USER'S MANUAL

SA-5082

Intel® Atom™ N455/D525
Mini-ITX MB with
VGA/LVDS/Audio/2LAN

SA-5082 M3

SA-5082 Intel® Atom™
D525/N455 Mini-ITX Motherboard With VGA/ LVDS/ Audio/ 2LAN

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ACKNOWLEDGEMENTS

CE NOTICE

This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

FCC NOTICE

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

You are cautioned that any change or modifications to the equipment not expressly approve by the party responsible for compliance could void your authority to operate such equipment.

CAUTION!

Danger of explosion if battery is incorrectly replaced.

Replace only with the same or equivalent type recommended by the manufacturer.
Dispose of used batteries according to the manufacturer's instructions.

Installation only by a trained electrician or only by an electrically trained person who knows all English Installation and Device Specifications which are to be applied.

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CHAPTER

1

INTRODUCTION

This chapter gives you the information for SA-5082. It also outlines the System specification.

Section includes:

- About This Manual
- System Specifications
- Safety precautions

Experienced users can skip to chapter 2 on page 2-1 for Quick Start.

1-1. ABOUT THIS MANUAL

Thank you for purchasing our SA-5082 Intel® Atom™ D525/N455 Mini-ITX Motherboard with VGA/LVDS/Audio/2LAN, which is fully PC/AT compatible. SA-5082 provides faster processing speed, greater expandability and can handle more tasks than before. This manual is designed to assist you how to install and set up the system. It contains four chapters. You can apply this manual for configuration according to the following chapters :

Chapter 1 Introduction

This chapter introduces you to the background of this manual, and the specifications for this system. The final page of this chapter will indicate how to avoid damaging this board.

Chapter 2 Hardware Configuration

This chapter outlines the component locations and their functions. In the end of this chapter, you will learn how to set jumper and how to configure this card to meet your own needs.

Chapter 3 Software Utilities

This chapter contains helpful information for proper installations of the VGA utility, LAN utility, and Sound utility.

Chapter 4 AMI BIOS Setup

This chapter indicates you how to set up the BIOS configurations.

Appendix A Expansion Bus

This appendix introduces you the expansion bus for 1 x PCI Bus, 1 x Mini-PCIe Bus and 1 x CF slot.

Appendix B Technical Summary

This section gives you the information about the Technical maps. It also describes the Watchdog-timer configuration, and Flash BIOS Update.

1-2. SYSTEM SPECIFICATION

SYSTEM	
CPU Type	Intel® ATOM™ D525 (1.8GHz)
Chipset	Intel® ICH8M
Memory Support	2 x 204 pin SO-DIMM DDR3 memory (up to 4GB)
Power Supply	Flex ATX 180W
O.S. Support	Windows XP / 7 / XPE
Dimension	300mm x 94mm x 270mm (11.8” x 3.7” x 10.6”)
System Weight	4.2 kg
Certificate	FCC / CE

I/O PORTS	
USB	6 x USB 2.0
Keyboard / Mouse	2 x PS/2 port
Audio	Lin-in/ Line-out/ MIC
Parallel Port	1 x Parallel Port
Serial Port	4 x COM port (2 Powered COM, 5/12V selectable at 9th pin)
Digital I/O	1 x 8bit Digital I/O
LAN	2 x LAN (10/100/1000 Mbps)
VGA	1 x D-SUB Support CRT 1 x LVDS: 18-bit, resolution up to 1366 x 768.
DC out	1 x 12V
Drive Bay	1 x 3.5" SATA HDD & 1 x Slim DVD-ROM or 2 x 2.5” SATA HDD / 1 x DVD-ROM
Expansion Slots	1 x CF slot, 1 x mini PCIe slot, 1 x PCI slot

ENVIRONMENT	
Operation Temp.	0~40°C
Storage Temp.	-20~60°C
Humidity	20~90%

1-3. SAFETY PRECAUTIONS

Follow the messages below to avoid your systems from damage:

1. Keep your system away from static electricity on all occasions.

2. Prevent electric shock. Don‘t touch any components of this card when the card is power-on. Always disconnect power when the system is not in use.

3. Disconnect power when you change any hardware devices. For instance, when you connect a jumper or install any cards, a surge of power may damage the electronic components or the whole system.

HARDWARE CONFIGURATION

CHAPTER

2

*** QUICK START ***

Helpful information that describes the jumper and connector settings, and component locations.

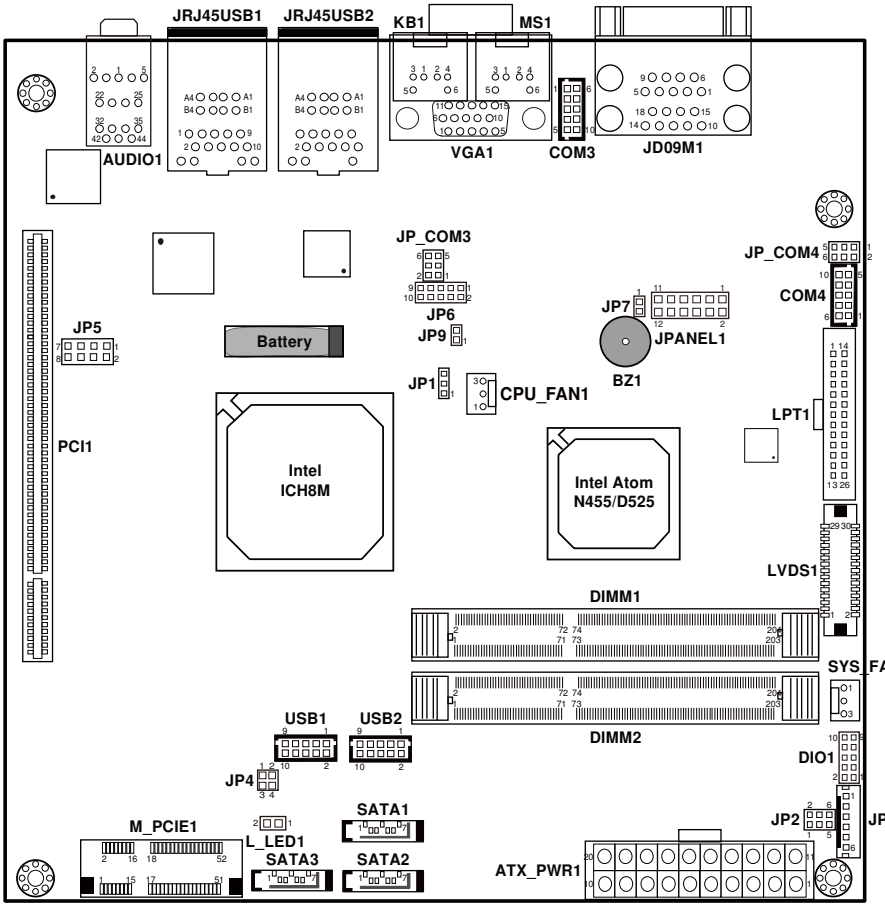
Sections included:

- Jumper & Connector Quick Reference Table
- Component Locations
- Configuration and Jumper settings
- Connector's Pin Assignments

2-1. JUMPER & CONNECTOR QUICK REFERENCE TABLE

CONNECTOR/JUMPER	NAME
Clear CMOS Data Selection	JP1
LVDS Panel Voltage Selection	JP2
Reset/ NMI Watchdog Selection	JP4
RS232/422/485 (COM3) Selection	JP6
COM3/4 RI/ Voltage Selection	JP_COM3, JP_COM4
COM Port Connector	COM1, COM2, COM3, COM4
PS/2 Keyboard and Mouse Connector	KB-MS1
Reset Connector	JPANEL1 (5,7)
Hard Disk Drive LED Connector	JPANEL1 (1,3)
ATX Power Button	JPANEL1 (9,11)
External Speaker Connector	JPANEL1 (6,8,10,12)
Power LED Connector	JPANEL1 (2,4)
CPU Fan Connector	CPU_FAN1
System Fan Connector	SYS_FAN1
PCI Connector	PCI1
DIO Connector	DIO1
ATX Power Connector	ATX_PWR1
Serial ATA Connector	SATA1, SATA2, SATA3
Universal Serial Bus Connector	USB1, USB2
USB & LAN Connector	JRJ45USB1, JRJ45USB2
Sound Connector	AUDIO1
LVDS Connector	LVDS1
Inverter Connector	JP3
Hardware Power Fail Selection	JP7
LED Connector	L_LED1
Printer Connector	LPT1
Memory Installation	DIMM1, DIMM2
VGA Connector	VGA1

2-2. COMPONENT LOCATIONS



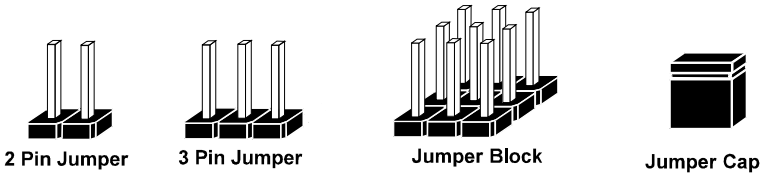
SA-5082 Connector, Jumper and Component locations

2-3. HOW TO SET THE JUMPERS

You can configure your board by setting jumpers. Jumper is consists of two or three metal pins with a plastic base mounted on the card, and by using a small plastic "cap", Also known as the jumper cap (with a metal contact inside), you are able to connect the pins. So you can set-up your hardware configuration by "open" or "close" pins.

The jumper can be combined into sets that called jumper blocks. When the jumpers are all in the block, you have to put them together to set up the hardware configuration. The figure below shows how this looks like.

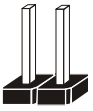
JUMPERS AND CAPS



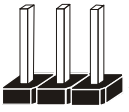
If a jumper has three pins (for examples, labelled PIN1, PIN2, and PIN3), You can connect PIN1 & PIN2 to create one setting by shorting. You can either connect PIN2 & PIN3 to create another setting. The same jumper diagrams are applied all through this manual. The figure below shows what the manual diagrams look and what they represent.

JUMPER DIAGRAMS

Jumper Cap looks like this

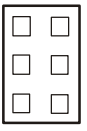


2 pin Jumper looks like this



3 pin Jumper looks like this

Jumper Block looks like this

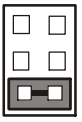


JUMPER SETTINGS

2 pin Jumper close(enabled) Looks like this

3 pin Jumper 2-3 pin close(enabled) Looks like this

Jumper Block 1-2 pin close(enabled) Looks like this



2-4. CLEAR CMOS DATA SELECTION

JP1 : Clear CMOS Data Selection
The selections are as follows:

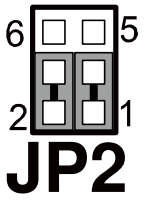
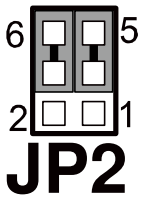
SELECTION	JUMPER SETTING (PIN CLOSED)	JUMPER ILLUSTRATION
Normal	1-2	
Clear CMOS*	2-3	

Note: Manufacturing Default – Normal

*To clear CMOS data, user must power-off the computer and set the jumper to "Clear CMOS" as illustrated above. After five to six seconds, set the jumper back to "Normal" and power-on the computer.

2-5. LVDS PANEL VOLTAGE SELECTION

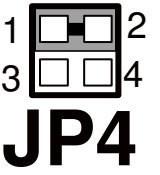
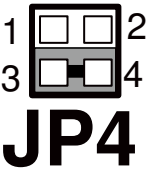
JP2：LVDS Panel Voltage Selection
The pin assignments are as follows:

SELECTION	JUMPER SETTING (PIN CLOSED)	JUMPER ILLUSTRATION
3.3V	1-3 2-4	
5V	3-5 4-6	

Note: Manufacturing Default – 3.3V

2-6. RESET/ NMI WATCHDOG SELECTION

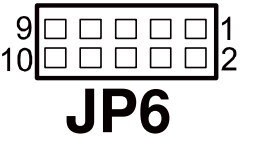
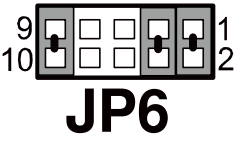
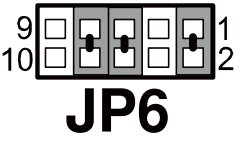
JP4：Reset/ NMI Watchdog Selections
The pin assignments are as follows:

SELECTION	JUMPER SETTING (PIN CLOSED)	JUMPER ILLUSTRATION
RESET	1-2	
NMI	3-4	

Note: Manufacturing Default – RESET

2-7. RS232/422/485 (COM3) SELECTION

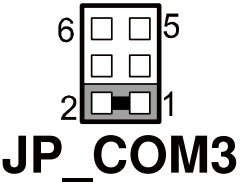
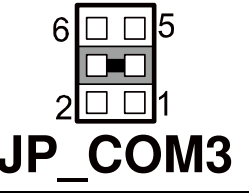
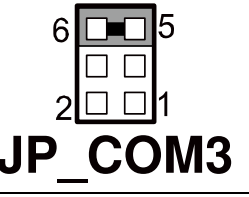
JP6 : RS-232/422/485 (COM3) Selection
This connector is used to set the COM3 function.
The jumper settings are as follows:

SELECTION	JUMPER SETTINGS (PIN CLOSED)	JUMPER ILLUSTRATIONS
RS-232	All Open	
RS-422	1-2, 3-4, 9-10	
RS-485	1-2, 5-6, 7-8	

Note: Manufacturing default – RS-232

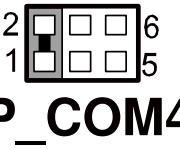
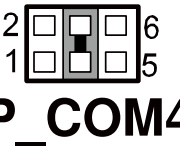
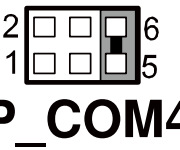
2-8. COM3/4 RI & VOLTAGE SELECTION

JP_COM3 : COM3 RI & Voltage Selection
The selections are as follows:

SELECTION	JUMPER SETTING (PIN CLOSED)	JUMPER ILLUSTRATION
RI	1-2	
12V	3-4	
5V	5-6	

Note: Manufacturing Default – RI

JP_COM4 : COM4 RI & Voltage Selection
The selections are as follows:

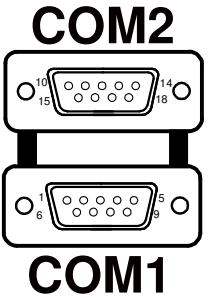
SELECTION	JUMPER SETTING (PIN CLOSED)	JUMPER ILLUSTRATION
RI	1-2	
12V	3-4	
5V	5-6	

Note: Manufacturing Default – RI

2-9. COM PORT CONNECTOR

COM1 : COM1 Connector
COM1 is fixed as RS-232.
The pin assignment is as follows:

PIN	ASSIGNMENT
1	DCD1
2	RX1
3	TX1
4	DTR1
5	GND
6	DSR1
7	RTS1
8	CTS1
9	RI1

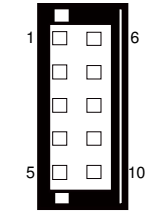


COM2 : COM2 Connector
The COM2 is fixed as RS-232.
The pin assignment is as follows:

PIN	ASSIGNMENT
1	DCD2
2	RX2
3	TX2
4	DTR2
5	GND
6	DSR2
7	RTS2
8	CTS2
9	RI2

COM3 : COM3 Connector
COM3 is selectable as RS-232/422/485.
The pin assignment is as follows:

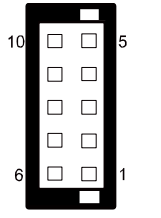
PIN	ASSIGNMENT		
	RS-232	**RS-422**	**RS-485**
1	DCD3	TX-	485-
2	RXD3	TX+	485+
3	TXD3	RX+	NC
4	DTR3	RX-	NC
5	GND	GND	GND
6	DSR3	NC	NC
7	RTS3	NC	NC
8	CTS3	NC	NC
9	RI3	NC	NC



COM3

COM4 : COM4 Connector
COM4 is fixed as RS-232.
The pin assignment is as follows:

PIN	ASSIGNMENT
1	DCD4
2	RX4
3	TX4
4	DTR4
5	GND
6	DSR4
7	RTS4
8	CTS4
9	RI4



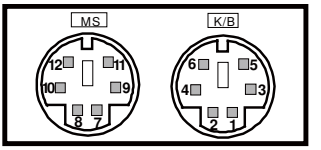
COM4

Note: COM4's pin 9 is selectable for RI, +5V or +12V. For more information, please refer to our "COM RI and Voltage Selection".

2-10. PS/2 KEYBOARD AND MOUSE CONNECTOR

KB-MS1 : PS/2 Keyboard and Mouse Connector
The pin assignments are as follows:

PIN	ASSIGNMENT
1	KBDATA
2	NC
3	GND
4	5VSB
5	KBCLK
6	NC
7	MSDATA
8	NC
9	GND
10	5VSB
11	MSCLK
12	NC

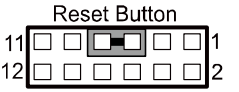


KB-MS1

2-11. RESET CONNECTOR

JPANEL1 (5, 7) : Reset Connector.
The pin assignment is as follows:

PIN	ASSIGNMENT
5	GND
7	RST_BTN

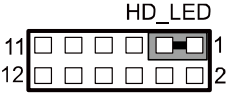


JPANEL1

2-12. HARD DISK DRIVE LED CONNECTOR

JPANEL1 (1, 3) : Hard Disk Drive LED Connector
The pin assignment is as follows:

PIN	ASSIGNMENT
1	HD_LED+
3	HD_LED-

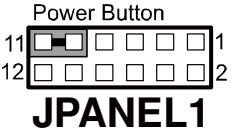


JPANEL1

2-13. ATX POWER BUTTON

JPANEL1 (9, 11) : ATX Power Button
The pin assignment is as follows:

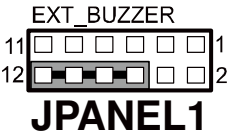
PIN	ASSIGNMENT
9	PW_BN1
11	PW_BN2



2-14. EXTERNAL SPEAKER CONNECTOR

JPANEL1 (6, 8, 10, 12) : External Speaker Connector
The pin assignment is as follows:

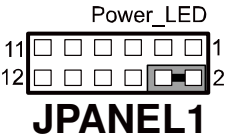
PIN	ASSIGNMENT
6	VCC
8	P_SPK
10	P_SPK
12	P_SPK



2-15. POWER LED CONNECTOR

JPANEL1 (2, 4) : Power LED Connector
The pin assignment is as follows:

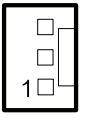
PIN	ASSIGNMENT
2	PW_LED+
4	PW_LED-



2-16. CPU FAN CONNECTOR

CPU_FAN1 : CPU Fan connector
The pin assignment is as follows:

PIN	ASSIGNMENT
1	LPC1_FANPWM1
2	+12V
3	LPC1_FANIO1

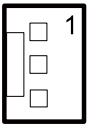


CPU_FAN1

2-17. SYSTEM FAN CONNECTOR

SYS_FAN1：System Fan connector
The pin assignment is as follows:

PIN	ASSIGNMENT
1	LPC1_FANPWM2
2	+12V
3	LPC1_FANIO2

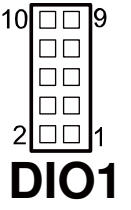


SYS_FAN1

2-18. DIO CONNECTOR

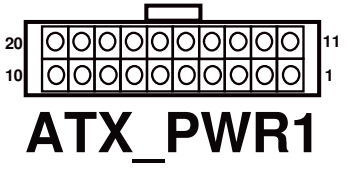
DIO1: Digital I/O Connector
The pin assignments are as follows:

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	VCC	6	DOUT1
2	GND	7	DIN2
3	DIN0	8	DOUT2
4	DOUT0	9	DIN3
5	DIN1	10	DOUT3



2-19. ATX POWER CONNECTOR

JPWR1：ATX Connector
The pin assignments are as follows:



PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	+3.3V	11	+3.3V
2	+3.3V	12	-12V
3	GND	13	GND
4	+5V	14	PSON
5	GND	15	GND
6	+5V	16	GND
7	GND	17	GND
8	POK	18	-5V
9	5VSB	19	+5V
10	+12V	20	+5V

2-20. SERIAL ATA CONNECTOR

SATA1, SATA2: The SA-5082 possesses two Serial ATA Connectors. The pin assignments are as follows:

SATA1：SATA Connector
The pin assignments are as follows:

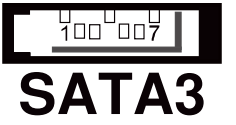
PIN	ASSIGNMENT
1	GND
2	SATA_TXP0
3	SATA_TXN0
4	GND
5	SATA_RXN0
6	SATA_RXP0
7	GND

SATA2：SATA Connector
The pin assignments are as follows:

PIN	ASSIGNMENT
1	GND
2	SATA_TXP1
3	SATA_TXN1
4	GND
5	SATA_RXN1
6	SATA_RXP1
7	GND

SATA3：SATA Connector
The pin assignments are as follows:

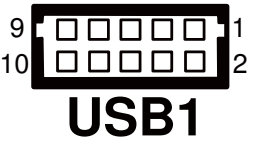
PIN	ASSIGNMENT
1	GND
2	SATA_TXP2
3	SATA_TXN2
4	GND
5	SATA_RXN2
6	SATA_RXP2
7	GND



2-21. UNIVERSAL SERIAL BUS CONNECTOR

USB1：Universal Serial Bus Connector
The pin assignments are as follows:

PIN	ASSIGNMENT
1	VCCUSB01
2	VCCUSB01
3	USB0N
4	USB1N
5	USB0P
6	USB1P
7	GND
8	GND
9	GND
10	GND



USB2：Universal Serial Bus Connector
The pin assignments are as follows:

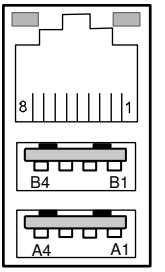
PIN	ASSIGNMENT
1	VCCUSB23
2	VCCUSB23
3	USB2N
4	USB3N
5	USB2P
6	USB3P
7	GND
8	GND
9	GND
10	GND

2-22. USB & LAN CONNECTOR

JRJ45USB1：USB & LAN Connector
The pin assignments are as follows:

LAN:

PIN	ASSIGNMENT
1	MDI_0P
2	MDI_0N
3	MDI_1P
4	MDI_1N
5	MDI_2P
6	MDI_2N
7	MDI_3P
8	MDI_3N



JRJ45USB1

LAN LED Indicator:
Left side LED:

Green Color on	10/100 LAN Speed Indicator
Orange Color on	Giga LAN Speed Indicator
off	No LAN switch/hub connected

Right side LED:

Yellow Color Blinking	LAN Message Active
off	No LAN Message Active

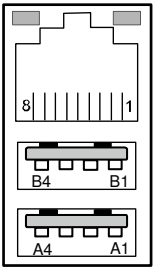
USB Signal:

PIN	ASSIGNMENT
A1	VCCUSB67
A2	USB7N
A3	USB7P
A4	GND
B1	VCCUSB67
B2	USB6N
B3	USB6P
B4	GND

JRJ45USB2：USB & LAN Connector
The pin assignments are as follows:

LAN:

PIN	ASSIGNMENT
1	MDI_0P
2	MDI_0N
3	MDI_1P
4	MDI_1N
5	MDI_2P
6	MDI_2N
7	MDI_3P
8	MDI_3N



JRJ45USB2

LAN LED Indicator:
Left side LED:

Green Color on	10/100 LAN Speed Indicator
Orange Color on	Giga LAN Speed Indicator
off	No LAN switch/hub connected

Right side LED:

Yellow Color Blinking	LAN Message Active
off	No LAN Message Active

USB Signal:

PIN	ASSIGNMENT
A1	VCCUSB45
A2	USB5N
A3	USB5P
A4	GND
B1	VCCUSB45
B2	USB4N
B3	USB4P
B4	GND

2-23. SOUND CONNECTOR

AUDIO1 : Sound Connector
The pin assignments are as follows:

SPDIF (inside the Line-In hole)

PIN	ASSIGNMENT
42	GND
43	VCC
44	AC_SPDIF0

Line-In: light blue color

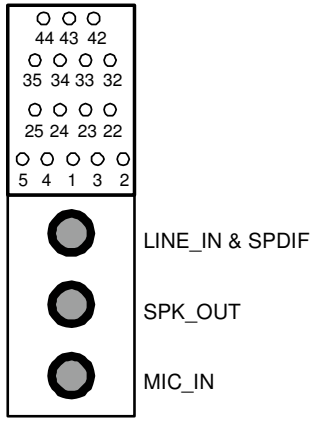
PIN	ASSIGNMENT
32	LINE_L
35	LINE_R

SPK-Out: light green color

PIN	ASSIGNMENT
22	SPK_L
25	SPK_R

Mic-In: pink color

PIN	ASSIGNMENT
1	GND
2	MIC_IN1
5	MIC_IN2

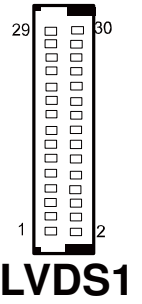


AUDIO1

2-24. LVDS CONNECTOR

LVDS1：LVDS CONNECTOR
The pin assignments are as follows:

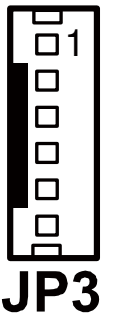
PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	LVDS_VCC	16	LVDS0_CLK+(Odd)
2	GND	17	LVDS0_CLK-(Odd)
3	NC	18	GND
4	NC	19	LVDS0_D2+(Odd)
5	GND	20	LVDS0_D2-(Odd)
6	NC	21	GND
7	NC	22	LVDS0_D1+(Odd)
8	GND	23	LVDS0_D1-(Odd)
9	NC	24	GND
10	NC	25	LVDS0_D0+(Odd)
11	NC	26	LVDS0_D0-(Odd)
12	NC	27	NC
13	NC	28	NC
14	NC	29	LVDS_VCC
15	GND	30	LVDS_VCC



2-25. INVERTER CONNECTOR

JP3：Inverter Connector
The pin assignments are as follows:

PIN	ASSIGNMENT
1	+12V
2	+12V
3	GND
4	VCC
5	GND
6	ENABKL (Inverter backlight ON/OFF control signal)



2-26. HARDWARE POWER FAIL SELECTION

JP7：Hardware Power Fail Selection
The pin assignments are as follows:

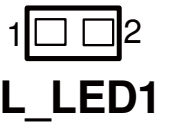
SELECTION	JUMPER SETTING (PIN CLOSED)	JUMPER ILLUSTRATION
Enable	1-2	
Disable	Open	

Note: Manufacturing Default – Disable

2-27. LED CONNECTOR

L_LED1：LED Connector
The pin assignments are as follows:

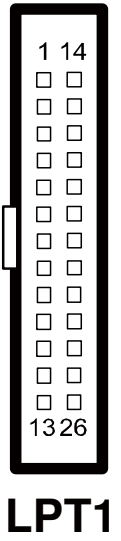
PIN	ASSIGNMENT
1	+3.3V
2	LINK_LEDJ



2-28. PRINTER CONNECTOR

LPT1: Printer Connector
The pin assignments are as follows:

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	STBJ	14	ALFJ
2	PDR0	15	ERRJ
3	PDR1	16	PAR_INITJ
4	PDR2	17	SLCTINJ
5	PDR3	18	GND
6	PDR4	19	GND
7	PDR5	20	GND
8	PDR6	21	GND
9	PDR7	22	GND
10	ACKJ	23	GND
11	BUSY	24	GND
12	PE	25	GND
13	SLCTJ	26	NC



2-29. MEMORY INSTALLATION

Intel® Atom™ D525 processor can support up to 4GB;

DRAM BANK CONFIGURATION:

DIMM1	DIMM2	TOTAL MEMORY SIZE
256 MB	256 MB	512 MB
512 MB	512 MB	1GB
1GB	1GB	2GB
2GB	2GB	4GB

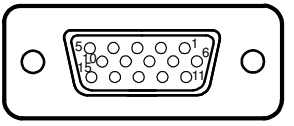
The pin assignments are as follows:

PIN	ASSIGNMENT	PIN	ASSIGNMENT	PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	VREFDQ	52	DQ23	103	/CK0	154	DQS5
2	VSS	53	DQ19	104	/CK1	155	VSS
3	VSS	54	VSS	105	VDD	156	VSS
4	DQ4	55	VSS	106	VDD	157	DQ42
5	DQ0	56	DQ28	107	A10/AP	158	DQ46
6	DQ5	57	DQ24	108	BA1	159	DQ43
7	DQ1	58	DQ29	109	BA0	160	DQ47
8	VSS	59	DQ25	110	/RAS	161	VSS
9	VSS	60	VSS	111	VDD	162	VSS
10	DQS0	61	VSS	112	VDD	163	DQ48
11	DM0	62	/DQS3	113	/WE	164	DQ52
12	/ DQS0	63	DM3	114	/CS0	165	DQ49
13	VSS	64	DQS3	115	/CAS	166	DQ53
14	VSS	65	VSS	116	ODT0	167	VSS
15	DQ2	66	VSS	117	VDD	168	VSS
16	DQ6	67	DQ26	118	VDD	169	/DQS6
17	DQ3	68	DQ30	119	A13	170	DM6
18	DQ7	69	DQ27	120	ODT1	171	DQS6
19	VSS	70	DQ31	121	/CS1	172	VSS
20	VSS	71	VSS	122	NC	173	VSS
21	DQ8	72	VSS	123	VDD	174	DQ54
22	DQ12	73	CKE0	124	VDD	175	DQ50
23	DQ9	74	CKE1	125	TEST	176	DQ55
24	DQ13	75	VDD	126	VREFCA	177	DQ51
25	VSS	76	VDD	127	VSS	178	VSS
26	VSS	77	NC	128	VSS	179	VSS
27	/DQS1	78	A15	129	DQ32	180	DQ60
28	DM1	79	BA2	130	DQ36	181	DQ56
29	DQS1	80	A14	131	DQ33	182	DQ61
30	/RESET	81	VDD	132	DQ37	183	DQ57
31	VSS	82	VDD	133	VSS	184	VSS
32	VSS	83	A12	134	VSS	185	VSS
33	DQ10	84	A11	135	/DQS4	186	/DQS7
34	DQ14	85	A9	136	DM4	187	DM7
35	DQ11	86	A7	137	DQS4	188	DQS7
36	DQ15	87	VDD	138	VSS	189	VSS
37	VSS	88	VDD	139	VSS	190	VSS

PIN	ASSIGNMENT	PIN	ASSIGNMENT	PIN	ASSIGNMENT	PIN	ASSIGNMENT
38	VSS	89	A8	140	DQ38	191	DQ58
39	DQ16	90	A6	141	DQ34	192	DQ62
40	DQ20	91	A5	142	DQ39	193	DQ59
41	DQ17	92	A4	143	DQ35	194	DQ63
42	DQ21	93	VDD	144	VSS	195	VSS
43	VSS	94	VDD	145	VSS	196	VSS
44	VSS	95	A3	146	DQ44	197	SA0
45	/DQS2	96	A2	147	DQ40	198	/EVENT
46	DM2	97	A1	148	DQ45	199	VDDSPD
47	DQS2	98	A0	149	DQ41	200	SDA
48	VSS	99	VDD	150	VSS	201	SA1
49	VSS	100	VDD	151	VSS	202	SCL
50	DQ22	101	CK0	152	/DQS5	203	Vtt
51	DQ18	102	CK1	153	DM5	204	Vtt

2-30. VGA CONNECTOR

VGA1: VGA Connector
The pin assignments are as follows:



VGA1

PIN	ASSIGNMENT
1	CRTRED
2	CRTGREEN
3	CRTBLUE
4	NC
5	GND
6	CRT_ALWAYS_ON
7	GND
8	GND
9	CRTVCC_L
10	GND
11	NC
12	CRTDATA
13	HSYNC
14	VSYNC
15	CRTCLK

SOFTWARE UTILITIES

CHAPTER

3

This chapter comprises the detailed information of VGA driver, LAN driver, and Sound driver.

Section includes:

- Intel® Chipset Software Installation Utility
- VGA Driver Utility
- LAN Driver Utility
- SOUND Driver Utility

3-1. INTRODUCTION

Enclosed with our SA-5082 package, you will find a CD ROM disk containing all types of drivers we have. As a SA-5082 user, you will only need the some of the files contained in the CD ROM disk; please take note of the following chart:

FILE NAME **(ASSUME THAT CD ROM DRIVE IS D:)**	**PURPOSE**
D:\Driver\UTILITY	Intel® Chipset Device Software Installation Utility
D:\Driver\VGA	Intel Graphics Media Accelerator 3150 driver installation
D:\Driver\LAN	Intel 82567V-3 & 82583V For LAN Driver installation
D:\Driver\SOUND	Realtek ALC888S For Sound driver installation
D:\Driver\Intel Matrix Storage	Intel Matrix Storage Manager Utility.
D:\Driver\F6Floppy	Intel F6 Floppy Utility.

Note: Remember to install the Utility right after the OS fully installed.

3-2. INTEL® CHIPSET SOFTWARE INSTALLATION UTILITY

3-2-1. Introduction

The Intel® Chipset Device Software installs Windows* INF files to the target system. These files outline to the operating system how to configure the Intel® chipset components in order to ensure that the following features function properly:

- Core PCI and ISAPNP Services
- PCI-E Support
- IDE/ATA33/ATA66/ATA100 Storage Support
- SATA Storage Support
- USB Support
- Identification of Intel® Chipset Components in the Device Manager

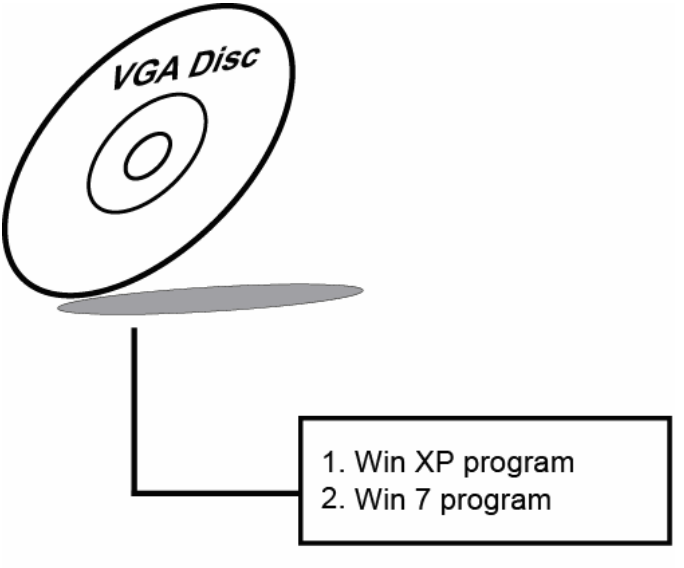
3-2-2. Installation of Utility for Windows XP/7

The Utility Pack is to be installed only for Windows XP and Windows 7 program.
It should be installed right after the OS installation, kindly follow the following steps:

1. Place insert the Utility Disk into Floppy Disk Drive A/B or CD ROM drive.
2. Under Windows XP/7 system, go to the directory where Utility Disc is located. e.g. :\DRIVER\UTILITY\infinst911autol.exe
3. Click infinst911autol.exe file for utility installation.
4. Follow the instructions on the screen to complete the installation.
5. Once installation is completed, shut down the system and restart in order for the changes to take effect.

3-3. VGA DRIVER UTILITY

The VGA interface is embedded with our SA-5082 system to support CRT display. The following illustration briefly shows you the content of VGA driver in D:\Driver\VGA.



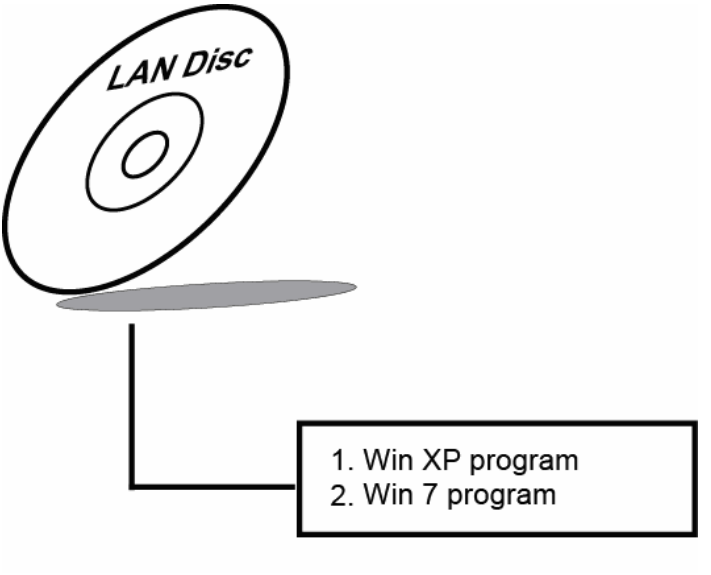
3-3-1. Installation of VGA Driver

1. Start the computer (Win XP//7).
2. Insert the Utility Disk into the CD ROM drive or drive A/B.
3. Open the VGA folder, For your system to choose an appropriate folder, and double-click "exe" file to install. e.g. d:\DRIVER\VGA\Your system***.exe
   (If D is not your CD-ROM drive, substitute D with the correct drive letter.)
4. Follow the Wizard's on- screen instructions to complete the installation.

3-4. LAN DRIVER UTILITY

3-4-1. Introduction

The SA-5082 is enhanced with LAN function that can support various network adapters. The content of the LAN driver is found as follows:

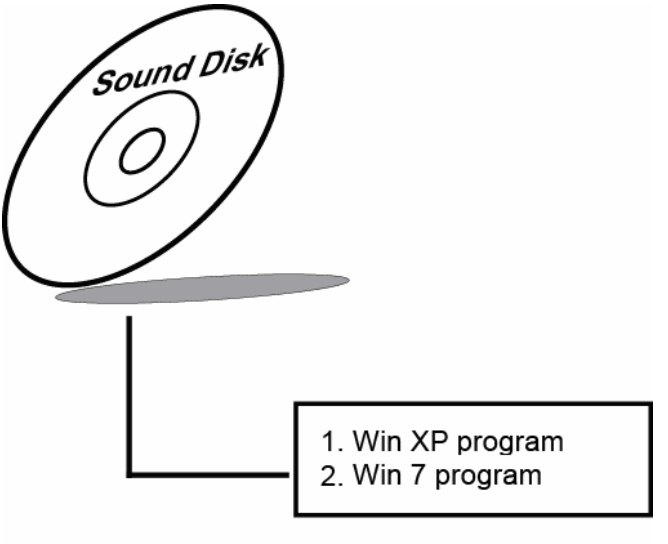


For more details on Installation procedure, please refer to Readme.txt file found on LAN DRIVER UTILITY.

3-5. SOUND DRIVER UTILITY

3-5-1. Introduction

The Audio chip enhanced in the system is fully compatible with Windows XP and Windows 7. Below, you will find the content of the Sound driver :



3-5-2. Installation Procedure for Windows XP/7

1. Open the SOUND folder. For your system to choose an appropriate folder, and Run the setup.exe program to start the installation.
   e.g. :\DRIVER\SOUND\Your system\setup.exe
   (If D is not your CD-ROM drive, substitute D with the correct drive letter.)
2. Click on [Next] to continue the procedure. If the Windows popup "Windows can't verify the publisher of this driver software" message, press "Install this driver software anyway" to continue the installation.

Finally, select to restart the system and press [Finish] to complete the installation.

CHAPTER

4

AMI BIOS SETUP

This chapter shows how to setup the AMI BIOS.

Section includes:

- Introduction
- Entering Setup
- Main
- Advanced
- PCIPnP
- Boot
- Security
- Chipset
- Exit

4-1. INTRODUCTION

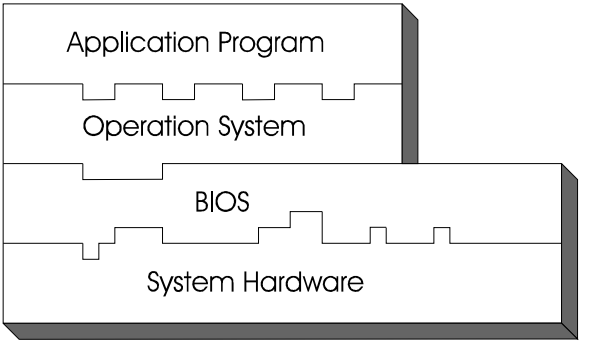
This chapter will show you the function of the BIOS (Basic Input and Output System) in managing the features of your system. The 5082LF motherboard is equipped with the BIOS from AMI (American Megatrends Inc). The following pages describe how to use the BIOS for configure system hardware by BIOS Setup menu.

When the PC starts up, the first job for the BIOS is to initialize and identify system devices such as the video display card, keyboard and mouse, hard disk, CD/DVD drive and other hardware. The BIOS then locates software held on a peripheral device (designated as a 'boot device'), such as a hard disk or a CD, and loads and executes that software, giving it control of the PC.

BIOS code is stored on a non-volatile, ROM chip built into the system, on the mother board and the BIOS software is specifically designed to work with the particular type of system in question including having a knowledge of the workings of various devices that make up the complementary chipset of the system

BIOS also provide a user interface, this is a menu system accessed by pressing a certain key on the keyboard when the PC starts. In the BIOS setup menu, you can configure hardware, set the system clock, enable or disable system components, and most importantly, select which devices are eligible to be a potential boot device. It is also possible to set various password prompts, for instance a password for securing access to the BIOS setup menu functions itself and preventing unauthorized users from booting the system from peripheral devices.

The following diagram illustrates the relationships between system hardware, BIOS, operating system, and application program:

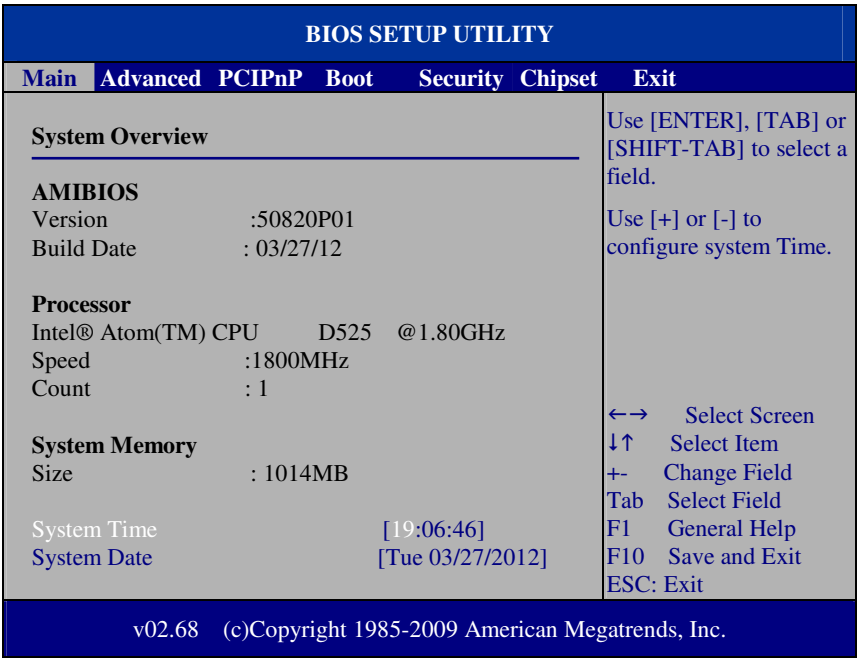


4-2 ENTERING SETUP

When system powered on, BIOS will enter the Power-On Self Test (POST) routines and displays below message on the screen:

POST Screen

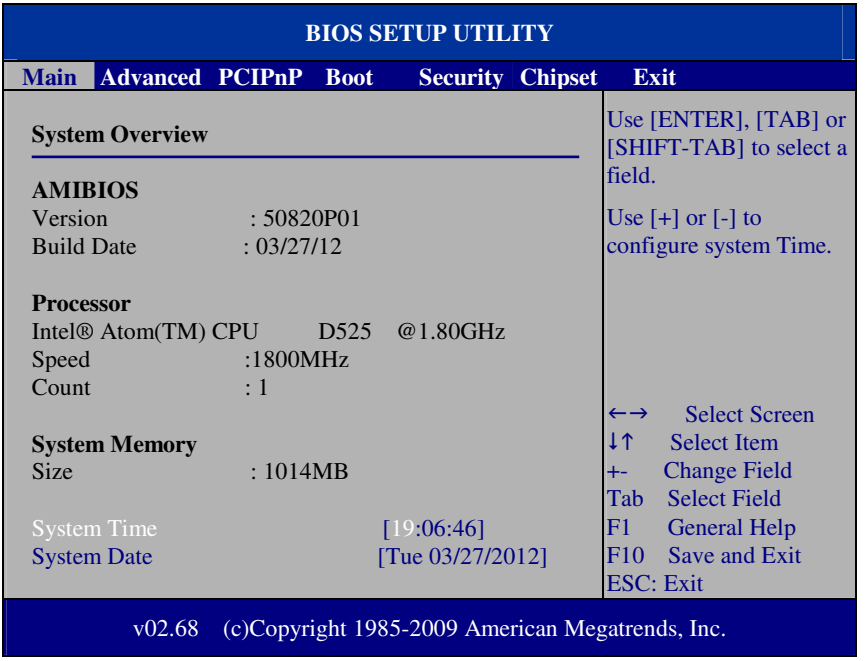
As long as this logo is present on the screen you may press the <Del> key (the one that shares the decimal point at the bottom of the number keypad) to enter the BIOS setup program. In a moment, the main menu of the AMI SETUP program will be shown on the screen:



Setup program initial screen

You may move the cursor by up/down keys to highlight the individual menu items. As you highlight each item, a brief description of the highlighted selection will appear at the right side of the screen.

4-3. Main



Main Screen

use < ↑ > or < ↓ > arrow keys to highlight the item and key in the value you want in each item. This menu provides basic system configurations, such as time and date.

AMI BIOS, Processor, System Memory

This items show the BIOS version, BIOS build up date, processor and system memory information of your system.

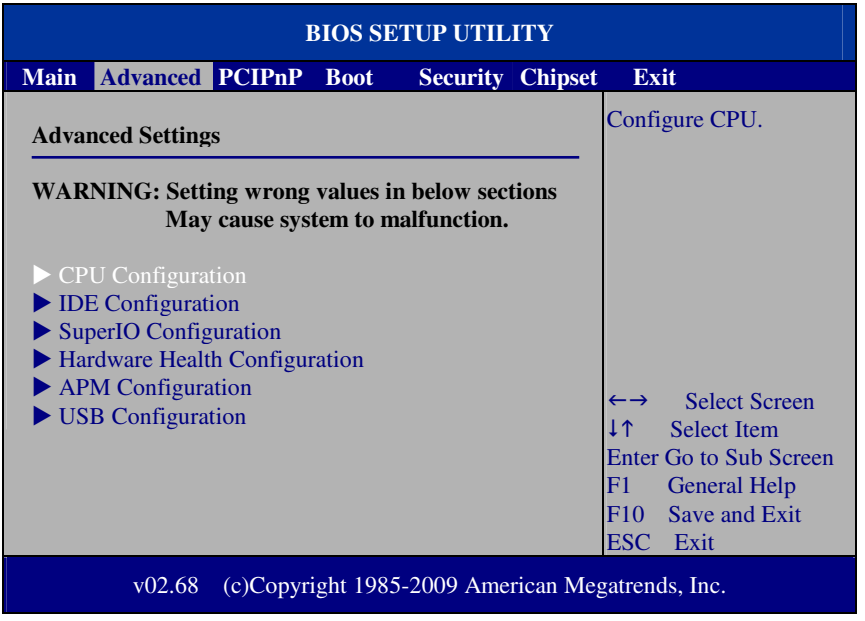
System Time

This setting allows you to set the system time. The format is [Hour: Minute: Second]. You can directly key-in value or use <+> or <-> arrow keys to increase/decrease it.

System Date

This setting allows you to set the system date. The format is [Day: Month: Date: Year]. You can directly key-in value or use <+> or <-> arrow keys to increase/decrease it.

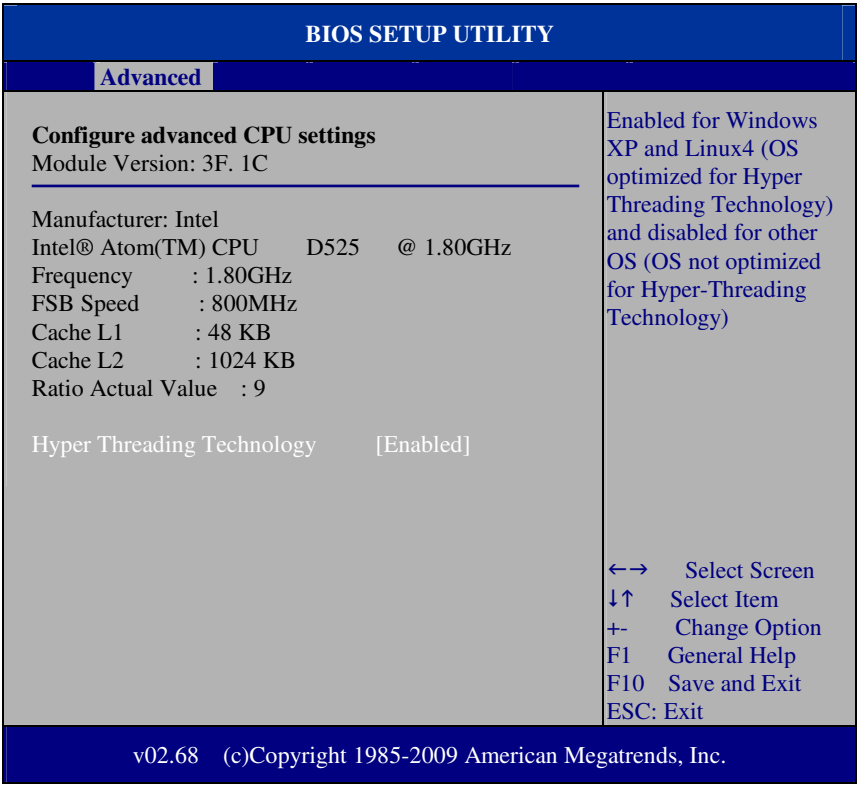
4-4. Advanced



Advanced Screen

This menu provides advanced configurations such as CPU Configuration, IDE Configuration, SuperIO Configuration…etc.

4-4-1. CPU Configuration



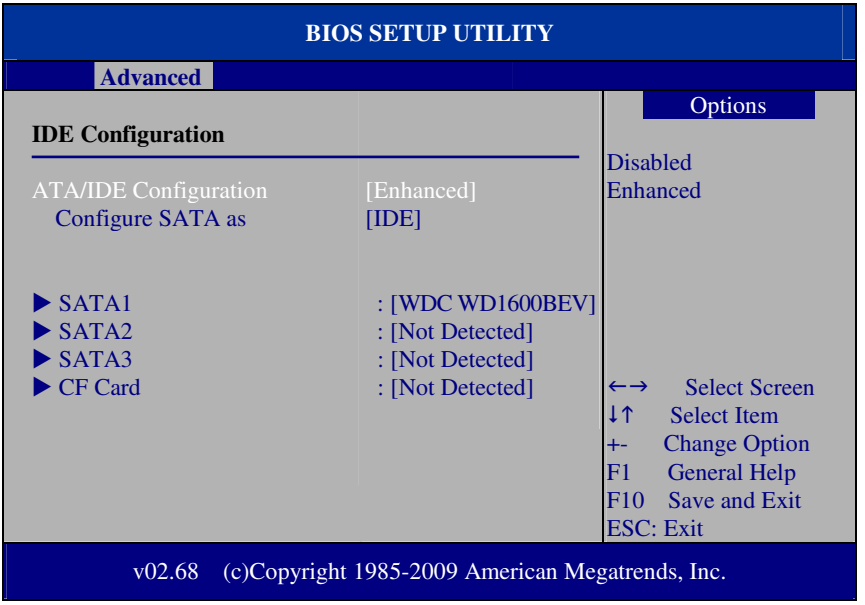
CPU Configuration Screen

This menu provides some information about CPU.

Hyper Threading Technology

Hyper Threading is Intel's term for its simultaneous multithreading implementation in their CPUs. Enable this function will improve parallelization of computation performed on PC microprocessor. For each processor core that is physically present, the operation system addresses two virtual processors, and shares the workload between them when possible.

4-4-2. IDE Configuration



IDE Configuration Screen

This menu provides advanced IDE configuration for hard drive. The control items of SATA1 / SATA2 / SATA3 / CF Card are all the same and describe in next section.

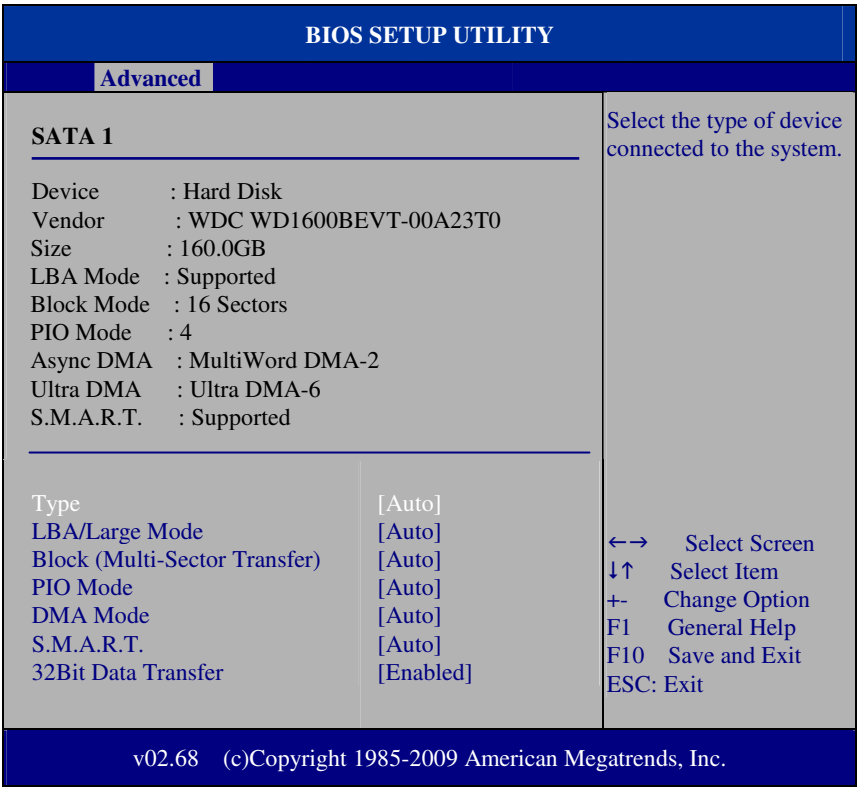
ATA/IDE Configuration

Select [Compatible] if user wants to install legacy operating system such as Windows NT. If user want to install mainstream operating system such as Windows XP, Vista or Win7, it is recommended to select [Enhanced] for better hard drive performance.

Configure SATA as

This setting specifies the function of the on-chip SATA controller

4-4-2.1 SATA1 / SATA2 / SATA3 / CF Card



Primary IDE Master Screen

Type
Select the type of device connected to the system.

LBA/Large Mode
Enabling LBA causes Logical Block Addressing to be used in place of Cylinders, Heads and Sectors.

Block (Multi-Sector Transfer)
Any selection except Disabled determines the number of sectors transferred per block.

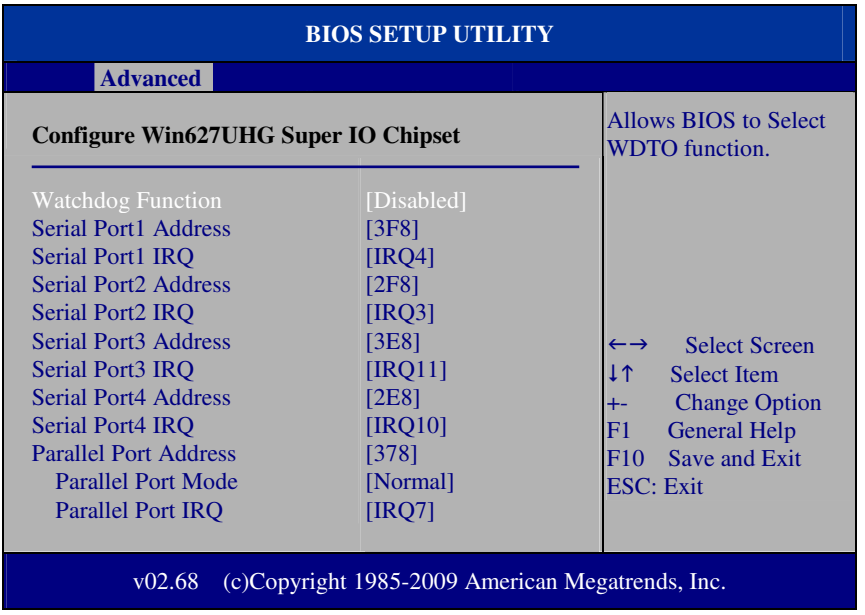
PIO Mode
Configure the type of PIO (Programmed Input/Output) mode 0-4 for IDE device. Mode 0 through 4 provides successively increased performance.

DMA Mode
Select the type of Ultra DMA mode on a hard drive.

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.

32Bit Data Transfer
Enables/Disable 32-bit data transfer.

4-4-3. SuperIO Configuration



SuperIO Configuration Screen

WatchDog function
If system hangs or does not respond, enabling watchdog function can trigger a system reset by a user given value count down to zero.

Serial Port1~4 Address
Select IO address as serial ports default resource.

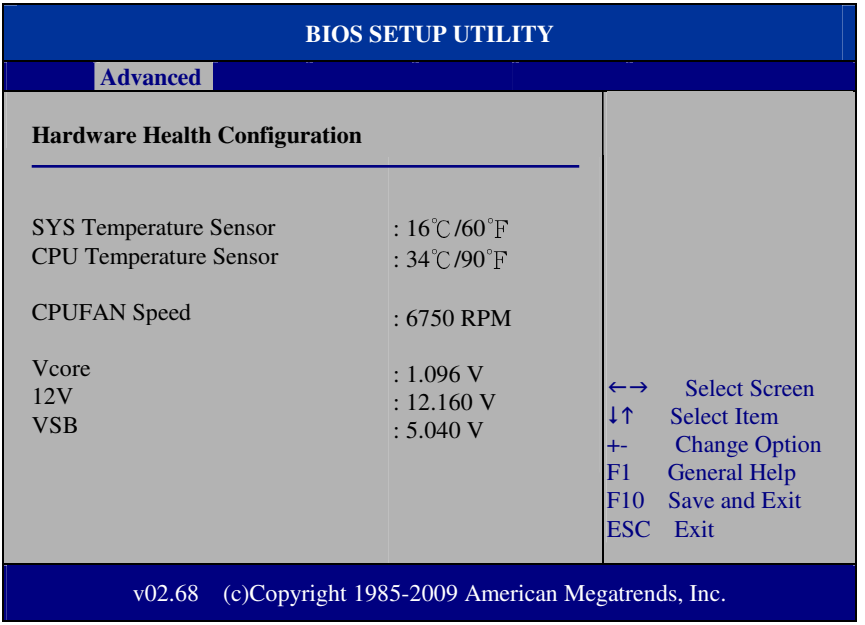
Serial Port1~4 IRQ
Select IO IRQ as serial ports default resource.

Parallel Port Address
Select IO address for parallel ports resource allocation.

Parallel Port Mode
Select the operation mode for parallel port.

Parallel Port IRQ
Select IRQ for parallel ports resource allocation.

4-4-4. Hardware Health Configuration



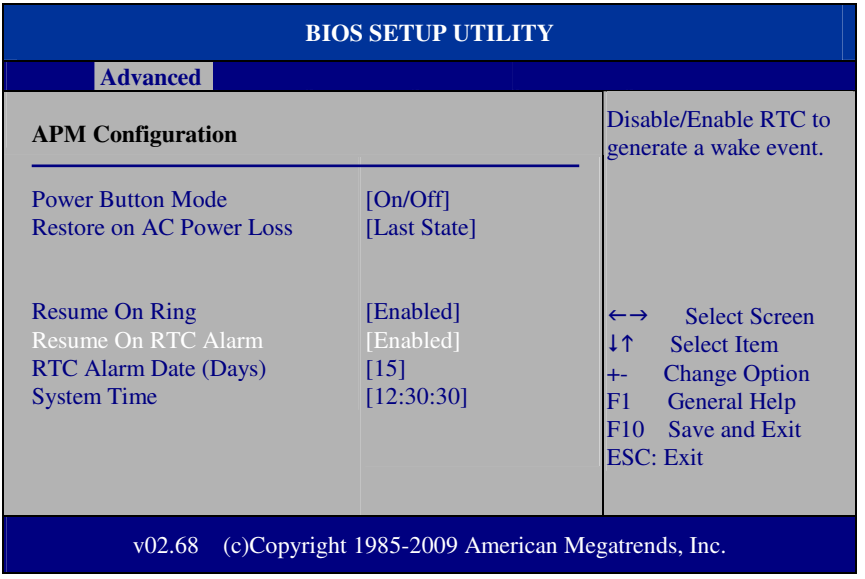
Hardware Health Configuration

System Temperature
This section shows system current temperature.

CPU Temperature
This section shows CPU current temperature.

VCORE / 12V / VSB
These items provide hardware health information.

4-4-5. APM Configuration



APM Configuration Screen

Power Management/APM
This is the main control item for enable/disable below APM functions.

Power Button Mode
This setting controls shutdown action by pressing power button. The system will be shutdown immediately after pressing power button to set to "On/Off". If set the power button mode to "Delay 4 seconds", system will be shutdown after pressing and hold the power button over 4 seconds.

Restore on AC/Power Loss
Once a power failure situation happens, this item decides the system power state after AC power restore back.

Resume On Ring
An input signal on the serial Ring Indicator (RI) line (in other words, an incoming call on the modem) awakens the system from a soft of state.

Resume On RTC Alarm

When you set this option to [Enable], it allows the system to wake up at a specific date/time.

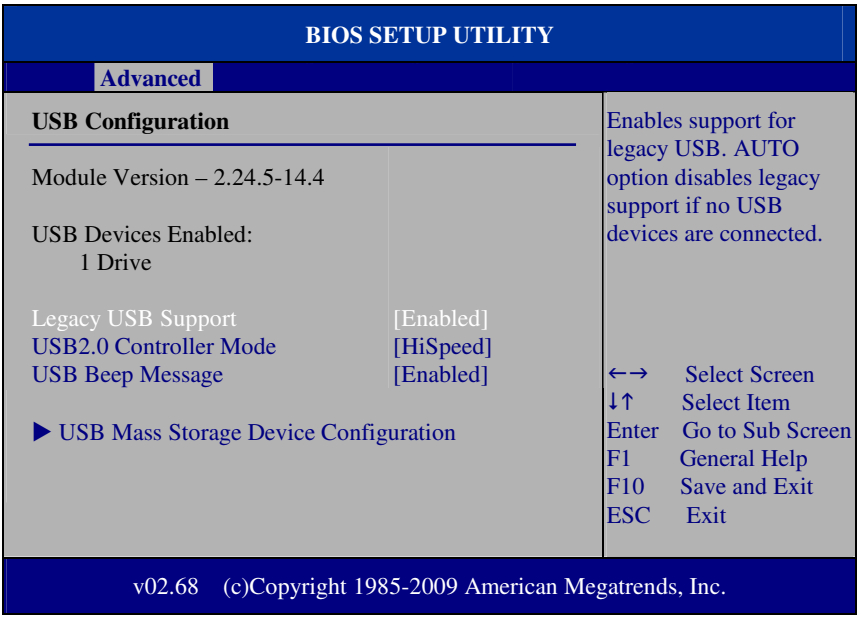
RTC Alarm Date (Days)

Set a specific date value for RTC alarm function to wake up the system from soft off state.

System Time

Set a specific time value for RTC alarm function to wake up the system from soft off state.

4-4-6.USB Configuration



USB Configuration Screen

Legacy USB Support

Set to [Enabled] if you want to use USB device in the legacy operating system, such as MS-DOS or SCO Unix.

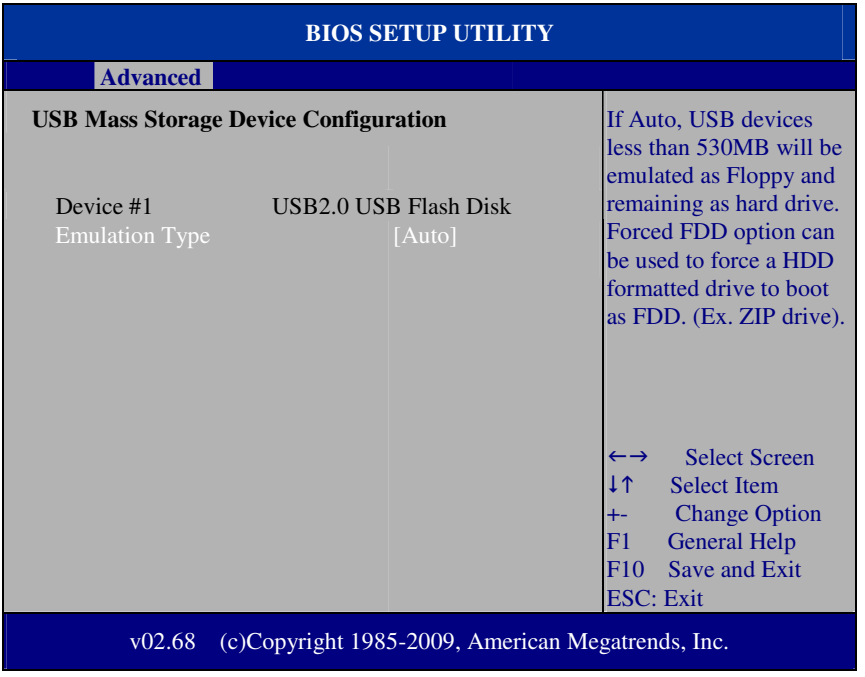
USB 2.0 Controller Mode

Configure the onboard USB 2.0 controller operation mode to high Speed or full speed mode.

USB Beep Message

System will generate beep sound during USB device enumeration.

4-4-6.1 USB Mass Storage Device Configuration



USB Mass Storage Device Configuration Screen

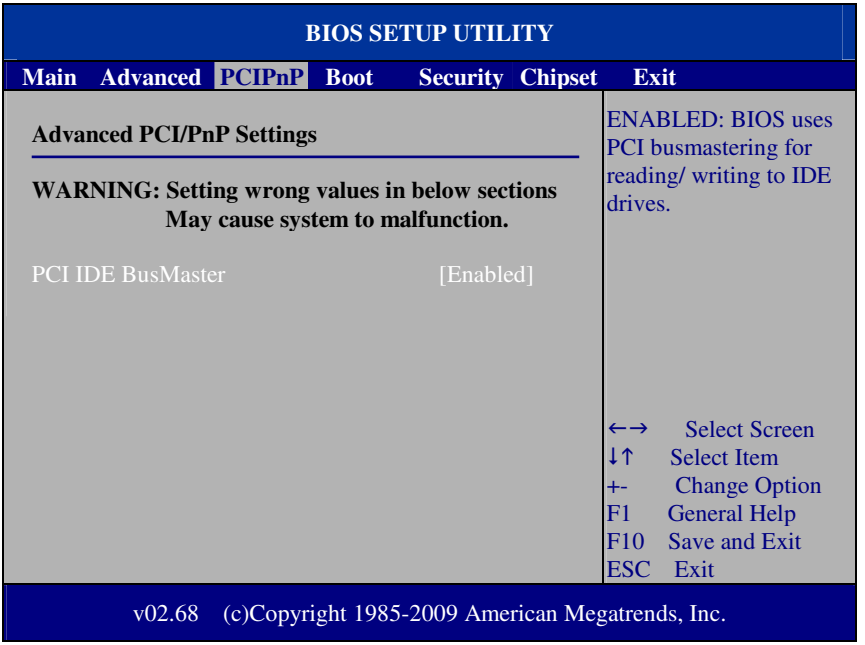
USB Mass Storage Reset Delay

This setting decides the number of seconds POST waiting for USB mass storage device after start unit command.

Emulation Type

Select which type of device that USB mass storage emulation. When you select [Auto], the USB storage size less than 530MB will be emulated as floppy drive and remaining as hard drive.

4-5. PCIPnP

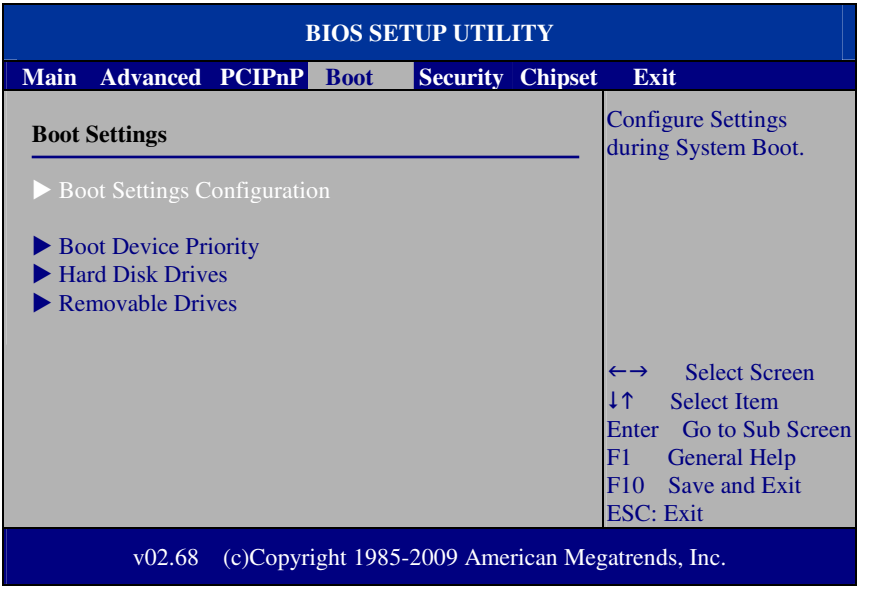


PCIPnP screen

PCI IDE BusMaster

This function allows the BIOS to use PCI BusMastering for reading or writing to IDE drives.

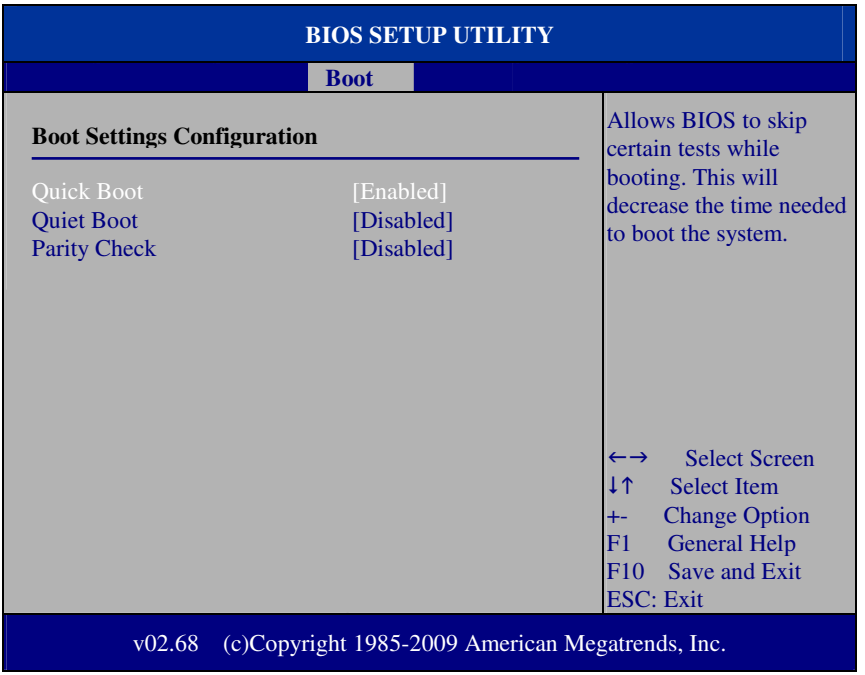
4-6. Boot



Boot Screen

This menu provides control items for system boot configuration.

4-6-1 Boot Settings Configuration



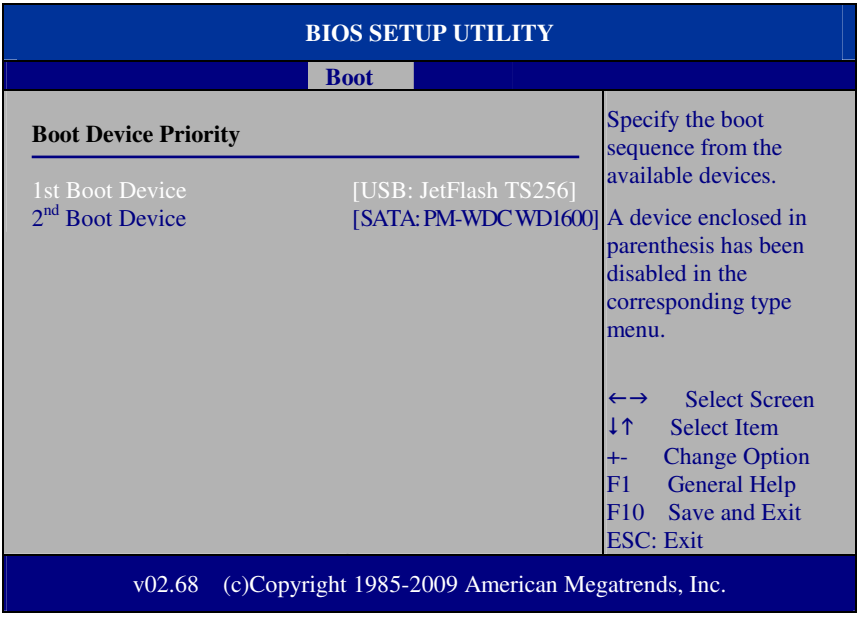
Boot Settings Configuration Screen

Quick Boot
Enable this item allows BIOS POST to skip some tests during boot-up for saving boot time.

Quiet Boot
When set this option to [disabled], BIOS will display normal POST messages.

Parity Check
This setting enables or disables memory or parity error check.

4-6-2 Boot Device Priority

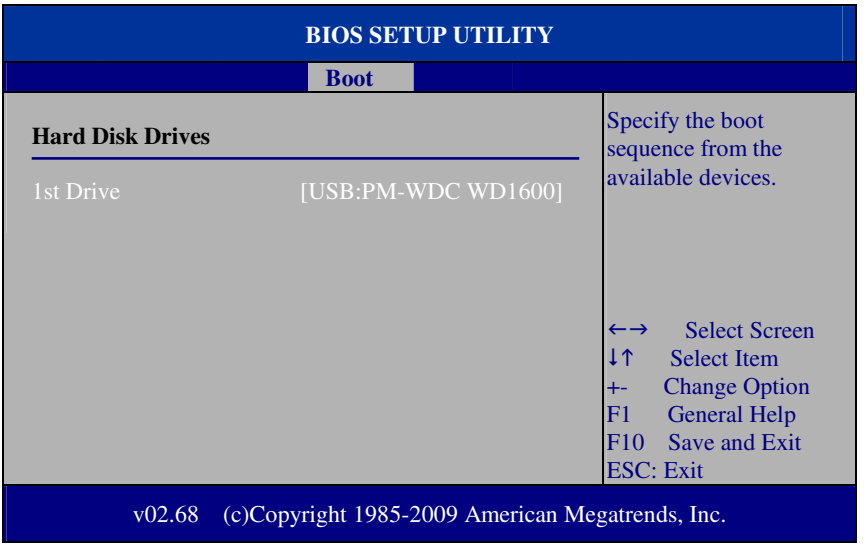


Boot Device Priority Screen

1st / 2nd / 3rd …Boot Device

Choose the boot sequence from the available devices..

4-6-3 Hard Disk Drives

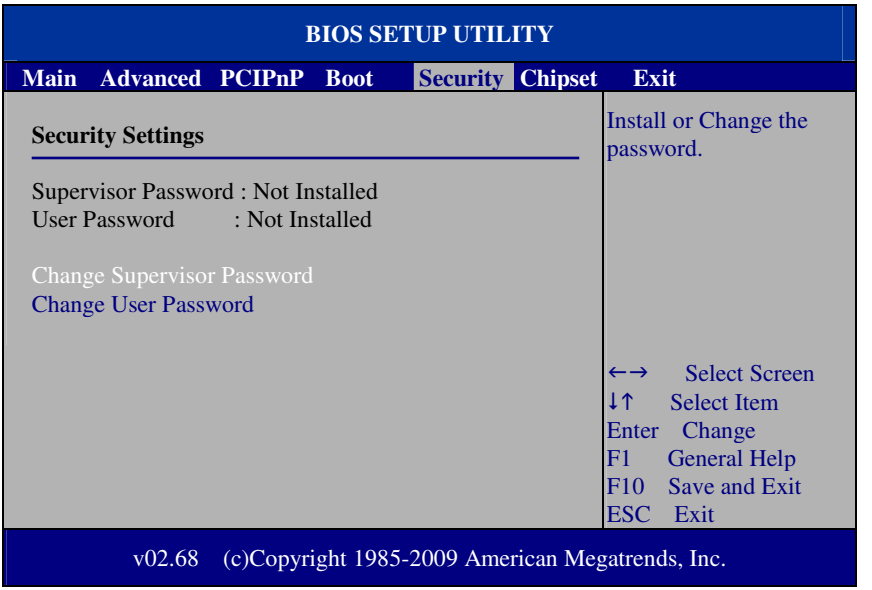


Hard Disk Drives Screen

1st / 2nd …Drive

This setting allows you to set the priority of hard drive or another bootable USB storages. Press <Enter> to enter the sub-menu and press < ↑ > or < ↓ > arrow keys to select the device. Another way is to press <+> or <-> to move it up/down in the priority list.

4-7. Security Settings



Security Settings Screen

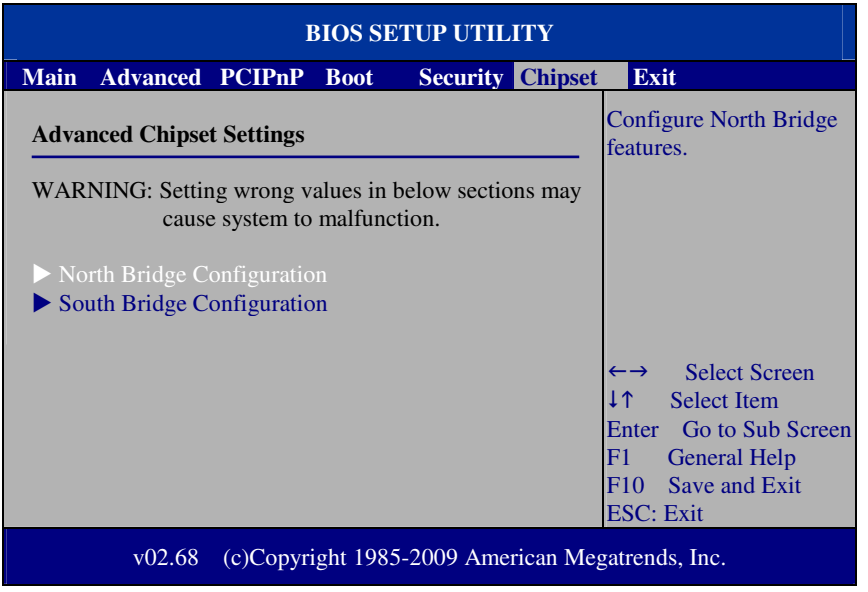
Change Supervisor Password

Supervisor Password controls the access right to the BIOS Setup utility. These settings allow you to set or change the supervisor password.

Change User Password

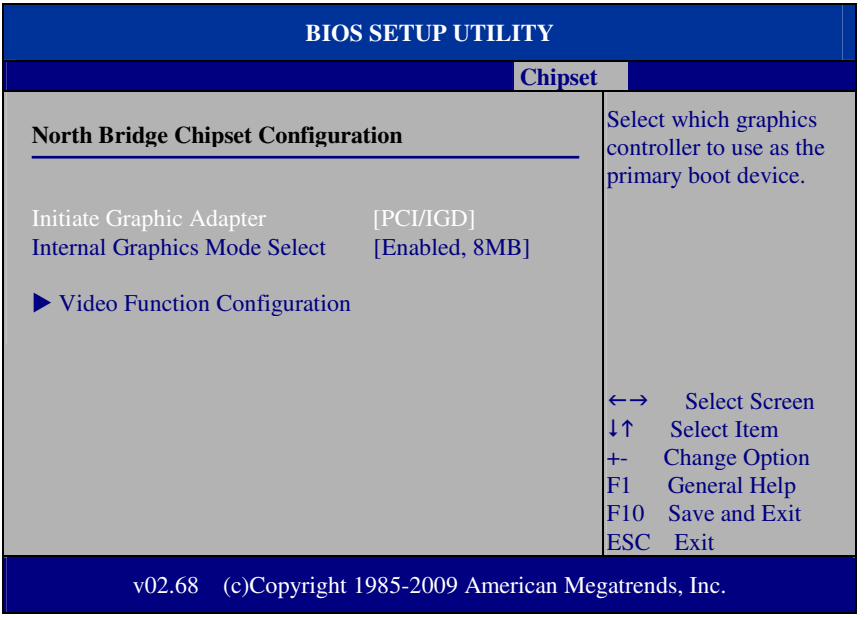
User Password controls system access right when power on. These settings allow you to set or change the user password.

4.8 Chipset



Advanced Chipset Settings Screen

4-8-1 North Bridge Chipset Configuration



North Bridge Chipset Configuration

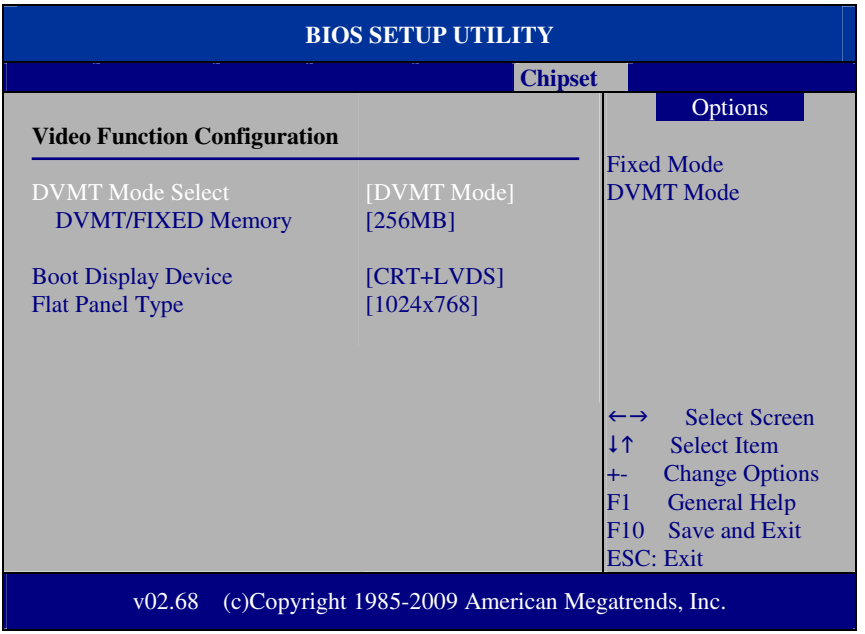
Initiate Graphic Adapter

Select which graphics controller to use as the primary boot device.

Internal Graphics Mode Select

This BIOS feature controls the amount of system memory that is allocated to the integrated graphics processor when the system boots up.

4-8-1.1 Video Function Configuration



Video Function Configuration Screen

DVMT Mode Select / DVMT/FIXED Memory

Intel's Dynamic Video Memory Technology (DVMT) allows the system to dynamically allocated 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. It is recommended that you set this BIOS feature to DVMT Mode for maximum performance. Setting it to DVMT Mode ensures that system memory is dynamically allocated for optimal balance between graphics and system performance.

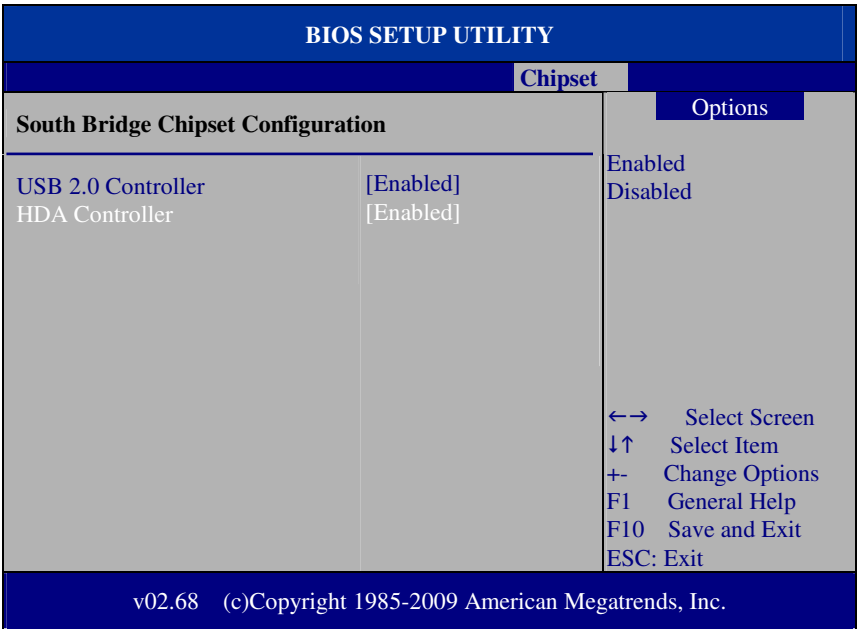
Boot Display Device

Choose the default boot display device by user requirement such as [CRT+LVDS].

Flat Panel Type

Select the resolution for the connected LVDS panel such as [800x600] and [1024x768].

4-8.2 South Bridge Configuration



South Bridge Chipset Configuration Screen

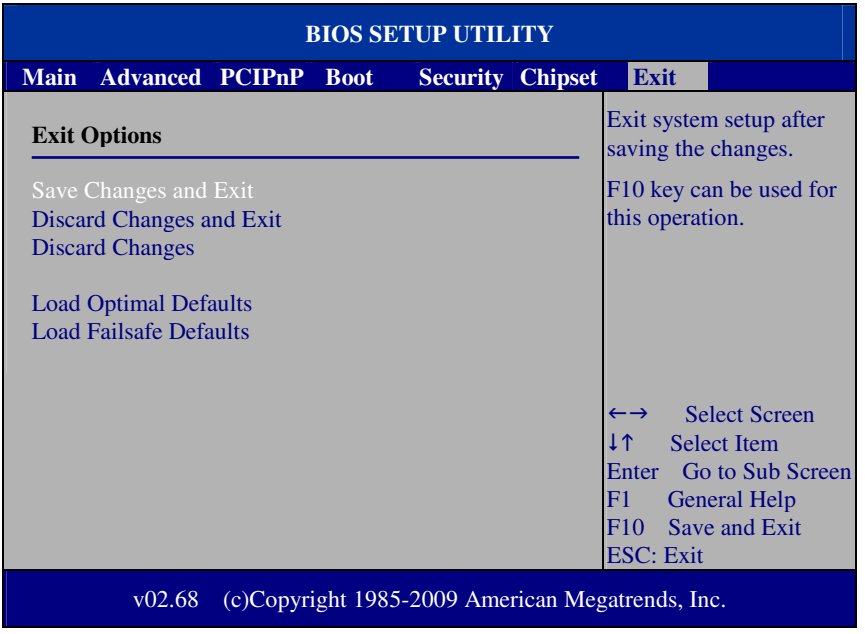
USB 2.0 Controller

Enable or disable the USB 2.0 Controller.

HDA Controller

Enable or disable the onboard High-definition Audio controller.

4.9 Exit



Exit Screen

Save Changes and Exit

Save changes to CMOS and then exit the BIOS setup screen. You can also press the [F10] key for this operation.

Discard Changes and Exit

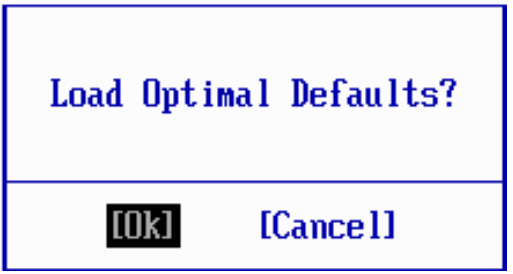
Abandon all changes and exit the BIOS setup screen. You can also press the [ESC] key for this operation.

Discard Changes

Discard all changes done so far to the setup items. You can press the [F7] key for this operation.

Load Optimal Defaults

Press <Enter> on this item, it will show a confirmation dialog box with a message like below:



Pressing "Ok" to load the factory recommended optimal setting for system operations. You can also press the [F9] key for this operation.

Load Failsafe Defaults

Press <Enter> on this item and it will show a confirmation dialog box with a message like below:

To use the BIOS failsafe default values, change the prompt to "Ok" and press the <Enter > key. You can also press the [F8] key for this operation.

EXPANSION BUS & SYSTEM ASSEMBLY

APPENDIX

A

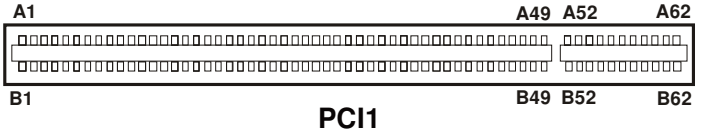
This appendix indicates the pin assignments.

Section includes:

- PCI BUS Pin Assignment
- Mini-PCIe BUS Pin Assignment
- Compact Flash Card Pin Assignment
- DC Jack Pin Assignment
- Exploded Diagram for SA-5082 Whole System

PCI BUS PIN ASSIGNMENT

Like ISA-BUS connector, the PCI-BUS edge connector is also divided into two sets: one consists of 98-pin; the other consists of 22-pin.
The pin assignments are as follows :

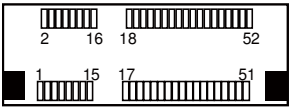


PCI1

A				B			
PIN	**ASSIGNMENT**	**PIN**	**ASSIGNMENT**	**PIN**	**ASSIGNMENT**	**PIN**	**ASSIGNMENT**
A1	TRST#	A31	AD18	B1	-12V	B31	+3.3V
A2	+12V	A32	AD16	B2	TCK	B32	AD17
A3	TMS	A33	+3.3V	B3	GND	B33	C/BE2#
A4	TDI	A34	FRAME#	B4	TDO	B34	GND
A5	+5V	A35	GND	B5	+5V	B35	IRDY#
A6	INTA#	A36	TRDY#	B6	+5V	B36	+3.3V
A7	INTC#	A37	GND	B7	INTB#	B37	DEVSEL#
A8	+5V	A38	STOP#	B8	INTD#	B38	GND
A9	CLKC	A39	+3.3V	B9	NC	B39	LOCK#
A10	+5V(I/O)	A40	SDONE	B10	REQ1#	B40	PERR#
A11	CLKD	A41	SB0#	B11	NC	B41	+3.3V
A12	GND	A42	GND	B12	GND	B42	SERR#
A13	GND	A43	PAR	B13	GND	B43	+3.3V
A14	GNT1#	A44	AD15	B14	CLKA	B44	C/BE1#
A15	RST#	A45	+3.3V	B15	GND	B45	AD14
A16	+5V(I/O)	A46	AD13	B16	CLKB	B46	GND
A17	GNT0#	A47	AD11	B17	GND	B47	AD12
A18	GND	A48	GND	B18	REQ0#	B48	AD10
A19	REQ2#	A49	AD09	B19	+5V(I/O)	B49	GND
A20	AD30	A52	C/BE0#	B20	AD31	B52	AD08
A21	+3.3V	A53	+3.3V	B21	AD29	B53	AD07
A22	AD28	A54	AD06	B22	GND	B54	+3.3V
A23	AD26	A55	AD04	B23	AD27	B55	AD05
A24	GND	A56	GND	B24	AD25	B56	AD03
A25	AD24	A57	AD02	B25	+3.3V	B57	GND
A26	GNT2#	A58	AD00	B26	C/BE3#	B58	AD01
A27	+3.3V	A59	+5V(I/O)	B27	AD23	B59	+5V(I/O)
A28	AD22	A60	REQ64#	B28	GND	B60	ACK64#
A29	AD20	A61	+5V	B29	AD21	B61	+5V
A30	GND	A62	+5V	B30	AD19	B62	+5V

MINI-PCIe BUS CONNECTOR PIN ASSIGNMENT

You will find a Mini-PCIe connector in our SA-5082.
The pin assignments are as follows:



M_PCIE1

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	WAKE#	2	+3.3V
3	Reserved	4	GND
5	Reserved	6	+1.5V
7	CLKREQ#	8	Reserved
9	GND	10	Reserved
11	REFCLK-	12	Reserved
13	REFCLK+	14	Reserved
15	GND	16	Reserved
17	Reserved	18	GND
19	Reserved	20	Reserved
21	GND	22	PERST#
23	PERn0	24	+3.3Vaux
25	PERp0	26	GND
27	GND	28	+1.5V
29	GND	30	SMB_CLK
31	PETn0	32	SMB_DATA
33	PETp0	34	GND
35	GND	36	USB_D-
37	GND	38	USB_D+
39	+3.3V	40	GND
41	+3.3V	42	Reserved
43	GND	44	Reserved
45	CLINK_CLK_WLAN	46	Reserved
47	CLINK_DATA_WLAN	48	+1.5V
49	CLINK_RST_WlAN	50	GND
51	Reserved	52	+3.3V

COMPACT FLASH CARD PIN ASSIGNMENT

There is a Compact Flash connector in SA-5082.
The pin assignments are as follows :

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	GND	26	-CD1
2	D03	27	D111
3	D04	28	D121
4	D05	29	D131
5	D06	30	D141
6	D07	31	D151
7	-CS0	32	-CS11
8	A102	33	-VS1
9	-ATASEL	34	-IORD
10	A092	35	-IOWR
11	A082	36	-WE3
12	A072	37	INTRQ
13	VCC	38	VCC
14	A062	39	-CSEL
15	A052	40	-VS2
16	A042	41	-RESET
17	A032	42	IORDY
18	A02	43	-INPACK
19	A01	44	-REG3
20	A00	45	-DASP
21	D00	46	-PDIAG
22	D01	47	D081
23	D02	48	D091
24	-IOCS16	49	D101
25	-CD2	50	GND

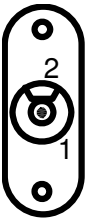
Note1: Because ATA33 cable and ATA66/100 cable pin34 specification are different, therefore, while CF card and other devices are using IDE 1 channel at the same time, the ATA66/100 cable will make the device detecting time expand. Thus, it is suggested to use ATA33 cable to avoid the problem.

Note2: When CF card and other devices are using IDE1 channel at the same time, please refer to “Chapter 4: AMI BIOS Setup” to set BIOS in Integrated Peripherals/ OnChip IDE Device/ IDE DMA transfer access/ DISABLED.

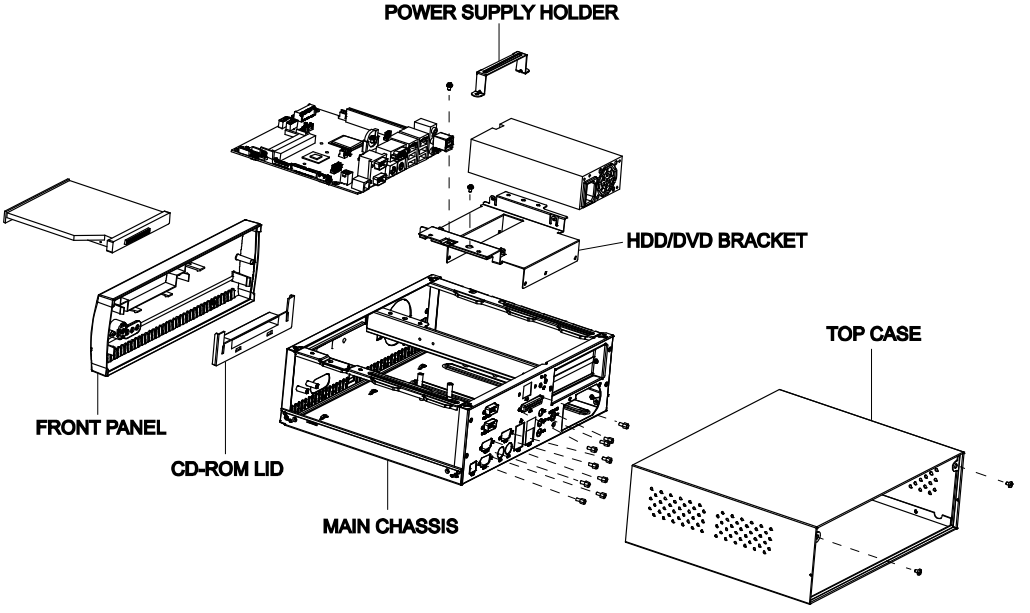
DC JACK PIN ASSIGNMENT

There is an external DC jack for SA-5082.
The pin assignments are as follows :

PIN	ASSIGNMENT
1	+12V
2	GND



EXPLODED DIAGRAM FOR SA-5082 WHOLE SYSTEM



TECHNICAL SUMMARY

APPENDIX

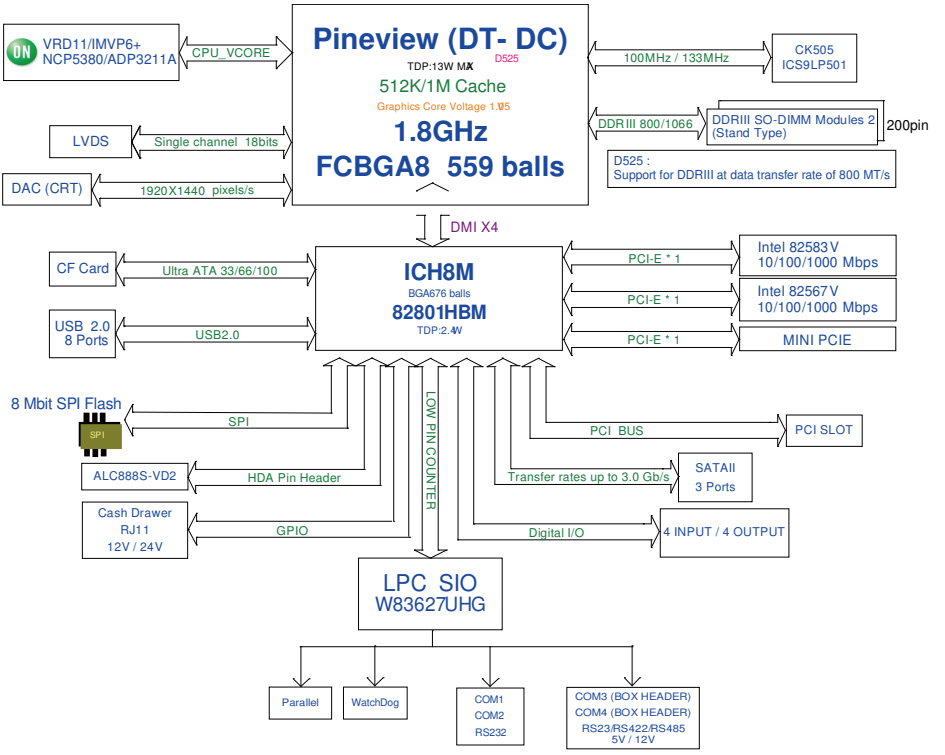
B

This section introduce you the maps concisely.

Section includes:

- Block Diagram
- Interrupt Map
- DMA Channels Map
- I/O Map
- Watchdog Timer Configuration
- Flash BIOS Update

BLOCK DIAGRAM



INTERRUPT MAP

IRQ	ASSIGNMENT
0	System timer
1	Standard 101/102-Key or Microsoft Natural PS/2 Keyboard
3	Communications Port (COM2)
4	Communications Port (COM1)
5	Intel(R) ICH8 Family SMBus Controller - 283E
8	System CMOS/real time clock
9	Microsoft ACPI-Compliant System
10	Communications Port (COM4)
11	Communications Port (COM3)
12	Microsoft PS/2 Mouse
13	Numeric data processor
14	Primary IDE Channel
16	Intel(R) Graphics Media Accelerator 3150
16	Intel(R) ICH8 Family USB Universal Host Controller - 2834
16	Intel(R) 82574L Gigabit Network Connection
18	Intel(R) ICH8 Family USB2 Enhanced Host Controller - 283A
18	Intel(R) ICH8 Family USB Universal Host Controller - 2832
18	Intel(R) ICH8M 3 port Serial ATA Storage Controller - 2828
19	Intel(R) ICH8 Family USB Universal Host Controller - 2831
21	Intel(R) ICH8 Family USB Universal Host Controller - 2835
21	Microsoft UAA Bus Driver for High Definition Audio
22	Intel(R) ICH8 Family PCI Express Root Port 1 - 283F
23	Intel(R) 82567V-3 Gigabit Network Connection
23	Intel(R) ICH8 Family USB Universal Host Controller - 2830
23	Intel(R) ICH8 Family USB2 Enhanced Host Controller - 2836

DMA CHANNELS MAP

TIMER CHANNEL	ASSIGNMENT
Channel 4	Direct memory access controller

I/O MAP

I/O MAP	ASSIGNMENT
0x00000000-0x00000CF7	PCI bus
0x00000000-0x00000CF7	Direct memory access controller
0x00000010-0x0000001F	Motherboard resources
0x00000020-0x00000021	Programmable interrupt controller
0x00000022-0x0000003F	Motherboard resources
0x00000040-0x00000043	System timer
0x00000044-0x0000005F	Motherboard resources
0x00000060-0x00000060	Standard 101/102-Key or Microsoft Natural PS/2 Keyboard
0x00000061-0x00000061	System speaker
0x00000062-0x00000063	Motherboard resources
0x00000064-0x00000064	Standard 101/102-Key or Microsoft Natural PS/2 Keyboard
0x00000065-0x0000006F	Motherboard resources
0x00000070-0x00000071	System CMOS/real time clock
0x00000072-0x0000007F	Motherboard resources
0x00000080-0x00000080	Motherboard resources
0x00000081-0x00000083	Direct memory access controller
0x00000084-0x00000086	Motherboard resources
0x00000087-0x00000087	Direct memory access controller
0x00000088-0x00000088	Motherboard resources
0x00000089-0x0000008B	Direct memory access controller
0x0000008C-0x0000008E	Motherboard resources
0x0000008F-0x0000008F	Direct memory access controller
0x00000090-0x0000009F	Motherboard resources

I/O MAP	ASSIGNMENT
0x000000A0-0x000000A1	Programmable interrupt controller
0x000000A2-0x000000BF	Motherboard resources
0x000000C0-0x000000DF	Direct memory access controller
0x000000E0-0x000000EF	Motherboard resources
0x000000F0-0x000000FF	Numeric data processor
0x000001F0-0x000001F7	Primary IDE Channel
0x00000274-0x00000277	ISAPNP Read Data Port
0x00000279-0x00000279	ISAPNP Read Data Port
0x000002E8-0x000002EF	Communications Port (COM4)
0x000002F8-0x000002FF	Communications Port (COM2)
0x00000378-0x0000037F	Printer Port (LPT1)
0x000003B0-0x000003BB	Intel(R) Graphics Media Accelerator 3150
0x000003C0-0x000003DF	Intel(R) Graphics Media Accelerator 3150
0x000003E8-0x000003EF	Communications Port (COM3)
0x000003F6-0x000003F6	Primary IDE Channel
0x000003F8-0x000003FF	Communications Port (COM1)
0x00000400-0x0000041F	Intel(R) ICH8 Family SMBus Controller - 283E
0x000004D0-0x000004D1	Motherboard resources
0x00000500-0x0000053F	Motherboard resources
0x00000800-0x0000087F	Motherboard resources
0x00000A00-0x00000A0F	Motherboard resources
0x00000A00-0x00000A0F	Motherboard resources
0x00000D00-0x0000FFFF	PCI bus
0x0000C000-0x0000C007	Intel(R) Graphics Media Accelerator 3150
0x0000C080-0x0000C09F	Intel(R) 82567V-3 Gigabit Network Connection
0x0000C400-0x0000C41F	Intel(R) ICH8 Family USB Universal Host Controller - 2835
0x0000C480-0x0000C49F	Intel(R) ICH8 Family USB Universal Host Controller - 2834
0x0000C800-0x0000C81F	Intel(R) ICH8 Family USB Universal Host Controller - 2832

I/O MAP	ASSIGNMENT
0x0000C880-0x0000C89F	Intel(R) ICH8 Family USB Universal Host Controller - 2831
0x0000CC00-0x0000CC1F	Intel(R) ICH8 Family USB Universal Host Controller - 2830
0x0000D080-0x0000D08F	Intel(R) ICH8M 3 port Serial ATA Storage Controller - 2828
0x0000D400-0x0000D40F	Intel(R) ICH8M 3 port Serial ATA Storage Controller - 2828
0x0000D480-0x0000D483	Intel(R) ICH8M 3 port Serial ATA Storage Controller - 2828
0x0000D800-0x0000D807	Intel(R) ICH8M 3 port Serial ATA Storage Controller - 2828
0x0000D880-0x0000D883	Intel(R) ICH8M 3 port Serial ATA Storage Controller - 2828
0x0000DC00-0x0000DC07	Intel(R) ICH8M 3 port Serial ATA Storage Controller - 2828
0x0000E000-0x0000EFFF	Intel(R) ICH8 Family PCI Express Root Port 1 - 283F
0x0000EC00-0x0000EC1F	Intel(R) 82574L Gigabit Network Connection
0x0000FFA0-0x0000FFAF	Intel(R) ICH8M Ultra ATA Storage Controllers - 2850

WATCHDOG TIMER CONFIGURATION

Watchdog timer can be configured via I/O port address 2E (hex) and 2F (hex). 2E (hex) is the address port. 2F (hex) is the data port. User can assign the target offset by writing value into address port 2E (hex) and then write/read data to/from the target offset by data port 2F (hex).

Configuration Sequence

Please follow the following steps to program W83627UHG configuration registers.
(1) Enter the extended function mode.
(2) Configure the configuration registers.
(3) Exit the extended function mode.

(1) Enter the extended function mode

To place W83627UHG into the Extended Function Mode, two successive writes of 0x87 must be applied to Extended Function Enable Registers (EFERs, i.e. 2Eh or 4Eh).

(2) Configure the configuration registers

User must select to the desired Logical Device number and activates the desired Logical Devices through Extended Function Index Register (EFIR) and Extended Function Data Register (EFDR). The EFIR is located at the same address as the EFER, and the EFDR is located at address (EFIR+1). First, write the Logical Device Number (i.e. 0x07) to the EFIR and then write the number of the desired Logical Device to the EFDR. If accessing the Chip (Global) Control Registers, this step is not required. Secondly, write the address of the desired configuration register within the Logical Device to the EFIR and then write (or read) the desired configuration register through the EFDR.

(3) Exit the extended function mode

To exit the Extended Function Mode, writing 0xAA to the EFER is required. Once SuperIO exits the Extended Function Mode, it goes back to the normal running mode.

Code example for watch dog timer

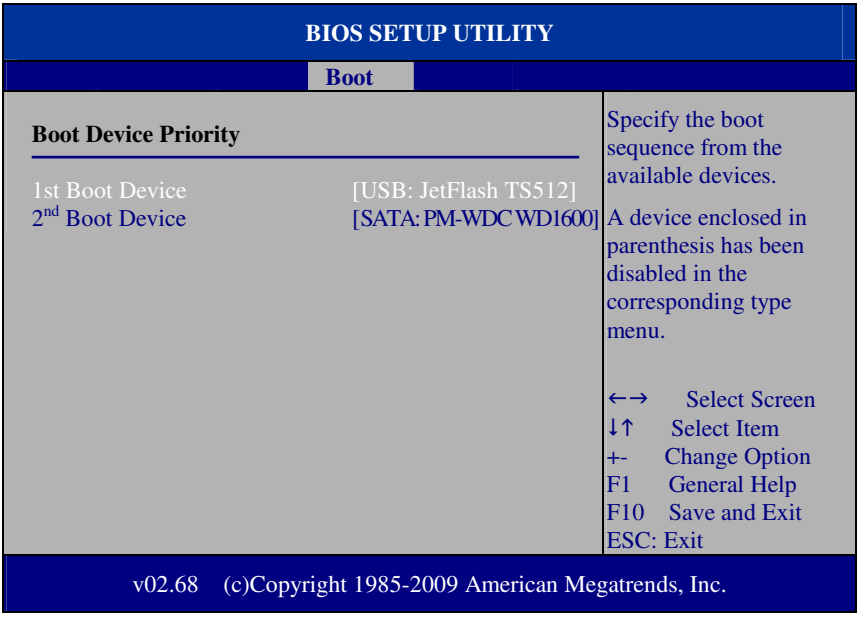
Enable watchdog timer and set timeout interval to 30 seconds.

```
;------ Enter to extended function mode ------------------------------------------------------
mov     dx,     2Eh
mov     al,     87h
out     dx,     al
out     dx,     al
;------ Select Logical Device 8 of watchdog timer ---------------------------------------
mov     al,     07h
out     dx,     al
inc     dx
mov     al,     08h
out     dx,     al
;------ Logic device activation for watch dog timer ---------------------------------------
dec     dx
mov     al,     030h
out     dx,     al
inc     dx
mov     al,     01h
out     dx,     al
;------ Set second as counting unit ------------------------------------------------------------
dec     dx
mov     al,     0F5h
out     dx,     al
inc     dx
in      al,     dx
and     al,     not 08h
out     dx,     al
;------ Set timeout interval as 30seconds and start counting ----------------------------
dec     dx
mov     al,     0F6h
out     dx,     al
inc     dx
mov     al,     30
out     dx,     al
;------ Exit the extended function mode ------------------------------------------------------
dec     dx
mov     al,     0AAh
out     dx,     al
```

FLASH BIOS UPDATE

A. Before System BIOS update

1. Prepare a bootable media (ex. USB storage device) which can boot system to DOS prompt.
2. Download and save the BIOS BIN (ex. 50820P01.bin) file to the bootable device.
3. Make sure the target system can first boot to the bootable device.
   (1) Connect the bootable USB device.
   (2) Turn on the system and press <Del> key during BIOS POST procedure.
   (3) System will goes into the BIOS setup menu.
   (4) Select [Boot] menu.
   (5) Select [Boot Devices Priority] sub-menu, set the USB bootable device to be the 1st boot device.
   (6) Pressing <F10> key to save configuration and exit the BIOS setup menu.



AFUDOS command for system BIOS update

AFUDOS.exe is the AMI firmware update utility, the command line is shown as below:

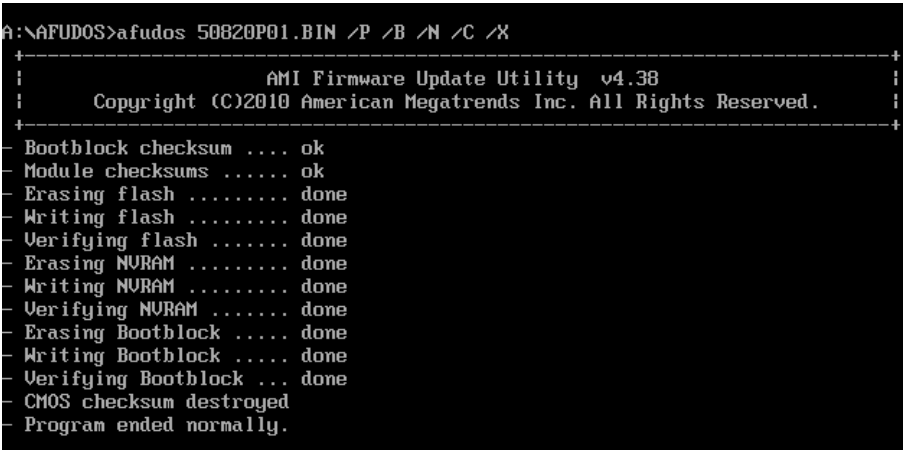
AFUDOS <BIN File Name> [option1] [option2]….

You can type "AFUDOS/?" to see all the definition of each control options. The recommend option for BIOS BIN update include following parameters:

/P: Program main BIOS image.
/B: Program Boot Block.
/N: Program NVRAM.
/C: Destroy CMOS checksum
/X: Don't check ROM ID.

BIOS update procedure

1. Use the bootable USB storage to boot up system into the DOS command prompt.
2. Type "**AFUDOS 5082PXX /p /b /n /c /x**" and press enter to start the flash procedure.
   (Note that xx means the BIOS revision part, ex. 0P01…)
3. During the update procedure, you will see the BIOS update process status and its percentage. Beware! Do not turn off system power or reset your computer if the whole procedure are not complete yet, or it may crash the BIOS ROM and make system unable to boot up next time.
4. After BIOS update procedures complete, the messages should be like the figure shown below.



5. You can restart the system and boot up with new BIOS now.