ID32 Motherboard

3.5" Fanless SBC with Intel ® Atom D2550 1.86GHz Processor, VGA, LVDS, Dual Giga Ethernet, and Mini-PCIe Interface.

Perfect Industrial IT **TL** electronic

User Manual / Engineering Spec.

Version 1.1

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.

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.

Contents

General Information

This chapter includes the ID32 Motherboard background information.

Sections include:

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

Chapter 1   General Information

1.1   Introduction

The ID32 SBC is integrated with Intel® NM10 express chipset, 17x17mm, and Atom D2550 Processor. Intel Atom Processor with 32nm low power design enables down to 50% less average power consumption and the chipset delivers up to 4x improvement in graphics performance and enables up to 50% higher data transfer bus speed rate.

In peripheral connectivity, ID32 SBC features with Mini-PCIe I/O ports, one Serial ATA connectors, four Serial Port (One Connector; Three Pin Header) and Six Hi-Speed USB 2.0 connectors(Two Connector ; Four Pin Header) .Additionally, ID32 SBC build-in a 12V DC-IN power adapter.

Thus, the ID32 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

➢ 3.5-inch Form Factor (146mm x 102mm)
➢ Supports   Intel® Atom D2550 1.86GHz processor
➢ System memory up to 4GB DDR3 800/1066, SO-DIMM
➢ Intel NM10 Chipset
➢ Intel® Graphic Accelerator 3650 Integrated Graphics Engine.
➢ Dual Broadcom BCM57780 GbE controller
➢ 2 x Mini PCIe(one for wireless, one for SATA SSD), 4 X COM, 6 x USB2.0, 1 x SATA, 8 x GPIO ports, 1 x   DVI

1.3 Motherboard Specifications

CPU Type	Intel Atom Dual Core D2550 2.13GHz Processor
CPU Speed	1.86GHz
Chipset	Intel NM10
BIOS	AMI 4Mbit Flash
Graphic	Intel® Graphic Accelerator 3650 support DX10, OGL2.0
LCD interface	Single-channel 24 bit LVDS Up to 1440 x 900 @ 60Hz
Resolution	VGA mode： Up to 1920 x 1200 @ 60Hz DVI： 1920 x 1200 @ 60Hz
LAN	2 x Giga LAN (Broadcom BCM57780 GbE controller)
Memory Type	1 x SO-DIMM socket, supports up to 4GB DDR3 800/1066
Super I/O	Fintek F81865
Sound	Realtek ALC886 HD Audio Codec
USB	6 ports, USB 2.0 (2 x USB Connector, 4 x USB pin-header)
Edge Connectors	1 x DC-IN Jack (+12V) 1 x VGA out connector 2 x Gigabit LAN RJ-45 1 x RS232/422/485 1 x Dual USB stack connector
On Board Pin-Header Connectors	1 x SATA connector for SATAI/II 3.0 Gb/s 1 1 x 10pins pin-header for Front Panel(2x5) 1 x 8pins pin-header for 5V/12V external power 1 x 3pins pin-header for CPU Fan 1 x 2pins pin-header for 5V external power 1 x 2pins pin-header for 3.3V external power 1 x 12pins pin-header for Front Audio(2x6) 2 x 8pins pin-header for USB (2X4) 1 x 14pins digital I/O (2X7) 1 x 20pins pin-header for COM 2.4(RS232) (2X10) 1 x 10pins pin-header for COM3 (2X5) 1 x 2-pin Power-input connector 1 x 20pins Connector for LVDS 1 x 20pins Connector for DVI 1 x 3pins digital panel backlight brightness controller 1 x 7pins digital panel inverter 2 x MiniPCIe connector (one for SSD, one for Wifi/3G)
Power Connector	Input: 2-pin Power-input connector
Expansion Slots	1 x Mini PCIe slot for wireless, 1 x Mini PCIe slot for SATA SSD
Form Factor	3.5 inch
Dimensions	146mm x 102mm
Mechanical & environmental	Operating temperature: 0 deg. C to 60 deg. C Operating Humidity: 10 ~ 90% Relative humidity, non-condensing Shock: Operating 15G, 11ms duration Vibration: Operating 5 Hz~500Hz / 1Grms / 3 Axis Certification: CE, FCC, RoHS

1.4　Function Block

```
                              ┌─────────────┐     ┌──────────────────────────┐
                              │             │     │      SO-DIMM x 1          │
                              │  D2550 CPU  │─────│  DDR3 800/1066 Max.4GB    │
                              │             │     └──────────────────────────┘
                              └──────┬──────┘
                                     │
   ┌──────────┐                ┌─────┴──────┐        ┌──────────┐
   │   VGA    │────────────────│            │────────│   LAN    │  1GB/s
   ├──────────┤                │ Intel NM10 │        ├──────────┤
   │   LVDS   │────────────────│            │────────│   USB    │  480MB/s
   ├──────────┤                │  Chipset   │        ├──────────┤  Realtek ALC886
   │   DVI    │────────────────│            │────────│  Audio   │
   └──────────┘                └───┬───┬────┘        ├──────────┤  Fintek F81865
          ┌──────────┐             │   │             │ Super IO │
3GB/s     │  SATA II │─────────────┘   │             └──────────┘
          └──────────┘                 │
          ┌──────────┐          ┌──────┴────┐
          │ Mini PCIe│──────────│   BIOS    │  AMI
          └──────────┘          └───────────┘
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4
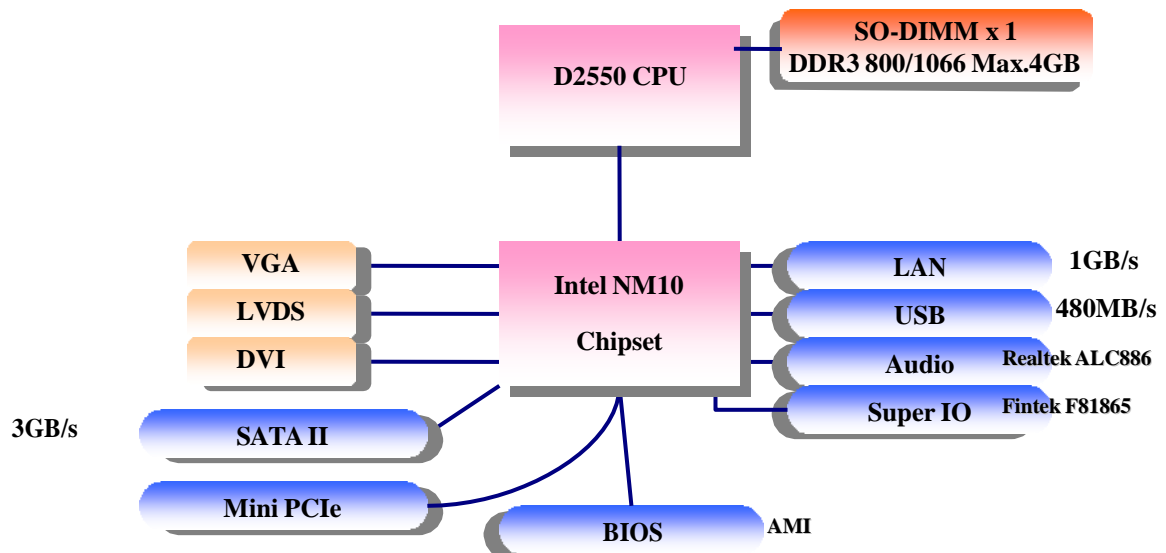
1.5 Board dimensions
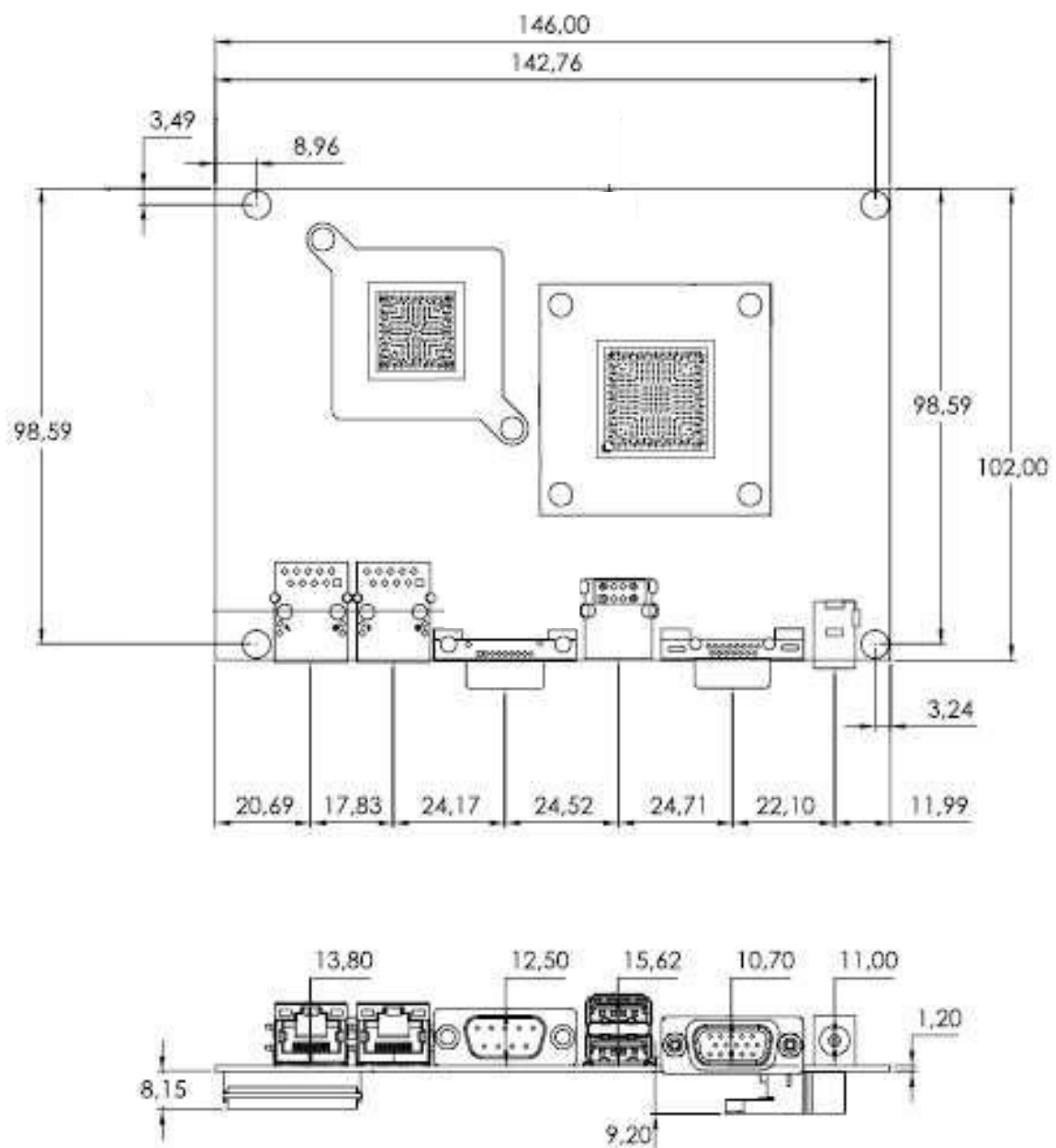
Installations

This chapter provides information on how to use the jumps and connectors on the ID32 Motherboard.
The Sections include:
- Memory Module Installation
- I / O Equipment Installation
- Setting the Jumpers
- Connectors on ID32 Motherboard

Chapter 2   Installations

2.1 Memory Module（**SO-DIMM**）Installation

The ID32 Motherboard provides one 204-pin SODIMM slot. The socket supports up to 4GB DDR3 1066 SDRAM. When installing the Memory device, please follow the steps below：

Step.1. Firmly insert the SO-DIMM at an angle into its slot. Align the SO-DIMM on the slot such that the notch on the SO-DIMM matches the break on the slot.

Step.2. Press downwards on SO-DIMM until the retaining clips at both ends fully snap back in place and the SO-DIMM is properly seated.
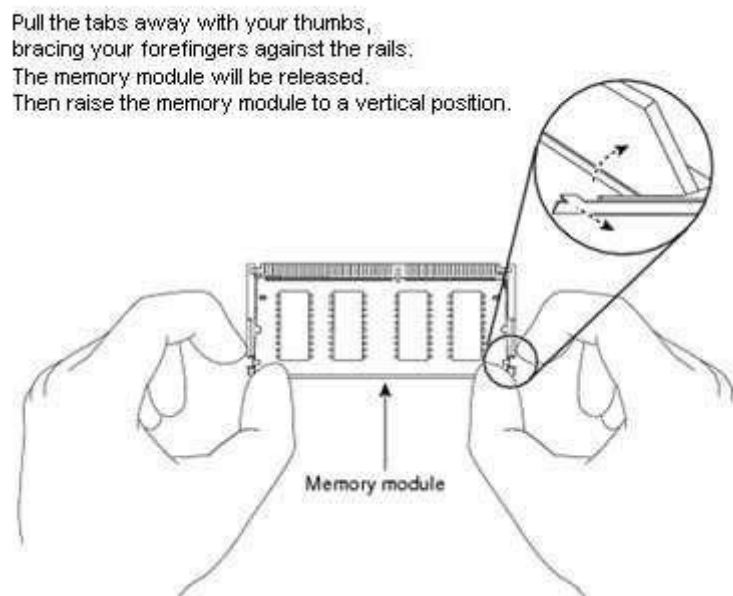
> ➢ Caution!
>
> The SO-DIMM only fits in one correct orientation. It will cause permanent damage to the development board and the SO-DIMM if the SO-DIMM is forced into the slot at the incorrect orientation.

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 power consumption by Intel Atom D2550 1.86GHz Processor in NM10 chipset.

※**Without power/reset OSD, you can short circuit pin5 & 6 of the onboard panel connector to boot up the motherboard.**

2.2.2 Serial COM ports

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

2.2.3 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.

2.2.4 Ethernet interface

The Motherboard is equipped with Broadcom BCM57780 chipset which is fully compliant with the PCI 10/100/1000 Mbps Ethernet protocol compatible. It is supported by major network operating systems. The Ethernet ports provide two standard RJ-45 jacks.

2.2.5 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.

2.2.6 Audio function

The Audio 7.1 channel capabilities are provided by a Realtek ALC886 chipset supporting digital audio outputs. The audio interface includes two jacks: line-in and line-out.

2.3 Jumpers and Connectors

TOP

PANEL
JP12
JP11
CN10
SATA1
USB1
USB3
CON2
LVDS1
JP13
Fan
CPU
JP10
JP5

JP7

CON3

JP1
JP6、8
12V
JP9
5V

COM3

DIDO

COM2/4

SIM Slot

Mini PCIe
for WLAN

DVI

J2/J3

12V in

AUDIO1

RJ45

JP4

COM1

3V1

USB

VGA

12V DC in

9

BOTTOM

MiniPCIe for SSD
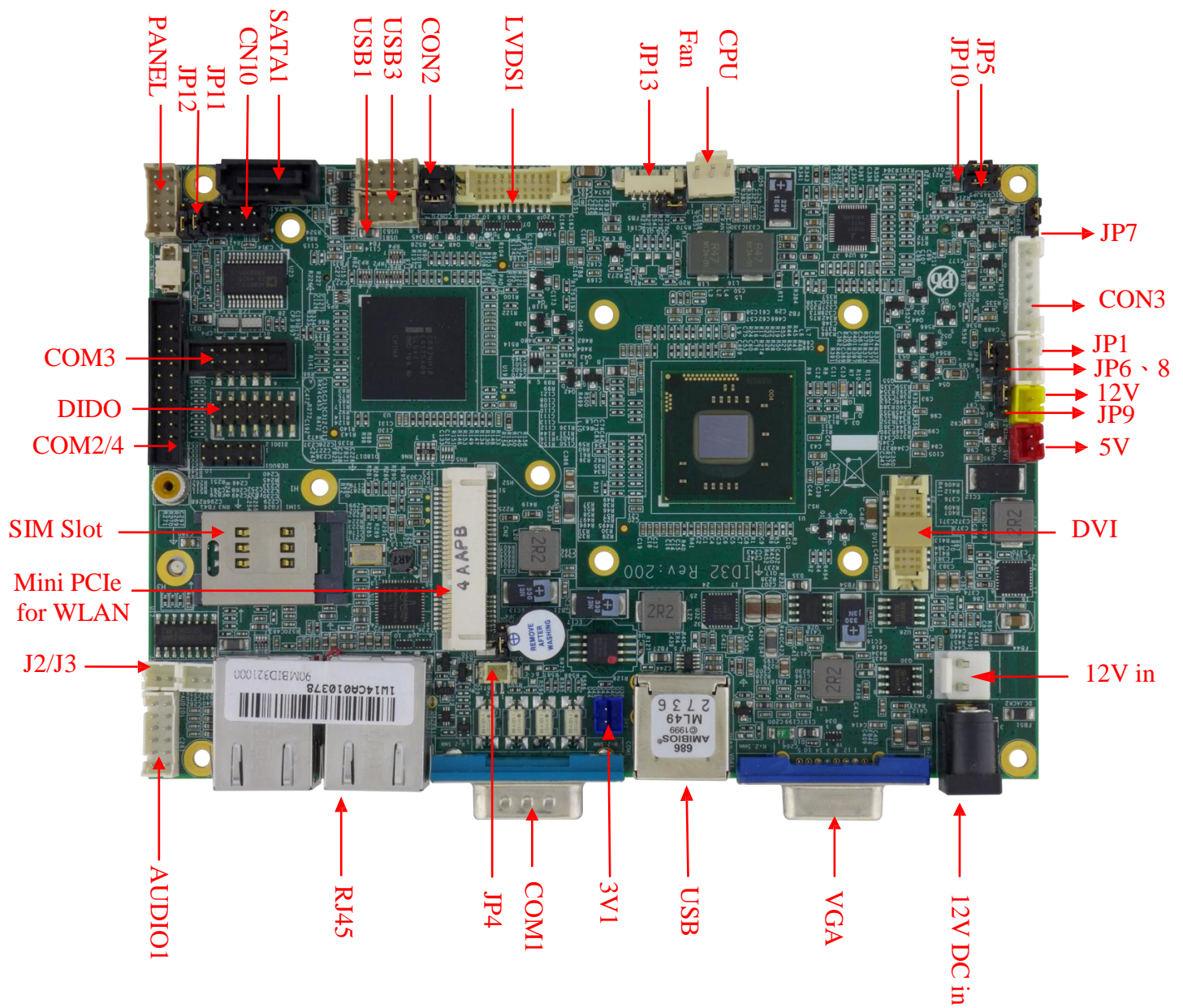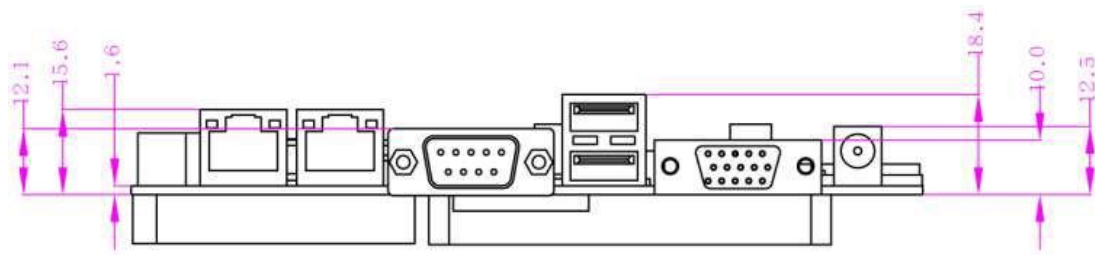
SO-DIMM
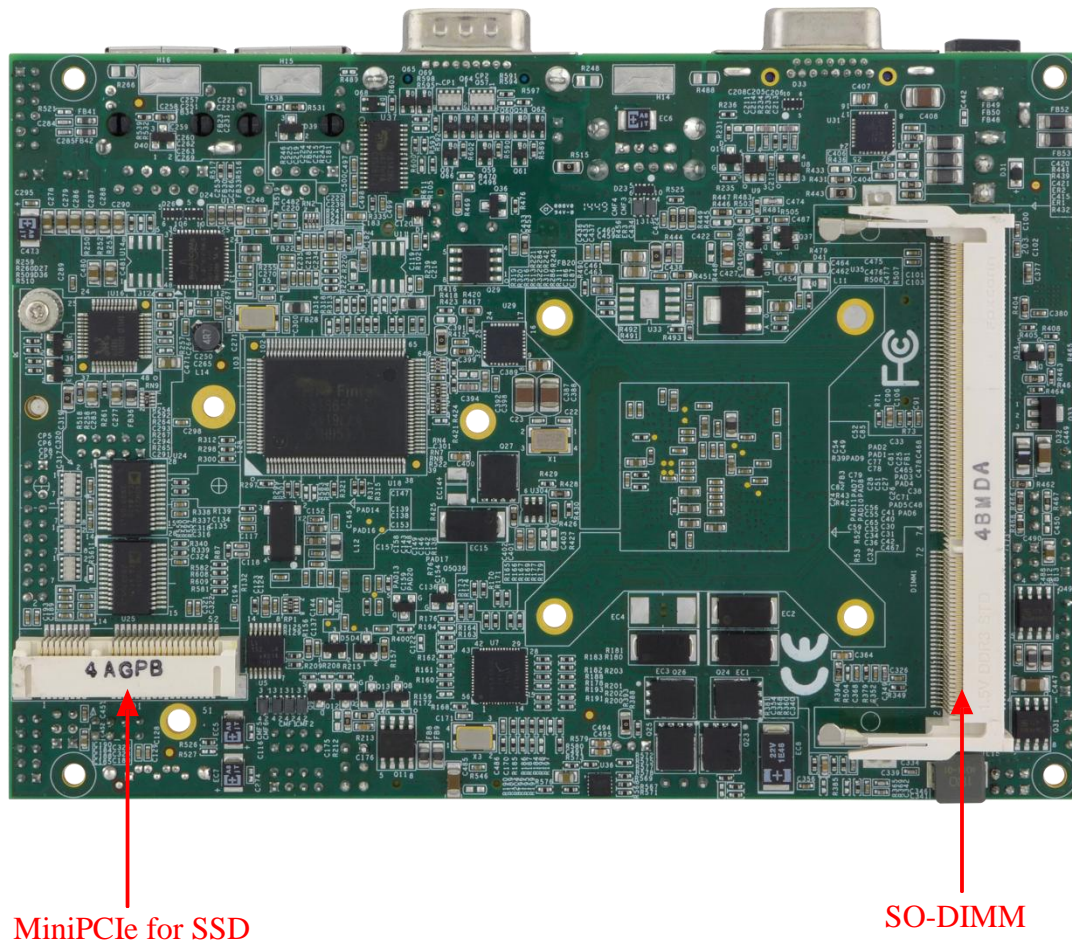
2.4 Jumper Setting

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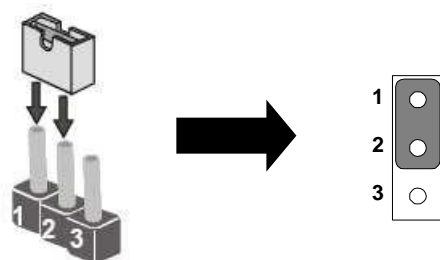
The following tables list the function of each of the board's jumpers.

Label	Function	Note
JP4	Clear CMOS	3x1 header , pitch 2.0mm
JP2	RS232 / RS422 / RS485 Selector	2x3 header , pitch 2.0mm
JP3	RS232 / RS422 / RS485 Selector	3x4 header , pitch 2.0mm
CON2	LVDS VOLTAGE	2x3 header , pitch 2.0mm
JP5	Backlight Power Voltage Selector	3x1 header , pitch 2.0mm
JP9	Backlight Power ON/OFF Selector	3x1 header , pitch 2.0mm
JP7	Backlight Brightness Voltage Selector	3x1 header , pitch 2.0mm
JP6 、8	Backlight Adjust Mode Selector	3x1 header , pitch 2.0mm

2.4.1 JP4 : Clear CMOS
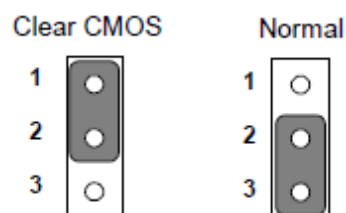
Pin No.	Functions
1 Short 2	Clear CMOS
2 Short 3	Normal

2.4.2 CON2 : LCD Panel Voltage Select
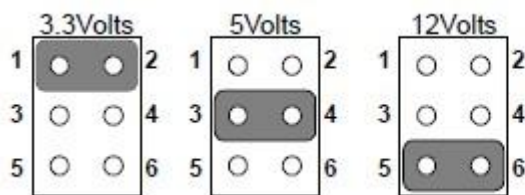
Pin No.	Functions
1 Short 2	3.3Volts Selected
2 Short 3	5Volts Selected
5 Short 6	12Volts Selected

2.4.3 JP5 : Backlight Power Input Voltage Level Select

Function
1-2 : 5.0V
2-3 : 12V
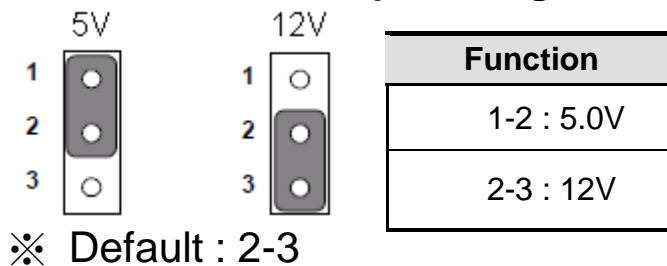
※ Default : 2-3

2.4.4 JP9 : Select Backlight Power ON/OFF

Function
1-2 : Control
2-3 : Non-Control

※ Default : 2-3

2.4.5 JP7 : Select Backlight Brightness input voltage level

Function
1-2 : 3.3V
2-3 : 5.0V
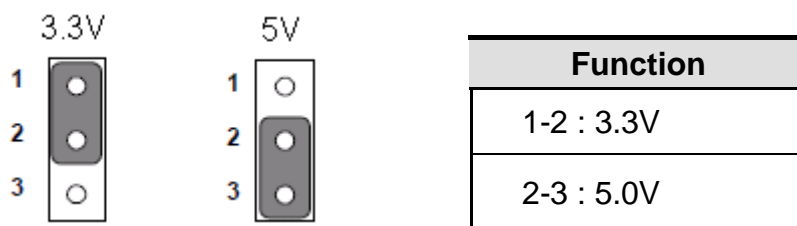
※ Default : 2-3

2.4.6 BIOS Select Backlight Adjust Mode

Location	DC mode (For HW)	PWM mode (For BIOS)	DC mode (For BIOS)
JP6	1-2	2-3	2-3
JP8	X	X	1-2

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2.4.7 VRD Select Backlight Adjust Mode

Location	VR→PWM	OSD→PWM	DC mode
JP6	X	X	1-2
JP8	2-3	2-3	2-3
JP10	1-2	X	X

2.5 Connectors and Pin Assignment

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

Label	Function	Note
LVDS1	LVDS LCD Output Connector	20DP-1.25V
JP1	Digital Panel Backlight Brightness Control	3x1 header, pitch 2.54mm
CON3	Digital Panel Backlight Inverter Power	7x1 header, pitch 2.54mm
VGA	VGA Output	15pin VGA
COM Port	COM1 for RS232/422/485	DB9
COM2	COM2 for RS232	2x5 header
COM3(Left)	COM3 for RS232	2x5 header
COM3(Right)	COM4 for RS232	2x5 header
AUDIO1	Audio connector	2x6 header
USB1	USB PIN HEADER	4x2 Pin Header
USB3	USB PIN HEADER	4x2 Pin Header
CPU_FAN	FAN CONNECTOR	3x1 Pin Header
PANEL1	System Function Connector	5x2 header ,pitch 2.0mm
12V1	12V External Power	2x1 header, pitch 2.0mm
5V1	5V External Power	2x1 header, pitch 2.0mm
CN10	12V/5V External Power	4x2 header ,pitch 2.54mm
DC JACK2	12V DC Jack	2 Pin Jack
DIDO1	Digital I/O	2x5 Pin header
J2/J3	Amplifier	2 Pin header
DVI1	DVI LCD Output Connector	20DP-1.25V

* Not Default Connector

2.5.1 LVDS1: LVDS Connector
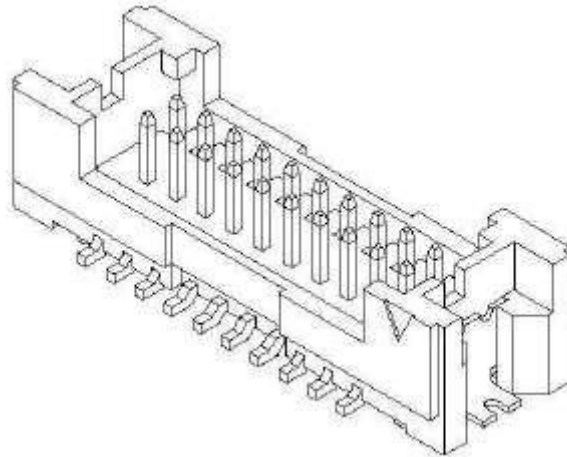
Pin No.	SYMBOL	Pin No.	SYMBOL
1	GND	2	LVDS_TX0_DN
3	GND	4	LVDS_TX0_DP
5	GND	6	LVDS_TX1_DN
7	GND	8	LVDS_TX1_DP
9	GND	10	LVDS_TX2_DN
11	N/C	12	LVDS_TX2_DP
13	LCDVDD	14	LVDS_CLK_DN
15	LCDVDD	16	LVDS_CLK_DP
17	LCDVDD	18	LVDS_TX3_DN
19	LCDVDD	20	LVDS_TX3_DP

2.5.2 JP1: Digital Panel Backlight Brightness Control

Pin No.	SYMBOL
1	5V
2	Black Light Control
3	GND

2.5.3 CON3: Inverter Power

Pin No.	SYMBOL
1	+12V
2	+12V
3	+12V
4	GND
5	Black Light Control
6	GND
7	Black Light EN 5V

2.5.4 COM2/4: D-SUB Dual Output

The serial port COM3, which is option 1 for RS232 (from 11 pin to 20 pin) , is the Winbond I/O serial port.

10x2 header, pitch 2.0mm
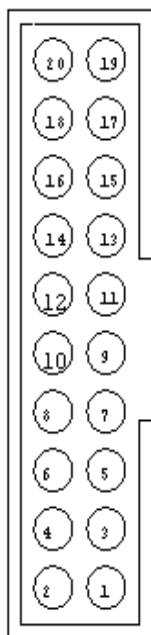
Pin No.	SYMBOL	Pin No.	SYMBOL
18	FK NRI2	17	FK NDTR2
16	FK NCTS2	15	FK NSOUT2
14	FK NRTS2	13	FK NSIN2
12	FK NDSR2	11	FK NDCD2
10	GND	9	GND
8	FK NRI1	7	FK NDTR1
6	FK NCTS1	5	FK NSOUT1
4	FK NRTS1	3	FK NSIN1
2	FK NDSR1	1	FK NDCD1

2.5.5 USB1、3 : USB PIN HEADER
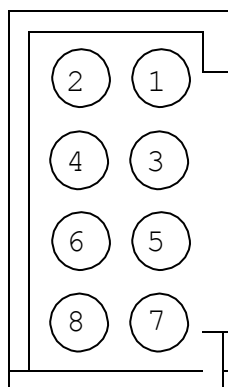
	USB		
Pin	SYMBOL	Pin	SYMBOL
2	USB_5V	1	USB_5V
4	USB_P6-	3	USB_P7-
6	USB_P6+	5	USB_P7+
8	GND	7	GND

2.5.6 CPU_FAN: FAN CONNECTOR

Pin 1 GND
Pin 2 +12V
Pin 3 SENSE
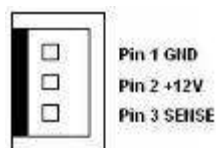
CPU_FAN

2.5.7 PANEL1: Front Panel System Function Connector
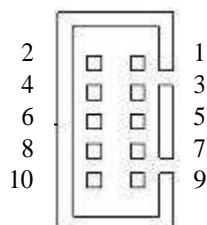
Pin	SYMBOL	Pin	SYMBOL
2	HD_LED+	1	PW_LED+
4	HD_LED-	3	PW_LED-
6	RT_BT1	5	PW_BT1
8	RT_BT2	7	PW_BT2
10	5VSB	9	RSEV

2.5.8 AUDIO1: Audio Connector
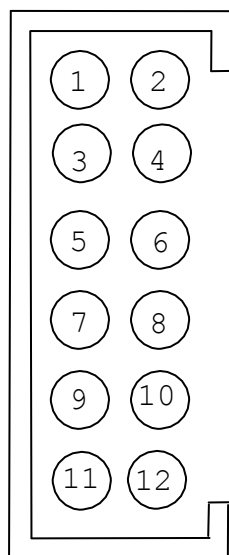
Pin	SYMBOL	Pin	SYMBOL
2	AZ_FOUT_L	1	AZ_FOUT_R
4	AUGND	3	+5VA
6	LINE1_L	5	LINE1_R
8	MIC1_L	7	MIC1_R
10	SW_D	9	AUGND
12	SW_C	11	SW_B

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2.5.9 3V1/5V1/12V1/CN10: External Power

12V1   **5V1**   **CN10**

2.5.10 DIDO1: Digital I/O Connector

Pin	Signal Name	Pin	Signal Name
1	GND	2	+V5A
3	DOUT3	4	DOUT1
5	DOUT2	6	DOUT0
7	DINT3	8	DINT2
9	DINT1	10	DINT0
11	GPIO53_IN0	12	GPIO56_OUT0
13	GPIO54_IN1	14	GPIO57_OUT1
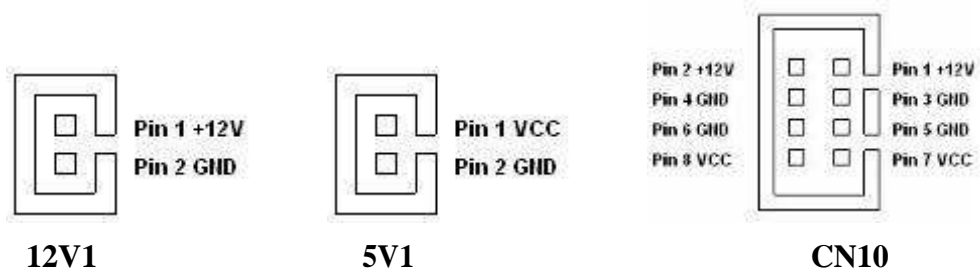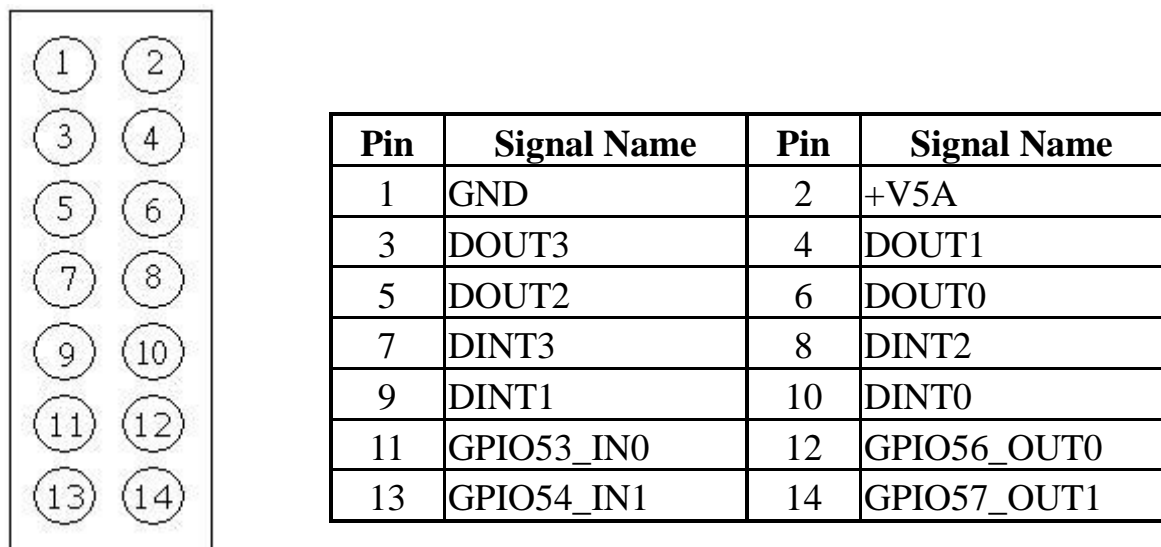
2.5.11 J2/J3: Amplifier

Pin1 LOUT+
Pin2 LOUT-
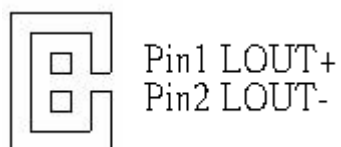
2.5.12 COM3: Serial port COM3

Pin	SYMBOL	Pin	SYMBOL
10	GND	9	GND
8	NRI1A	7	NDTR1A
6	NCTS1A	5	NTXD1A
4	NRTS1A	3	NRXD1A
2	NDSR1A	1	NDCD1A

17
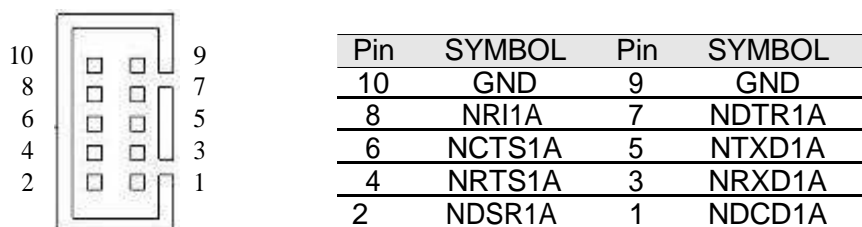
2.5.13 DVI1: DVI connector
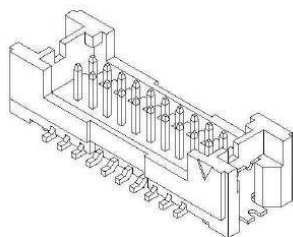
Pin No.	SYMBOL	Pin No.	SYMBOL
1	GND	2	TMDSB_DATA0-
3	GND	4	TMDSB_DATA0+
5	DVIC_LVDS_DET	6	TMDSB_DATA1-
7	DVIC_BKLTEN	8	TMDSB_DATA1+
9	DVIC_VDDEN	10	TMDSB_DATA2-
11	DVI_HOT_DETECT	12	TMDSB_DATA2+
13	LCDVDD	14	TMDSB_BLK-
15	LCDVDD	16	TMDSB_BLK+
17	+V5S	18	DVI1_DDC_CLK_R
19	+V5S	20	DVI_DDC_DAT_R

2.5.14 Mini-PCIE (for WLAN) slot

Pin Number	Signal Name	Pin Number	Signal Name
2	3.3V_MINIPCIE1	1	PCIE_WAKE#
4	GND	3	NA
6	+V1.5S	5	NA
8	VREG_USIM	7	CLK_SLOT4_OE#
10	NA	9	GND
12	NA	11	CLK_PCIE_SLOT4_N
14	NA	13	CLK_PCIE_SLOT4_P
16	NA	15	GND
18	GND	17	NA
20	WLAN-RFON2	19	NA
22	BUF_PLT_RST2#	21	GND
24	+3.3V	23	PCIE_RXN3_SLOT4
26	GND	25	PCIE_RXP3_SLOT4
28	+V1.5S	27	GND
30	SMB_CLK	29	GND
32	SMB_DATA	31	PCIE_TXN3_SLOT4
34	GND	33	PCIE_TXP3_SLOT4
36	USB_PN5	35	GND
38	USB_PP5	37	GND
40	GND	39	3.3V_MINIPCIE1
42	NA	41	3.3V_MINIPCIE1
44	NA	43	GND
46	NA	45	NA
48	NA	47	NA
50	GND	49	NA
52	3.3V_MINIPCIE1	51	NA
m2	GND	m1	GND

2.5.15 Mini-PCIE (for SSD) slot

Pin Number	Signal Name	Pin Number	Signal Name
1	NC	2	+V3.3DX_SSD
3	NC	4	GND
5	NC	6	+V1.5S_SSD
7	NC	8	NC
9	GND	10	NC
11	NC	12	NC
13	NC	14	NC
15	GND	16	NC
17	NC	18	GND
19	NC	20	NC
21	GND	22	NC
23	SATA_RXP2	24	+V3.3DX_SSD
25	SATA_RXN2	26	GND
27	GND	28	+V1.5S_SSD
29	GND	30	NC
31	SATA_TXN2	32	NC
33	SATA_TXP2	34	GND
35	GND	36	NC
37	GND	38	NC
39	+V3.3DX_SSD	40	GND
41	+V3.3DX_SSD	42	NC
43	GND	44	SATA2_DEVSLP
45	NC	46	NC
47	NC	48	+V1.5S_SSD
49	SSD_LED#	50	GND
51	+V3.3DX_SSD	52	+V3.3DX_SSD
M1	GND	M1	GND
M2	GND	M2	GND

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

ID32 Motherboard is equipped with Intel NM10 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 "setup" to execute the setup.

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

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

Step.5. Click on "Next " to install Driver.
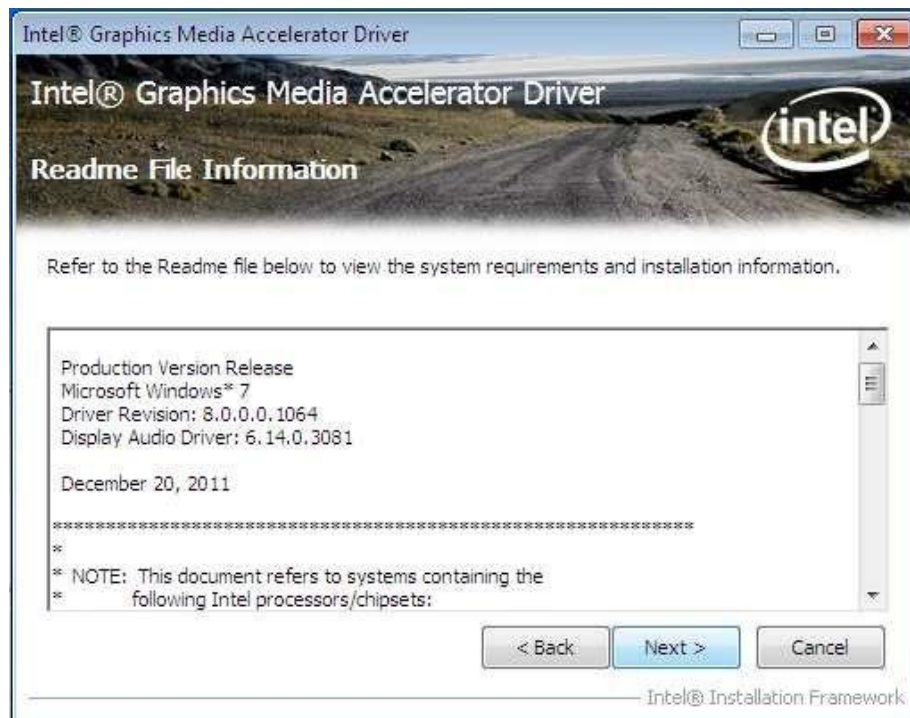
Step.6. Click on "Next " to install Driver.
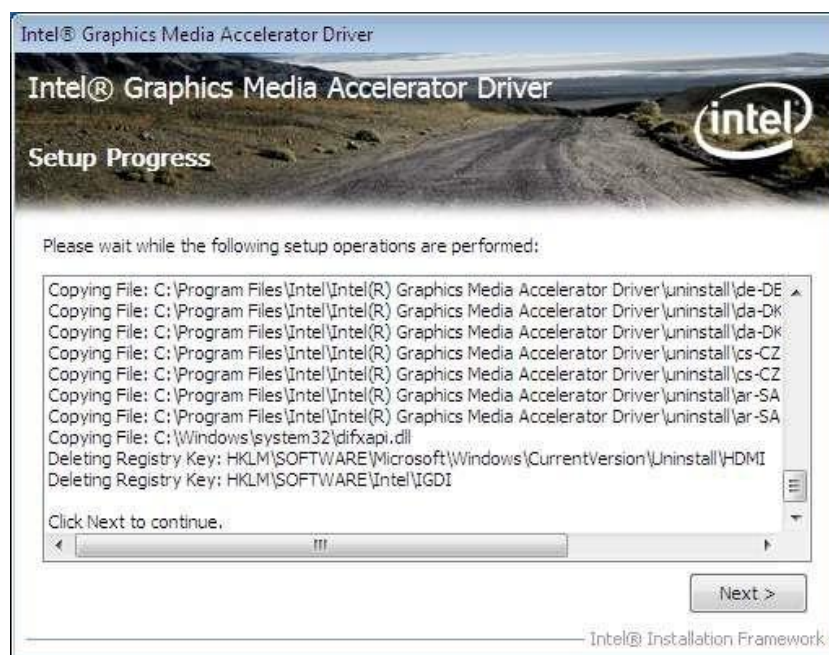
Step.7. Click on "Yes, I want to restart this computer now" to go on.

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.
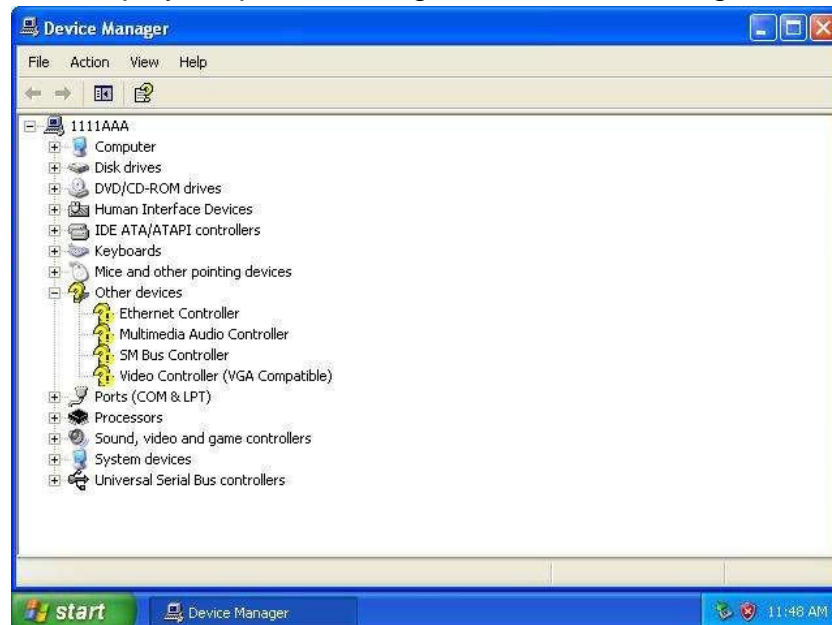
Step.3. Click on "Monitor".
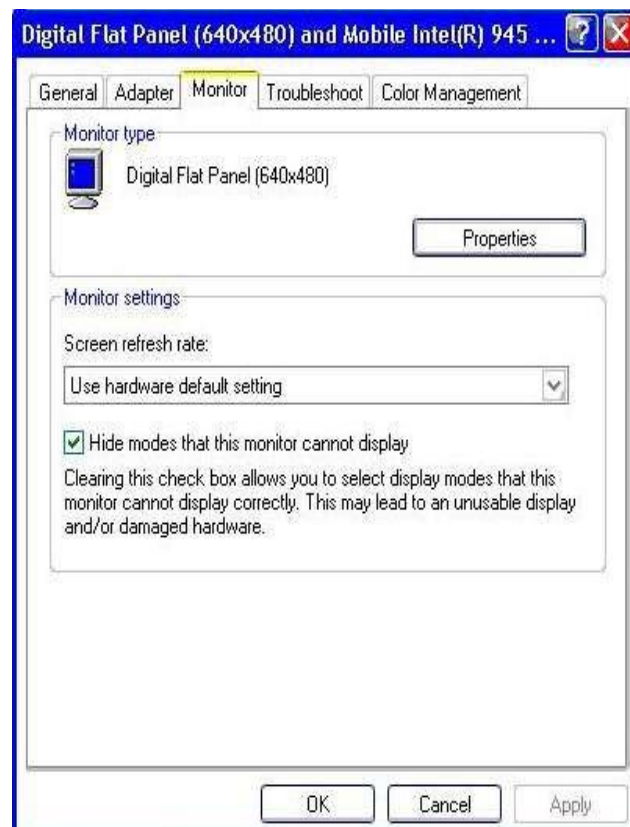
Step.4. Click on "Hide modes that this monitor cannot display" to remove this option.
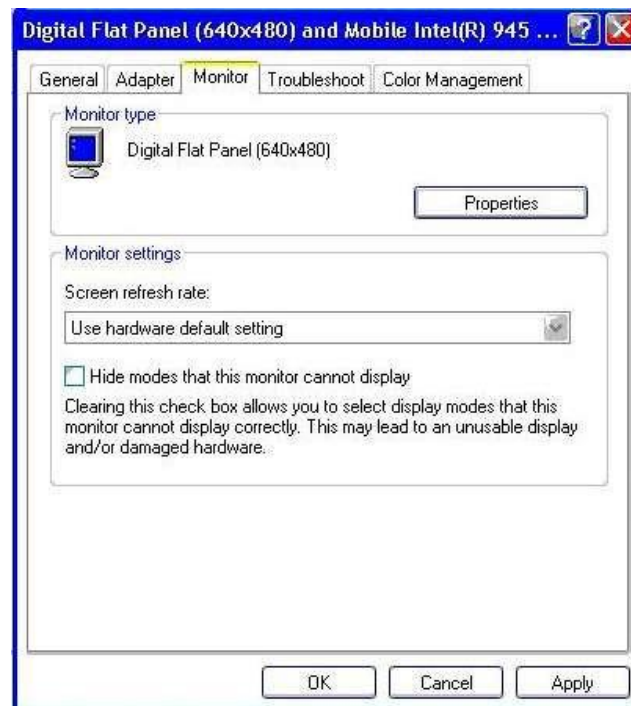
Step.5. Click on "Setting", then could choose 32bit color qualify.
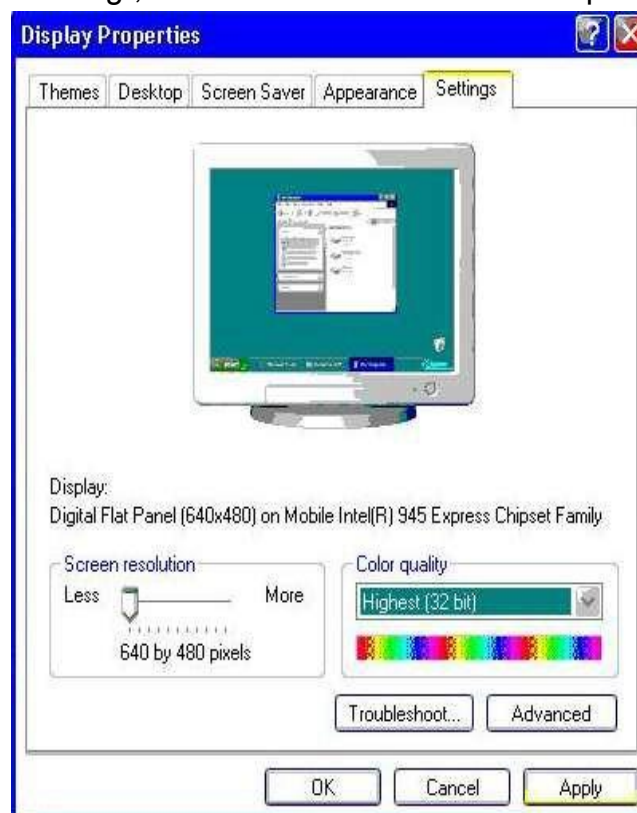
Chipset Driver Installation

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".
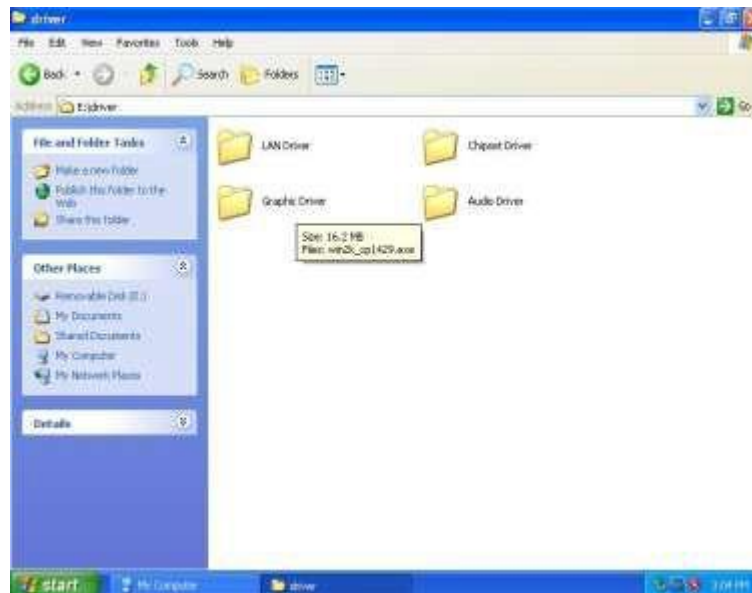
Setp.2. Click on "infinst_auto.exe" to install driver.
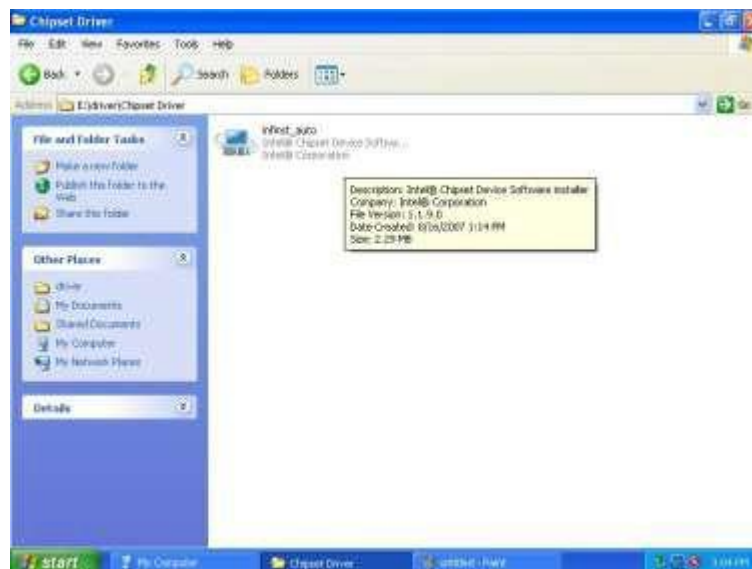
Setp.3. Click on "Yes " to agree License

Setp.4. Click on "Next" to install driver.

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

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

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

Installation of Ethernet Driver

The Users must make sure which operating system you are using in the ID32 Motherboard before installing the Ethernet drivers. Follow the steps below to complete the installation of the Broadcom BCM57780 Gigabit Ethernet controller LAN drivers. You will quickly complete the installation.

Step.1. Right-click the desktop, and then click Properties.
Step.2. In the Other device dialog box, click the Settings tab.
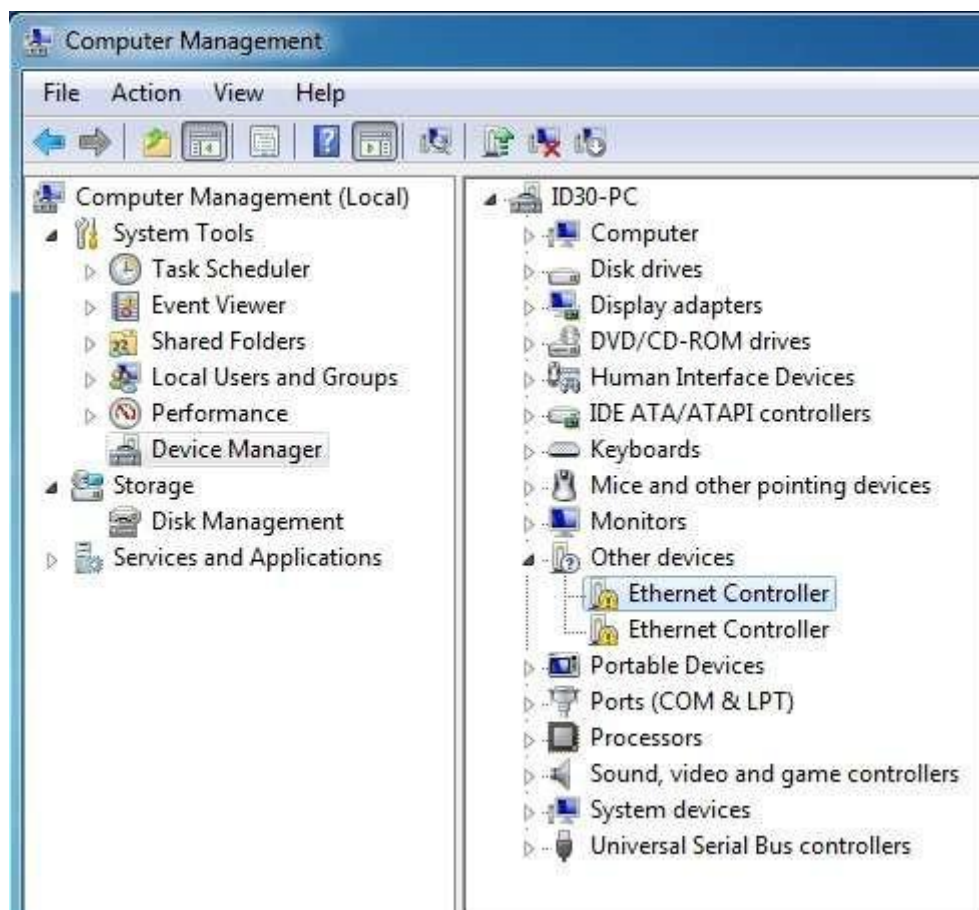
Step.2 Click on "Update Driver" to execute the setup.
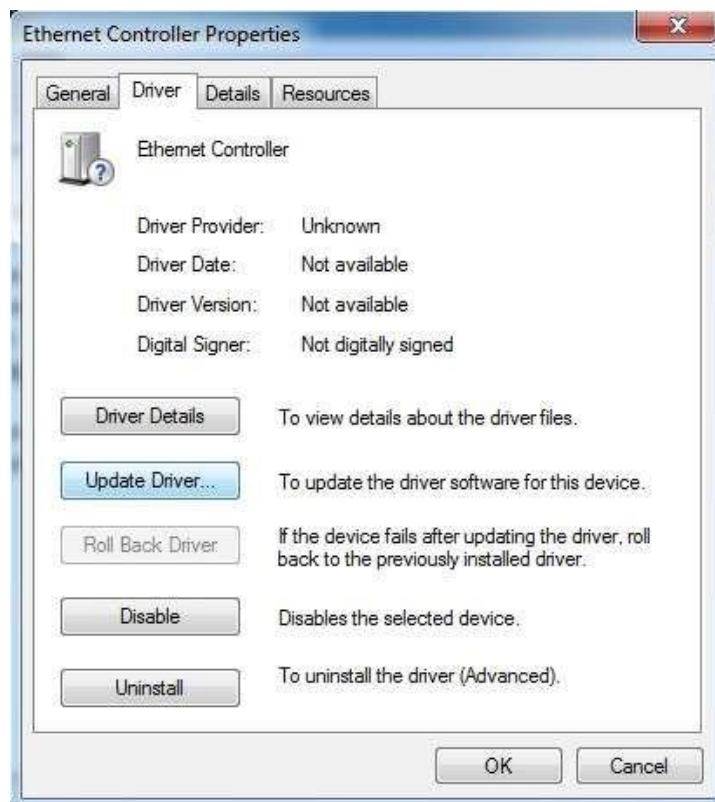
Step.4. Click on "Browse my computer for driver software" to install driver.
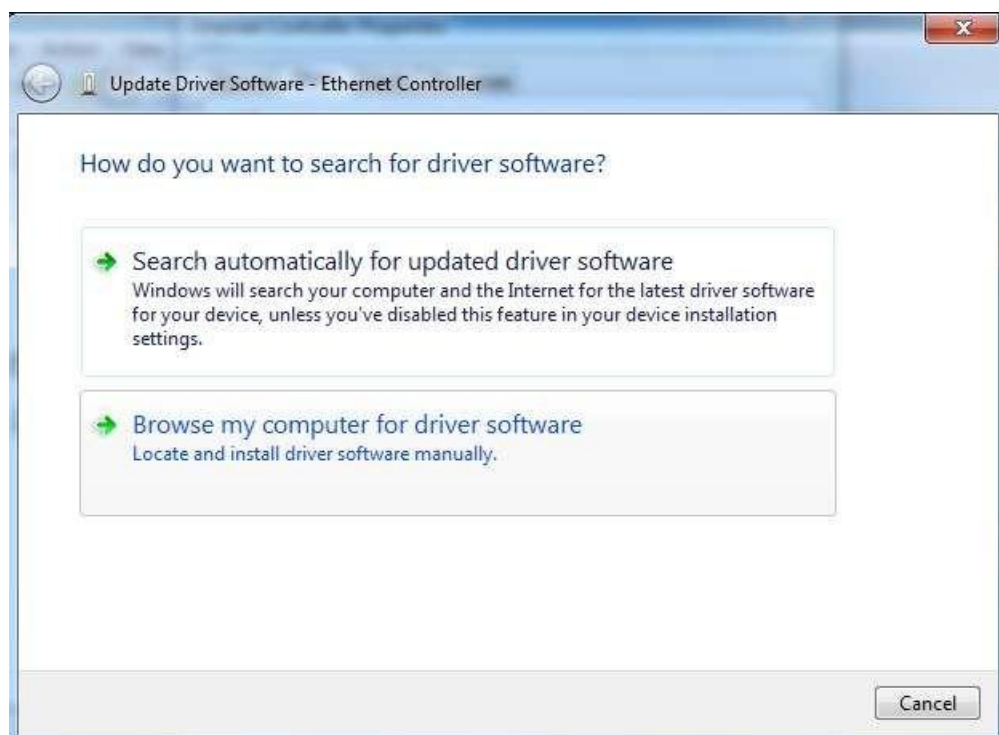
Step.5. Choose the path to install driver.

Setp.6. Click on "Close" and go on.

34
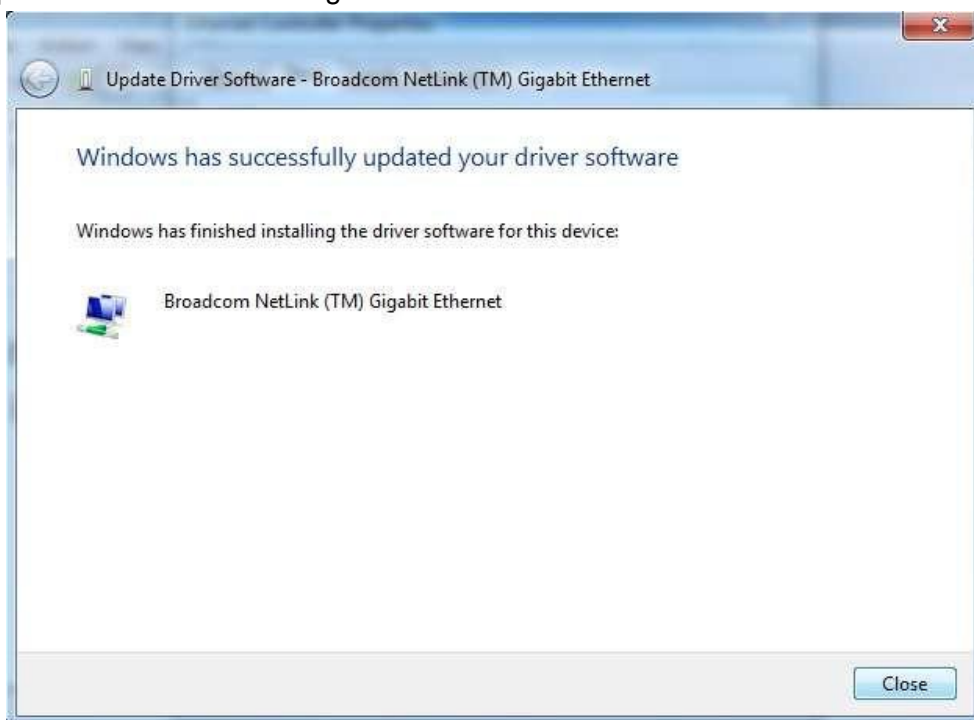
Audio Driver Installation

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 ALC888 series are high-performance 7.1+2 Channel High Definition Audio Codecs providing ten DAC channels that simultaneously support 7.1 sound playback, plus 2 channels of independent stereo sound output (multiple streaming) through the front panel stereo outputs. The series integrates two stereo ADCs that can support a stereo microphone, and feature Acoustic Echo Cancellation (AEC), Beam Forming (BF), and Noise Suppression (NS) technology.

6.2   Installation of Audio Driver

The users must make sure which operating system you are using in the IA30 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 "Vista_Win7_R260.exe" to execute the setup.

Name	Date modified	Type	Size
Vista_Win7_R260	5/10/2011 3:21 PM	Application	86,021 KB

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

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

Fintek COM Port

Driver Installation

This chapter describes the step by step method to install the Fintek COM port driver.

STEP 1.If the system is WIN7 please first do close UAC.(Refer following "Disabling

User Account

Control (UAC) in Windows 7")

STEP 2.Extract the Patch_0408.zip to a folder.

STEP 3.Double-click batch file(patch.bat) will install driver.

STEP 4.Check driver install success.

Before the update or update fail.
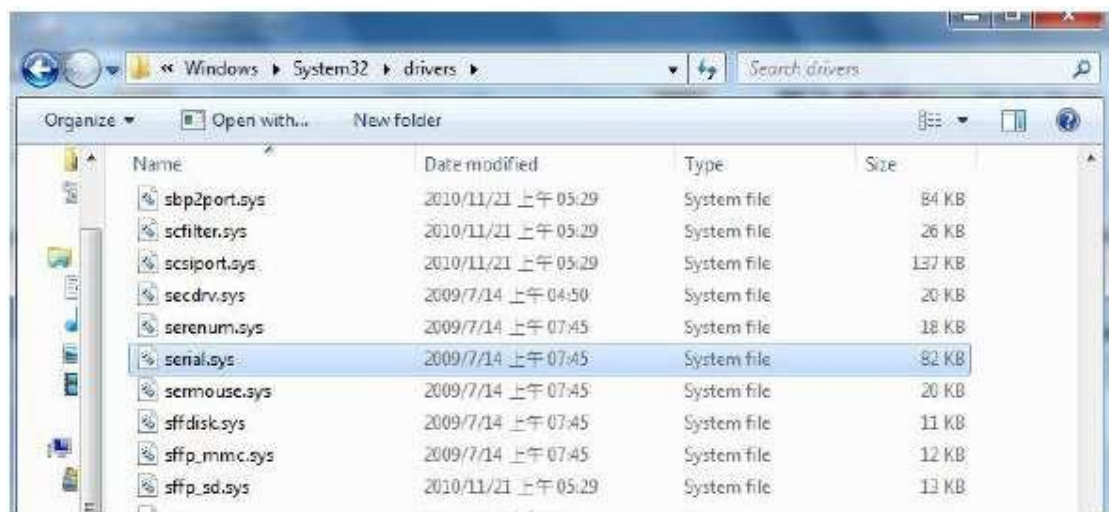
After the update and update success.
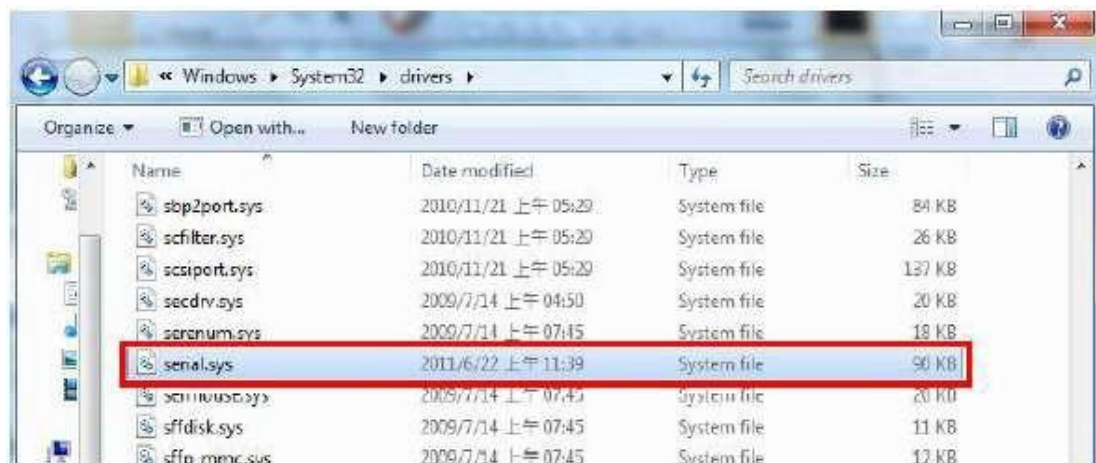
STEP 5.You will need to restart your computer for driver install success.

Type in this command from the Run menu:

C:\Windows\System32\UserAccountControlSettings.exe

or

uac
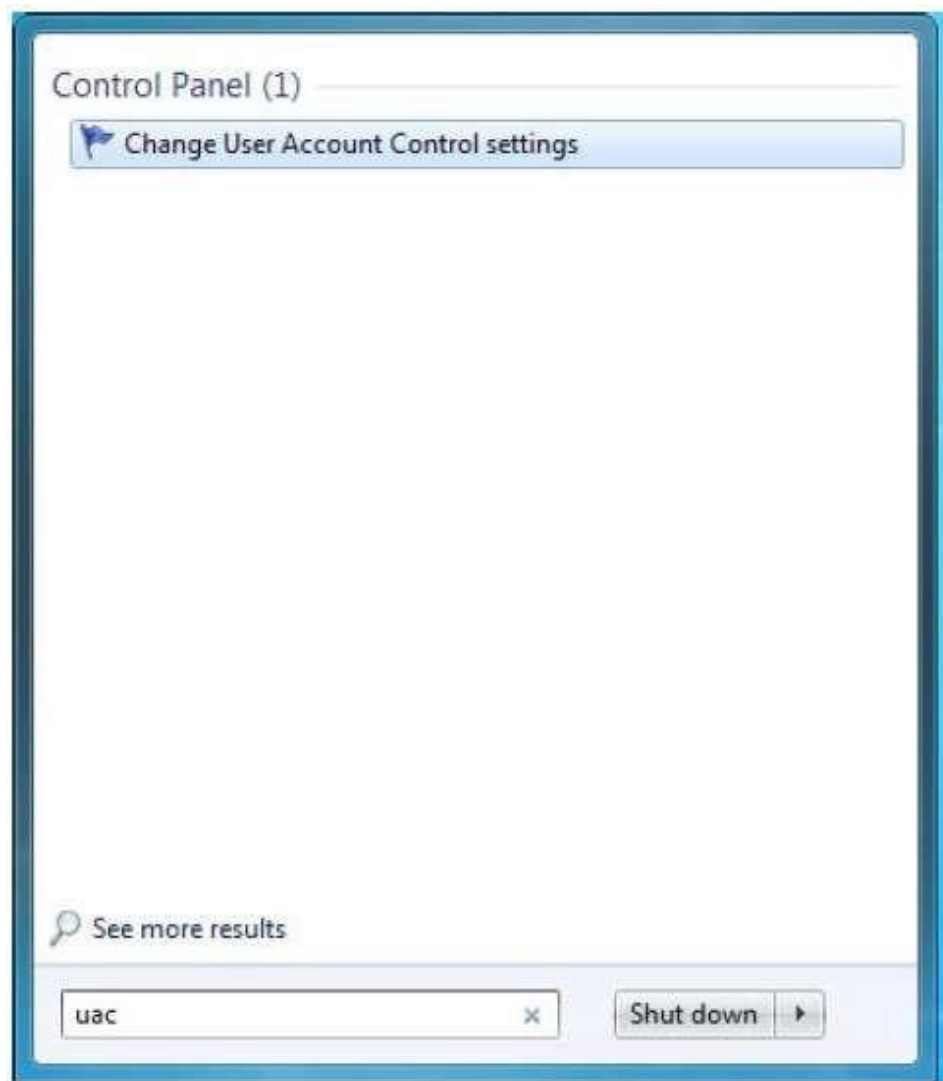
To turn off UAC, move the slider to the Never notify position, and then click OK. If you're prompted for an administrator password or confirmation, type the password or provide confirmation.
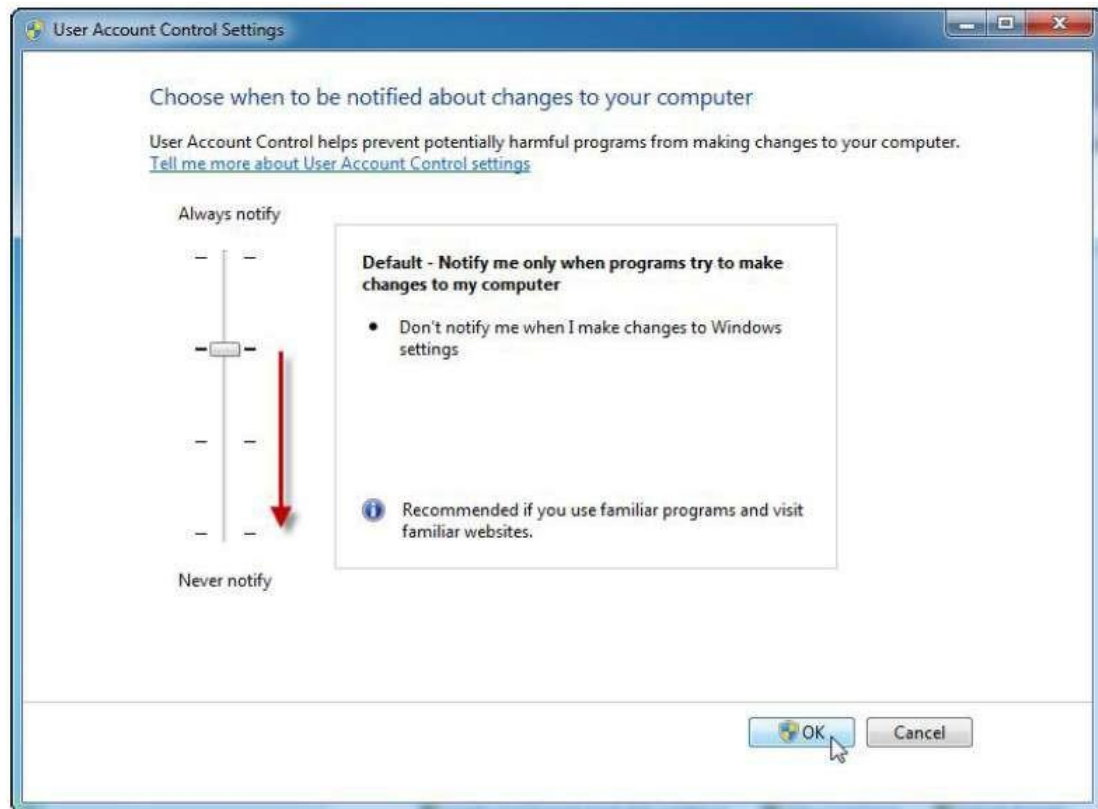
To turn UAC back on, move the slider to choose when you want to be notified, and then click OK. If
you're prompted for an administrator password or confirmation, type the password or provide
confirmation.
You will need to restart your computer for UAC to be turned off.

AMI BIOS Setup

This chapter describes how to set up the BIOS configuration

Chapter 7 AMI BIOS SETUP

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

The BIOS (Basic Input / Output System) is a layer of the software called 'firmware' which translates instructions from software (such as the operating system) into instructions that allow the computer hardware to understand the software programs. The BIOS settings also identify installed devices and establish many 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 <DEL> to enter Setup.

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

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

```
          Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
    Main  Advanced  Chipset  Boot  Security  Save & Exit

    BIOS Information                                        Intel Reference Code version
    BIOS Vendor                    American Megatrends
    Core Version                   4.6.5.0
    Compliancy                     UEFI 2.1; PI 1.1
    Project Version                ID30_003
    Build Date and Time            12/14/2011 09:24:13
  ► Intel RC Version

    System Language                [English]

    System Date                    [Thu 01/01/2009]
    System Time                    [00:36:43]

    Access Level                   User                     →←: Select Screen
    Access Level                   Administrator            ↑↓: Select Item
  ►                                                         Enter: Select
                                                            +/-: Change Opt.
                                                            F1: General Help
                                                            F2: Previous Values
                                                            F3: Optimized Defaults
                                                            F4: Save & Exit
                                                            ESC: Exit

          Version 2.13.1216. Copyright (C) 2011 American Megatrends, Inc.
```

The Main BIOS setup image has two main frames. The left frame displays all the options that can be configured. Grayed-out options cannot be configured. On the contrary, options in blue can be configured. 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.

7.1 Advanced Setting

```
          Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
     Main   Advanced   Chipset   Boot   Security   Save & Exit

                                                           Enable or Disable Boot Option
                                                           for Legacy Network Devices.
     Legacy OpROM Support
     Launch PXE OpROM               [Enabled]
     Launch Storage OpROM           [Enabled]

     ▶ PCI Subsystem Settings
     ▶ ACPI Settings
     ▶ S5 RTC Wake Settings
     ▶ CPU Configuration
     ▶ Thermal Configuration
     ▶ IDE Configuration          ┌──── Launch PXE OpROM ────┐
     ▶ Intel Fast Flash Standy    │  Disabled                │
     ▶ USB Configuration          │  Enabled                 │
     ▶ F81865 Super IO Configuration└────────────────────────┘
     ▶ F81865 H/W Monitor                                     ──────────────────────
     ▶ PPM Configuration                                      →←: Select Screen
                                                              ↑↓: Select Item
                                                              Enter: Select
                                                              +/-: Change Opt.
                                                              F1: General Help
                                                              F2: Previous Values
                                                              F3: Optimized Defaults
                                                              F4: Save & Exit
                                                              ESC: Exit

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```

➢ **Launch PXE OpROM**

SETTING	DESCRIPTION
Disabled	Use this setting to ignore all PXE Option ROMs.
Enabled	Use this setting to load PXE Option ROMs. To limit the PXE support to particular devices, use the function Use device for PXE.

Default: Disabled

➢ **Launch Storage OpROM**

SETTING	DESCRIPTION
Disabled	Use this setting to ignore all Storage Option ROMs.
Enabled	Use this setting to load Storage Option ROMs. To limit the Storage support to particular devices, use the function Use device for Storage.

Default: Disabled

➢ **PCI ROM Priority**

Selects the PCI Option ROM to launch in case Multiple Option ROMs (**Legacy ROM** and **EFI Compatible ROM**) are present.

➢ **PCI Latency Timer**

Use this function to select the number of PCI bus clocks to be used for the PCI latency timer.

SETTING	DESCRIPTION
32 PCI Bus Clocks	Use this setting to program the PCI latency timer to 32 PCI bus clocks.
64 PCI Bus Clocks	Use this setting to program the PCI latency timer to 64 PCI bus clocks.
96 PCI Bus Clocks	Use this setting to program the PCI latency timer to 96 PCI bus clocks.
128 PCI Bus Clocks	Use this setting to program the PCI latency timer to 128 PCI bus clocks.
160 PCI Bus Clocks	Use this setting to program the PCI latency timer to 160 PCI bus clocks.
192 PCI Bus Clocks	Use this setting to program the PCI latency timer to 192 PCI bus clocks.
224 PCI Bus Clocks	Use this setting to program the PCI latency timer to 224 PCI bus clocks.
248 PCI Bus Clocks	Use this setting to program the PCI latency timer to 248 PCI bus clocks.

Default: 32 PCI Bus Clocks

➢ **VGA Palette Snoop**

This filed controls the ability of a primary PCI VGA controller to share a common palette (when a snoop write cycles) with an ISA video card.

Enables or Disables VGA Palette Registers Snooping.

Default: Disabled

➢ **PERR# Generation**

Enables or Disables PCI Device to Generate PERR#.

Default: Disabled

➢ **SERR# Generation**

Enables or Disables PCI Device to Generate SERR#.

Default: Disabled

ACPI Settings

➢ **Enable ACPI Auto Configuration**

Enables or Disables BIOS ACPI Auto Configuration

```
          Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
      Advanced

   ACPI Settings                                      Enables or Disables BIOS ACPI
                                                      Auto Configuration.
   Enable ACPI Auto Configuration        [Disabled]

   Enable Hibernation                    [Enabled]
   ACPI Sleep State                      [S3 (Suspend to RAM)]
   Lock Legacy Resources                 [Disabled]


                    ┌──── Enable ACPI Auto Configuration ────┐
                    │ Disabled                               │
                    │ Enabled                                │
                    │                                        │
                    └────────────────────────────────────────┘
                                                      elect Screen
                                                      elect Item
                                                   Enter: Select
                                                   +/-: Change Opt.
                                                   F1: General Help
                                                   F2: Previous Values
                                                   F3: Optimized Defaults
                                                   F4: Save & Exit
                                                   ESC: Exit




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```

Default: Disabled

➢ **Enable Hibernation**

Enables or Disables System ability to Hibernate. This option may be not effective with some OS.

➢ **ACPI Sleep State**

SETTING	DESCRIPTION
Suspend Disable	System ability to Hibernate (OS/S3 Sleep State)
S1	CPU Stop Clock
S3	Suspend to RAM

Default: S3 (Suspend to RAM)

➢ **Lock Legacy Resources**

Enables or Disable Lock of Legacy Resource.

Default: Disable

S5 RTC Wake Settings
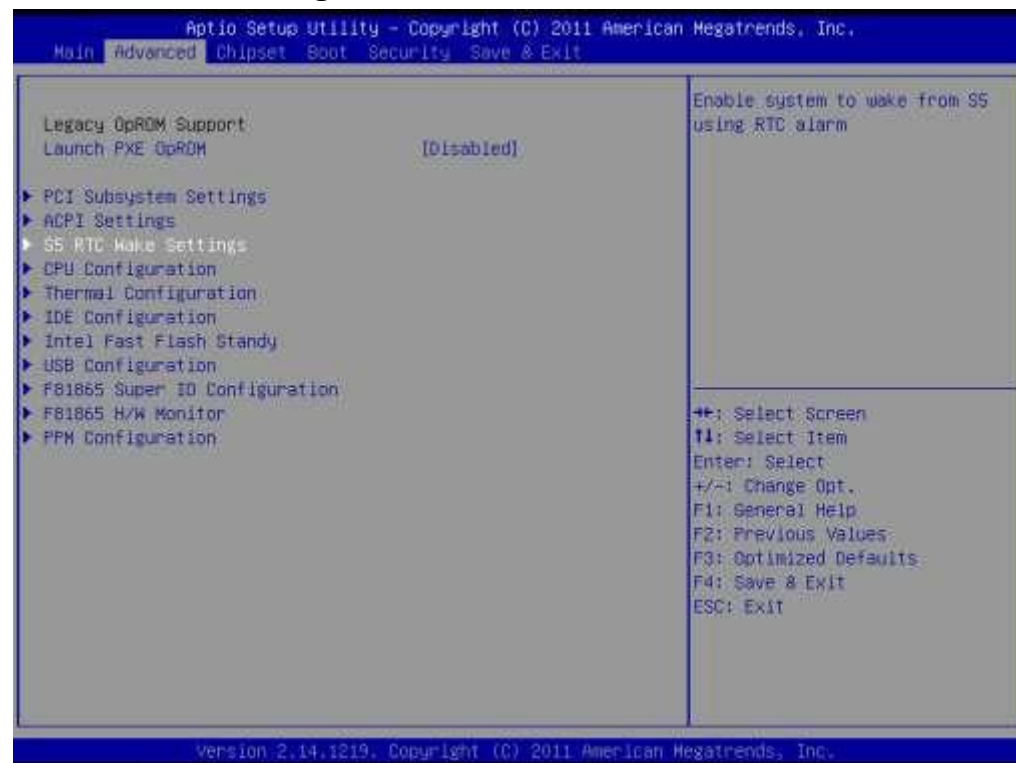
SETTING	DESCRIPTION
Wake system with Fixed Time	System wake on alarm event. When enabled, System will wake on the hr: min:: sec specified.
Wake system with Dynamic Time	Options: Enabled, Disabled

CPU Configuration

> **Hyper-threading**

Enabled for Windows XP and Linux (OS optimized for Hyper-Threading Technology) and Disabled for other OS (OS not optimized for Hyper-Threading Technology). When Disabled, only one thread per enabled core is enabled.

> **Execute Disable Bit**

XD can prevent certain classes of malicious buffer overflow attacks when combined with a supporting OS (Windows Server 2003 SP1, Windows XP SP2, SuSE Linux 9.2, RedHat Enterprise 3 Update 3.)

> **Limit CPUID Maximum**

Disabled for Windows XP

Thermal Configuration

> ➢ **CPU Thermal Configuration > DTS SMM**
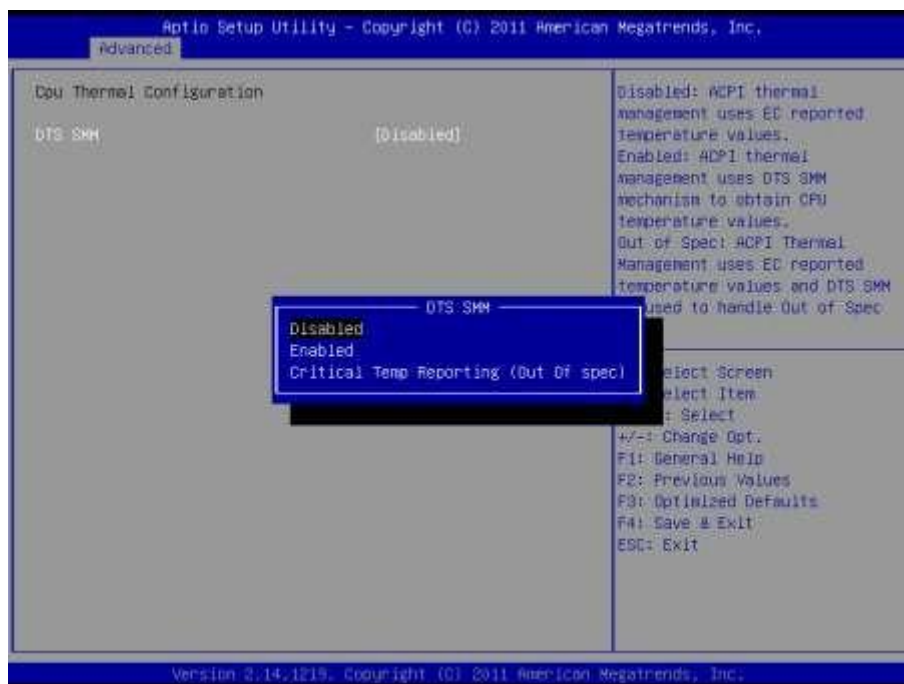
SETTING	DESCRIPTION
Disabled	Uses EC reported temperature values
Enabled	Uses DTS SMM mechanism to obtain CPU temperature value
Critical Temp Reporting(Out of spec)	Uses EC reported temperature values and DTS SMM to handle out of spec

➢ **Critical Trip Point**

This value controls the temperature of the ACPI critical Trip point—the point in which the OS will shut the system off.
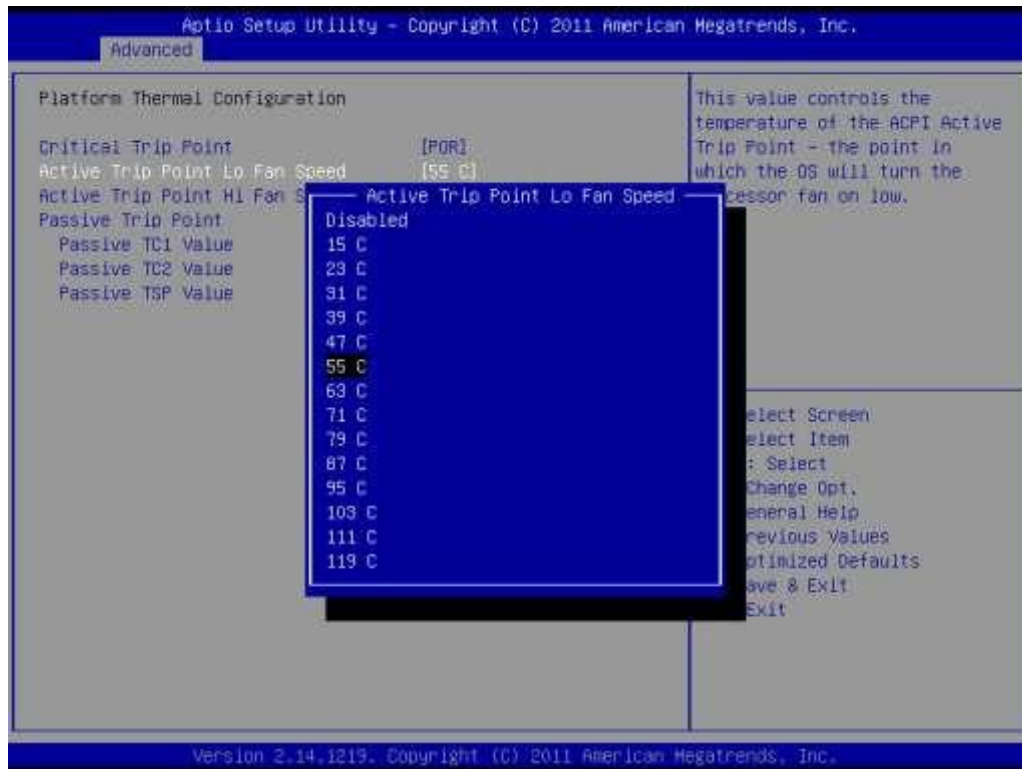
➢ **Active Trip Point Lo Fan Speed**

➢ **Active Trip Point Hi Fan Speed**

This field enables or disables the smart fan feature. At a certain temperature, the fan starts turning. Once the temperature drops to a certain level, it stops turning again.

➢ **Passive TC1 Value**

➢ **Passive TC2 Value**

➢ **Passive TSP Value**

IDE Configuration

```
Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
  Main  Advanced  Chipset  Boot  Security  Save & Exit
                                                    ┌─────────────────────────┐
                                                    │ IDE Devices Configuration│
                                                    │                          │
    Legacy OpROM Support                            │                          │
    Launch PXE OpROM              [Disabled]        │                          │
                                                    │                          │
  ▶ PCI Subsystem Settings                          │                          │
  ▶ ACPI Settings                                   │                          │
  ▶ S5 RTC Wake Settings                            │                          │
  ▶ CPU Configuration                               │                          │
  ▶ Thermal Configuration                           │                          │
  ▶ IDE Configuration                               │                          │
  ▶ Intel Fast Flash Standy                         │                          │
  ▶ USB Configuration                               │                          │
  ▶ F81865 Super IO Configuration                   ├─────────────────────────┤
  ▶ F81865 H/W Monitor                              │ ➜←: Select Screen        │
  ▶ PPM Configuration                               │ ↑↓: Select Item          │
                                                    │ Enter: Select            │
                                                    │ +/-: Change Opt.         │
                                                    │ F1: General Help         │
                                                    │ F2: Previous Values      │
                                                    │ F3: Optimized Defaults   │
                                                    │ F4: Save & Exit          │
                                                    │ ESC: Exit                │
                                                    │                          │
                                                    │                          │
                                                    └─────────────────────────┘
        Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.
```

> ➢ **Configure SATA as**

Determines how SATA controllers(s) operate. The options are IDE and AHCI.

```
Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
  Advanced
                                                    ┌─────────────────────────┐
  SATA Port0              Not Present               │ Select a configuration for│
  SATA Port1              Not Present               │ SATA Controller.         │
                                                    │                          │
   SATA Controller(s)     [Enabled]                 │                          │
                                                    │                          │
   Configure SATA as      [AHCI]                    │                          │
    Port0 Speed Limit     [No Limit]                │                          │
    Port1 Speed Limit     [No Limit]                │                          │
                                                    │                          │
    SATA Port 0           [Enabled]                 │                          │
    SATA Port 0 Hot Plug  ┌───── Configure SATA as ─────┐                      │
    SATA Port 1           │ IDE                         │                      │
    SATA Port 1 Hot Plug  │ AHCI                        │                      │
                          └─────────────────────────────┘                      │
  Misc Configuration for hard disk                  │ ➜←: Select Screen        │
                                                    │ ↑↓: Select Item          │
                                                    │ Enter: Select            │
                                                    │ +/-: Change Opt.         │
                                                    │ F1: General Help         │
                                                    │ F2: Previous Values      │
                                                    │ F3: Optimized Defaults   │
                                                    │ F4: Save & Exit          │
                                                    │ ESC: Exit                │
                                                    │                          │
                                                    └─────────────────────────┘
        Version 2.13.1216. Copyright (C) 2011 American Megatrends, Inc.
```

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➢ **Port0 Speed Limit**

Select Port0 AHCI Speed Limit. The options are No Limit, GEN1 Rate and GEN2 Rate.

```
          Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
          Advanced

  SATA Port0                      Not Present          Select Port0 AHCI Speed Limit.

    SATA Controller(s)            [Enabled]

    Configure SATA as             [AHCI]
      Port0 Speed Limit           [No Limit]

      SATA Port 0                 [Enabled]
      SATA Port 0 Hot Plug        [Enabled]

  Misc Configuration for hard dis┌──── Port0 Speed Limit ────┐
                                  │ No Limit                  │
                                  │ GEN1 Rate                 │
                                  │ GEN2 Rate                 │
                                  └───────────────────────────┘
                                                        →: Select Screen
                                                        ↓: Select Item
                                                        nter: Select
                                                        +/-: Change Opt.
                                                        F1: General Help
                                                        F2: Previous Values
                                                        F3: Optimized Defaults
                                                        F4: Save & Exit
                                                        ESC: Exit

          Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.
```

➢ **SATA Port 0/1**

Enable or disable SATA Port.

➢ **SATA Port 0/1 Hot Plug**

Designates this port as Hot Pluggable

.

Intel Fast Flash Standy

> ➢ **iFFS Support**

Enable or disable

USB Configuration

```
          Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
   Main  Advanced  Chipset  Boot  Security  Save & Exit
                                                          USB Configuration Parameters
   Legacy OpROM Support
   Launch PXE OpROM                    [Enabled]
   Launch Storage OpROM                [Enabled]

 ▶ PCI Subsystem Settings
 ▶ ACPI Settings
 ▶ S5 RTC Wake Settings
 ▶ CPU Configuration
 ▶ Thermal Configuration
 ▶ IDE Configuration
 ▶ Intel Fast Flash Standy
 ▶ USB Configuration
 ▶ F81865 Super IO Configuration        →←: Select Screen
 ▶ F81865 H/W Monitor                   ↑↓: Select Item
 ▶ PPM Configuration                    Enter: Select
                                        +/-: Change Opt.
                                        F1: General Help
                                        F2: Previous Values
                                        F3: Optimized Defaults
                                        F4: Save & Exit
                                        ESC: Exit




          Version 2.13.1216. Copyright (C) 2011 American Megatrends, Inc.
```

➢ **Legacy USB support**

Enables Legacy USB support. AUTO option disable legacy support if no USB devices are connected. DISABLE option will keep USB devices available only for EFI applications.

➢ **ECHI Hand-off**

This is a workaround for OSes without EHCI hand-off support. The EHCI ownership change should be claimed by EHCI driver.

Default: Disabled

➢ **USB transfer time-out**

The time-out value for control, bulk, and Interrupt transfers.

Default: 20 sec

➢ **Device reset time-out**

The USB mass storage device Start Unit command time-out.

Default: 20 sec

➢ **Device power-up delay**

Maximun time the device will take before it properly reports itself to the Host Controller. 'Auto' uses default value: for a Root port it is 100 ms, for a Hub port the delay is taken from Hub descriptor.

➢ **Mass Storage Device:**

Mass storage device emulation type. 'AUTO' enumerates devices less than 530MB as floppies. Forced FDD option can be used to force HDD formatted drive to boot as FDD.

F81865 Super IO Configuration

System Super IO Chip Parameters.

```
                Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
      Main  Advanced  Chipset  Boot  Security  Save & Exit
 ┌──────────────────────────────────────────────────────┬────────────────────────────┐
 │                                                        │ System Super IO Chip       │
 │  Legacy OpROM Support                                  │ Parameters.                │
 │  Launch PXE OpROM                    [Enabled]         │                            │
 │  Launch Storage OpROM                [Enabled]         │                            │
 │                                                        │                            │
 │ ▶ PCI Subsystem Settings                               │                            │
 │ ▶ ACPI Settings                                        │                            │
 │ ▶ S5 RTC Wake Settings                                 │                            │
 │ ▶ CPU Configuration                                    │                            │
 │ ▶ Thermal Configuration                                │                            │
 │ ▶ IDE Configuration                                    │                            │
 │ ▶ Intel Fast Flash Standy                              │                            │
 │ ▶ USB Configuration                                    │                            │
 │ ▶ F81865 Super IO Configuration                        │ ↔: Select Screen           │
 │ ▶ F81865 H/W Monitor                                   │ ↑↓: Select Item            │
 │ ▶ PPM Configuration                                    │ Enter: Select              │
 │                                                        │ +/-: Change Opt.           │
 │                                                        │ F1: General Help           │
 │                                                        │ F2: Previous Values        │
 │                                                        │ F3: Optimized Defaults     │
 │                                                        │ F4: Save & Exit            │
 │                                                        │ ESC: Exit                  │
 │                                                        │                            │
 │                                                        │                            │
 │                                                        │                            │
 └──────────────────────────────────────────────────────┴────────────────────────────┘
            Version 2.13.1216. Copyright (C) 2011 American Megatrends, Inc.
```

> ➢ **Serial Port 1、2、3 、4、5 Configuration**

```
                Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
        Advanced
 ┌──────────────────────────────────────────────────────┬────────────────────────────┐
 │  F81865 Super IO Configuration                        │ Set Parameters of Serial Port│
 │                                                        │ 1 (COMA)                   │
 │  F81865 Super IO Chip            F81865                │                            │
 │ ▶ Serial Port 1 Configuration                          │                            │
 │ ▶ Serial Port 2 Configuration                          │                            │
 │ ▶ Serial Port 3 Configuration                          │                            │
 │ ▶ Serial Port 4 Configuration                          │                            │
 │ ▶ Serial Port 5 Configuration                          │                            │
 │ ▶ GPIO Port Configuration                              │                            │
 │  Watch Dog Timer Select          [Disabled]            │                            │
 │                                                        │                            │
 │                                                        │ ↔: Select Screen           │
 │                                                        │ ↑↓: Select Item            │
 │                                                        │ Enter: Select              │
 │                                                        │ +/-: Change Opt.           │
 │                                                        │ F1: General Help           │
 │                                                        │ F2: Previous Values        │
 │                                                        │ F3: Optimized Defaults     │
 │                                                        │ F4: Save & Exit            │
 │                                                        │ ESC: Exit                  │
 │                                                        │                            │
 │                                                        │                            │
 │                                                        │                            │
 └──────────────────────────────────────────────────────┴────────────────────────────┘
            Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.
```

Set Parameters of Serial Ports. User can Enable/Disable the serial port and Select an optimal settings for the Super IO Device. User can also adjust the COM port mode.

Default: Enable, RS232

The watchdog timer circuit has to be triggered within a specified time by the application software. If the watchdog is not triggered because proper software execution fails or a hardware malfunction occurs, it will reset the system

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➢ **GPIO Port Configuration**

```
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    Advanced

  F81865 Super IO Configuration

  F81865 Super IO Chip              F81865
▶ Serial Port 1 Configuration
▶ Serial Port 2 Configuration
▶ Serial Port 3 Configuration
▶ Serial Port 4 Configuration
▶ Serial Port 5 Configuration
▶ GPIO Port Configuration
  Watch Dog Timer Select            [Disabled]

                                                        →←: Select Screen
                                                        ↑↓: Select Item
                                                        Enter: Select
                                                        +/-: Change Opt.
                                                        F1: General Help
                                                        F2: Previous Values
                                                        F3: Optimized Defaults
                                                        F4: Save & Exit
                                                        ESC: Exit

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```

```
         Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
    Advanced

  GPIO Port Configuration

  DOUT 0 Control                    [Intput]
  DOUT 1 Control                    [Intput]
  DOUT 2 Control                    [Intput]
  DOUT 3 Control                    [Intput]
  DINT 0 Control                    [Intput]
  DINT 1 Control                    [Intput]
  DINT 2 Control                    [Intput]
  DINT 3 Control                    [Intput]
  GPIO11_OUT 0 Control    ┌──── DOUT 0 Control ────┐
  GPIO10_OUT 1 Control    │ Output Low             │
  GPIO20_IN 0 Control     │ Output High            │
  GPIO14_IN 1 Control     │ Intput                 │   →←: Select Screen
                          └────────────────────────┘   ↑↓: Select Item
                                                        Enter: Select
                                                        +/-: Change Opt.
                                                        F1: General Help
                                                        F2: Previous Values
                                                        F3: Optimized Defaults
                                                        F4: Save & Exit
                                                        ESC: Exit

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```

➢ **F81865 H/W Monitor**

```
           Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
    Main  Advanced  Chipset  Boot  Security  Save & Exit

                                                       Monitor hardware status

    Legacy OpROM Support
    Launch PXE OpROM                 [Enabled]
    Launch Storage OpROM             [Enabled]

  ▶ PCI Subsystem Settings
  ▶ ACPI Settings
  ▶ S5 RTC Wake Settings
  ▶ CPU Configuration
  ▶ Thermal Configuration
  ▶ IDE Configuration
  ▶ Intel Fast Flash Standy
  ▶ USB Configuration
  ▶ F81865 Super IO Configuration
  ▶ F81865 H/W Monitor                                 ↔: Select Screen
  ▶ PPM Configuration                                  ↑↓: Select Item
                                                       Enter: Select
                                                       +/-: Change Opt.
                                                       F1: General Help
                                                       F2: Previous Values
                                                       F3: Optimized Defaults
                                                       F4: Save & Exit
                                                       ESC: Exit




          Version 2.13.1216. Copyright (C) 2011 American Megatrends, Inc.
```
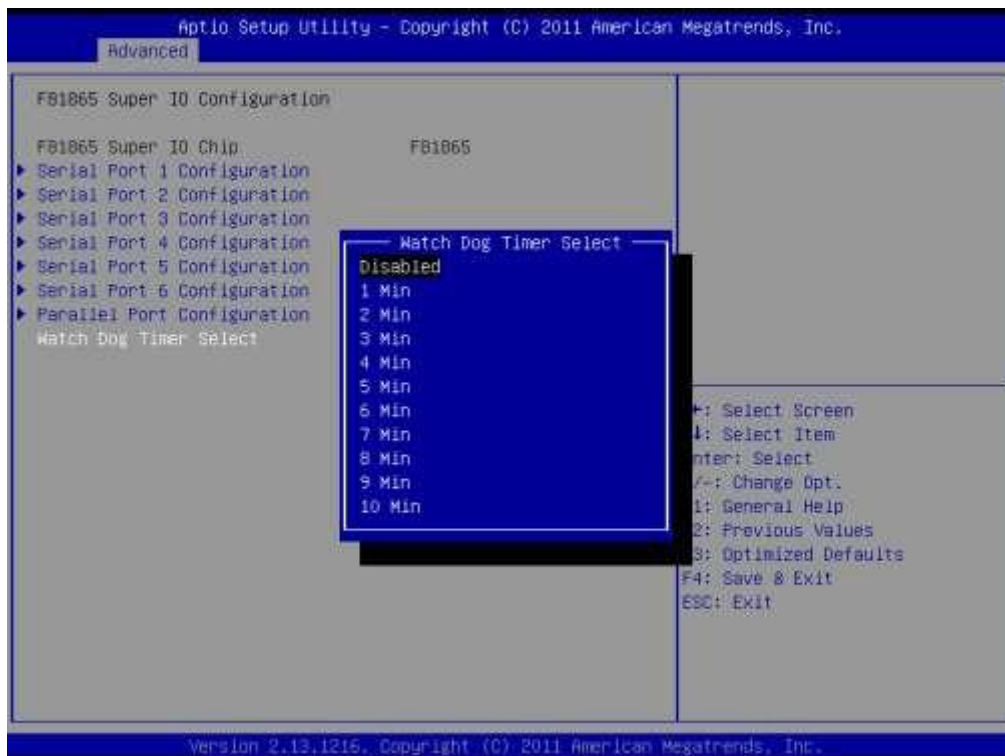
```
           Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
       Advanced

  Pc Health Status                                     Config smart fan mode

  System temperature1              : +41 C
  System temperature2              : +37 C
  Fan1 Speed                       : N/A
  Fan2 Speed                       : 5084 RPM
  VIN0                             : +1.192 V
  VIN1                             : +5.045 V
  VIN2                             : +12.144 V
  VIN3              ┌──── Fan 1 Smart Fan Control ────┐
  VCC3V             │ Disabled                        │
  VSB3V             │ 50 C                            │
  VBAT              │ 60 C                            │
  Fan 1 Smart Fan Control │ 70 C                      │: Select Screen
  Fan 2 Smart Fan Control └─────────────────────────┘: Select Item
                                                      ter: Select
                                                       +/-: Change Opt.
                                                       F1: General Help
                                                       F2: Previous Values
                                                       F3: Optimized Defaults
                                                       F4: Save & Exit
                                                       ESC: Exit




          Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.
```
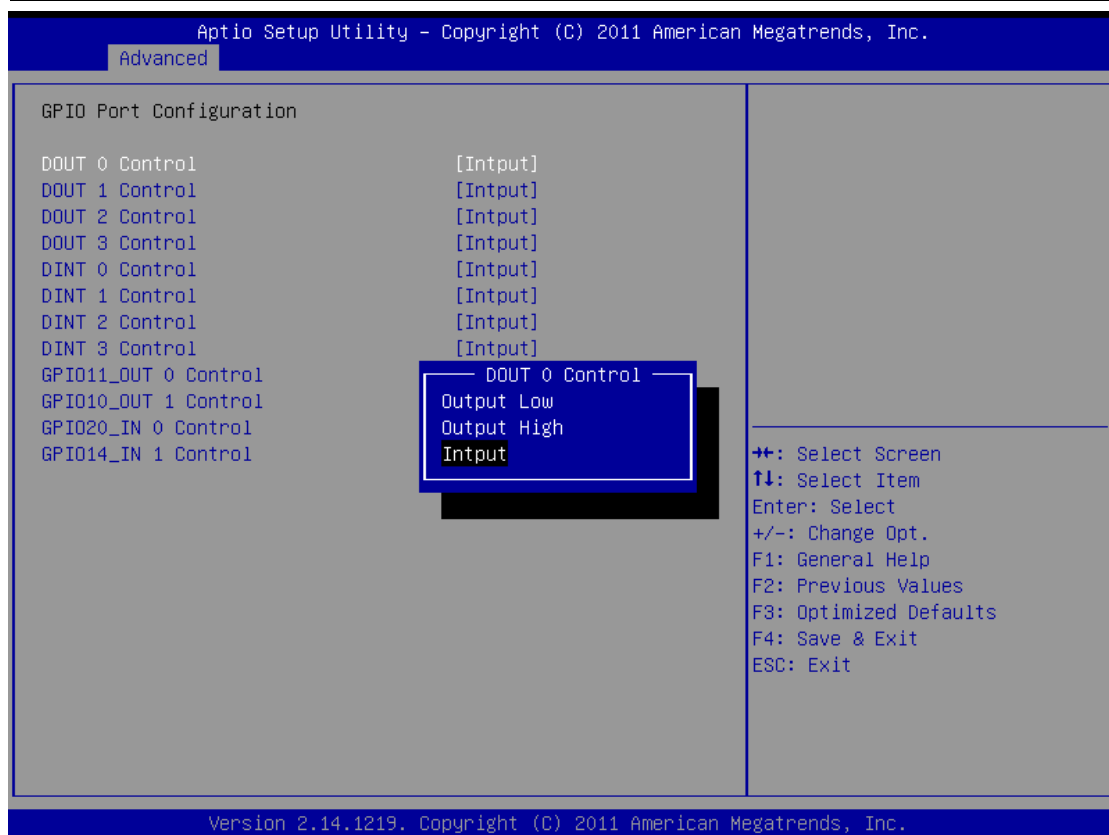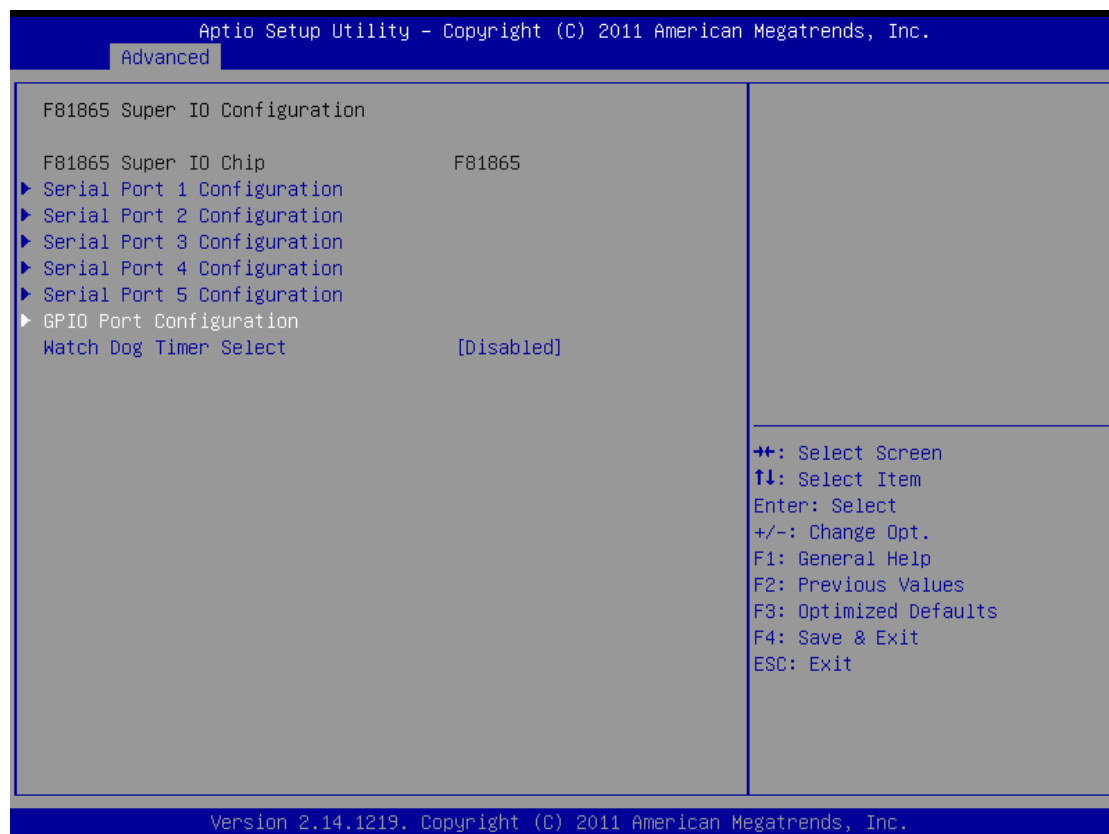
Fan 1、2 Config smart fan mode, can choose 50,60 and 70 three degree mode

PPM Configuration

➢ **EIST**

  Enable/Disable Intel SpeedStep.

➢ **CPU C state Report**

Enable/Disable CPU C state report to OS.

➢ **C4 Exit Timing**

This option controls a programmable time for the CPU voltage to stabilize when exiting from a C4 state.

Chipset

This section allows you to configure and improve your system and allows you to set up some system features according to your preference.

➢ **Memory Frequency and Timing**

➢ **Intel IGD Configuration**

➢ **Primary Display**

Select which of IGFX/PEG/PCI Graphics device should be Primary display.

➢ **Internal Graphics**

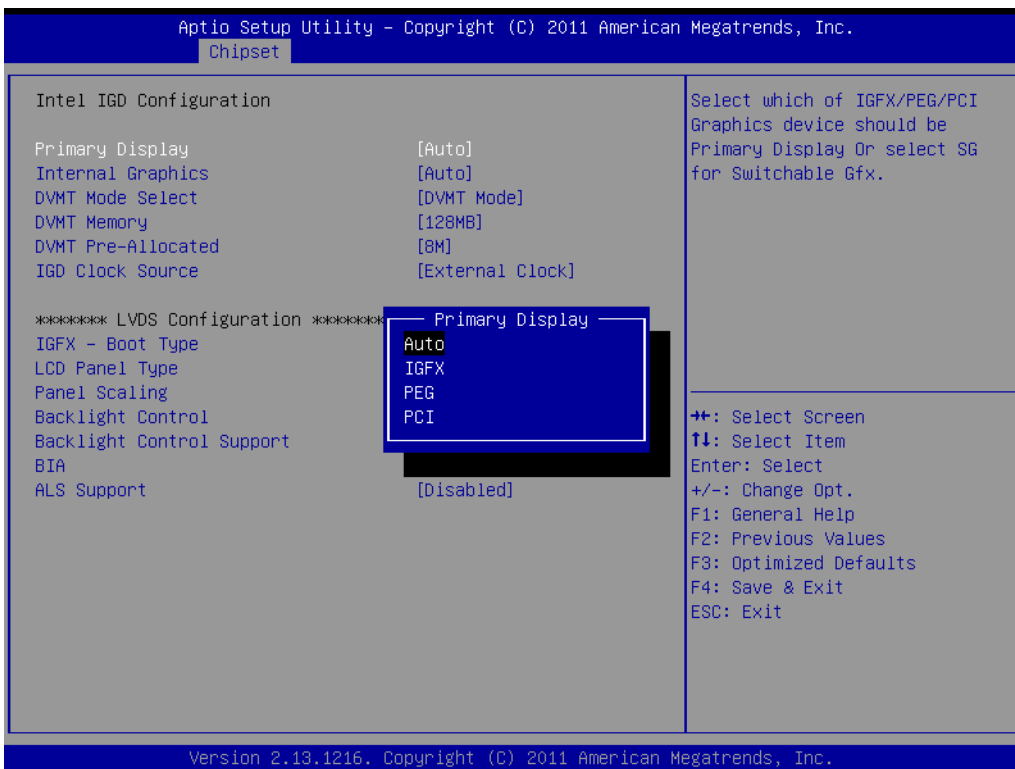Keep IGD enabled based on the setup options.
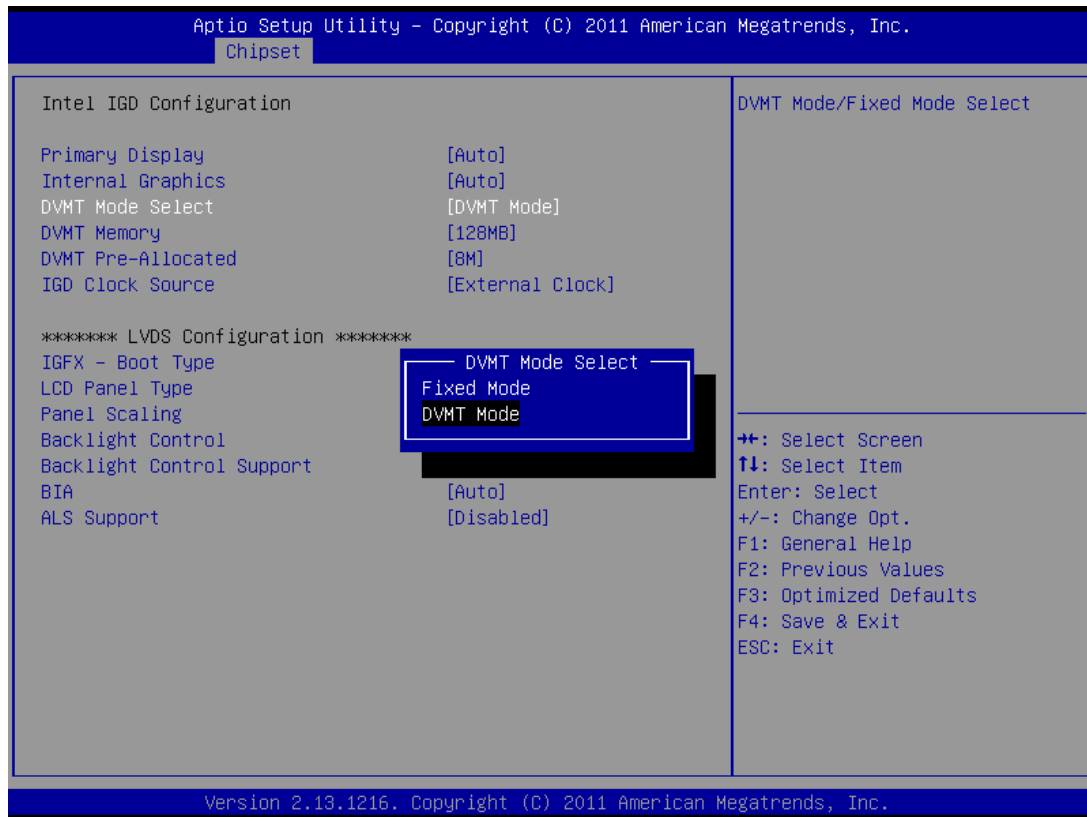
➢ **DVMT**

Intel's Dynamic Video Memory Technology (DVMT) takes that concept further by allowing the system to dynamically allocate memory resources according to the demands of the system at any point in time. The key idea in DVMT is to improve the efficiency of the memory allocated to either system or graphics processor.

➢ **IGD Clock Source**

IGD clock selection.

➢ **LCD   Panel Type**

Select LCD panel used by Internal Graphics Device by selecting the appropriate setup item.

➢ **Panel Scaling**

Select the LCD panel scaling option used by the Internal Graphics Device.

➢ **Backlight Control**

IGD clock selection.

➢ **Backlight Control Support**

Back Light Control Setting.

➢ **BIA**

Auto:GMCH Use VBT Default; Level n: Enabled with Selected Aggressiveness Level, .

➢ **ALS Support**

Valid only for ACPI.

➤ **TPT Devices**

Enable/Disable Intel IO controller hub device

➤ **PCI Express Root Port 0/1/2/3**

PCI Express root port settings

➤ **DMI Link ASPM Control**

The Desktop Management Interface (DMI) generates a standard framework for managing and tracking components in a desktop, notebook or server computer, by abstracting these components from the software that manages them.
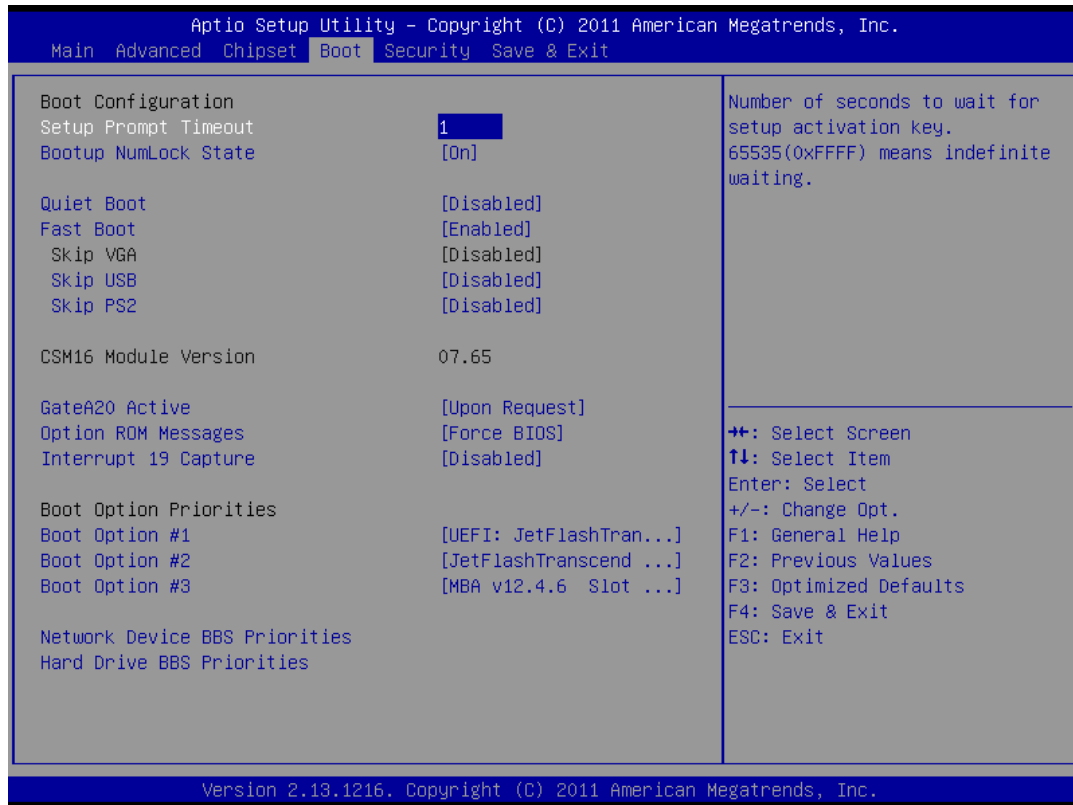
➤ **PCI-Exp. High Priority Port**

Select a PCI Express High Priority Port.

5.3 Boot

➤ **Setup Prompt Timeout**

Number of seconds to wait for setup activation key. 65535 (0xFFFF) means indefinite waiting.

Default: 1

```
          Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
   Main  Advanced  Chipset  Boot  Security  Save & Exit

   Boot Configuration                                     Number of seconds to wait for
   Setup Prompt Timeout            1                       setup activation key.
   Bootup NumLock State            [On]                    65535(0xFFFF) means indefinite
                                                           waiting.
   Quiet Boot                      [Disabled]
   Fast Boot                       [Enabled]
    Skip VGA                       [Disabled]
    Skip USB                       [Disabled]
    Skip PS2                       [Disabled]

   CSM16 Module Version            07.65

   GateA20 Active                  [Upon Request]
   Option ROM Messages             [Force BIOS]          →←: Select Screen
   Interrupt 19 Capture            [Disabled]            ↑↓: Select Item
                                                         Enter: Select
   Boot Option Priorities                                +/-: Change Opt.
   Boot Option #1                  [UEFI: JetFlashTran...]  F1: General Help
   Boot Option #2                  [JetFlashTranscend ...]  F2: Previous Values
   Boot Option #3                  [MBA v12.4.6  Slot ...]  F3: Optimized Defaults
                                                         F4: Save & Exit
   Network Device BBS Priorities                         ESC: Exit
   Hard Drive BBS Priorities



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```

➤ **Bootup NumLock State**

Select the keyboard NumLock State

Default: On

➤ **Quiet Boot**

Enable or Disable Quiet Boot Option.

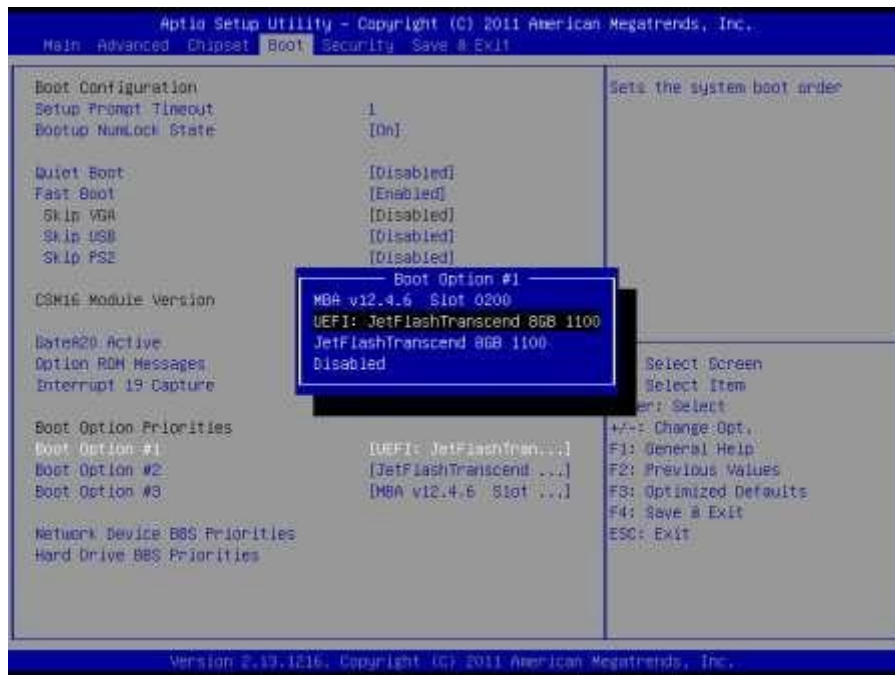**Default:** Disable

➤ **GateA20 Active**

UPON REQUEST – GA20 can be disabled using BIOS services. Always – do not allow disabling GA20; this option is useful when any RT code is executed above 1MB.

➤ **Option ROM Messages**

Set display mode for Option ROM. Options are Force BIOS and Keep Current.

➤ **Interrupt 19 Canture**

Enable: Allows Option ROMs to trap Int 19.

➢ **Boot Option**

This option shows the priorities of the boot options. User can change the priorities by selecting the particular boot option. The boot option selected in Boot option #1 will be the first priority, followed by second, third and so on.
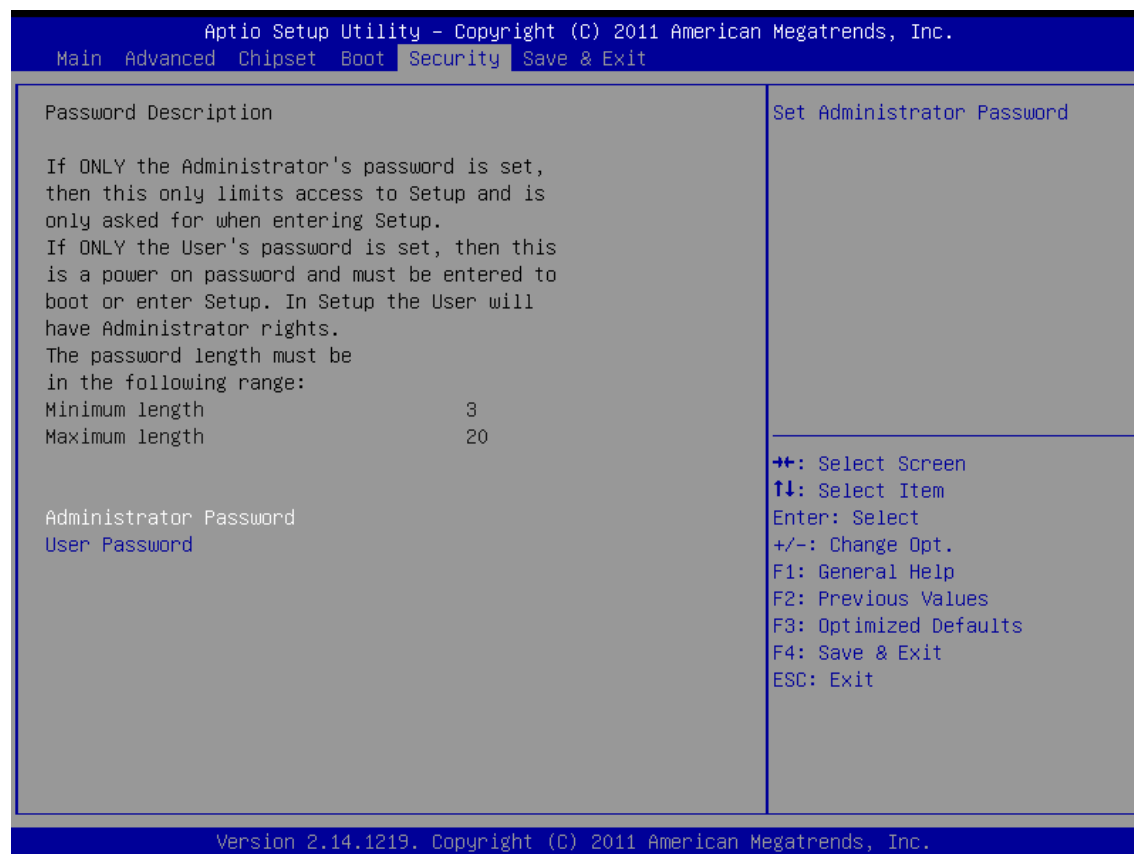

➢ **Network/Hard Device BBS Priorities**

It will list all the Boot options that are configured as Network/Hard Drive. User can change the priority as similar to the main boot option priorities. The first boot option will be having top boot priority and will appear at the boot option priorities and boot order.

5.4   Security

➢ **Administrator Password**

This section allows you to configure and improve your system and allows you to set up some system features according to your preference.

```
           Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
    Main  Advanced  Chipset  Boot  Security  Save & Exit

  Password Description                                   Set Administrator Password

  If ONLY the Administrator's password is set,
  then this only limits access to Setup and is
  only asked for when entering Setup.
  If ONLY the User's password is set, then this
  is a power on password and must be entered to
  boot or enter Setup. In Setup the User will
  have Administrator rights.
  The password length must be
  in the following range:
  Minimum length                    3
  Maximum length                   20
                                                         →←: Select Screen
                                                         ↑↓: Select Item
                                                         Enter: Select
  Administrator Password                                 +/-: Change Opt.
  User Password                                          F1: General Help
                                                         F2: Previous Values
                                                         F3: Optimized Defaults
                                                         F4: Save & Exit
                                                         ESC: Exit



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```

➢ **Administrator Password**

Set Setup Administrator Password.

➢ **User Password**

Set User Password.

5.5 Save & Exit

```
              Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
    Main   Advanced   Chipset   Boot   Security   Save & Exit

  Save Changes and Exit                                    Exit system setup after saving
  Discard Changes and Exit                                 the changes.
  Save Changes and Reset
  Discard Changes and Reset

  Save Options
  Save Changes
  Discard Changes
                          ─── Save & Exit Setup ───
  Restore Defaults
  Save as User Defaults      Save configuration and exit?
  Restore User Defaults
                                                          ←: Select Screen
  Boot Override                                           ↓: Select Item
  MBA v12.4.6  Slot 0200          Yes        No           nter: Select
  UEFI: JetFlashTranscend 8GB 110                         /-: Change Opt.
  JetFlashTranscend 8GB 1100                              F1: General Help
                                                          F2: Previous Values
  Launch EFI Shell from filesystem device                F3: Optimized Defaults
                                                          F4: Save & Exit
                                                          ESC: Exit




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```

➢ **Save Changes and Exit**

Exit system setup after saving the changes.

➢ **Disacard Changes and Exit**

Exit system setup without saving any changes.

➢ **Save Changes and Reset**

Reset the system after saving the changes.

➢ **Discard Changes and Reset**

Reset system setup without saving any changes.

➢ **Save Changes**

Save Changes done so far to any of the setup options.

➢ **Discard Changes**

Discard Changes done so far to any of the setup options.

➢ **Restore Defaults**

Restore/Load Defaults values for all the setup options.

➢ **Save as User Defaults**

Save the changes done so far as User Defaults.

➢ **Restore User Defaults**

Restore the User Defaults to all the setup options.

➢ **Launch EFI Shell from filesystem devices**

Attempts to launch EFI shell application from one of the available filesystem devices.

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Note1: Digital I/O Sample Code

```cpp
//File of the Main.cpp
//==========================================================
//This code is for test IA30 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,ucBuf|0x01);


//    Bit0 = 0 -> GPIO1 is inactive.
//    Bit1 = 1 -> Activate GPIO1.
        ucBuf = Get_W83627EHG_Reg(0x30);
        Set_W83627EHG_Reg(0x30,ucBuf|0x01);//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(); }
}
```

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```
//--------------------------------------------------------------------

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>
#include <conio.h>
#include <stdio.h>
#include <stdlib.h>


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


//===============================================================
void Unlock_W83627(void);
void Lock_W83627(void);
void Set_W83627_Reg(unsigned char,unsigned char);
unsigned char Get_W83627_Reg(unsigned char);
//===============================================================

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;
}
//=====================================================================
```