248].



Allocate IRQ to PCI VGA

When set to [Yes], BIOS assigns an IRQ to PCI VGA card if the card requests for an

IRQ. When set to [No], BIOS does not assign an IRQ to the PCI VGA card even if requested. The options: [No] [Yes].



Palette Snooping

When set to [Enabled], the palette snooping feature informs the PCI devices that an ISA graphics device is installed in the system so that the latter can function correctly. The options: [Disabled] [Enabled].



PCI IDE BusMaster the BIOS use PCI bus mastering for reading/writing to IDE

device. The options: [Disabled], [Enabled].



OffBoard PCI/ISA IDE Card

Allows you to set the PCI slot number. The options: [Auto], [PCI Slot1], [PCI Slot2], [PCI Slot 3], [PCI Slot4], [PCI Slot5], [PCI Slot6].



IRQ3,4,5,7,9,10,11,14,15

Allows you to specify IRQ that is available to be used by PCI/PnP or Legacy ISA device. The options: [Available], [Reserved].

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DMA Channel 0,1,3,5,6,7

DMA Channel PCI/PMP functions. The options: [Available], [Reserved].

BIOS SETUP UTILITY										
Main Advanced	PCIPnP	Boot	Security	Pot	Jer	Exit				
OffBoard PCI/ISA II)E Card 👘	[Auto]	l		Ava	ilable: Specified 👘				
					DMA	is available to be				
IRQ3		[Ava i	lablel		use	d by PCI/PnP				
IRQ4		[Available]			devices					
IRQ5		[Ava i lable]		[Ava i lable]		[Available]			Rese	erved: Specified
IRQ7		[Available]			DMA	is reserved for				
IRQ9		[Available]			use	by Legacy ISA				
IRQ10		[Ava i	lablel		dev	ices.				
IRQ11		[Ava i	lablel							
IRQ14		[Ava i	lablel							
IRQ15		[Ava i	lablel							
DMA Channel O		[Ava i	lablel		÷	Select Screen				
DMA Channel 1		[Ava i	lablel		_†↓_	Select Item				
DMA Channel 3		[Ava i	lablel		+-	Change Option				
DMA Channel 5		[Ava i	lablel		F1	General Help				
DMA Channel 6		[Ava i	lablel		F10					
DMA Channel 7		[Ava i	lablel		ESC	Exit				
Reserved Memory Siz	ze	Disal	bledl	•						
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Reserved Memory Size

Set the size of memory block to reserve for legacy ISA devices. The options: [Disabled], [16 K], [32 K], [64 K].
BIOS SETUP UTILITY							
Main Advanced	PCIPnP Boot	Security I	Power	Exit			
OffBoard PCI/ISA IDI	E Card [Auto]		0000	ze of memory block reserve for legacy			
IRQ3 IRQ4 IRQ5 IRQ7	[Avai [Avai	lable] lable] lable] lable]	2005	A devices.			
IRQ9 IRQ10 IRQ11	[Ava i	lable] tions —					
IRQ14 IRQ15	16k 32k 64k						
DMA Channel 0 DMA Channel 1	[Avai	lable]	†∔	001000 100			
DMA Channel 3 DMA Channel 5 DMA Channel 6	[Ava i	lable] lable] lable]	F1 F1	General Help			
DMA Channel 7	[Ava i	lable]	ES				
Reserved Memory Size	e Disal Copyright 1985-20		▼ 1egatr	ends, Inc.			

7.5 Boot

Boot Setting Configuration



Quick Boot

Enable this item allows the BIOS to skip some power on self test (POST) while booting to decrease the time needed to boot the system. When set to [Disabled], BIOS performs all the POST items. The options: [Disabled], [Enabled].

	BIOS SETUP UTILITY	
	Boot	
Boot Settings Configuration	Allows BIOS to skip certain tests while	
Quick Boot	booting. This will	
Quiet Boot	[Disabled]	decrease the time
Bootup Num-Lock	EON]	needed to boot the
PS/2 Mouse Support	[Auto]	system.
Wait For 'F1' If Error	[Enabled]	
	Options Disabled Enabled	 Select Screen Select Item Change Option General Help Save and Exit ESC Exit
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Quiet Boot

Allows you to display Normal POST message or OEM logo. The options: [Disabled], [Enabled].

	BIOS SETUP UTILITY	
	Boot	
Boot Settings Configuratio	Disabled: Displays - normal POST messages.	
Quick Boot Quiet Boot Bootup Num-Lock PS/2 Mouse Support Wait For 'F1' If Error	[Enabled] [Disabled] [ON] [Auto] [Enabled]	Enabled: Displays OEM Logo instead of POST messages.
	Options Disabled Enabled	 ← Select Screen ↑↓ Select Item ← Change Option F1 General Help F10 Save and Exit ESC Exit
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Boot up Num-Lock

Allows you to select the power-on state for the NumLock. The options: [Off], [On].

	BIOS SETUP UTILITY	
	Boot	
Boot Settings Configuratio	m	Select Power-on state – for Numlock.
Quick Boot Quiet Boot Bootup Num-Lock PS/2 Mouse Support Wait For 'F1' If Error	[Enabled] [Disabled] [ON] [Auto] [Enabled] OFF ON	 For Numlock. * Select Screen †4 Select Item *- Change Option F1 General Help F10 Save and Exit ESC Exit
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Wait for 'F1' If Error

When set to Enabled, the system waits for the F1 key to be pressed when error occurs. The options: [Disabled], [Enabled].

Boot Settings Configuratio	n	Wait for F1
Quick Boot Quiet Boot Bootup Num-Lock PS/2 Mouse Support Wait For 'F1' If Error	[Enabled] [Disabled] [ON] [Auto] [Enabled] Disabled Enabled	key to be pressed if error occurs.
		 ← Select Screen ↑↓ Select Item ← Change Option F1 General Help F10 Save and Exit ESC Exit

Boot Device Priority

			BIOS SE	TUP UTILITY		
Main	Advanced	PCIPnP	Boot	Security	Pow	er Exit
► Boot	ettings Settings Co Device Prio Disk Drives		n			Specifies the Boot Device Priority sequence.
						 ← Select Screen ↑↓ Select Item Enter Go to Sub Screen F1 General Help F10 Save and Exit ESC Exit
	v02.61 (C) Copyr igh	t 1985-20	006, America	n Meg	atrends, Inc.

Boot Device Priority

Select the priority of Boot devices.

	BIOS SETUP UTILITY Boot	
Boot Device Priority		Specifies the boot sequence from the
1st Boot Device 2nd Boot Device 3rd Boot Device	[USB:Kingston DataT] [Network:Realtek Bo] [Network:Realtek Bo]	available devices. A device enclosed in parenthesis has been disabled in the
	Options — USB:Kingston DataTraveler Network:Realtek Boot Agent Network:Realtek Boot Agent Disabled	corresponding type menu. ← Select Screen t4 Select Item ← Change Option F1 General Help F10 Save and Exit ESC Exit
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7.6 Security



Select Security Setup from the IA31 Setup main BIOS setup menu. All Security Setup options, such as password protection and virus protec- tion are described in this section. To access the sub menu for the following items, select the item and press <Enter>:

i Change Supervisor Password

ï Boot sector Virus protection: The boot sector virus protection will warn if any program tries to write to the boot sector.

7.7 Chipset

	BIOS SETUP UTILITY	hipset
Video Function Configuration	1	Options
DVMT Mode Select DVMT/FIXED Memory	[DVMT Mode] [128MB]	Auto VGA LVDS Only
Boot Display Device Flat Panel Type Local Flat Panel Scaling	[LVDS Only] [640x480 18bit SC] [Auto]	LUDS + VGA
		← Select Screen ↑↓ Select Item
		+- Change Option F1 General Help F10 Save and Exit
		ESC Exit
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DVMT model select

This function displays the active system memory mode.

DVMT / FIXED Memory

Specify the amount of DVMT / FIXED system memory to allocate for video memory.

	BIOS SETUP UTILITY	nipset
Video Function Configurati	ion	Options
DVMT Mode Select DVMT/FIXED Memory Boot Display Device Flat Panel Type	[DVMT Mode] [128MB] [LVDS Only] [640x480 18bit SC]	Auto VGA LVDS Only LVDS + VGA
Local Flat Panel Scaling	Options Auto UGA LUDS Only LUDS + UGA	 ← Select Screen ↑↓ Select Item ← Change Option F1 General Help F10 Save and Exit ESC Exit
v02.61 (C) Copyr i	ight 1985-2006, American Me	egatrends, Inc.

Boot display device

Select boot display device at post stage. You could select Auto/VGA/LVDS only/LVDS+VGA.

Video Function ConfigurationOptionsDUMT Mode SelectIDUMT ModelDUMT/FIXED MemoryI128MBlBoot Display DeviceILUDS OnlylFlat Panel TypeOptionsLocal Flat Panel ScalingOptions640×480 18bit SC1024x768 18bit SC105105105106106107108108108108 <th></th> <th>BIOS SETUP UTILITY C</th> <th>hipset</th>		BIOS SETUP UTILITY C	hipset
← Select Screen ↑↓ Select Item +- Change Option F1 General Help F10 Save and Exit	DVMT Mode Select DVMT/FIXED Memory Boot Display Device Flat Panel Type	on [DVMT Mode] [128MB] [LVDS Only] Options 640x480 18bit SC 800x600 18bit SC 1024x768 18bit SC 1280x800 18bit SC	Options 640x480 18bit SC 800x600 18bit SC 1024x768 18bit SC 1280x800 18bit SC
			14 Select Item +- Change Option F1 General Help F10 Save and Exit

Flat panel type Select panel resolution

7.8 Exit

This Exit menu items allow you to load the optimal or failsafe default value for the BIOS items, and save or discard your changes to the BIOS items.

		BIOS SE	TUP UTILITY				
Main Advanc	ed PCIPnP	Boot	Security	Pow	er <mark>Exit</mark>		
Exit Options					Exit system setup		
Save Changes a Discard Change					after saving the changes.		
Discard Change					F10 key can be used for this operation.		
Load Optimal D Load Failsafe		iguration	changes and	exit	setup?		
		Dk]	ICanc	ell	ect Screen		
					11Select ItemEnter Go to Sub ScreenF1General HelpF10Save and ExitESCExit		
v02.	v02.61 (C)Copyright 1985-2006, American Megatrends, Inc.						

Discard Changes and Exit

Select this option only if you do not want to save the changes that you made to the setup program. If you made changes to fields other than System Date, System time, and Password, the BIOS asks for a confirmation before exiting.

		BIOS SE	TUP UTILITY		
Main Advanced	PCIPnP	Boot	Security	Pow	er <mark>Exit</mark>
Main Advanced Exit Options Save Changes and Ex Discard Changes and Discard Changes Load Optimal Defaul Load Failsafe Defau	it Exit Discar		Security s and exit s [Cancel]		Exit system setup without saving any changes. ESC key can be used for this operation.
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Discard Changes

This option allows you to discard the selections you made and restore the previously saved values. After selecting this option, a confirmation appears. Select [OK] to discard any changes and load the previously saved values.



Load Optimal Defaults

This option allows you to load the optimal default values for each of the parameters on the Setup menus. When you select this option or if you press <F5>, a confirmation window appears. Select [OK] to load optimal default values. Select [Save Change and Exit] or make other changes before saving the values to the non-volatile RAM.

			BIOS SE	TUP UTILITY					
Main	Advanced	PCIPnP	Boot	Security	Pow	er	Exit		
Exit (Dptions						nd Optimal Default lues for all the		
Save Changes and Exit Discard Changes and Exit							setup questions.		
Discar	rd Changes						key can be used this operation.		
	Dptimal Defau F <mark>ailsafe Defa</mark>	ults	Load Opti	mal Defaults'	?				
			[Ok]	[Cance1]		← 11	Select Screen Select Item		
							ter Go to Sub Screen General Help D Save and Exit		
	v02.61 (C) Copuria	ht 1985-2	006, America	n Mea	atre	ends, Inc.		

Load Failsafe Defaults

This option allows you to load the failsafe default values for each of the parameters on the Setup menus. When you select this option or if you press <F5>, a confirmation window appears. Select [OK] to load failsafe default values.

	BIOS SE	TUP UTILITY		
Main Advanced PCI	PnP Boot	Security	Pot	Jer <mark>Exit</mark>
Exit Options Save Changes and Exit				Load Failsafe Default values for all the setup questions.
Discard Changes and Exi Discard Changes	t			F8 key can be used for this operation.
Load Optimal Defaults Load Failsafe Defaults	Load Fails	afe Defaults?	?	
	[Ok]	[Cance1]		← Select Screen ↑↓ Select Item
				Enter Go to Sub Screen F1 General Help F10 Save and Exit ESC Exit
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Note1: Digital I/O Sample Code

//File of the Main.cpp

//This code is for test IA31 Super I/O.

#include <dos.h>

#include <conio.h>

#include <stdio.h>

#include <stdlib.h>

#define W83627EHG_INDEX_PORT 0x2E

#define W83627EHG_DATA_PORT 0x2F

//_____

#define W83627EHG_REG_LD 0x07

#define W83627EHG_UNLOCK 0x87 #define W83627EHG_LOCK 0xAA

//_____

void ClrKbBuf(void);

void Unlock_W83627EHG(void);

void Lock_W83627EHG(void);

void Set_W83627EHG_Reg(unsigned char, unsigned char);

unsigned char Get_W83627EHG_Reg(unsigned char);

int main ();

int main ()

{

unsigned char ucDO = 0; //data for digital output unsigned char ucDI; //data for digital input unsigned char ucBuf; Set_W83627EHG_Reg(0x07,0x07);//switch to logic device 7

// PIN 121~128 function select

```
// Bit0 = 0 -> Game Port.
```

```
//
        = 1 -> GPIO1.
    ucBuf = Get_W83627EHG_Reg(0x29);
    Set_W83627EHG_Reg(0x29,ucBufl0x01);
```

// $Bit0 = 0 \rightarrow GPIO1$ is inactive.

```
Bit1 = 1 -> Activate GPIO1.
//
    ucBuf = Get_W83627EHG_Reg(0x30);
    Set_W83627EHG_Reg(0x30,ucBufl0x01);//Activate GPIO1
    Set_W83627EHG_Reg(0xF0,0x0F);//switch GPIO Input(1)/Output(0) port
```

```
Set_W83627EHG_Reg(0xF1, 0x00); //clear
    ucDI = Get_W83627EHG_Reg(0xF1) \& 0x0F;
    ClrKbBuf();
    while(1)
    {
         ucDO++;
         Set_W83627EHG_Reg(0xF1, ((ucDO & 0x0F) << 4));
         ucBuf = Get_W83627EHG_Reg(0xF1) \& 0x0F;
         if (ucBuf != ucDI)
         {
             ucDI = ucBuf;
             printf("Digital I/O Input Changed. Current Data is 0x%X\n",ucDI);
         }
         if (kbhit())
         {
             getch();
             break;
         }
         delay(500);
    }
    return 0;
}
//=
void ClrKbBuf(void)
    while(kbhit())
```

```
{ getch(); }
```

{

```
}
//-----
void Unlock_W83627EHG (void)
{
   outportb(W83627EHG_INDEX_PORT, W83627EHG_UNLOCK);
   outportb(W83627EHG_INDEX_PORT, W83627EHG_UNLOCK);
}
//=====
        void Lock_W83627EHG (void)
{
   outportb(W83627EHG_INDEX_PORT, W83627EHG_LOCK);
}
//====
                              _____
void Set_W83627EHG_Reg( unsigned char REG, unsigned char DATA)
{
   Unlock_W83627EHG();
   outportb(W83627EHG_INDEX_PORT, REG);
   outportb(W83627EHG_DATA_PORT, DATA);
   Lock_W83627EHG();
}
//______
unsigned char Get_W83627EHG_Reg( unsigned char REG)
{
   unsigned char Result;
   Unlock W83627EHG();
   outportb(W83627EHG_INDEX_PORT, REG);
   Result = inportb(W83627EHG_DATA_PORT);
   Lock_W83627EHG();
   return Result;
}
//=====
```

Note2: Watchdog Sample Code

//File of the Watchdog.cpp
//=====================================
//This Sample code is for Watchdog timer configuration
//=====================================
//=====================================
#include <dos.h></dos.h>
#include <conio.h></conio.h>
#include <stdio.h></stdio.h>
#include <stdlib.h></stdlib.h>

#define W83627_INDEX_PORT 0x2E
#define W83627_DATA_PORT 0x2F
#define W83627_UNLOCK 0x87
#define W83627_LOCK 0xAA
//#define Watchdog_timeout 10

```
int main ()
```

{

```
int Watchdog_timeout = 10;
printf("Input Watchdog Timer time-out value [0-255] : ");
scanf("%d",&Watchdog_timeout);
if(Watchdog_timeout <= 0 || Watchdog_timeout > 255)
{
    printf("Time-out value out of range!!\n\n");
    printf("Input Watchdog Timer time-out value [0-255] : ");
    scanf("%d",&Watchdog_timeout);
```

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} Set_W83627_Reg(0x07,0x08);//switch to logic device 8

Set_W83627_Reg(0x30,0x01);//Activate watchdog

Set_W83627_Reg(0xF5,0x06);//Select WDTO# count mode.Second Mode.

Set_W83627_Reg(0xF6,Watchdog_timeout); //Set Watch Dog Timer Time-out value

```
//Set_W83627_Reg(0xF7,0xC0); //Clear Watchdog timer event
```

```
int i = Watchdog_timeout;
    while(1)
    {
         if (kbhit())
         {
              if(getch()==0x1B) //Esc
                   break:
              else{
                   i=Watchdog_timeout; //Reset Watchdog timer
                   Set_W83627_Reg(0xF6,Watchdog_timeout); //Set Watch Dog
Timer Time-out value
              }
         }
         clrscr();
         if(i>0){
              i--;
              printf("After %2d sec reset computer!\n",i);
              printf("Press any key to reset watchdog timer!\n");
              printf("Press [Esc] to exit!\n");
         }
         else
              printf("Watchdog timer fail!");
         delay(1000);
     }
```

```
Set_W83627_Reg(0xF6,0); //Disable Watchdog timer
   return 0;
}
//-----
void Unlock_W83627 (void)
{
   outportb(W83627_INDEX_PORT, W83627_UNLOCK);
   outportb(W83627_INDEX_PORT, W83627_UNLOCK);
}
//_____
                  _____
                               _____
void Lock_W83627 (void)
{
   outportb(W83627_INDEX_PORT, W83627_LOCK);
}
//_____
void Set_W83627_Reg( unsigned char REG, unsigned char DATA)
{
   Unlock_W83627();
   outportb(W83627_INDEX_PORT, REG);
   outportb(W83627_DATA_PORT, DATA);
   Lock_W83627();
}
unsigned char Get_W83627_Reg( unsigned char REG)
{
   unsigned char Result;
   Unlock_W83627();
   outportb(W83627_INDEX_PORT, REG);
   Result = inportb(W83627_DATA_PORT);
   Lock_W83627();
   return Result;
}
//====
```

Note3:

There is some problem when install software in CF Card as following condition:

- 1. Master: IDE CD-ROM (PIONEER DVD-227A) Slave: CF Card (Transcend 120X-standard) CF Card is not founded.
- 2. Master: CF Card (InnoDisk) Slave: IDE CD-ROM (Plextor PX-760A) CD-ROM is not founded.
- 3. Master: CF Card (InnoDisk) Slave: IDE CD-ROM (PIONEER) CF Card is not founded.
- Master: CF Card (Transcend 120X-standard) Slave: IDE CD-ROM (Plextor PX-760A) CD-ROM is not founded.
- 5. Master: IDE CD-ROM (Plextor PX-760A) Slave: CF Card (Transend 120X-standard) CF Card is not founded.