



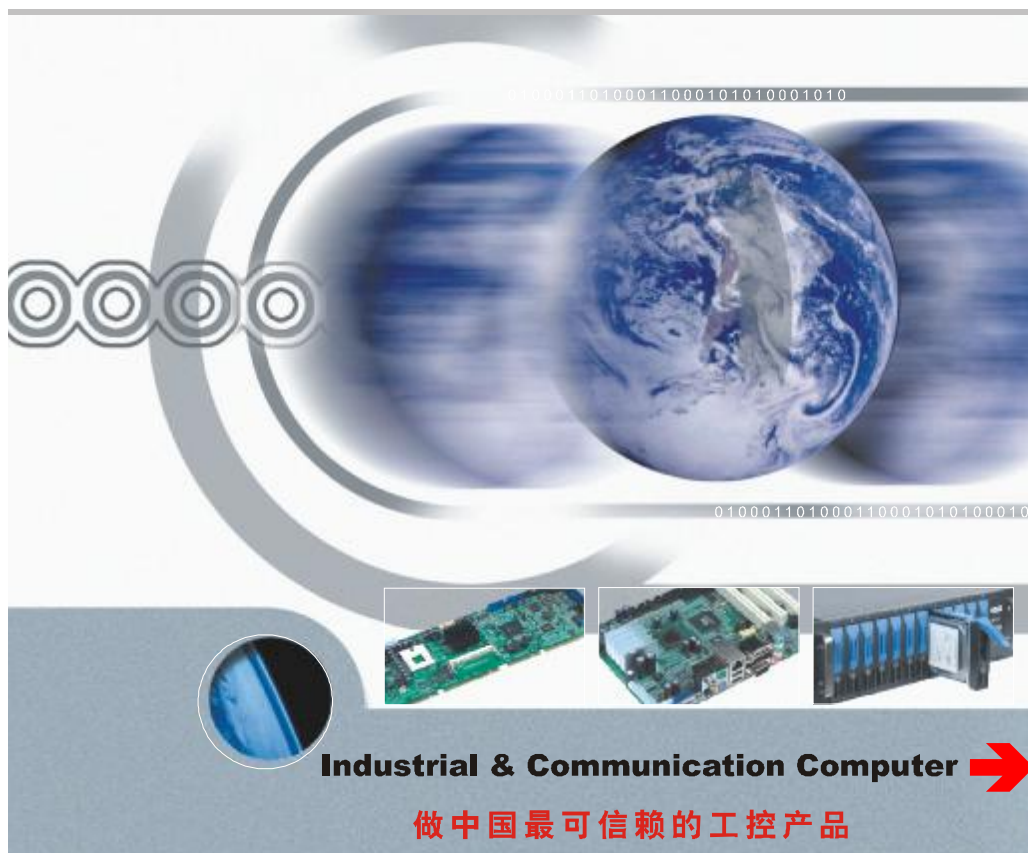
FW-7911

Network Security Barebone

User's Manual V1.1

用户手册

USER'Manual



Industrial & Communication Computer 

做中国最可信赖的工控产品

FW-7911

Network Security Barebone

User's Manual V1.1

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Declaration of conformity



Shenzhen NORCO Intelligent Technology Co.,Ltd.

declares that the product

FW-7911 Network Security Barebone

(reference to the specification under which conformity is declared in accordance with 89/336 EEC-EMC Directive)

- | | | |
|-------------------------------------|------------|--|
| <input checked="" type="checkbox"/> | EN 55022 | Limits and methods of measurements of radio disturbance
Characteristics of information technology equipment |
| <input checked="" type="checkbox"/> | EN 50081-1 | Generic emission standard Part 1:
Residential, commercial and light industry |
| <input checked="" type="checkbox"/> | EN 50082-1 | Generic immunity standard Part 1:
Residential, commercial and light industry |

European Representative:

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Signature:  _____

Place/Data: HONG KONG/2007

Printed Name: Anders Cheung

Position/Title: President

Declaration of conformity



Trade Name: Shenzhen NORCO Intelligent Technology Co.,Ltd.

Model Name: FW-7911

Responsible Party: Shenzhen NORCO Intelligent Technology Co.,Ltd.

Equipment Classification: FCC Class B Subassembly

Type of Product: Network Security Barebone

Manufacturer: Shenzhen NORCO Intelligent Technology Co.,Ltd.

Supplementary Information:

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Signature: _____

A handwritten signature in black ink, appearing to be 'S. G.', is written over a horizontal line.

Date: 2008

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Chapter 1

Product Introduction

Chapter 1 Product Introduction

1.1 Overview

FW-7911 is a low power Xeon based network security barebone with 10x Gigabit Ethernet ports. 2U, rackmountable, 1.2mm high-intensity fine carbon steel chassis. System adopts Intel 3420 PCH single chip and supports Intel Lynnfield X3450 CPU (compatible with X3400 series). 4x dual channel DDR3 UDIMM with ECC function. As for storage, system provides 2 SATA ports and one CF card socket; The Intel 3420 PCH inside supports RAID0, 1, 5, 10, 10x GbEs and various photoelectric devices. With high-grade 2U industrial specialized power supply and exclusive “watchdog”+ BYPASS function, FW-7911 is very suitable for various network security devices, firewalls, intrusion detection systems, intelligent terminals based on tele-communications network or computer network and so on.

1.2 H/W Specification

Motherboard		FWMB-7911 V1.1
Network Card 1		AFC-551E V1.0
Network Card 2		AFC-541E V1.2
Network Card 3		AFC-542E V1.2
Display	Display Interface	VGA
	Chip	SM750
	Video Memory	16MB
Storage	SSD	1x CF
	HDD	2x SATA II
I/O	PS/2	Inbuilt 1 set standard Pin
	COM	1x RJ45 (front panel) , inbuilt one set standard pin
	USB	2x USB2.0 (front panel) , inbuilt 4 x USB2.0 pin
	LPT	1x LPT Pin (inbuilt)
	LPC	1 x LPC Pin(Inbuilt)
Ethernet	SFP	4x SFP (optional 8, 4, 0)
	RJ45	4x RJ45 (optional 8, 4, 0)
Chipset		Intel 3420 PCH single chip

Memory	4x DDR3 UDIMM, dual channel , ECC memory supported
System Button	1x Auto Reset Button
LED Indicator	1x PWR LED, 1x HDD LED
Power Supply	2U power supply \geq 350W recommended
Cooling System	2x System FAN
Operating System	Win XP/ Linux/Windows 2008
Environmental & Mechanical	
Operating Temperature	0°C ~ 60°C
Storage Temperature	-40°C ~ 85°C
Relative Humidity	95%
Vibration Test	GB/T9813-2000
EMC	Class B
Dimension	436mm×467.5mm×88mm (W×D×H)
Surface Treatment	Paint Coating
Installation	2U rack-mountable
Color	Black



Chapter 2

Installation Instruction

Chapter 2 Installation Instruction

2.1 FW-7911 Structure View

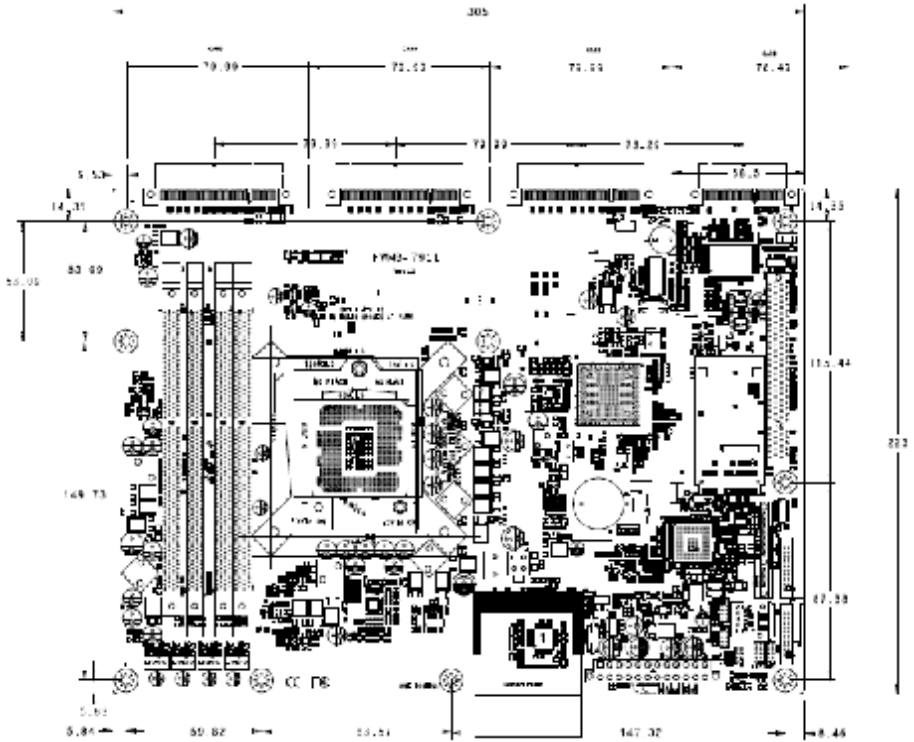
1. Full View



2.2 Outline Dimension

Following Picture illustrates the dimension of network motherboard FWMB-7911 V1.1. Please follow the diagram and read the manual carefully to install the device. Otherwise, improper installation of some components will lead to system failure. .

Note: When handling the device, please wear the antistatic gloves so as to avoid damage to some components.



2.3 Install CPU and UDDIMM



Key components of this motherboard are Integrated circuit which will be easily damaged by electrostatic influence. So, before installing this board, please mind the precautions below:

1. Hold the board by the edges; don't touch any components or pins on the board
2. Use a grounded antistatic wrist strap/gloves while touching the integrated circuit components (such as CPU, RAM).
3. When the integrated circuit components are uninstalled, pls put these components in antistatic tray or bags.
4. Pls make sure the power is disconnected before inserting the power plug.

2.3.1 Install CPU

Please follow the steps below to install CPU:

- (1) Open the cover of the motherboard CPU socket
- (2) Hold two sides of the CPU and the triangle of its PIN1 will fit the socket alignment key into the CPU notch, then press the CPU into CPU socket.
- (3) Check the installation and close the cover of the CPU socket . Pls do not force the CPU into the socket which will bend the connectors on the socket and damaging the CPU

Please follow the steps below to install CPU FAN:

- (1) Make sure the heat sink of the CPU in good connection with the CPU surface, then fix the fan on the motherboard.
- (2) Connect the FAN Power cord to the CPUFAN1 socket on the board

2.3.2 Install UDDIMM

Board provides 4x UDDIMM slots. When installing the UDDIMM, pls mind following two points:

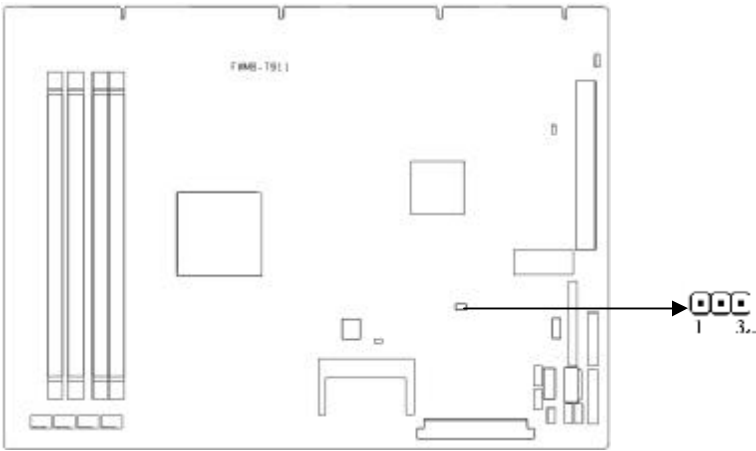
1. When installing, please align the UDDIMM notch with the socket notch and then insert the UDDIMM into the socket
2. Please choose the memory bank which can match your motherboard.

2.4 Jumper Setting

2.4.1 CMOS Clearance/Hold Jumper Setting (JCC)

CMOS is powered by onboard button battery. Clean CMOS will lead to a permanent elimination of the previous system setting and back to the original (default setting) system settings.

- Steps :**
- (1) Turn off the computer, disconnect the power supply
 - (2) Use jumper cap short JCC Pin 1 and Pin 2 for 5~6 sec. Then restore the default setting of Pin2 and Pin 3.;
 - (3) Turn on the computer, then press DEL key into the BIOS setting, you can also reload optimal defaults.
 - (4) Save and exit the setting.interface



Setting	JCC
1-2	Clear CMOS content, BIOS back to initial setting
2-3	Normal status(default)

2.4.2 WDOG Setup

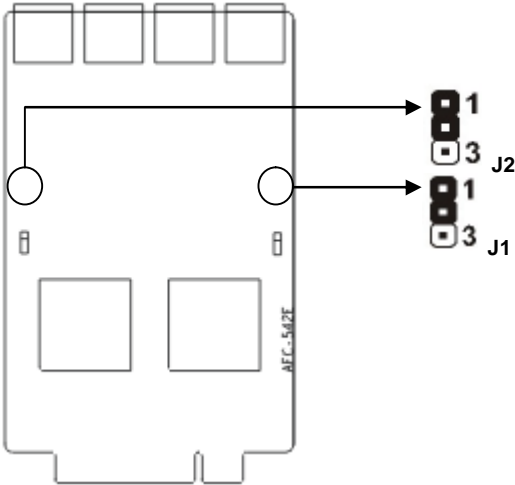
To setup Watchdog or Bypass function via jumper setting



Setting	WDOG
1-2	WATCHDOG
2-3	Bypass

2.4.3 AFC-542E V1.2 Pins (J1, J2)

J1 and J2 are used to setup Bypass function.



J1:

Setting	Bypass
1-2	Power off-bypass, Power on- no bypass
2-3	Power off -bypass, Power on- bypass under software control

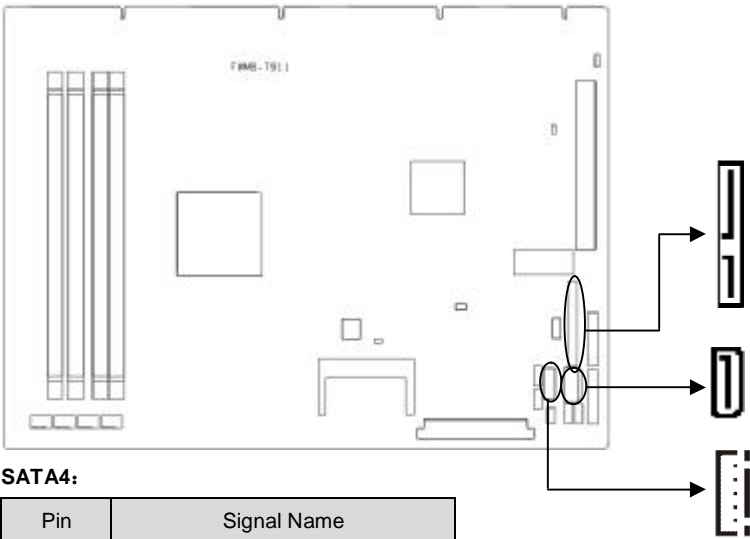
J2:

Setting	Bypass
1-2	Power off-bypass, Power on- no bypass
2-3	Power off-bypass, Power on- bypass under software control

2.5 Interface Description

2.5.1 SATA and SATA Power Interface

Board provides 2x SATAII (one 7+15Pin connector and one 7PIN connector.RAID 0/1 supported.



SATA4:

Pin	Signal Name
1	GND
2	SATA_TXP
3	SATA_TXN
4	GND
5	SATA_RXN
6	SATA_RXP
7	GND

SATA1:

Pin	Signal Name
1	GND
2	SATA_TXP
3	SATA_TXN
4	GND
5	SATA_RXN
6	SATA_RXP
7	GND
8, 9, 10	VCC3
11, 12, 13	GND

14、15、16	VCC
17、18、19	GND
20、21、22	+12V

SATA Power Interface S_PWR1:

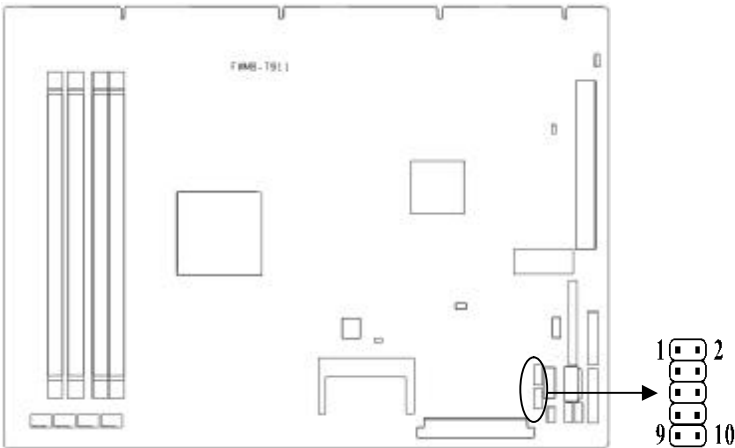
Pin	Signal Name
1	+12V
2	GND
3	VCC
4	GND
5	VCC3

2.5.2 CF Card Socket (Compact Flash)

Rear Panel provides one 50Pin standard CF Card Socket, supporting Type I / II CF card.

2.5.3 USB (USB23, USB45, 2x standard USB)

Board provides 2 set 2x5Header USB2.0 (USB23 , USB45) and one standard double-deck USB port. 2x5Pin USB signal of USB23,USB45 can be connected to standard USB socket with a convert cable, up to 4x standard USB sockets.



USB23, USB45:

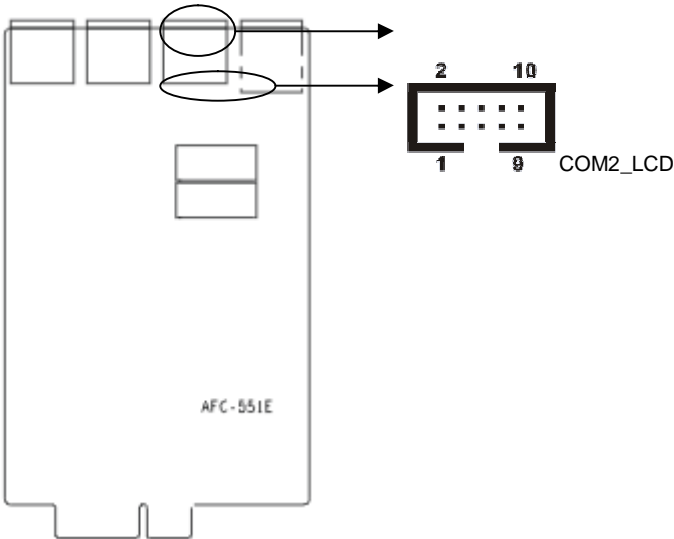
Signal Name	Pin		Signal Name
+5V	1	2	GND
USB DATA-	3	4	GND
USB DATA+	5	6	USB DATA+
GND	7	8	USB DATA-
GND	9	10	+5V

Standard USB:

Pin	Signal Name
1	+5V
2	USB DATA-
3	USB DATA+
4	GND

2.5.4 Serial Ports

AFC-551E V1.0 card provides 2x serial ports, among which COM1-RJ is RJ45 and COM2_LCD is 2x5Header interface.



COM1-RJ:

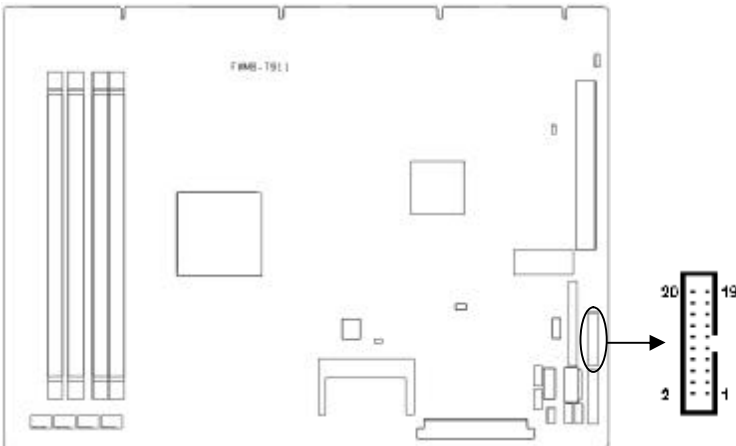
Pin	Signal Name
1	HRTS#1
2	HDTR#1
3	HSOUT1
4	NC
5	GND
6	HSIN1
7	HDSR#1
8	HCTS#1

COM2_LCD:

Signal Name	Pin		Signal Name
HDCD#	1	2	HDSR#
HSIN	3	4	HRTS#
HSOUT	5	6	HCTS#
HDTR#	7	8	HDI#
GND	9	10	5V_LCD

2.5.5 Parallel Port (LPT)

Board provides one 2×10Pin parallel port, capable of connecting external parallel devices based on needs.

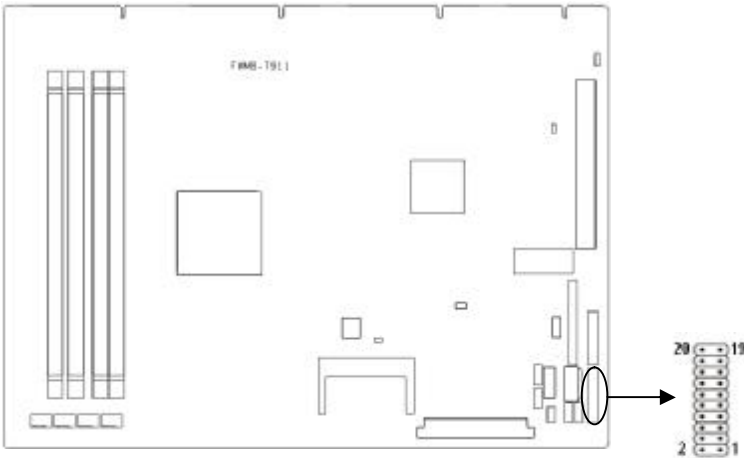


LPT:

Signal Name	Pin		Signal Name
T_STB#	1	2	T_AFD#
PDQ0	3	4	T_ERR#
PDQ1	5	6	T_INIT#
PDQ2	7	8	T_SLIN#
PDQ3	9	10	GND
PDQ4	11	12	GND
PDQ5	13	14	GND
PDQ6	15	16	T_BUSY
PDQ7	17	18	T_PE
T_ACK#	19	20	T_SLCT

2.5.6 LPC (JLPC)

Board provides one 2×10Pin LPC (Low Pin Count Interface Specification) interface to connect external devices.



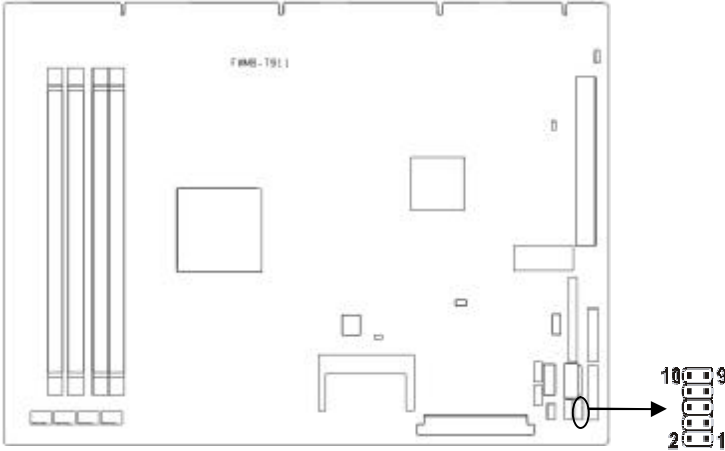
JLPC:

S	Pin		Signal Name
LPC_PCLK	1	2	GND
LPC_FRAME#	3	4	NC
PLTRST#	5	6	VCC

LPC_AD3	7	8	LPC_AD2
VCC3	9	10	LPC_AD1
LPC_AD0	11	12	GND
SMB_MAIN_CLK	13	14	SMB_MAN_DATA
V3.3SB	15	16	SER_IRQ
GND	17	18	NC
SUS_STAT#	19	20	LPC_LDRQ#

2.5.7 GPIO (JGP)

Board provides one 2×5Pin GPIO Interface.

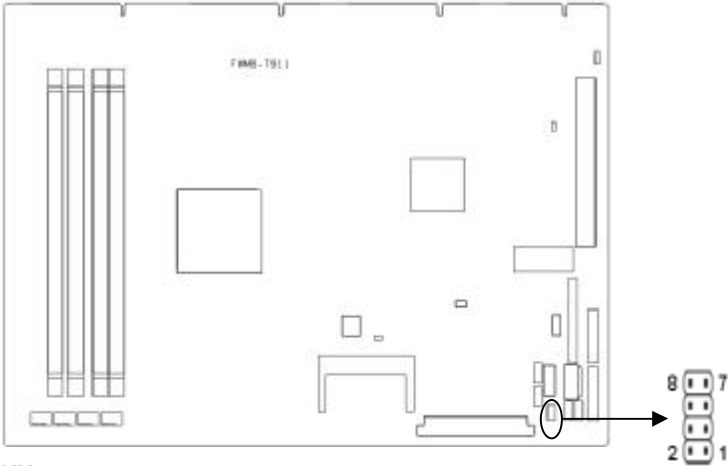


JGP:

Signal Name	Pin		Signal Name
PCH_GPIO72	1	2	VCC
PCH_GPIO28	3	4	PCH_GPIO0
PCH_GPIO31	5	6	PCH_GPIO8
PCH_GPIO32	7	8	PCH_GPIO29
GND	9	10	PCH_GPIO15

2.5.8 Keyboard and Mouse Connector (KM)

Board provides one 2x4Header keyboard and mouse connector, to connect keyboard and mouse with a convert cable.

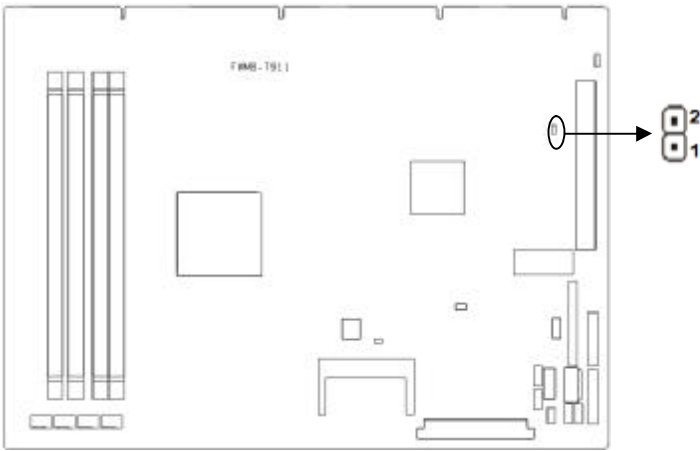


KM:

Signal Name	Pin		Signal Name
VCC	1	2	MS_CLK
GND	3	4	MS_DATA
KB_DATA	5	6	GND
KB_CLK	7	8	VCC

2.5.9 MINI_PCIE (MINI_PCIE, J_LLED)

Board provides one standard MINI_PCIE port. Users can expand their MINI_PCIE devices based on actual needs. If using the MINI_PCIE wireless LAN Card, the LED indicator will show the network status.



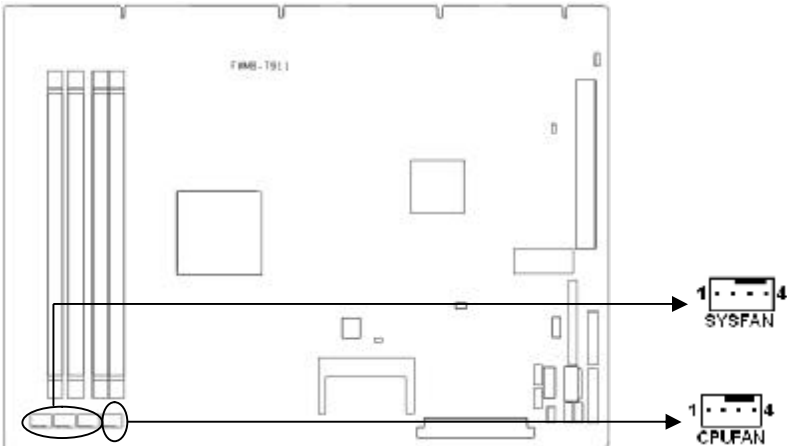
2.5.10 FAN Connector (CPUFAN1, SYSFAN1-3)

Board provides one 4Pin CPUFAN and three 4Pin SYSFAN connector.

Please bear the following two points in mind when using the FAN Connector:

(1) Fan power current should not above 350 mA (4.2W, 12V)

(2) Please make sure the fan cable can match the socket wiring. Power line (generally red) in the middle. Ground wire (generally black) and FAN speed output pulse signal line (other color) . Some fans without speed detection function will cause damage to the motherboard if the power output above 12V. Recommend to use the fan with speed detection function.

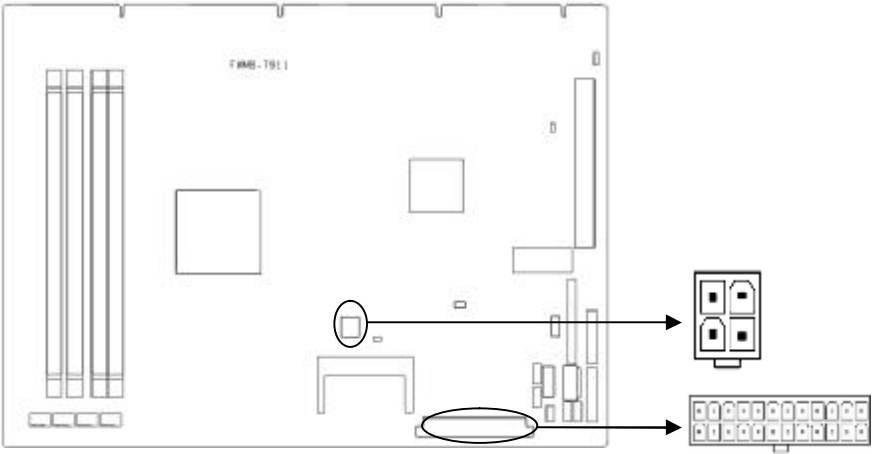


FAN:

Pin	Signal Name
1	GND
2	+12V
3	FANIN
4	FANOUT

2.5.11 Power Interface (ATX, PWR)

Board provides standard ATX power interface together with one 4Pin12VP4 power interface.



ATX:

Signal Name	Pin		Signal Name
+3.3V	1	2	+3.3V
GND	3	4	+5V
GND	5	6	+5V
GND	7	8	PWR OK
+5VSB	9	10	+12V
+12V	11	12	+3.3V
+3.3V	13	14	-12V
GND	15	16	PS-ON#
GND	17	18	GND
GND	19	20	NC

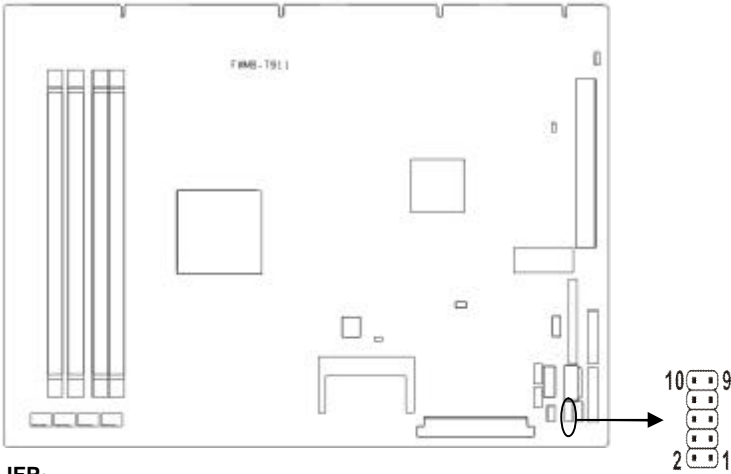
+5V	21	22	+5V
+5V	23	24	GND

PWR:

1	GND	2	GND	3	+12V	4	+12V
---	-----	---	-----	---	------	---	------

2.5.12 Front Panel Connector (JFP)

JFP is used to connect the functional buttons and LED indicators on the front panel.



JFP:

Signal Name	Pin		Signal Name
POWER LED+	1	2	POWER LED-
HD LED+	3	4	HD LED-
NC	5	6	GND
RESET BUTTON	7	8	GND
POWER BUTTON	9	10	GND

2.5.13 PCI Expansion Slot

Board provides one 120pin standard PCI expansion slot.

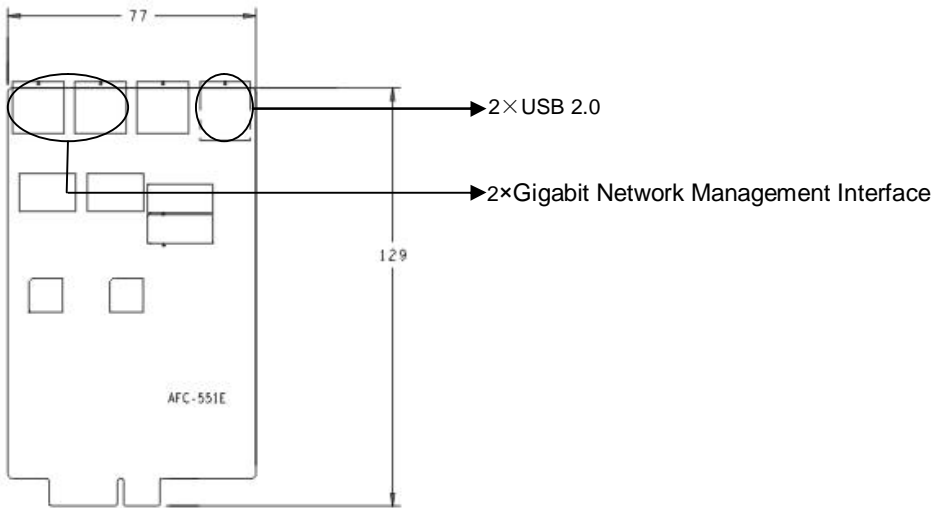
2.5.14 PCIE Expansion Slot

Adopt standard PCIE×8 expansion slot. CPU has PCIEX4×4, adopting PCIEX8×2 expansion slot. The module adopts INTEL82576EB×2.Each expansion slot provides 4 electrical interface and 4x Optical port. PCH has PCIE X4, provided to INTEL82574L ×2, MINI PCIE and SM750 graphics.

2.6 Network Module Description

2.6.1 AFC-551E

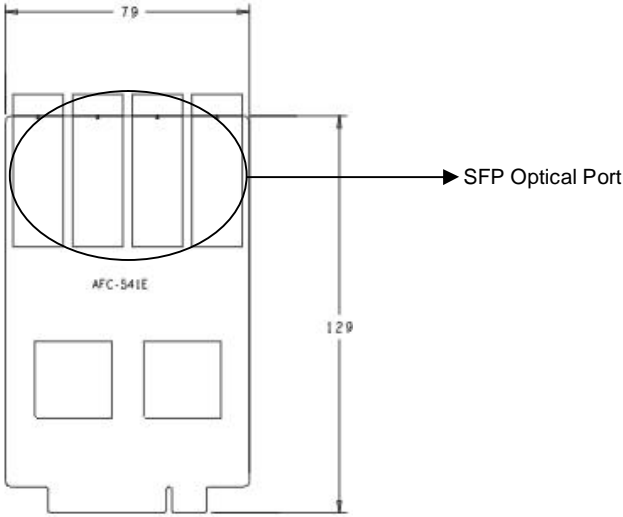
Adopt 2x Intel 82574L to expand 2x Gigabit Network Management Interface , 2x USB2.0 AND 1x RJ 45 serial port.



LILED (Green)	Function	ACTLED (Yellow)	Function
On	100/1000M connectivity	Flash	Data transferring
Off	10M connectivity or Close	Off	No data/Stop

2.6.2 AFC-541E

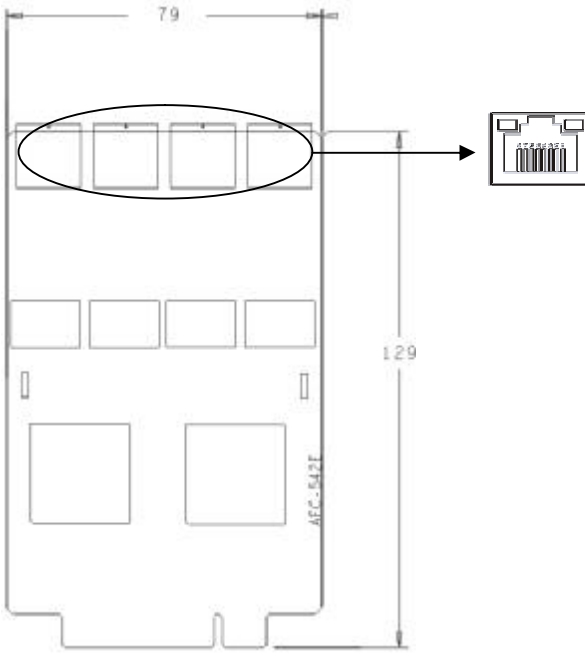
Adopt 2x Intel 82576EB to expand 4x Gigabit Network Interface (SFP optical port) , to connect with motherboard via PCIE×8 connector.



2.6.3 AFC-542E

Adopt 2x Intel 82576EB to expand 4x Gigabit Network Interface (RJ45 electrical interface) It has 2 set BYPASS function and is connected with motherboard via PCIE×8 connector.

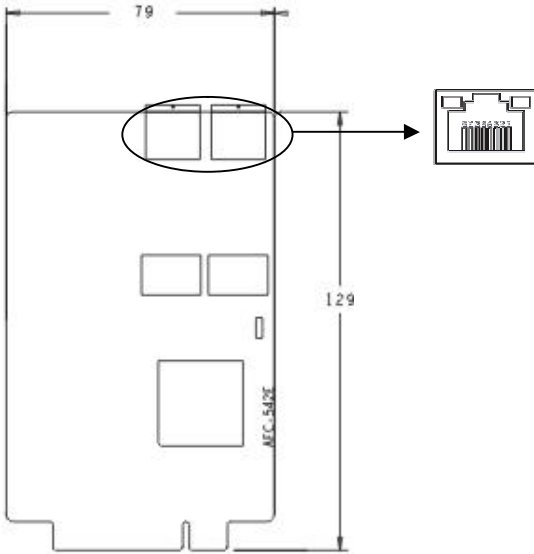
Users can config the BYPASS function via jumper setting, details please refer to Chapter 2-2.4.3 “AFC-542E V1.2 Pins” .



LILED (Green)	Function	ACTLED (Yellow)	Function
On	100/1000M Connectivity	Flash	Data Transferring
Off	10M Connectivity or Close	Off	No data/Stop

2.6.4 AFC-542E-2x RJ45 LAN Port

Adopt 1x Intel 82576EB to expand 2x Gigabit Network Interface (RJ45 electrical interface) .It has one group BYPASS function. Users can config the BYPASS function via jumper setting, details pleased refer to Chapter 2- 2.4.3 “AFC-542E V1.2 Pins” .



LILED (GREEN)	Function	ACTLED (Yellow)	Function
On	100/1000M connectivity	Flash	Data transferring
Off	10M connectivity or close	Off	No data/Stop



Chapter 3. BIOS SETUP

Chapter 3 BIOS Setup

AMI BIOS Upgrading

BIOS functions as a bridge connecting hardware and operating system. Hardware and software are upgrading all the time, so when your system goes wrong, for example, your system can not support the newest CPU, you need to upgrade BIOS to keep up with the latest technology.

AFUDOS.EXE is the FLASH IC program for BIOS to upgrade, which needs to be run in DOS mode.

Pls use a boot disk to load DOS, then run AFUDOS.EXE to upgrade BIOS (for example: write XXXX.ROM into FLASH IC)

Oder format:

A:\Afudos XXXX.rom

If you need to add other parameters, pls add <space>/? after the order format

Example: Afudos 79111100.rom /P /B /C /N /X

Remarks:

1. BIOS upgrading is only executed when your system goes wrong.
2. Please use the upgrading program in the driver disk provided by us or download the latest version from related websites.
3. Please do not power off or reboot the system when upgrading, otherwise, the BIOS may be damaged or system may not be able to boot again.
4. Please backup your BIOS before upgrading

AMI BIOS Description

When the computer is power on, BIOS will conduct self-diagnosis to its hardware on motherboard and configure hardware parameter, finally the operating system will take control. BIOS is the communication bridge between hardware and O/S. Correct configuration of BIOS is critical for maintaining system stability and its optimized performance.

BIOS Parameter Configuration

Power on your computer, when this information display in your screen: Del->SETUP please press "DEL", then it will enter BIOS setup interface.

1. Power on or Reset computer.
2. When "Press to enter setup" in screen, please press .
3. Use the "←→↓" to choose the option which your want to modify, press <Enter> and enter into the sub-menu.
4. Use the "←→↓" and <Enter> to modify the value.
5. At any time, press<Esc> can go back to the father-menu

3.1 Main Menu



AMI BIOS (Read Only)

BIOS information: such as BIOS version, Build date and BIOS ID

Processor (Read Only)

CPU information, such as the processor speed.

System Memory (Read Only)

This section shows the size of the system memory

System Time

System time format: Hour/Minute/Second

System Date

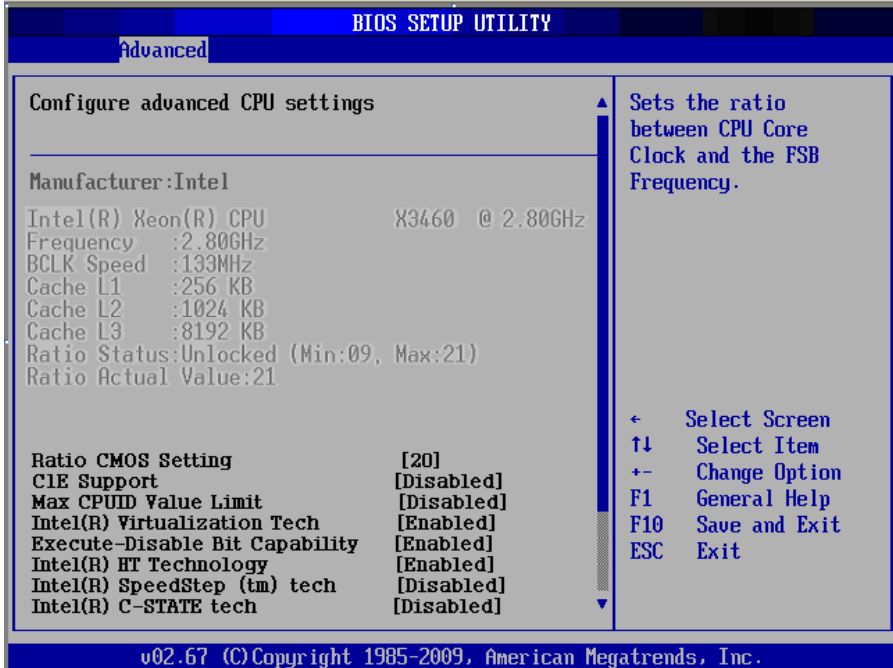
Setup system date. Format: Week/Month/Day/Year

3.2 Advanced Menu

Note: Incorrect parameter setup may lead to system failure, please setup this section carefully according to the following instructions.

BIOS SETUP UTILITY	
Main	Advanced
PCIPnP	Boot
Security	Chipset
Exit	
Advanced Settings	Configure CPU.
<p>WARNING: Setting wrong values in below sections may cause system to malfunction.</p> <ul style="list-style-type: none"> ▶ CPU Configuration ▶ IDE Configuration ▶ SuperIO Configuration ▶ AHCI Configuration ▶ APM Configuration ▶ Remote Access Configuration ▶ USB Configuration 	
	<p>← Select Screen ↑↓ Select Item Enter Go to Sub Screen F1 General Help F10 Save and Exit ESC Exit</p>
v02.67 (C) Copyright 1985-2009, American Megatrends, Inc.	

3.2.1 CPU Configuration



The Read-Only option contains the detailed information of CPU, including CPU manufacturer, type, frequency, L1 cache and L2 Cache, etc.

Ratio COMS Setting

This option is used to setup CPU frequency doubling)

C1E Support

CPU C1E Support Option. Users can choose [Disabled] and [Enabled].

Max CPUID Value Limit

Please set this item as [Enabled] if the system OS doesn't support the extended CPUID function. Available options are [Disabled] and [Enabled].

Intel (R) Virtualization Tech

Intel virtualization technology enables to run multiple O/S of the same kind or different kind by using the same physical platform so as to realize the management and allocation of computer resources, maximizing the resource utilization,

Execute-Disable Bit Capability

Execute Disable Bit (EDB) is a hardware-based security feature that introduced to its new generation CPU by Intel, which can help reduce system exposure to viruses and malicious code. EDB allows the processor to classify areas in memory where application code can or cannot execute. To use Execute Disable Bit you must have Windows XP SP2 operating system to support this function.

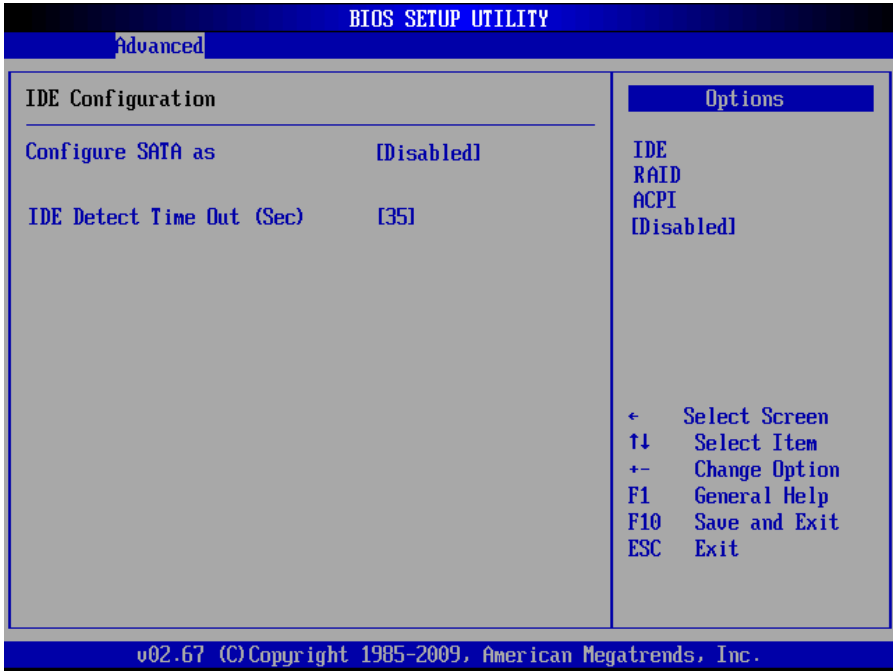
Intel (R) SpeedStep (tm) tech

This option is used to enable or disable Intel SpeedStep Technology

Intel (R) C-STATE tech

It is a technology by intel which allows the OS to independently lower the frequency of the cores when the need be thus saving power. If it's disabled then both the cores will run at a fixed frequency. Enabling it will allow the OS to make the core's run at different frequencies thus making optimum use of power. Set as [Disabled] when overclocking. If set as [Enabled], then the "C State Package Limit Setting" option will show.

3.2.2 IDE Configuration



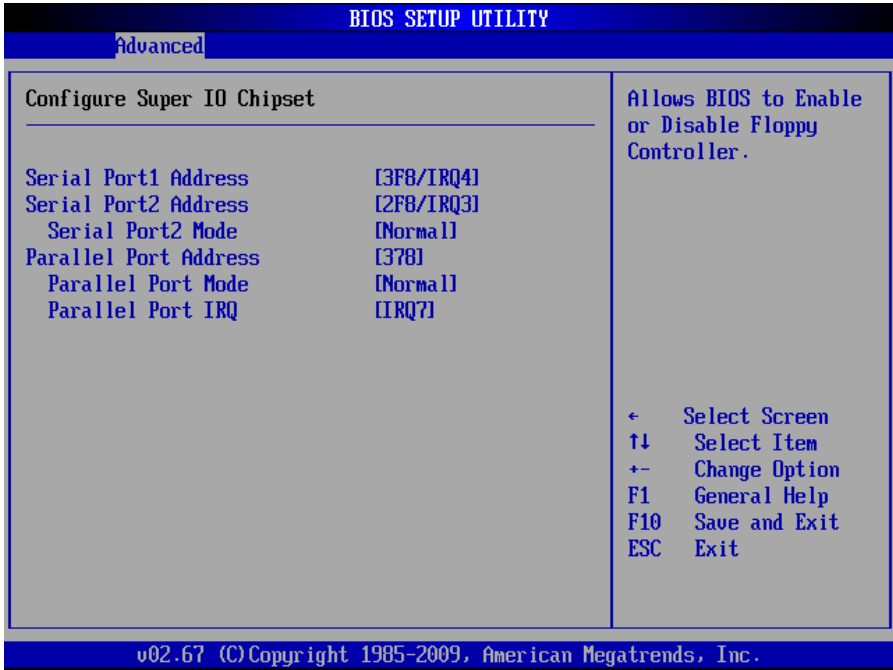
Configure SATA as

SATA Configuration Mode Select. Available options are [RAID], [AHCI] and traditional [IDE].

IDE Detect Time Out (Sec)

Set BIOS searching IDE device in appointed time (by seconds)

3.2.3 SuperIO Configuration



Serial Port1/2 Address

This option is used to config the interrupt and address of serial port1/2. Default set is recommended.

Serial Port2 Mode

This option is used to config the mode of serial port2. Default set is [Normal]

Parallel Port Address

This option is used to config parallel port address, the default value is 378. Available cofig value including 378\278\3BC\Disabled

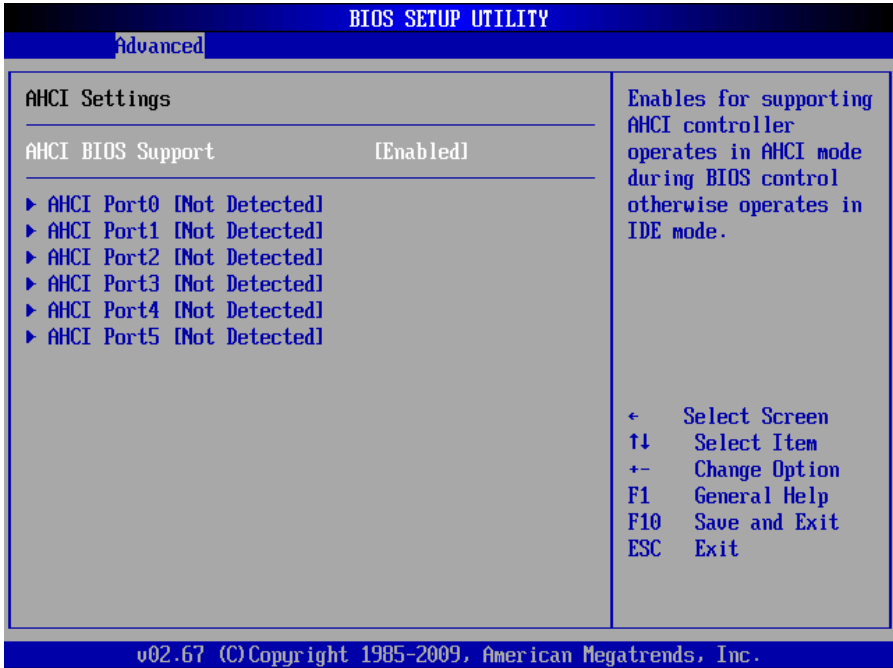
Parallel Port Mode

This option is used to config the parallel port mode. Defaut set is [Normal]

Parallel Port IRQ

This option is used to config parallel port interrupt. Default value is IRQ7

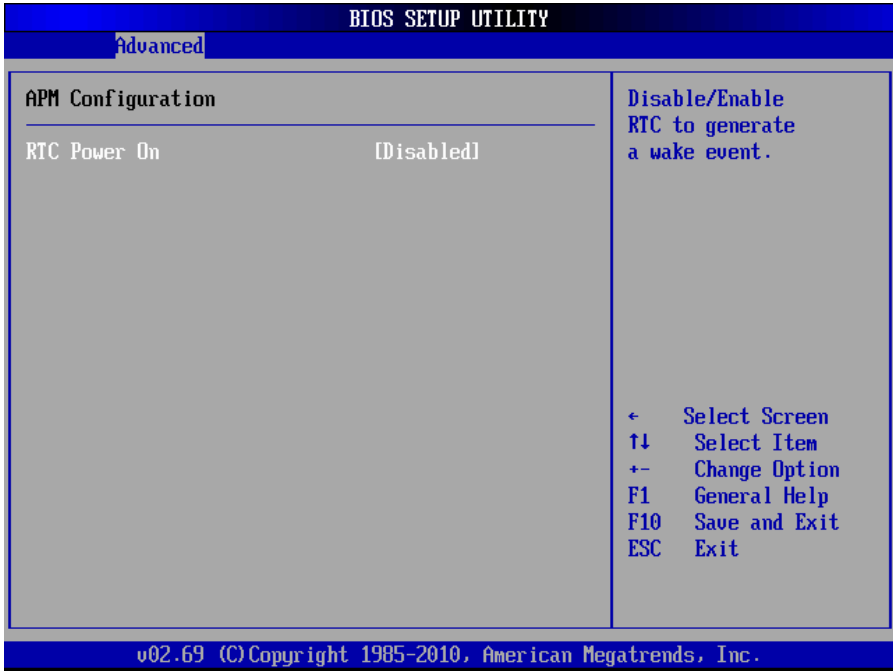
3.2.4 AHCI Configuration



AHCI BIOS Support

[Enabled] for supporting AHCI controller operates in AHCI mode during BIOS control otherwise operates in IDE mode.

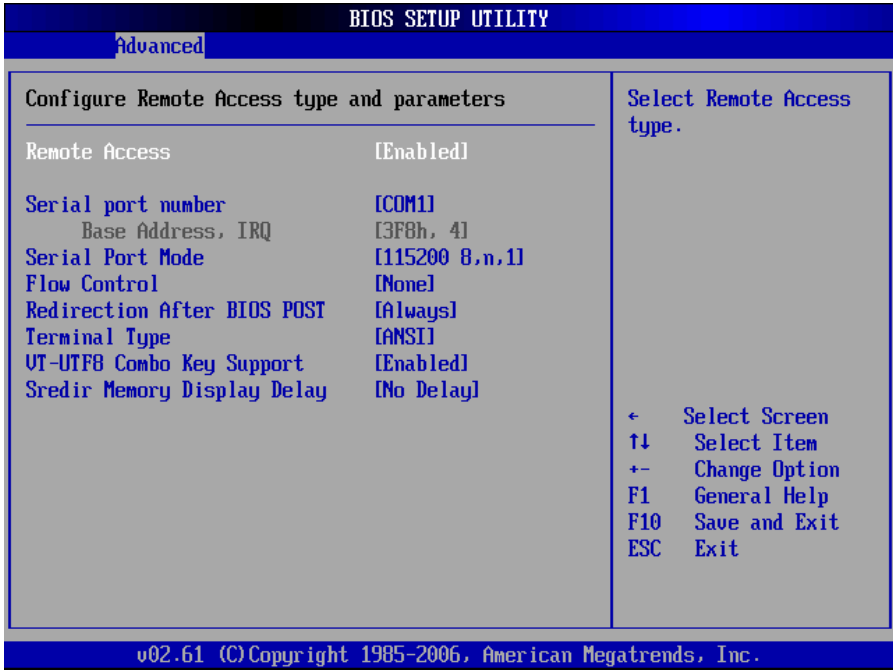
3.2.5 APM Configuration



RTC Power On

When Enabled, users can set the date and time at which the RTC (real time clock) alarm awakens the system from Suspend mode. The choices :< Enabled>, <Disabled>.

3.2.6 Remote Access Configuration



Remote Access

[Enabled] and [Disabled] options are used to open or close the remote access to BIOS.

Serial Port number

Select Serial Port Number. Available options include [COM1] and [COM2].

Serial Port Mode

This option is used to select serial port transmission rate.

Flow Control

Network Flow Control. Available options include [None][Hardware][Software].

Redirection After BIOS POST

Whether to activate the redirection function after BIOS Post. Available options include Disabled] [BootLoader] and [Always].

Terminal Type

Select the terminal type. Options include [ANSI] and [VT100].

VT-UTF8 Combo Key Support

[Enabled] option will enable the system the VT-UTF8 Combo Key Support. [Disable] will disable the support.

Sredir Memory Display Delay

Sredir Memory Display Delay Selection. Options include [NO Delay],[Delay 1Sec] ,[Delay 2Sec] and [Delay 4Sec].

3.2.7 USB Configuration

BIOS SETUP UTILITY	
Advanced	
<p>USB Configuration</p> <hr/> <p>USB Devices Enabled : 1 Keyboard, 2 Hubs, 1 Drive</p> <p>USB Function [Enabled] Legacy USB Support [Enabled]</p>	<p>Enables support for legacy USB. AUTO option disables legacy support if no USB devices are connected.</p> <p>← Select Screen ↑↓ Select Item +- Change Option F1 General Help F10 Save and Exit ESC Exit</p>
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USB Devices Enabled (Read Only)

This option will show the USB devices that are connected with Motherboard.

USB Function

This option is used to open or close the USB port on the motherboard, default as Enabled.

Legacy USB Support

If need support USB device in DOS mode: such as USB Flash Disk, USB keyboard, then select <Enabled> or<Auto>. If not , pls select < Disabled>

3.3 PCI PnP Menu



Clear NVRAM

Select to clear NVRAM data or not.

[NO] for keeping the data

[YES] for clearing the data

Plug & Play O/S

This option is for selecting BIOS or PnP O/S to allocate the interrupted resource in the peripheral devices.

Choose [YES], O/S will automatically allocate the resources If O/S doesn't have the PnP function, pls set this option as [NO].

IRQ3-15

This is used to keep the IRQ interrupt or allocate the interrupt to PCI devices.

3.4 Boot Menu

BIOS SETUP UTILITY						
Main	Advanced	PCIPnP	Boot	Security	Chipset	Exit
Boot Settings <hr/> ▶ Boot Settings Configuration ▶ Boot Device Priority ▶ Hard Disk Drives			Configure Settings during System Boot. ← Select Screen ↑↓ Select Item Enter Go to Sub Screen F1 General Help F10 Save and Exit ESC Exit			
v02.69 (C) Copyright 1985-2010, American Megatrends, Inc.						

3.4.1 Boot Settings Configuration



Quick Boot

<Enabled>: BIOS will skip self-detection and accelerate POST

<Disabled>: After BIOS detect load Windows O/S.

Quiet Boot

This option will show the supplier's Logo on the screen picture when booting the computer.

<Disabled> for close and <Enabled> for open.

Boot Up Num-Lock

This option is used to activate the Num-lock after booting the DOS system. <ON> for uncloning the number key and <OFF> for locking the number key.

Wait For "F1" If Error

If error occurs , wait for “F1”. When the error doesn’t lead to power down, then following messages will show: “Press ‘F1’ to resume” or “Press ‘F1’ to Setup”, users can press F1 to make the system go on working.

3.4.2 Boot Device Priority



This is used to setup the boot device priority.

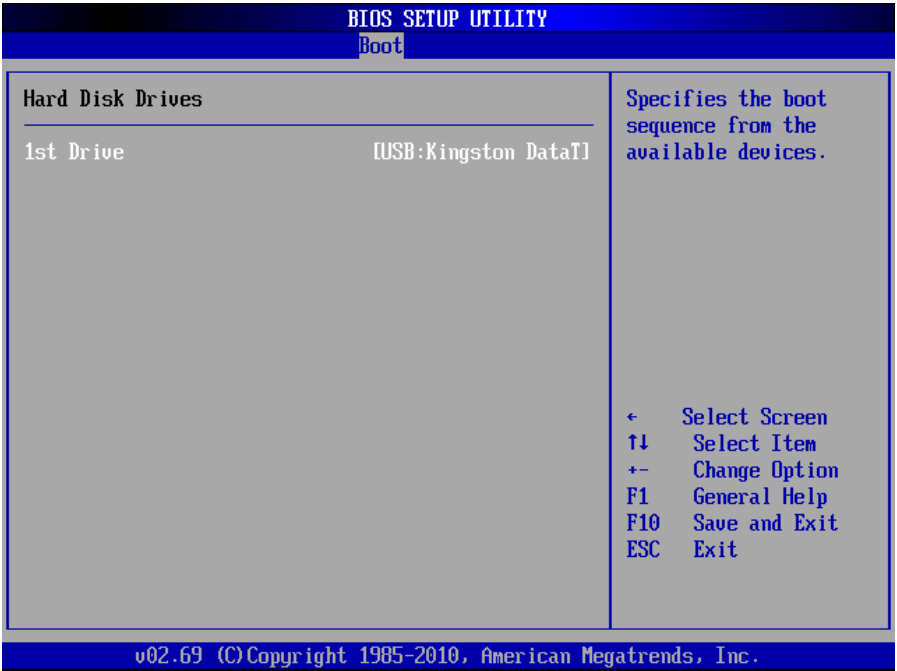
Press “Enter” then the following sub-menu will show:

1st Boot Device

System will detect devices by this priority until it finds an available boot device.

(Boot device can be the Removable Drive or the Hard Disk Drive)

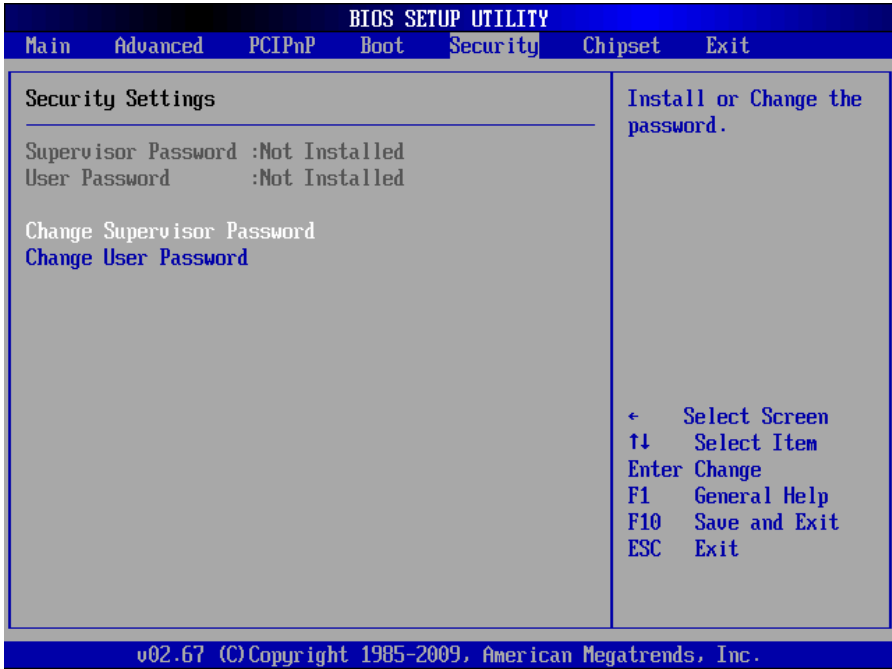
3.4.3 Hard Disk Drives



Boot device set for HDD

If multi- HDD be connected, user must set up their priority. The HDD of the highest priority will display in "Boot Device Priority"

3.5 Security Menu



Supervisor Password

If you set up the password, it will display "Installed"

If not, it will display "Not Installed"

User Password

If you set up the password, it will display "Installed"

If not, it will display "Not Installed"

Change Supervisor Password

Press 'Enter ' under this option, then enter sub-menu to change the password.

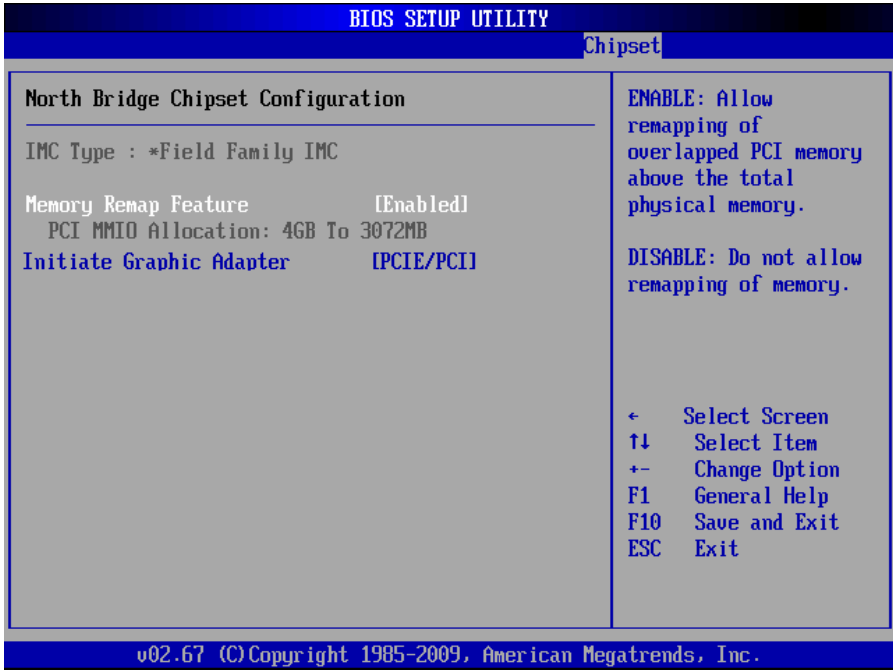
Change User Password

Press 'Enter ' under this option, then enter sub-menu to change the password.

3.6 Chipset Menu

BIOS SETUP UTILITY						
Main	Advanced	PCIPnP	Boot	Security	Chipset	Exit
Advanced Chipset Settings		Configure North Bridge features.				
WARNING: Setting wrong values in below sections may cause system to malfunction.						
▶ North Bridge Configuration						
▶ South Bridge Configuration						
		← Select Screen				
		↑↓ Select Item				
		Enter Go to Sub Screen				
		F1 General Help				
		F10 Save and Exit				
		ESC Exit				
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3.6.1 North Bridge Configuration



Memory Remap Feature

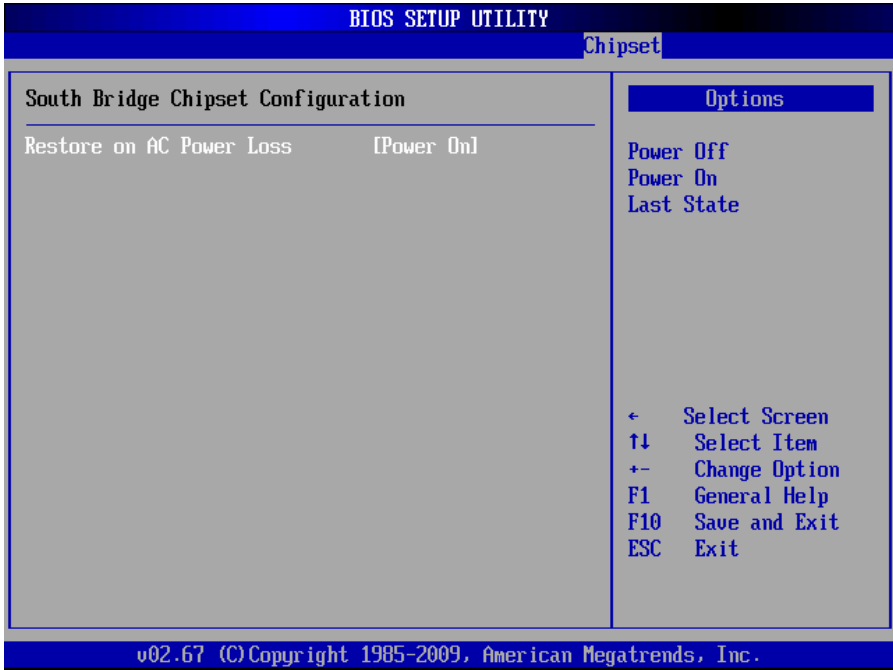
[Enabled]: Allow remapping of overlapped PCI memory above the total physical memory

[Disabled]: Do not allow remapping of memory

Initate Graphic Adapter

Initiate Graphic Adapter Selection

3.6.2 South Bridge Chipset Configuration



Restore on AC Power Loss

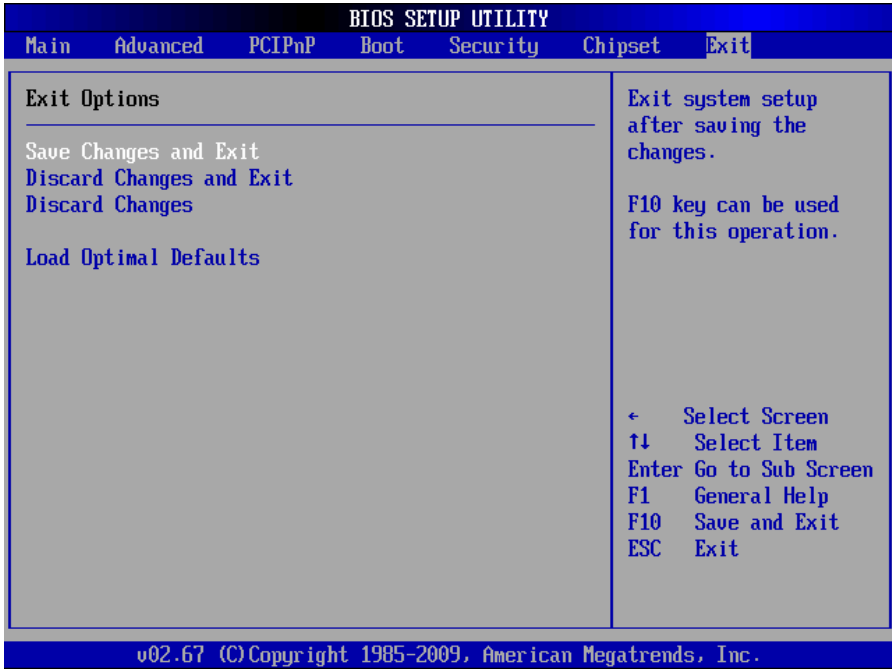
This option is for setting the system status while connecting the power again after the AC Power Loss

<Power Off>: System remains the status of power off

<Power On>: System will reboot automatically

<Last State>: Remain the same as the status before the power loss

3.7 Exit Menu



Save Changes and Exit

Press <Enter> and <Enter> under this option, to save BIOS changes and reboot system.

Discard Changes and Exit

Press <Enter> and <Enter> under this option, to discard BIOS changes and exit the current interface.

Discard Changes

Press <Enter> and <Enter> under this option, then continue to setup BIOS

Load Optimal Defaults

Recommend users first to select this option before BIOS Setup.



Appendix

Appendix

Appendix 1; Watchdog Programming Guide

watchdog Reference Code (ASM)

Set the port to realize watchdog function through DEBUG order, so that it can carry out Watchdog Timer's various functions.

port instruction:

2EH : Address register

2FH : Data register

Example: Set Watchdog Timer for 30 Seconds, DEBUG in DOS:

```
C:\>debug
-o 2e 87
-o 2e 87          ;Unlock
-o 2e 2d
-o 2f 20          ;bit0=0 ,set pin as watchdog func
-o 2e 07
-o 2f 08          ;Select Logic Devices
-o 2e 30
-o 2f 01          ;Activate Logic Devices
-o 2e f5
-o 2f 00          ;Set Timer Unit as Sec/ (set as min: o 2f 08)
-o 2e f6
-o 2f 30          ;Set Timer Count as 30h= 48 Second
-o 2e aa          ;Lock the register
-q
C:\>
```

Upon the last line, Press "Enter", then system will reboot after counting 48 seconds

=====

Reference Code (c++ language):

```
-----  
outputb (0x2e, 0x87)  
outputb (0x2e, 0x87) // Open SUPER IO Register  
outputb (0x2e, 0x2d)  
outputb (0x2f, 0x20)//bit0=0 ,set pin as watchdog func  
outputb (0x2E, 0x07)  
outputb (0x2F, 0x08) //select logical device  
outputb (0x2e, 0x30)  
outputb (0x2f, 0x01)//active the device  
outputb (0x2e, 0xF5)  
outputb (0x2f, 0x00)// Set Timer Unit as Sec/ (Set as Min: outputb (0x2f, 0x08))  
outputb (0x2e, 0xF6)  
outputb (0x2f, 0x30)// Set Timer Count to 30h=48 sec.  
outputb (0x2E, 0xAA) //Lock SUPER IO Register  
//----- code end -----
```

If system fails, watchdog can enable the system reboot automatically

Appendix 2: Glossary

ACPI

Advanced Configuration and Power Management Interface for short. ACPI specifications allow OS to control most power of computer and its extended devices.

BIOS

Basic input/output system. It's a kind of software including all in/out control code interface in PC. It will do hardware testing while system booting, then system runs, it provides an interface between OS and hardware. BIOS is stored in a ROM chip.

BUS

In a computer system, it's the channels among different parts for exchanging data; it's also a group of hardware line. BUS here means part lines inside CPU and main components of memory.

Chipset

Integrated chips for executing one or more function. Here "Chipset" means system level chipset structured by Southbridge & Northbridge; it decides motherboard's structure and main functions.

CMOS

Complementary Metal-Oxide Semiconductor, a widely used semiconductor with the characteristic of high speed but low power. CMOS we mention here means part of obligate space in on-board CMOS RAM, for saving date, time, system information and system parameter etc.

COM

Computer-Output Microfilmer. A universal serial communication interface, usually adopts normative DB 9 connector.

DIMM

Dual Inline Memory Module. It's a small circuit board with memory chipset, providing 64bit bus width.

DRAM

Dynamic Random Access Memorizer. It's a normal type of memory often with a transistor and a capacitance to store 1 bit. With the development of the technology, more and more types and specification of ORAM exist in computer application. Now: SDRAM, DDR SDRAM and RDRAM are generally used.

I2C

Inter—Integrated Circuit , generically referred to as "two-wire interface", is a multi-master serial single-ended computer bus invented by Philips that is used to attach low-speed peripherals to a motherboard, embedded system, or cellphone

LAN

Network interface. Network grouped by correlative computers in a small area, generally in a company or a building. Local area network is buildup by sever, workstation, some communications links, as a rule. Terminals can access data and devices anywhere through cables, so, many users can share costly device and resource.

LED

Light-Emitting Diode. a semiconductor device that shines when power supply is connected, often use to denote info lightly, for example, to denote power on or HDD work normally.

LPT: line print terminal. The denomination reserved by DOS, is used to denote universal parallel interface, and connect printer in a general way.

PnP

Plug-and-Play. It is a specification that allows PC to configure its external devices automatically and can work independently without the manual operation by its user . To achieve this function, its BIOS should be able to support PnP and a PnP expansion card

POST

Self-test when power on. While booting, BIOS will do once uninterrupted testing operation to the system, including RAM, keyboard, hard disk driver etc. Check them in normal situation and work well.

PS/2

A keyboard & mouse connective interface specification developed by IBM. PS/2 is a DIN interface with only 6PIN; it also can connect other devices, like modem.

USB

It is the Universal Serial Bus for short. A hardware interface adapts to low speed external devices, and is always used to connect keyboard, mouse etc. One PC can connect 127 USB devices Max, providing 12Mbit/s transmit bandwidth; USB supports hot swap and multi- data stream, namely, you can plug USB devices while system is running, system can auto-detect and makes it work on.

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