SGA-2210

SGA-2210

AMD eOntario Processor based Gaming System, DirectX 11, OpenGL 4, 1 x CFast, 1 x CF, 10 x COM, 2nd RTC and NVRAM/MRAM

User's Manual

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Chapter 1. General Information

1.1 Introduction

SGA-2210 is a graphic-enhanced mainstream gaming system. “Built with AMD eOntario chipsets, SGA-2210 can support fantastic integrated graphic performance and reach 2,500 score while running 3DMark 2006 under 1024 x 768 x 32bits.With UVD 3.0, SGA-2210 can offload video decode dramatically reducing CPU loading during video play. It supports full bit-stream decoding of H.264/MPEG-4 AVC, VC-1, DivX, Xvid, MPEG2, as well as Blu-ray.

Key features:

- GLI compliant
- Onboard graphic 3DMark 06 up to 2,500 score
- Support Directx 11 and OpenGL 4
- Support full bitstream decoding of H.264/MPEG-4 AVC, VC-1, DivX, Xvid, MPEG2, as well as Blu-ray 3D
- AC Power Fail Detection w/ interrupt
- Instant ON/OFF in 500ms
- Battery Low Detection
- 10 x COM, 2 x LAN, NVRAM, TPM, 2nd RTC

SGA-2210 provides various security mechanisms, including physical security, data security and software security. “AC Power Fail Detection” is one of the important features of data security. With this function, SGA-2210 can write data into NVRAM while unpredictable AC Power Fail, and make sure the data to be secured under any circumstance.

1.2 Specification

GA-2210

■ ***System***	
CPU	AMD® T56N Dual Core 1.65GHz
BIOS	AMI® BIOS
Chipset	AMD® A55E chipset
System Memory	2 x DDR3 SODIMM socket support up to 8GB
Watchdog Timer	255 levels timer interval, (1sec. to 255min.), setup by software.
■ ***Display***	
Video Chipset	AMD® T56N w/ ATI® Radeon™ HD6320 - Microsoft® DirectX® 11 - OpenGL 4.0 - OpenCL 1.0 - UVD (Universal Video Decoder) 3.0; Full bitstream decoding of H.264/MPEG-4 AVC, VC-1, DivX, Xvid, MPEG2, as well as Blu-ray 3D
Video Interface	1st display Single-link DVI 1920 × 1200 at 60 Hz 2nd display Single-link DVI 1920 × 1200 at 60 Hz(or 2nd display VGA 2048 × 1536 at 60 Hz)
■ ***Audio***	
Audio Chipset	HDA 5.1 Channel
Power amp.	N/A
Audio Interface	Front, Surround, CEN/SUB
■ ***Ethernet***	
Ethernet Interface	2 x PCIe x1 Gigabit Ethernet
■ ***Storage***	
SSD	1 x CF 1 x CFast 2GB NANDrive (Optional 8GB)
HDD	Two SATA connectors
■ ***Security***	
Physical Security	Intrusion Detection Onboard Storage
Software Security	Boot ROM TPM 1.2 FPGA AEWIN Locking

Data Security	Non-Volatile SRAM, support MRAM H/W Data Mirror Backup AC Power Fail detection w/ interrupt
■***Gaming***	
NVRAM	On-board Battery Backup SRAM (battery-less MRAM/ FRAM optional)
Timers	Programmable timer with timeout interrupt
Intrusion Detection	By battery powered single chip microcontroller Operates with and without system power 8x Intrusion detection inputs Logs date/time of latest 100 events Events include door status, system resets/brownouts, NVRAM battery low, … On-chip EEPROM backup
Digital I/O	16 x ESD Protected Input 16 x Photo-coupler Protected Input 28 x 500mA current sink output 4 x 3A current sink output Optional 64 x I/O by request
■ ***Expansion***	
Expansion slot	One PCIe x16 slots
■ ***System I/O***	
COM	10 x COM (9 bits) • COM1, COM2 support RS-232 at Rear I/O • COM3 support RS-232 • COM4 support RS-485 • COM5, COM6 support ccTalk • COM7, COM8, COM9 support simple RS-232 • COM10 support 1x RS-232
USB	8 x USB2.0 - 4 x USB 2.0 port at rear I/O - 4 x USB 2.0 (pin header)
I/O	1 x PS2 KB/MS (pin header)
■ ***Power Supply***	
Voltage	ATX compliant
■ ***Software***	
O/S	Windows XP Embedded Linux
■ ***Mechanical and Environment***	
System Health Monitoring	Measurement of CPU core and system temperature with thermal trip. Speed monitoring for CPU fan and two system fans

Environmental	Operating Temperature: 0 – 60 ºC (32 ºF – 140 ºF) Storage Temperature: -20 – 85 ºC (-4 ºF – 185 ºF) Relative Humidity: 10-85 % RH, non-condensing
Compliant	FCC/CE Class A GLI
Dimension	170mm (L) x 200mm (W) (8.7” L x 11.6” W)
■ ***Applications***	
Main Application	Video slot machines (Class II/III) Video lottery terminals Amusement game machines Master unit of roulette machine Downloadable gaming terminal Multi player gaming machines

Order Information	
Standard	
GA-2210A	AMD T56N Dual Core 1.65GHz based Gaming Board with 1 x CF, 1 x CFast, 10 x COM, 2 x GbE
Optional	
DK-GA2200	Development Kit - R217A Gaming I/O testing board - 46L-G00010-02 Cable of R217A of GA-2200 - 46L-SATA07-00 S-ATA cable - 46L-IPS200-00 KB/MS cable - 46L-IUSB01-00 USB cable - 46L-COM007-00; COM cable

* Note: All specifications are subject to change without prior notice

SGA-2210

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Ethernet Interface	2 x PCIe x1 Gigabit Ethernet
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■ ***Expansion***	
Expansion slot	One PCIe x16 slots
Mechanical	
Front I/O	- 1 x DVI, 1 x DVI-D - 2 x RS-232 - 2 x LAN - 4 x USB - 5.1 channel audio
Rear I/O	- 16 x ESD Protected Input; 16 x Photo-coupler Protected Input - 28 x 500mA current sink output; 4 x 3A current sink output - 2 x RS-232, 1 x RS-485, 2 x ccTalk, 3 x Simple RS-232(Tx, Rx) - 8 x Intrusion Detection
■ ***Power Supply***	
Power input	ATX compliant
Power consumption	TBD
■ ***Software***	
O/S	Windows XP(e) Linux
■ ***Mechanical Environment***	
Environmental	Operating Temperature: 0 – 40 ºC (32 ºF – 140 ºF) Storage Temperature: -20 – 85 ºC (-4 ºF – 185 ºF) Relative Humidity: 10-85 % RH, non-condensing
Compliant	CE/FCC Class A GLI
Dimension	270mm (W) x 184mm (D) x mm (H)
■ ***Applications***	
Main Application	Video slot machines (Class II/III) Video lottery terminals

	Amusement game machines Master unit of roulette machine Downloadable gaming terminal Multi player gaming machines

Order Information	
Standard	
SGA-2210A	AMD T56N Dual Core 1.65GHz based Gaming System with 10x COM, 2x GbE, 2MB NVRAM/MRAM, 2MB Boot ROM and TPM
Optional	
DK-GA2210	Development Kit - R217A Gaming I/O testing board - 46L-G00010-02 Cable of R217A of GA-2210 - 46L-SATA07-00 S-ATA cable - 46L-IPS200-00 KB/MS cable - 46L-IUSB01-00 USB cable - 46L-COM007-00; COM cable

1.3 Precautions

Please make sure you properly ground yourself before handling the GA-2210 board or other system components. Electrostatic discharge can be easily damage the GA-2210 board.

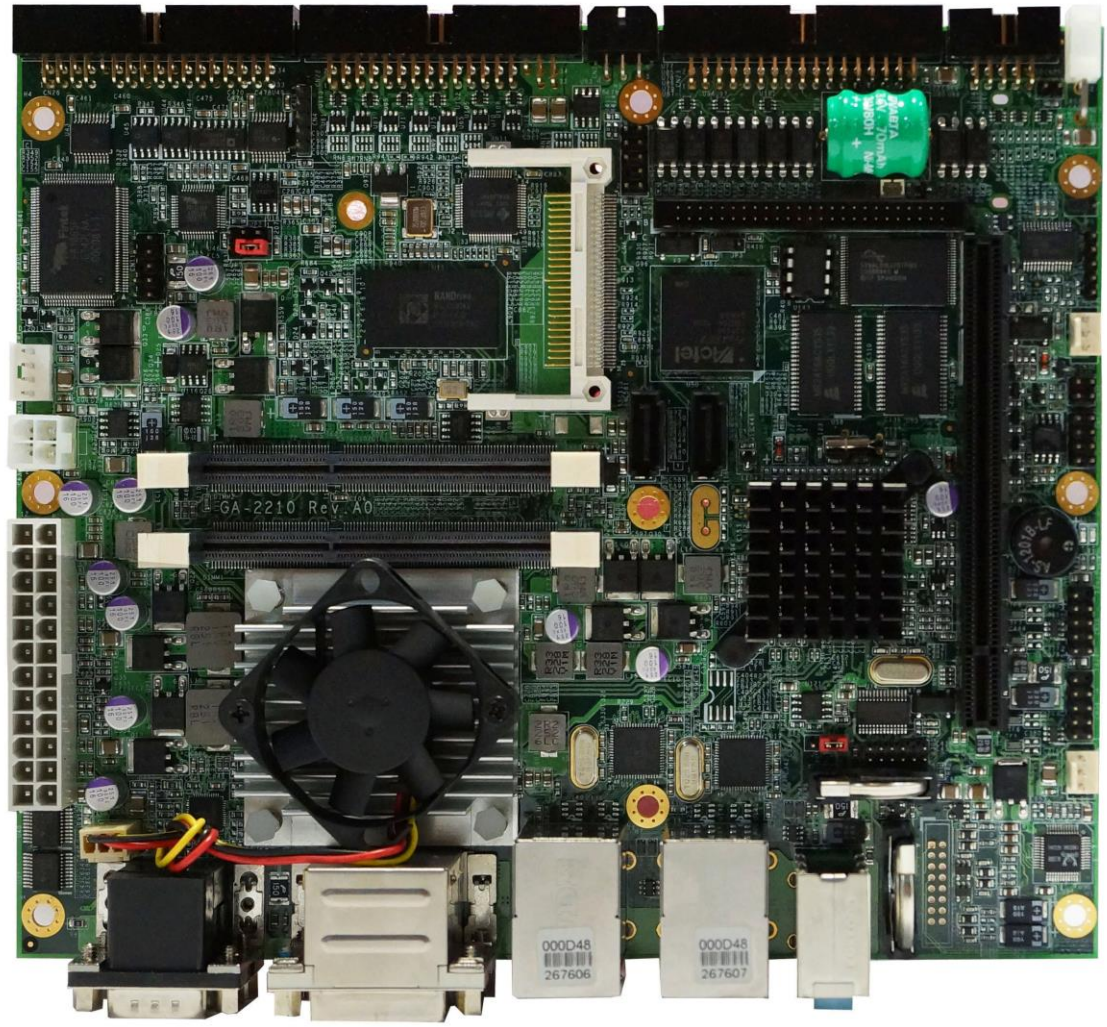
Do not remove the anti-static packing until you are ready to install the GA-2210 board.

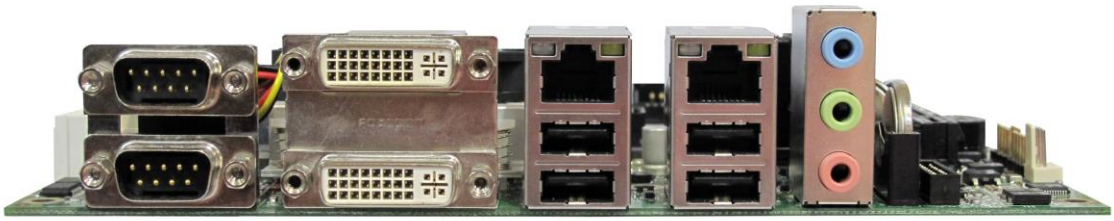
Ground yourself before removing any system component from it protective anti-static packaging. To ground yourself, grasp the expansion slot covers or other unpainted parts of the computer chassis.

Handle the GA-2210 board by its edges and avoid touching its component.

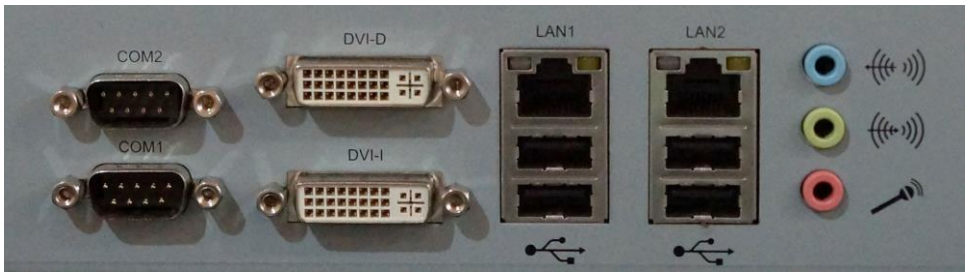
1.4 Layout

GA-2210



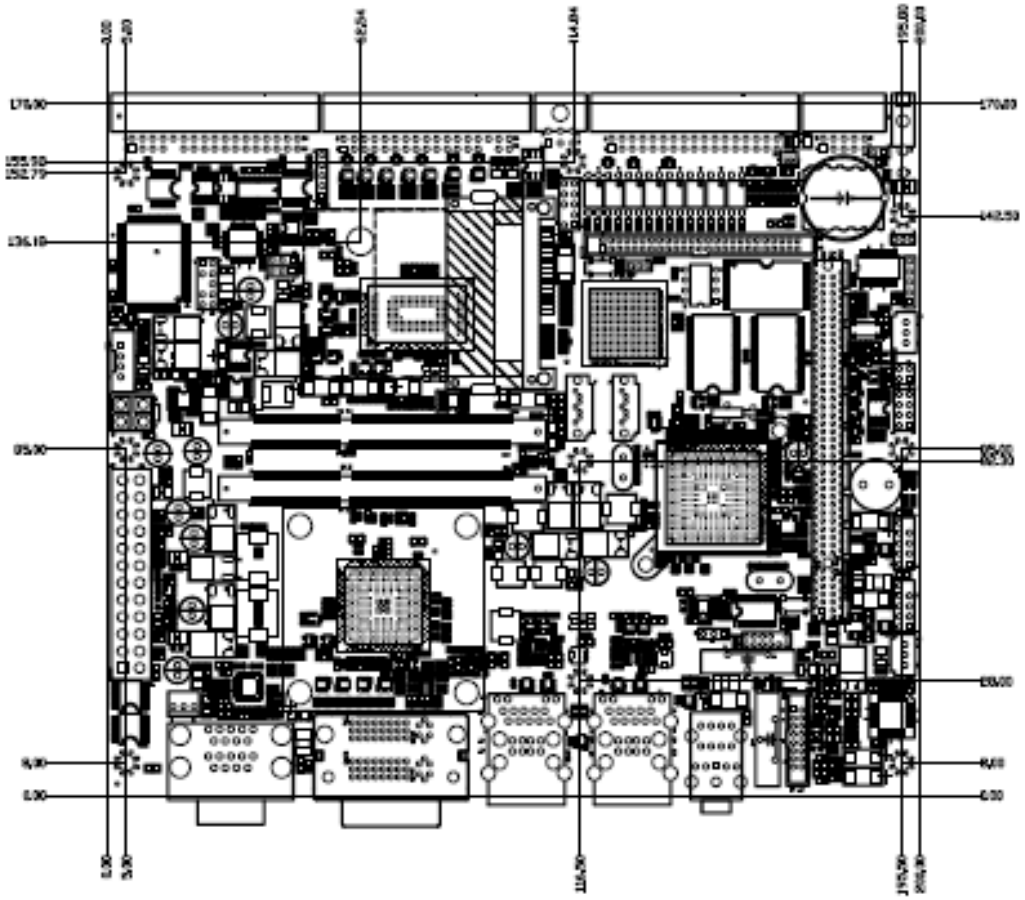


SGA-2210



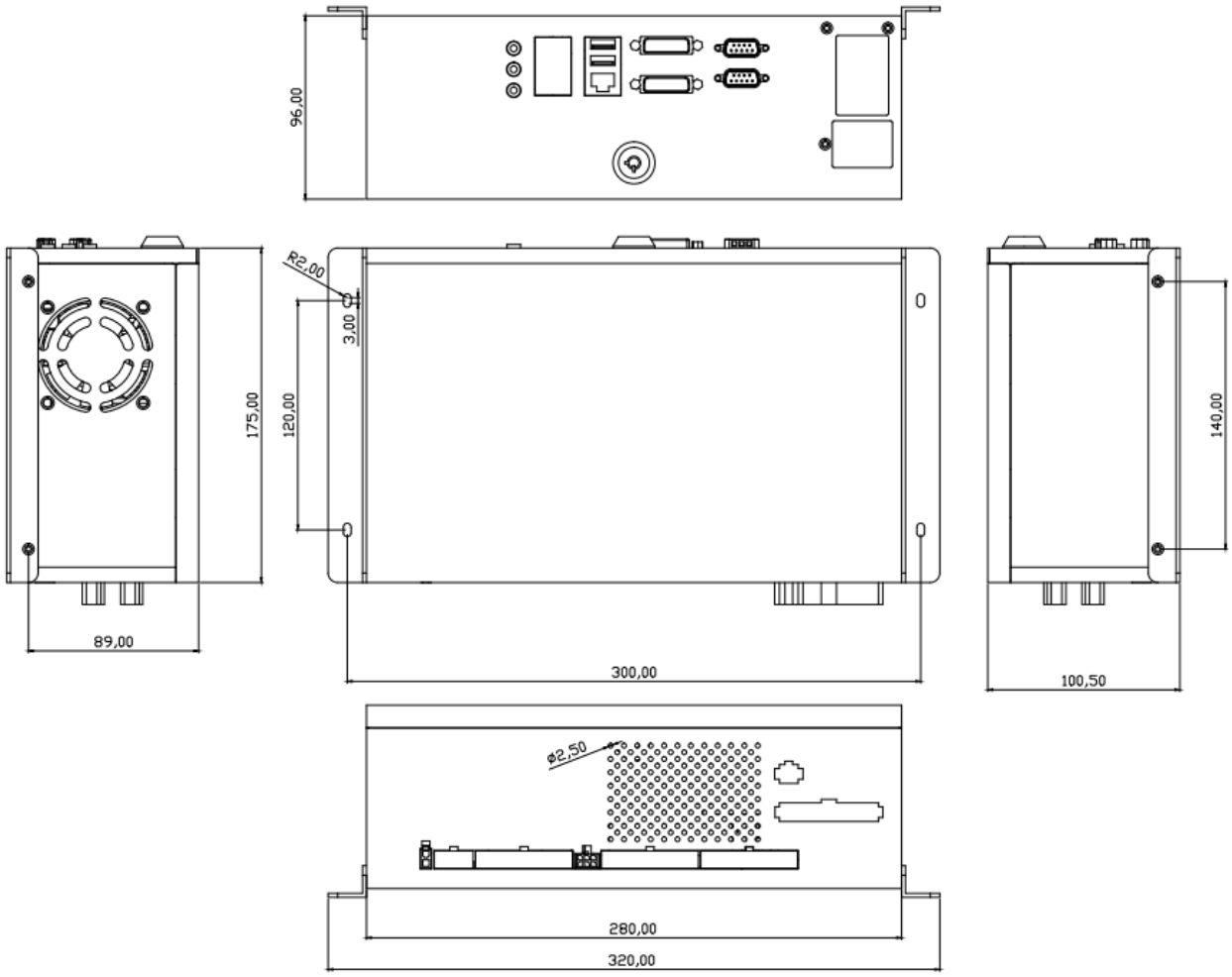
1.5 Dimension

GA-2210



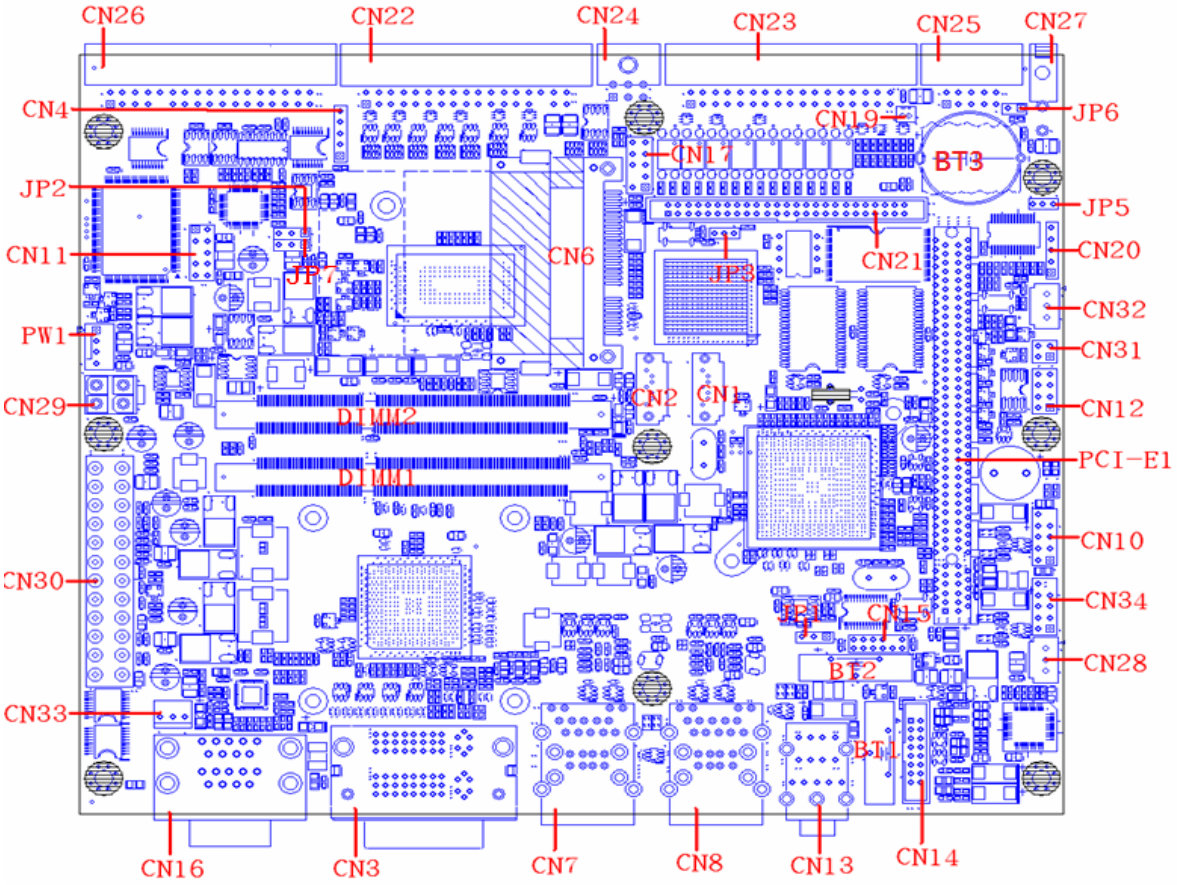
Board Dimension (mm) (Component Side)

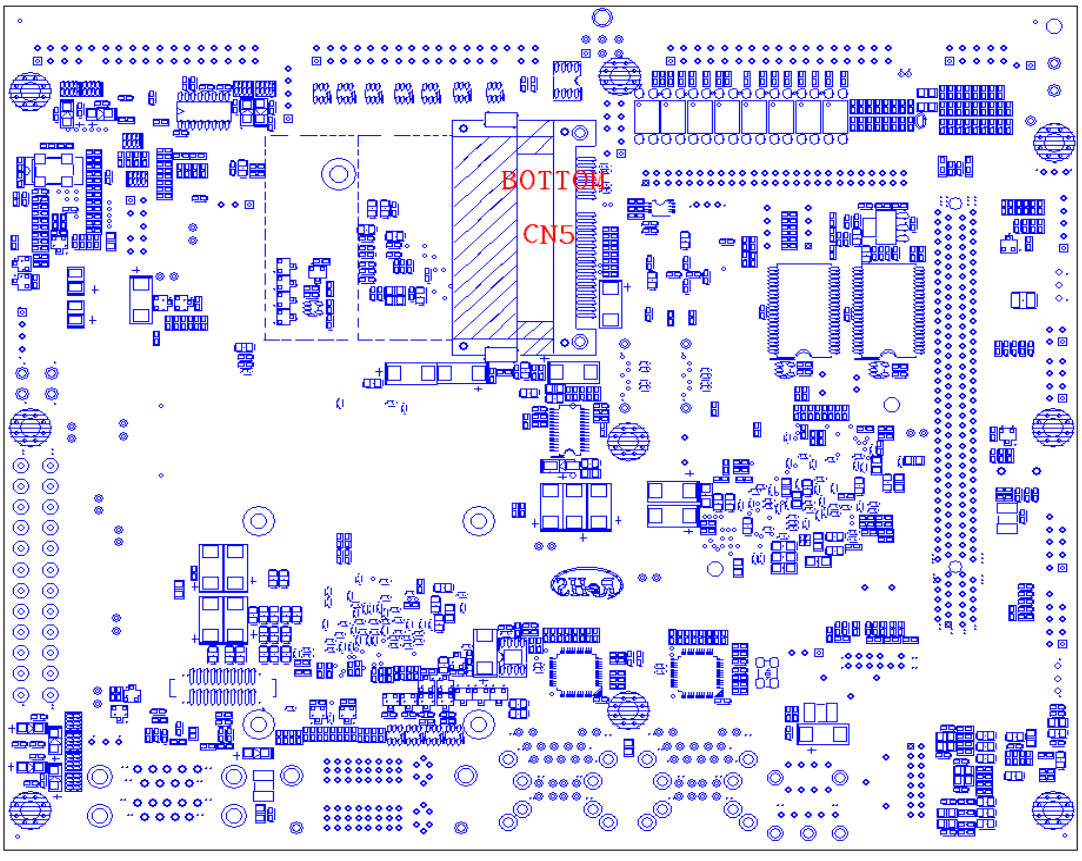
SGA-2210


96,00
R2,00
3,00
120,00
175,00
89,00
300,00
140,00
100,50
ø2,50
280,00
320,00

Chapter 2. Connector and Jumper Settings

Board Connector

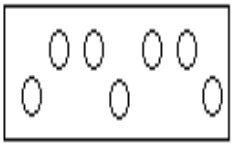




CN1	SATA Connector	CN12	Test Pin Header
CN2	SATA Connector	CN13	Audio Connector
CN3	Dual DVI Connector *DVI-D(up); DVI-I(down)*	CN14	Audio5.1 Pin Header
CN4	Test Pin Header	CN15	LPC Port80 Pin Header
CN5	Cfast Connector	CN16	COM1/COM2 Connector
CN6	CF Connector	CN17	FPGA Update Pin Header
CN7	RJ45+USB Connector	CN18	None
CN8	RJ45+USB Connector	CN19	Intrusion Battery Connector
CN9	None	CN20	Intrusion Update Pin Header
CN10	USB Pin Header	CN21	GPIO Extend Connector
CN11	PS2 KB/MS Pin Header	CN22	GPO Connector (OUT0~OUT27 500mA)
CN23	GPI Connector(IN0~IN31)	CN24	GPO Connector (OUT28~OUT31 2A)
CN25	DOOR Connector (DOOR0~DOOR6)	CN26	COM Port Connector (COM3~COM10)
CN27	DCIN Connector(+12V)	CN28	FAN Connector
CN29	ATX 4Pin Connector	CN30	ATX 24Pin Connector
CN31	Power Button/System Reset Pin Header	CN32	FAN Connector
CN33	FAN Connector	CN34	USB Pin Header
DIMM1	DDR3 Slot	DIMM2	DDR3 Slot
PW1	HDD Power Connector	PCI-E1	PCI-E x16 slot(x4 singel)
JP1	CMOS Hold / Clear Select	JP2	None
JP3	FPGA EEPROM Write Protect Select	JP4	None
JP5	Intrusion Update Voltage Select	JP6	DOOR7 Select
JP7	SATA NANDrive Write Protect Select		

Connector/Jumper Setting

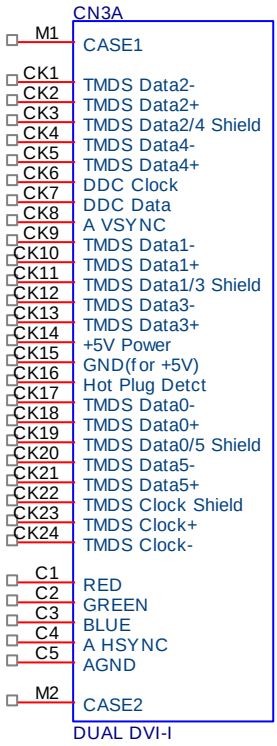
CN1/CN2: SATA Connector



Pin	Signal
1	Ground
2	TXP
3	TXN
4	Ground

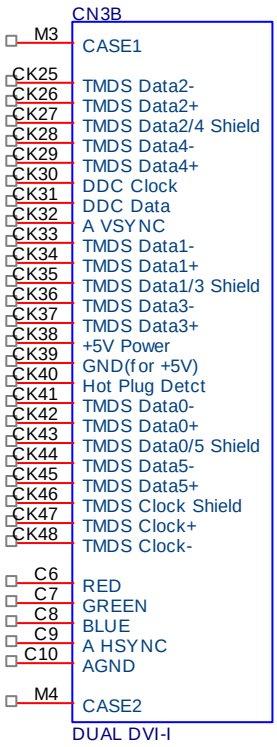
	5	RXN
	6	RXP
	7	Ground

CN3A: DVI Connector *(DVI-D)*



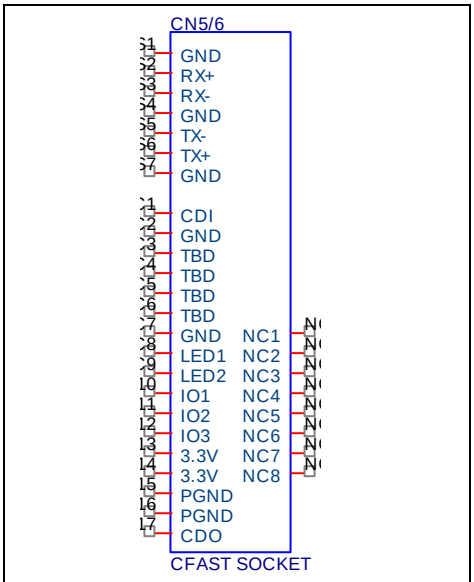
Pin	Define	Pin	Define
M1	CASE GND	M2	CASE GND
CK1	DP0_TX0_N	CK2	DP0_TX0_P
CK3	GND	CK4	-
CK5	-	CK6	DP0_AUX_P
CK7	DP0_AUX_N	CK8	-
CK9	DP0_TX1_N	CK10	DP0_TX1_P
CK11	GND	CK12	-
CK13	-	CK14	+5V
CK15	GND	CK16	DVID_HPD
CK17	DP0_TX2_N	CK18	DP0_TX2_P
CK19	GND	CK20	-
CK21	-	CK22	GND
CK23	DP0_TX3_N	CK24	DP0_TX3_P
C1	Analog_R	C2	Analog_G
C3	-	C4	-
C5	Analog GND	-	

CN3B: DVI Connector *(DVI-I)*



Pin	Define	Pin	Define
M3	CASE GND	M4	CASE GND
CK25	DP1_TX0_N	CK26	DP1_TX0_P
CK27	GND	CK28	-
CK29	-	CK30	DP1_AUX_P
CK31	DP1_AUX_N	CK32	Analog_VSY
CK33	DP1_TX1_N	CK34	DP1_TX1_P
CK35	GND	CK36	-
CK37	-	CK38	+5V
CK39	GND	CK40	DVII_HPD
CK41	DP1_TX2_N	CK42	DP1_TX2_P
CK43	GND	CK44	-
CK45	-	CK46	GND
CK47	DP1_TX3_N	CK48	DP1_TX3_P
C6	Analog_R	C7	Analog_G
C8	Analog_B	C9	Analog_HSY
C10	Analog GND	-	

CN5:CFast Connector

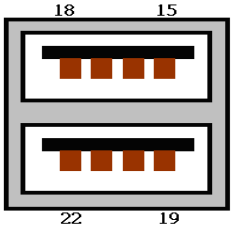


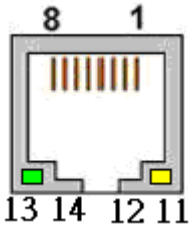
Pin	Signal	Pin	Signal
S1	GND	S2	SATA_TX_P
S3	SATA_TX_N	S4	GND
S5	SATA_RX_N	S6	SATA_RX_P
S7	GND	S8	
PC1	-	PC2	GND
PC3	Test Pin	PC4	Test Pin
PC5	Test Pin	PC6	Test Pin
PC7	GND	PC8	-
PC9	-	PC10	-
PC11	-	PC12	-
PC13	+3.3V	PC14	+3.3V
PC15	GND	PC16	GND
PC17	-		
NC1	-	NC2	-
NC3	-	NC4	-
NC5	-	NC6	-
NC7	-	NC8	-

CN6:CF Connector

Pin	Define	Pin	Define
1	GND	26	CF_CD-1
2	IDE_PDD3	27	IDE_PDD11
3	IDE_PDD4	28	IDE_PDD12
4	IDE_PDD5	29	IDE_PDD13
5	IDE_PDD6	30	IDE_PDD14
6	IDE_PDD7	31	IDE_PDD15
7	IDE_PDCS1_N	32	IDE_PDCS3_N
8	GND	33	GND
9	GND	34	IDE_PDIOR_N
10	GND	35	IDE_PDIOW_N
11	GND	36	CF_PIN36
12	GND	37	IDE_IRQ
13	+5V	38	+5V
14	GND	39	GND
15	GND	40	NC
16	GND	41	IDE_RST_N
17	GND	42	IDE_PDIORDY
18	IDE_PDA2	43	IDE_PDDREQ
19	IDE_PDA1	44	IDE_PDDACK_N
20	IDE_PDA0	45	IDE_ACTP_N
21	IDE_PDD0	46	IDE_PDIAG_N
22	IDE_PDD1	47	IDE_PDD8
23	IDE_PDD2	48	IDE_PDD9
24	IDE_CS16_N	49	IDE_PDD10
25	NC	50	GND

CN7/CN8:USB and LAN RJ45

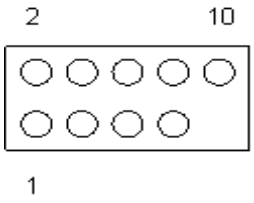




Pin	Signal	Pin	Signal
15	5VUSB	1	NC
16	USBDT-	2	MDIP0
17	USBDT+	3	MDIN0

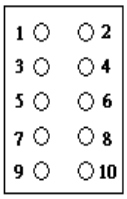
18	Ground	4	MDIP1
19	5VUSB	5	MDIN1
20	USBDT-	6	MDIP2
21	USBDT+	7	MDIN2
22	Ground	8	MDIP3
GND1	Ground	9	MDIN3
GND2	Ground	10	Ground
GND3	Ground	11	LINK LED
GND4	Ground	12	ACT LED
GND5	Ground	13	1G LED
GND6	Ground	14	100 LED

CN10 & CN34: USB pin header



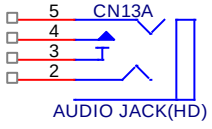
Pin	Define	Pin	Define
1	+5V	2	+5V
3	USBDATA-	4	USBDATA-
5	USBDATA+	6	USBDATA+
7	GND	8	GND
9	Reserved	10	GND

CN11: PS/2 KB/MS pin header



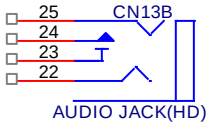
Pin	Define	Pin	Define
1	KCLK	2	MCLK
3	KDAT	4	MDAT
5	Reserved	6	NC
7	GND	8	GND
9	+5V	10	+5V

CN13A:AUDIO Connector



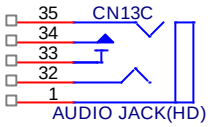
Pin	Define	Pin	Define
2	MIC_L	3	GND
4	MIC_JD	5	MIC_R

CN13B:AUDIO Connector



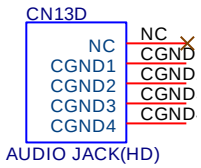
Pin	Define	Pin	Define
22	SPKR_OUT_L	23	GND
24	FRONT_JD	25	SPKR_OUT_R

CN13C:AUDIO Connector



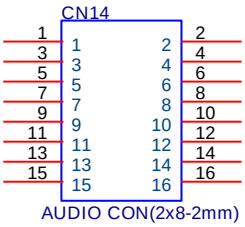
Pin	Define	Pin	Define
32	LINE_L	33	GND
34	LINE_JD	35	LINE_R

CN13D:AUDIO Connector



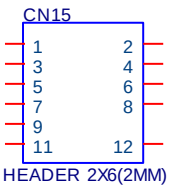
Pin	Define	Pin	Define
C1	GND	C2	GND
C3	GND	C4	GND
NC	-		

CN14:AUDIO5.1 Connector



Pin	Define	Pin	Define
1	CEN-JD	2	SURR-JD
3	CENTER OUT	4	SURR_L
5	LEF OUT	6	SURR_R
7	SIDESURR-JD	8	FRONT-JD
9	SURBACK_R	10	FRONT_R
11	SURBACK_L	12	FRONT_L
13	+12V	14	GNDAUD
15	+12V	16	GNDAUD

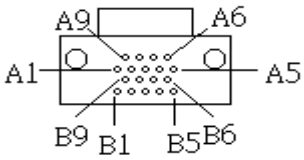
CN15: LPC 80 port pin header



HEADER 2X6(2MM)

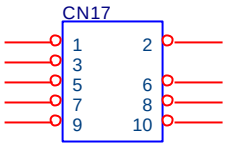
Pin	Define	Pin	Define
1	+12V	2	LAD0
3	LAD1	4	LAD2
5	LAD3	6	LFRAME#
7	RST#	8	+5V
9	CLK	10	Reserved
11	Ground	12	Ground

CN16:COM1 and COM2 Connector



Pin	Signal	Pin	Signal
A1	DCD1	B1	DCD2
A2	RXD1	B2	RXD2
A3	TXD1	B3	TXD2
A4	DTR1	B4	DTR2
A5	Ground	B5	Ground
A6	DSR1	B6	DSR2
A7	RTS1	B7	RTS2
A8	CTS1	B8	CTS2
A9	RI1	B9	RI2

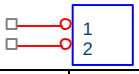
CN17: FPGA Update Pin Header



Pin Header 2*5(2.54mm)

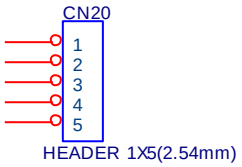
Pin	Define	Pin	Define
1	TCK	2	GND
3	TDO	4	NC
5	TMS	6	VJTAG
7	VPUMP	8	TRST
9	TDI	10	GND

CN19:BATTERY HEADER



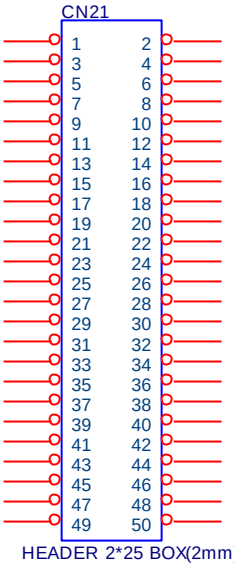
Pin	Define	Pin	Define
1	+3.0V	2	GND

CN20: INTRUSION Update Pin Header



Pin	Define	Pin	Define
1	MCLR	2	PIC_VCC
3	GND	4	PGD
5	PGC		

CN21: GPIO Extend Connector

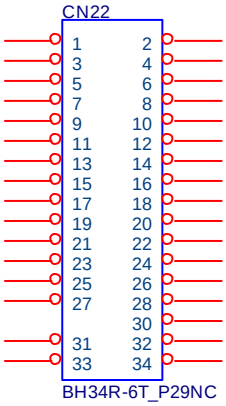


Pin	Define	Pin	Define
1	EXT0	2	DQ0
3	EXT1	4	DQ1
5	EXT2	6	DQ2
7	EXT3	8	DQ3
9	EXT4	10	DQ4
11	EXT5	12	DQ5
13	EXT6	14	DQ6
15	EXT7	16	DQ7
17	EXT8	18	RA0
19	EXT9	20	RA1
21	EXT10	22	RA2
23	EXT11	24	RA3

25	EXT12	26	RA4
27	EXT13	28	RA5
29	EXT14	30	RA6
31	EXT15	32	RA7
33	IOSel*	34	RA8
35	WE*	36	RA9
37	OE*	38	RA10
39	RA12	40	RA11
41	RA13	42	GND
43	GND	44	GND
45	GND	46	GND
47	+5V	48	+5V
49	+5V	50	+5V

CN22:GPO Connector(0~27)

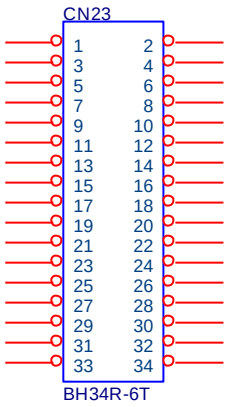
Mosfet Open Drain 500mA Output



Pin	Define	Pin	Define
1	OUT1	2	OUT0
3	OUT3	4	OUT2
5	OUT5	6	OUT4
7	OUT7	8	OUT6
9	OUT9	10	OUT8
11	OUT11	12	OUT10
13	OUT13	14	OUT12
15	OUT15	16	OUT14
17	OUT17	18	OUT16
19	OUT19	20	OUT18
21	OUT21	22	OUT20
23	OUT23	24	OUT22
25	OUT25	26	OUT24

27	OUT27	28	OUT26
29	Reserved	30	+12V
31	GND	32	+12V
33	GND	34	+12V

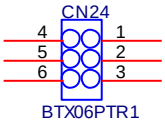
CN23:GPI Connector(0~31)



Pin	Define	Pin	Define
1	Iso-IN1	2	Iso-IN0
3	Iso-IN3	4	Iso-IN2
5	Iso-IN5	6	Iso-IN4
7	Iso-IN7	8	Iso-IN6
9	Iso-IN9	10	Iso-IN8
11	Iso-IN11	12	Iso-IN10
13	Iso-IN13	14	Iso-IN12
15	Iso-IN15	16	Iso-IN14
17	TTL-IN17	18	TTL-IN16
19	TTL-IN119	20	TTL-IN18
21	TTL-IN21	22	TTL-IN20
23	TTL-IN23	24	TTL-IN22
25	TTL-IN25	26	TTL-IN24
27	TTL-IN27	28	TTL-IN26
29	TTL-IN29	30	TTL-IN28
31	TTL-IN31	32	TTL-IN30
33	GND	34	+12V

CN24:GPO Connector(28~31)

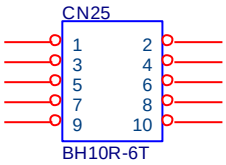
Mosfet Open Drain 2A Output



Pin	Define	Pin	Define

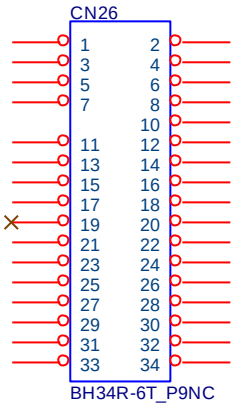
1	OUT28	2	+12V
3	OUT30	4	OUT29
5	GND	6	OUT31

CN25:DOOR Connector(0~6)



Pin	Define	Pin	Define
1	DOOR1	2	DOOR0
3	DOOR3	4	DOOR2
5	DOOR5	6	DOOR4
7	Reserved	8	DOOR6
9	GND	10	GND

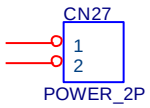
CN26:COM PORT Connector(COM3~COM10)



Pin	Define	Pin	Define
1	DCD3#IN	2	DSR3#IN
3	RXD3IN	4	RTS3#OUT
5	TXD3OUT	6	CTS3#IN
7	DTR3#OUT	8	RI3#IN
9	Reserved	10	GND
11	485RX-	12	485TX-
13	485RX+	14	485TX+
15	GND	16	GND
17	CCTALK2	18	CCTALK1
19	Reserved	20	S_SIN7
21	S_SIN8	22	S_SOUT7
23	S_SOUT8	24	S_SIN9
25	GND	26	S_SOUT9
27	DCD10#IN	28	DSR10#IN

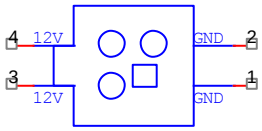
29	RXD10IN	30	RTS10#OUT
31	TXD10OUT	32	CTS10#IN
33	DTR10#OUT	34	RI10#IN

CN27:+12V DC IN Connector



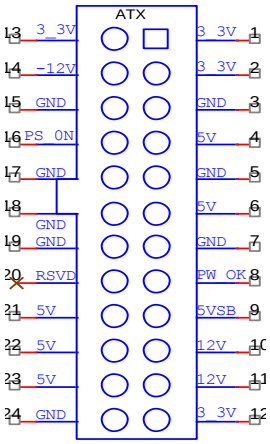
Pin	Define	Pin	Define
1	+12V	2	GND

CN29:4PIN ATX POWER CONNN



Pin	Define	Pin	Define
1	Ground	2	Ground
3	+12V	4	+12V

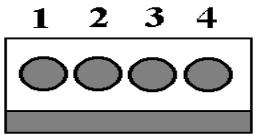
CN30:24PIN ATX POWER CONNN



Pin	Define	Pin	Define
1	+3.3V	2	+3.3V
3	Ground	4	+5V
5	Ground	6	+5V
7	Ground	8	PW_OK
9	5VSB	10	+12V
11	+12V	12	+3.3V
13	+3.3V	14	+12V
15	Ground	16	PS_ON
17	Ground	18	Ground
19	Ground	20	RSVD

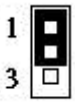
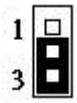
21	+5V	22	+5V
23	+5V	24	Ground

PW1:IDE Power Connector

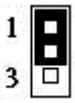
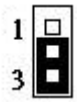


Pin	Define	Pin	Define
1	+12V	2	Ground
3	Ground	4	+5V

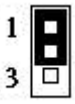
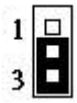
JP1:CLEAR CMOS

Pin		Setting
	1-2	NORMAL (Default)
	2-3	CLEAR CMOS

JP3: FPGA EEPROM Write Protect Select

Pin		Setting
	1-2	Write Protect Enable
	2-3	Write Protect Disable (Default)

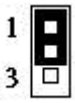
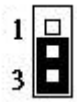
JP5: Intrusion Voltage Select

Pin		Setting
	1-2	+5V
	2-3	+3.3V (Default)

JP6:DOOR7 Status

Pin		Setting
	OPEN	DOOR7 OFF
	CLOSE	DOOR7 ON

JP7:SATA NANDrive Write Protect Select

Pin		Setting
	1-2	Write Protect Disable (Default)
	2-3	Write Protect Enable

Chapter 3. BIOS Setup

The BIOS is a set of permanently recorded program routines that give the system its fundamental operational characteristics. It also tests the computer and determines how the computer reacts to instructions that are part of programs.

The BIOS is made up of code and programs that provide the device-level control for the major I/O devices in the system. It contains a set of routines (called POST, for Power-On Self Test) that check out the system when you turn it on. The BIOS also includes CMOS Setup program, so no disk-based setup program is required CMOS RAM stores information for:

- Date and time
- Memory capacity of the main board
- Type of display adapter installed
- Number and type of disk drives

The CMOS memory is maintained by battery. By using the battery, all memory in CMOS can be retained when the system power switch is turned off. The system BIOS also supports easy way to reload the CMOS data when you replace the battery of the battery power lose.

3.1 Quick Setup

In most cases, you can quickly configure the system by choosing the following main menu options:

1. Choose “Load Optimized Defaults” from the main menu. This loads the setup default values from the BIOS Features Setup and Chipset Features Setup screens.
2. Choose “Standard COS Features” from the main menu. This option lets you configure the date and time, hard disk type, floppy disk drive type, primary display and more.
3. In the main menu, press F10 (“Save & Exit Setup”) to save your changes and reboot the system.

3.2 Entering the CMOS Setup Program

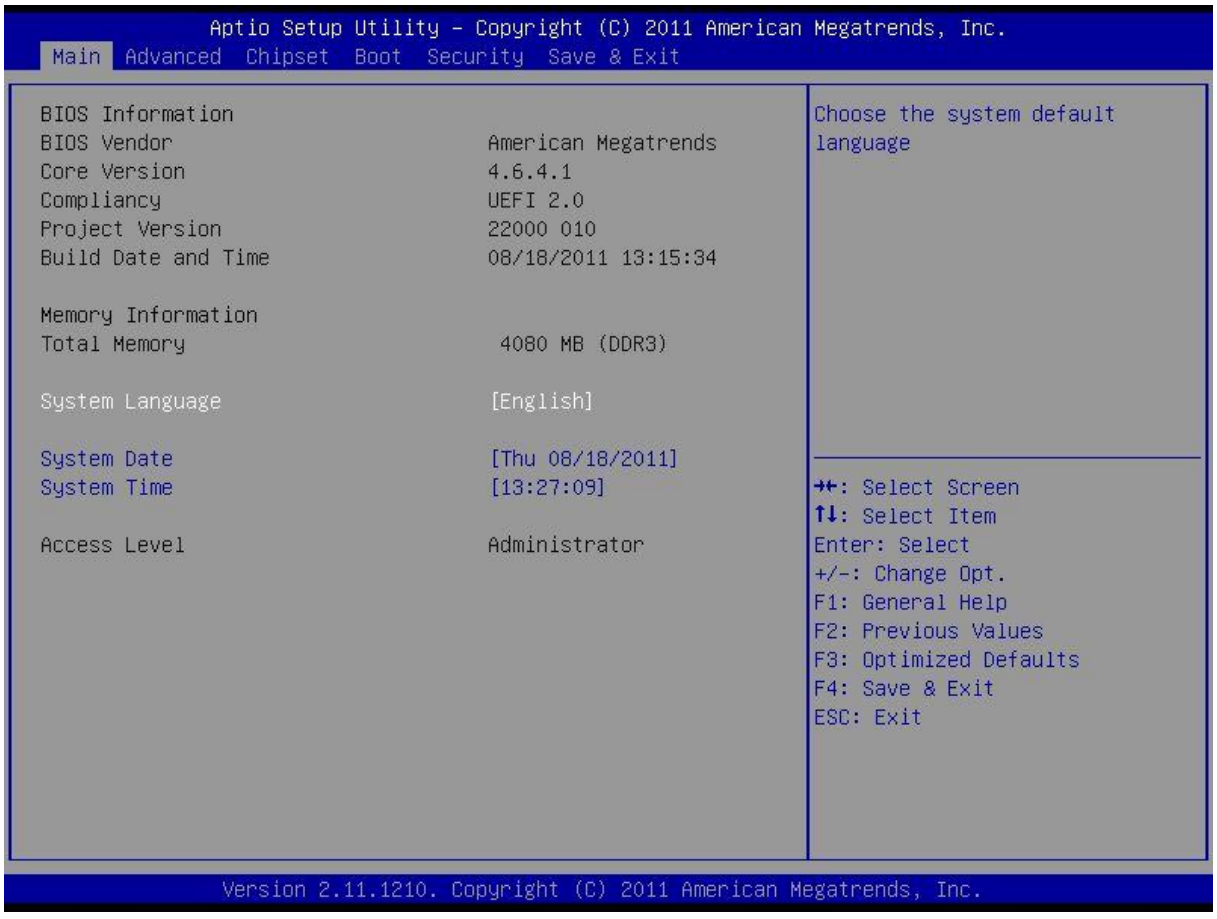
Use the CMOS Setup program to modify the system parameters to reflect the options installed in your system and to customize your system. For example, you should run the Setup program after you:

- Received an error code at startup
- Install another disk drive
- Use your system after not having used it for a long time
- Find the original setup missing
- Replace the battery
- Change to a different type of CPU
- Run the Flash program to update the system BIOS

Run the CMOS Setup program after you turn on the system. On-screen instructions explain how to use the program.

⇩ **Enter the CMOS Setup program's main menu as follows:**

1. Turn on or reboot the system. After the BIOS performs a series of diagnostic checks, the following message appears:
   "Press DEL to enter SETUP"
2. Press the <DEL> key to enter CMOS Setup program. The main menu appears:



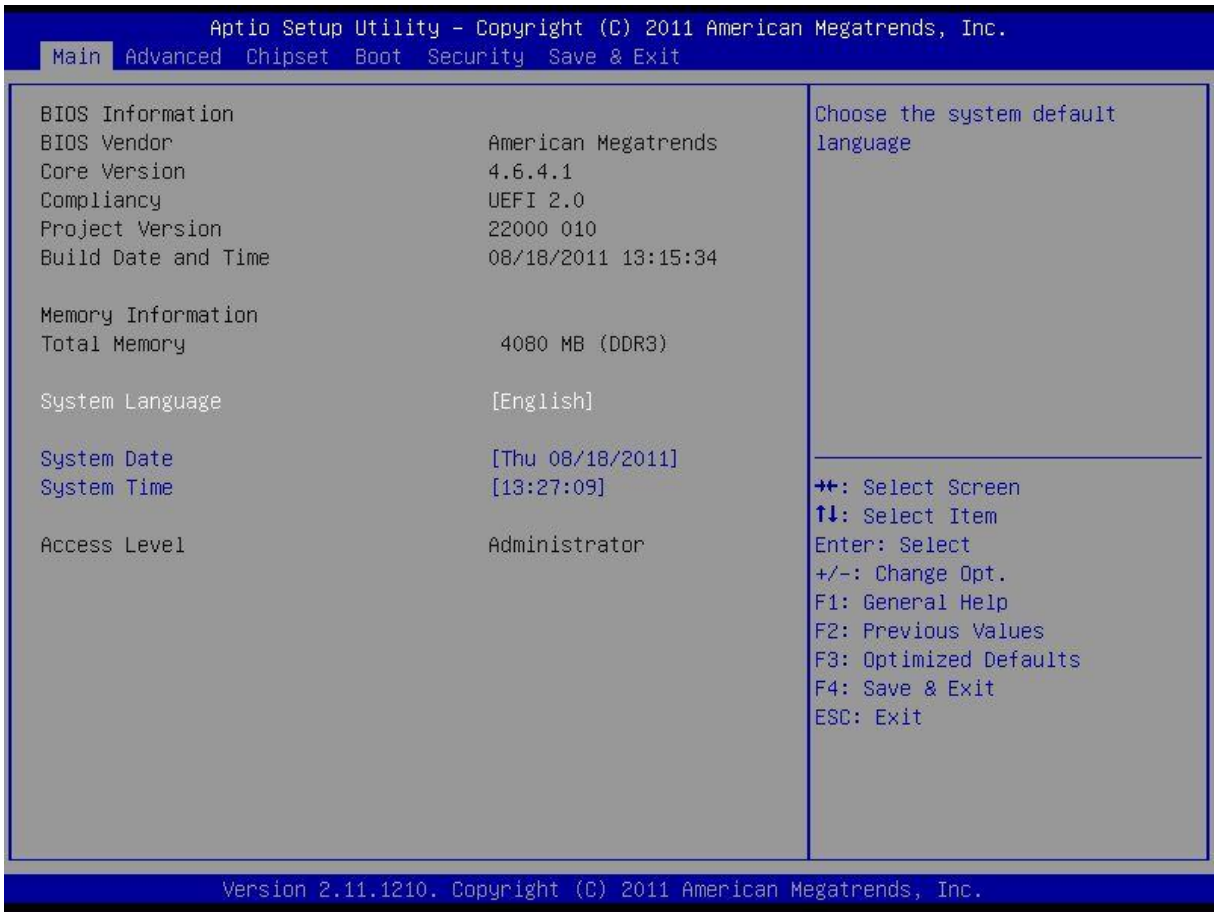
3. Choose a setup option with the arrow keys and press <Enter>. See the following sections for a brief description of each setup option.

In the main menu, press F10 (“Save & Exit Setup) to save your changes and reboot the system. Choosing “EXIT WITHOUT SAVING” ignores your changes and exits the program. Pressing <ESC> anywhere in the program returns you to the main menu.

3.3 Main

Use the Main Setup option as follows:

1. Choose “Main” from the main menu. The following screen appears:



2. Use the arrow keys to move between fields. Modify the selected field using the PgUP/PgDN/+/- keys. Some fields let you enter numeric values directly.

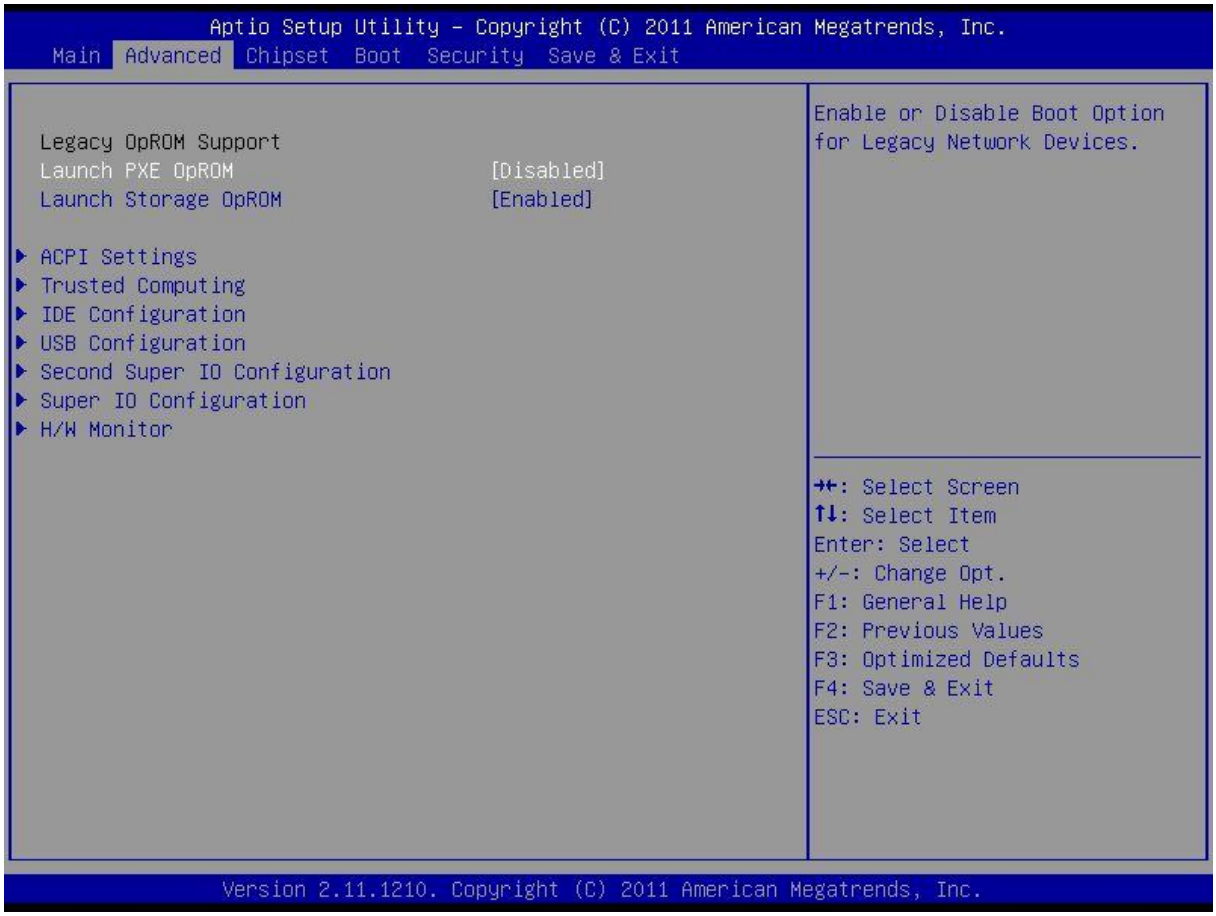
Option	Description
Date (mm:dd:yy)	Type the current date
Time (hour:min:sec)	Type the current time (24-hour clock)

3. After you have finished with the Standard CMOS Features program, press the <ESC> key to return to the main menu.

3.4 Advanced

Use the Advanced option as follows:

1. Choose “Advanced ” from the main menu. The following screen appears:



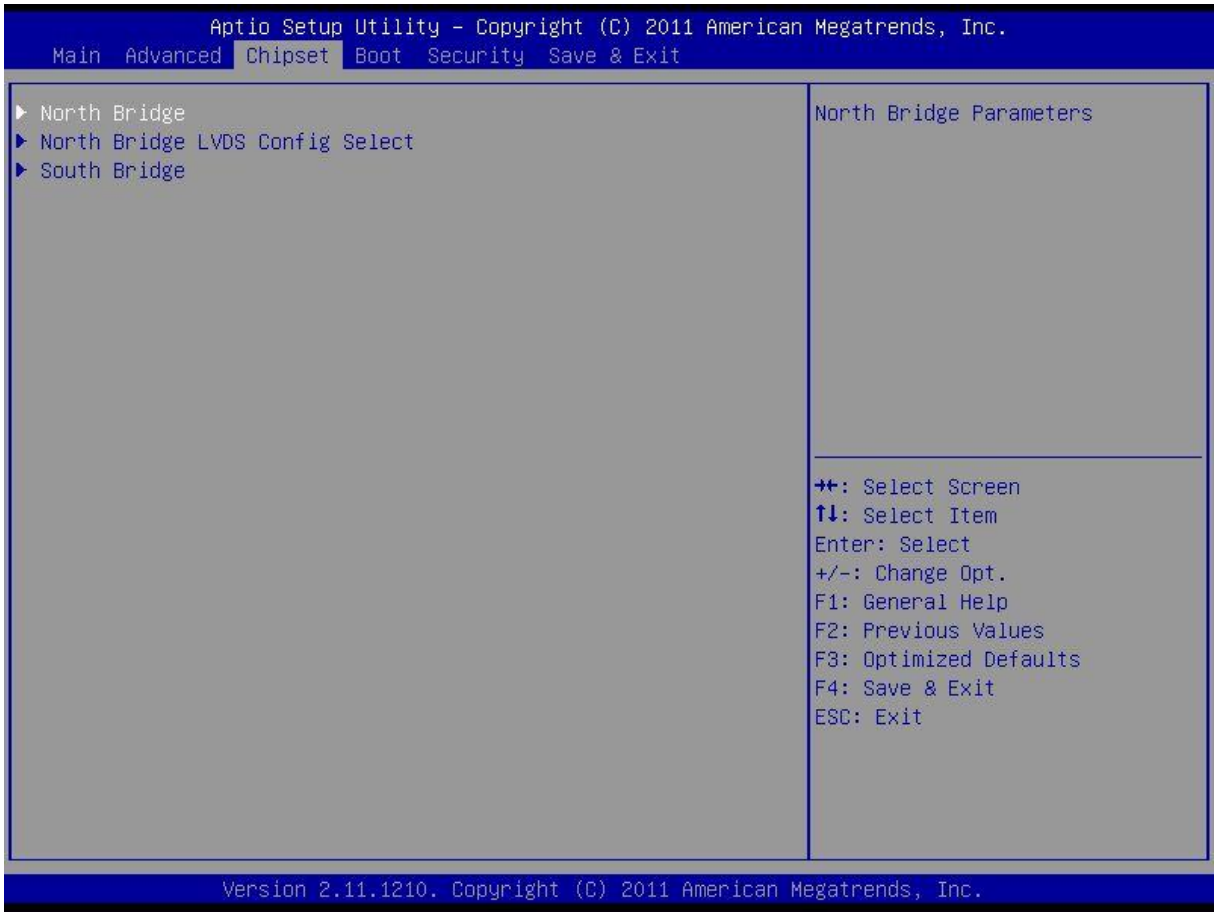
2. Use the arrow keys to move between items and to select values. Modify the selected fields using the PgUP/PgDN keys. Press the <F1> “Help” key for information on the available options:

Option	Description
ACPI Configuration	It allows you to configure the parameter of ACPI, includes suspend, USB wakeup and etc...
Trusted Configuration	It allows you to configure the parameter of Trusted, includes TPM and etc...
IDE Configuration	It allows you to configure the parameter of IDE, includes PIO mode, DMA mode, LBA, SMART and etc...
USB Configuration	It allows you to configure the parameter of USB.
Second SuperIO Configuration	It allows you to configure the parameter of SuperIO, includes serial ports and watchdog.
SuperIO Configuration	It allows you to configure the parameter of SuperIO, includes serial ports and watchdog.
USB Configuration	It allows you to configure the parameter of USB.

3.5 Chipset

⇩ Use the Chipset option as follows:

1. Choose “Chipset” from the main menu, the following screen appears.



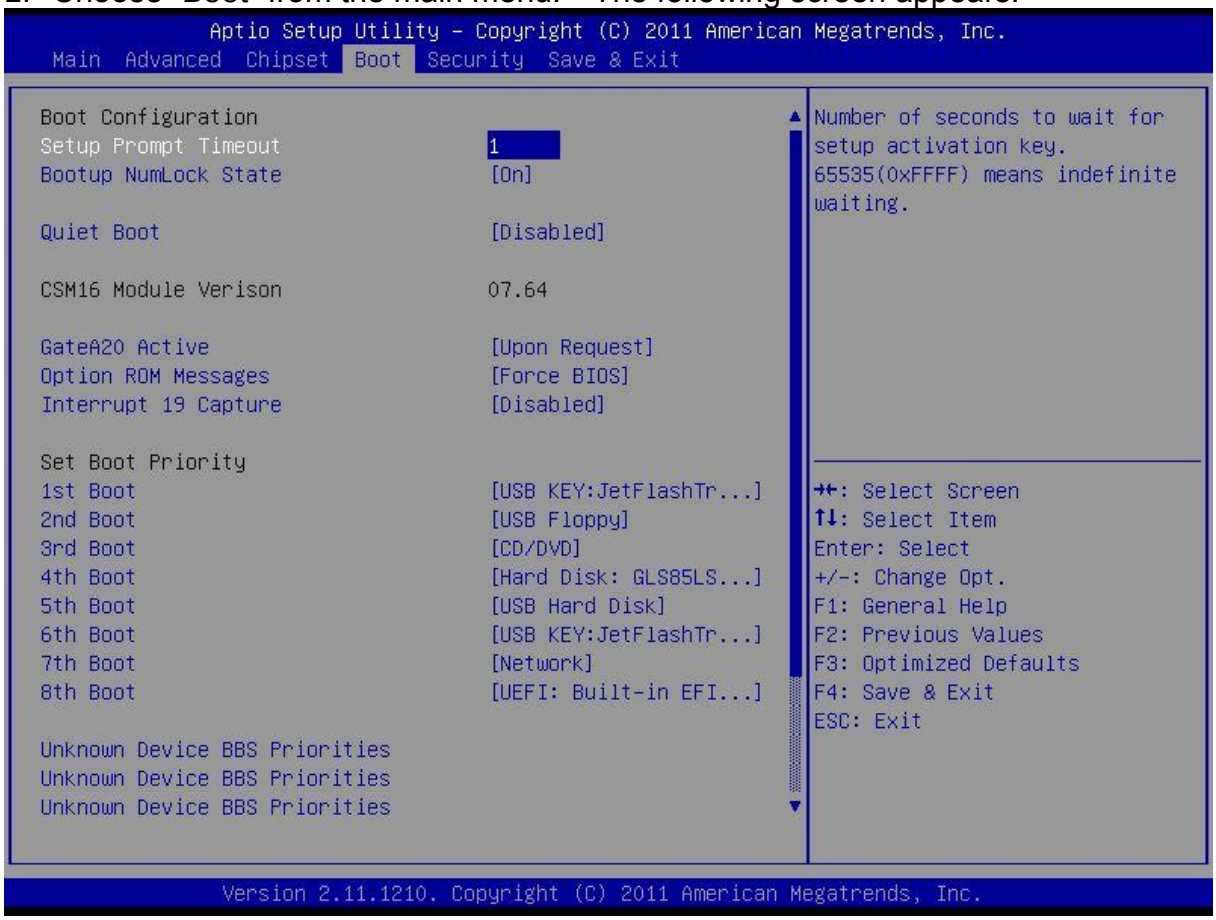
2. Move between items and select values by using the arrow keys. Modify the selected fields using the PgUP/PgDN keys. For information on the various options, please press <F1> key.

Option	Description
NorthBridge	It allows you to configure the parameter of NorthBridge, includes clock, timing, VGA frame buffer and etc...
NorthBridge LVDS Config	It allows you to configure the parameter of LVDS
SouthBridge	It allows you to configure the parameter of SoughBridge, includes LAN, Audio and etc…

3.6 Boot

⇩Use the Boot option as follows:

1. Choose “Boot” from the main menu. The following screen appears:



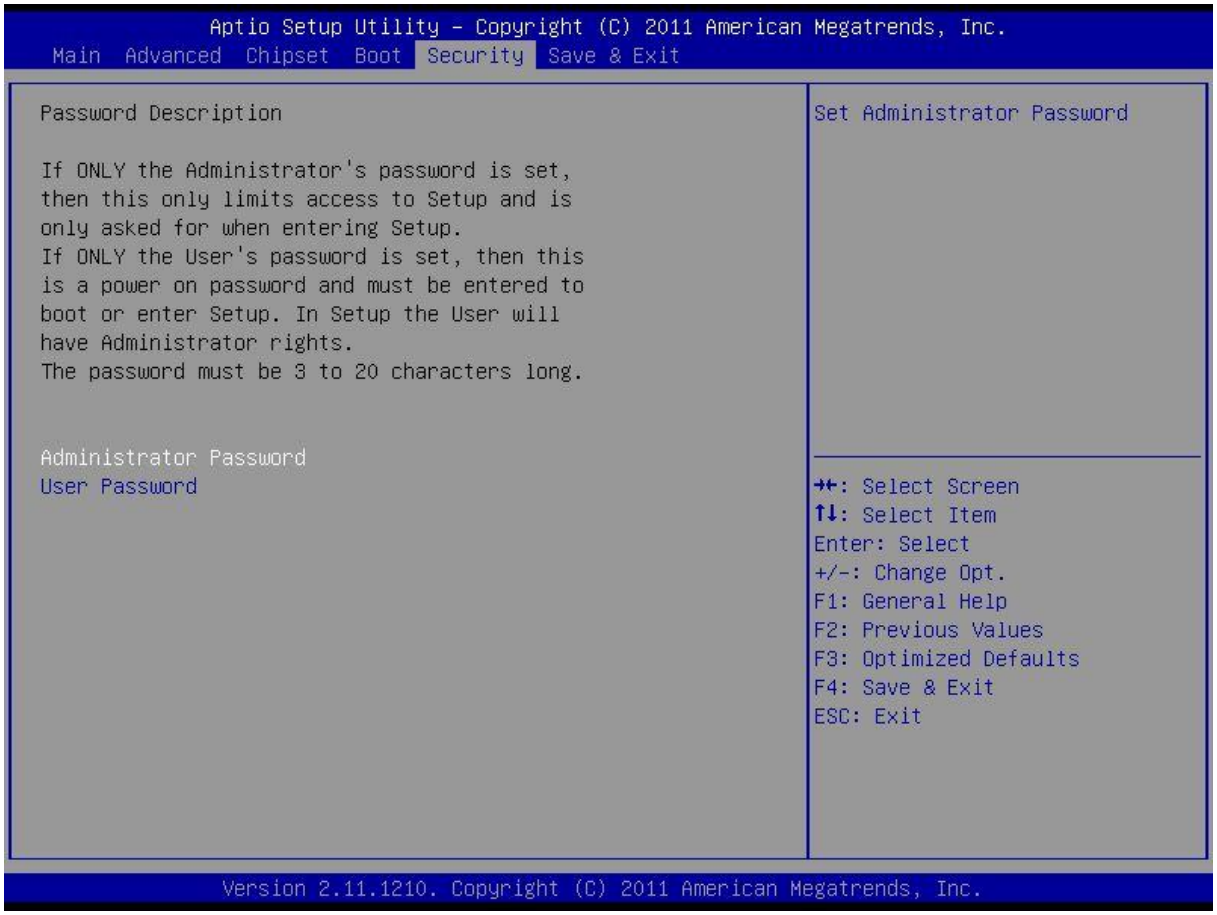
2. Move between items and select values by using the arrow keys. Modify the selected fields using the PgUP/PgDN keys. Please press the <F1> key for information on the various options.

Option	Description
Boot Configuration	It allows you to configure the parameter of Boot, includes Bootup Num-Lock and etc..
Set Boot Priority	It allows you to configure the sequence of Boot Device

3.7 Security

⇩ Use the Security option as follows:

1. Choose “Security” from the main menu. The following screen appears.



This section allows change the password of the supervisor and user.

2. Move between items and select values by using the arrow keys. Modify the selected field the PgUP/PgDN keys. For information on the various options, press <F1> key.

3.9 Save and Exit Setup

This function automatically saves all CMOS values before exiting Setup.