



***AXIOMTEK***

**NA361 Series**

**Network Appliance**

**User's Manual**



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## Safety Approvals

- ◆ CE Marking
- ◆ FCC Class B(NA361/NA361FL)
- ◆ FCC Class A(NA361R)

### ◆ FCC Compliance

This equipment has been tested and complies with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. If not installed and used in accordance with proper instructions, this equipment might generate or radiate radio frequency energy and cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

Reorient or relocate the receiving antenna.

Increase the separation between the equipment and receiver.

Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

Consult the dealer or an experienced radio/TV technician for help.

Shielded interface cables must be used in order to comply with emission limits.

## Safety Precautions

Before getting started, read the following important cautions.

1. Be sure to ground yourself to prevent static charge when installing the internal components. Use a grounding wrist strap and place all electronic components in any static-shielded devices. Most electronic components are sensitive to static electrical charge.
2. Disconnect the power cords from the **NA361 Series** before making any installation. Be sure both the system and the external devices are turned OFF. Sudden surge of power could ruin sensitive components. Make sure the **NA361 Series** is properly grounded.
3. Do not open the system's top cover. If opening the cover for maintenance is a must, only a trained technician is allowed to do so. Integrated circuits on computer boards are sensitive to static electricity. To avoid damaging chips from electrostatic discharge, observe the following precautions:
  - Before handling a board or integrated circuit, touch an unpainted portion of the system unit chassis for a few seconds. This will help to discharge any static electricity on your body.
  - When handling boards and components, wear a wrist-grounding strap, available from most electronic component stores.

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# CHAPTER 1

## INTRODUCTION

This chapter contains general information and detailed specifications of the **NA361 Series** Network Appliance Server. Chapter 1 contains the following sections:

- **General Description**
- **Features**
- **Specifications**
- **Dimensions and Outlines**
- **I/O Outlets**

### 1.1 General Description

The NA361/FL is a 1U desktop and NA361R is a 1U rackmount network security hardware platform for VPN, firewall and other network security applications, which consists can support of Intel<sup>®</sup> ATOM C2000 family processors. This platform supports the 1U desktop and 1U rack mount form factor, and the system supports DDR3 1600 memory with dual channel up to maximum 32 GB for four UDIMM slot. In the meantime, the platform also can support 6 Gigabit LAN ports which can provide best throughput. For the purpose to store event log data, it can deploy one 2.5" SATA2 HDD (NA361&NA361FL) or two 2.5" SATA2 (NA361R). This platform can be easily enabled through application programs to make a user-friendly appliance for customers, and provide the highest ever performance of encryption and decryption.

### 1.2 Features

Low power and high performance for network security field applications. NA361 series supports Intel<sup>®</sup> ATOM C2000 family processors.

- Supports Six 10/100/1000Mbps Ethernet ports
- Supports BIOS redirected to COM port features
- Supports one 2.5" SATA2 Hard Disk for NA361&NA361FL  
Supports Two 2.5" SATA2 for NA361R
- Reasonable computing performance and throughput for processor and LAN ports
- Suitable for Network Appliance; VPN, network bandwidth controller, firewall and UTM

## 1.3 Specifications

### 1.3.1 System

- **System CPU**
  - Intel<sup>®</sup> C2000 family processors.
- **BIOS**
  - AMI 64Mbit PnP Flash BIOS with function of BIOS redirected to COM port
- **System Memory**
  - Four DDR3 1600 UDIMM up to 32 GB(NA361,NA361R)
  - Two DDR3 1600 UDIMM up to 16GB(Wide temperature support is available upon request (NA361FL))
- **HDD Interface**
  - One 2.5" SATA2 HDD for NA361
  - One 2.5" SATA2 HDD (Wide temperature support is available upon request (NA361FL))
  - Two 2.5" SATA2 Hard Disk for NA361R
- **CF**
  - One Compact Flash Type II
- **Network Interface**
  - Six 10/100/1000Mbps Ethernet (Intel<sup>®</sup> i347&i210)  
Two groups LAN by pass support latch relay for optional
- **Watchdog Timer**
  - One for lan by pass :8 levels,1-64 seconds
  - One for system reset: 255 levels,1-255 sec
- **USB**
  - Two USB ports in the rear side
- **Console**
  - RS-232 Console port is the rear side(RJ-type)
- **Power**
  - 1 x 12V, 5A power adapter for NA361,NA361FL
  - AC to DC 84W open frame for NA361R
- **OS Compatibility**
  - Yocto ,Linux kernel 2.6 or 3.x



### 1.3.2 Mechanical / Environmental

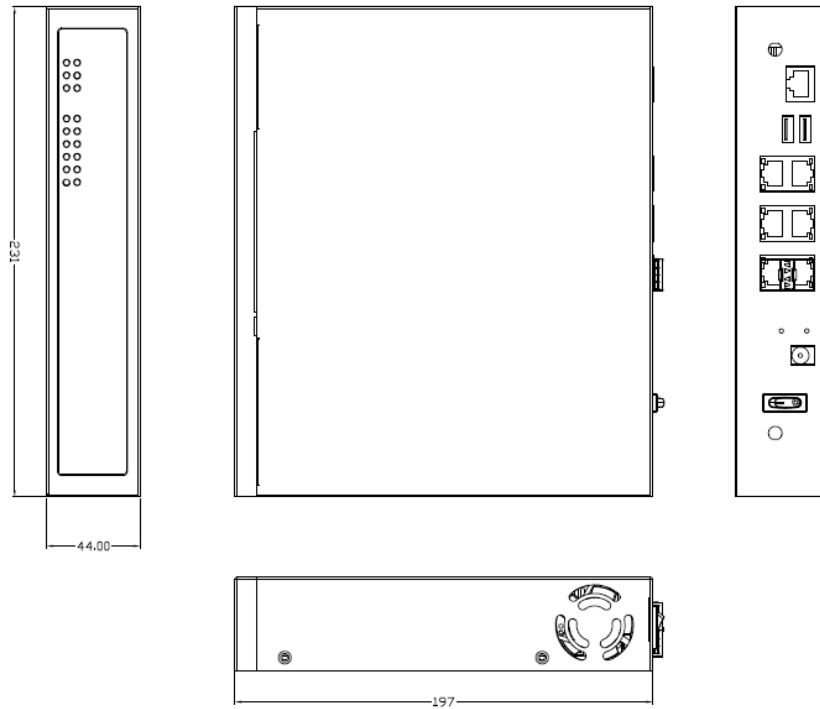
- **Form Factor**
  - 1U Desktop for NA361 & NA361FL
  - 1U Rack mount for NA361R
- **LED**
  - Power, HDD, Link/Act with transfer rate
  - LAN by pass LED and programmable LED
- **Operation Temperature**
  - 0°C ~ 40°C (32°F ~ 104°F)for NA361/NA361FL
  - 0°C ~ 45°C (32°F ~ 113°F)for NA361R
- **Storage Temperature**
  - -20°C ~ 70°C (-4°F ~ 158°F)
- **Humidity**
  - 10% - 95% RH, non-condensing
- **Chassis Material**
  - Steel
- **Dimensions**
  - 44mm (1.73") (H) x 231mm (9.09") (W) x 197mm (7.75") (D) for NA361
  - 44mm (1.73") (H) x 240mm (9.45") (W) x 198mm (7.79") (D) for NA361FL
  - 44mm(1.73")(H) x 430mm (16.93") (W) x 250mm (9.84") (D) for NA361R
- **Weight (Net/Gross)**
  - 1.8g / 2.4Kg (NA361)
  - 2.5 Kg/3.5 Kg(NA361FL)
  - 3.5Kg/4.5Kg (NA361R)



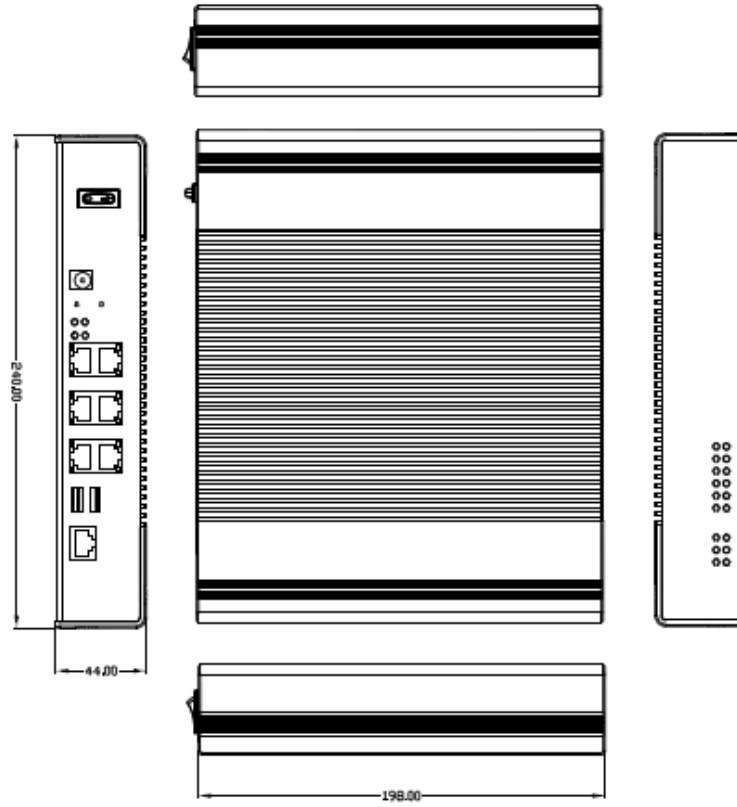
**NOTE:** All specifications and images are subject to change without notice.

## 1.4 Dimensions and Outlines

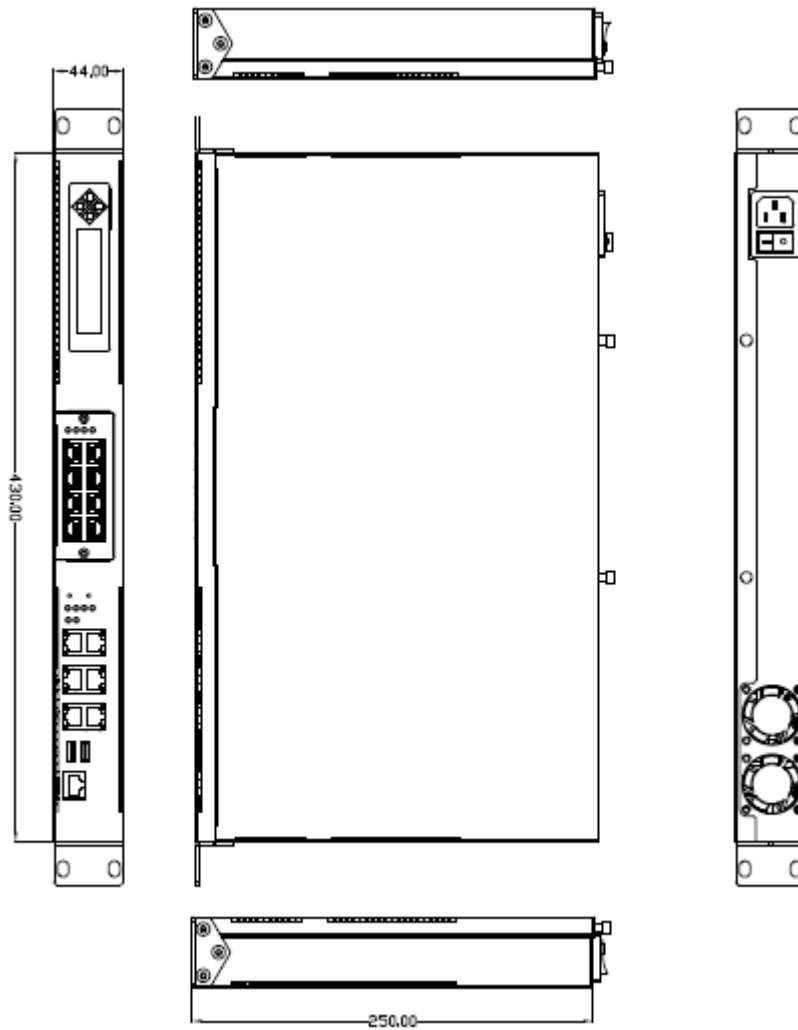
### NA361



# NA361FL



## NA361R



## 1.5 I/O Outlets

Locate the front panel I/O outlets on the **NA361 Series** server to connect serial and Ethernet interface devices.

### 1.5.1 Front Panel for NA361 &NA361FL




- **LAN By-Pass LED**

While running the LAN By-Pass function, the LED always lights up.

- **Programmable LED**

A sample code will be provided that allow users to define their own function.

 **NOTE:** *If you need sample codes please contact our FAE directly, and they are only for customers' reference as remarked.*

- **Power LED**

It will be lighting when the server is powered on to perform diagnostic tests and check a proper operation.

- **LAN Link LED**

It will be lighting when a twisted pair is connected to another Ethernet device on the port. It shows network transfer rate while making a connection.

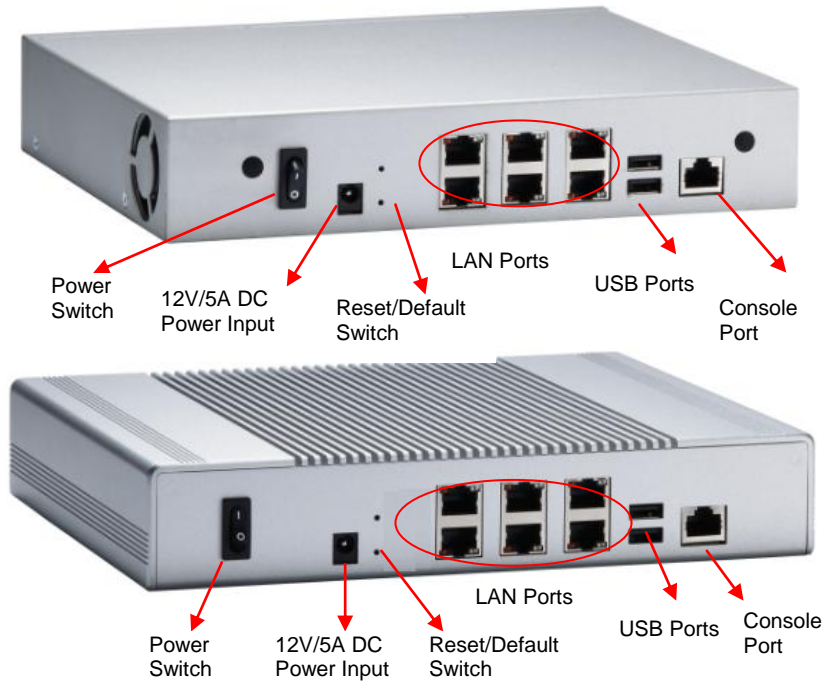
- **Activity LED**

It will be lighting when the server is transmitting or receiving a packet through the twisted pair ports.

- **HDD LED**

The LED flashes when transmitting or receiving any signals.

## 1.5.2 Rear Panel for NA361 &NA361FL



- **Console port**

RS-232 Console port is for the command of line interface and of diagnostic support by P.O.S.T (Power on Self Test).

- **Reset Switch**

It is for reset the system to reboot your computer instead of turning OFF the power switch. It is a better way to reboot your system for a longer life of the system's power supply.

- **Default Switch**

The sample code will be provided that allows users to define their own function. For example, when the system has any problems, this switch can support to reset it to the customer's OS default settings if our customer's OS supports this application.

- **Link LED (Single color)for LAN port #1, port#2, port#3, port#4, port#5, port#6**

1. The orange LED is on when the LAN port connection is working.
2. The LED flashes when transmitting or receiving any signals to or from the appliance.
3. The LED is dark when the appliance is off.

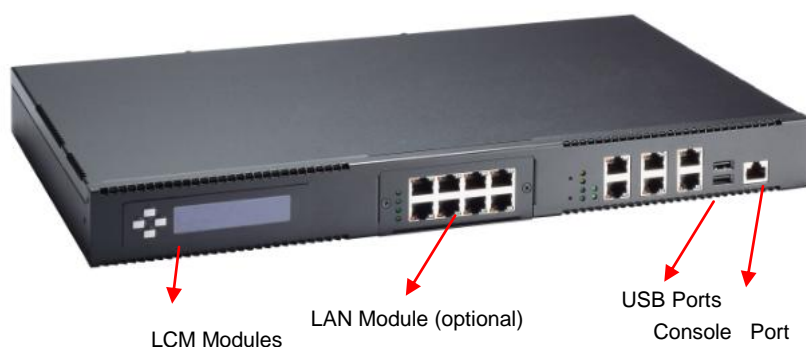
- **Active LED for LAN port #1, port#2, port#3, port#4, port#5, port#6**

1. The double-color LED light indicates 10/100/1000Mbps transfer rate.

Transfer Rate	LED Light Color
10Mbps	Dark
100Mbps	Green
1000Mbps	Amber

2. When the amber-color LED light is radiating, it should be 1000Mbps transfer rate at this moment.
3. When the green-color LED light is radiating, it should be 100Mbps transfer rate at this moment
4. If the LED is dark and Link/Active LED is light on or flashing, it should be 10Mbps transfer rate.
5. When this LED and Link/Active LED both are dark. No networking devices are attached

### 1.5.3 Front Panel for NA361R



- **Power on LED**

System and power on

- **HDD LED**

Link/Active LED (single color)

1. The green LED is on when it is a normal HD connection.
2. The LED flashes when transmitting or receiving any signals.

- **LAN By-Pass LED**

While running the LAN By-Pass function, the LED always lights up.

- **GPIO LED**

A sample code will be provided that allow users to define their own function.



**NOTE:** *If you need sample codes please contact our FAE directly, and they are only for customers' reference as remarked.*

- **Link/Active LED (Single color)for LAN port #1, port#2, port#3, port#4, port#5 and port#6**

1. The orange LED is on when the LAN port connection is working.
2. The LED flashes when transmitting or receiving any signals to or from the appliance.
3. The LED is dark when the appliance is off.

- **Transmitted LED for LAN port #1, port#2, port#3, port#4, port#5 and port#6**

1. The double-color LED light indicates 10/100/1000Mbps transfer rate.

Transfer Rate	LED Light Color
10Mbps	Dark
100Mbps	Green
1000Mbps	Amber

2. When the amber-color LED light is radiating, it should be 1000Mbps transfer rate at this moment.
3. When the green-color LED light is radiating, it should be 100Mbps transfer rate at this moment
4. If the LED is dark and Link/Active LED is light on or flashing, it should be 10Mbps transfer rate.
5. When this LED and Link/Active LED both are dark. No networking devices are attached

- **Console port**

RJ RS-232 Console port is for the command of line interface and of diagnostic support by P.O.S.T (Power on Self Test).

- **Reset Switch**

It is for reset the system to reboot your computer instead of turning OFF the power switch. It is a better way to reboot your system for a longer life of the system's power supply.

- **Default Switch**

The sample code will be provided that allows users to define their own function. For example, when the system has any problems, this switch can support to reset it to the customer's OS default settings if our customer's OS supports this application

## 1.5.4 Rear Panel for NA361R





## CHAPTER 2

# HARDWARE DESCRIPTION

The **NA361 Series** are convenient for your various hardware configurations. The chapter 2 will help you get familiar with the hardware.

### 2.1 Checklist

The package bundled with your **NA361 Series** should contain the following items:

The **NA361 Series** network appliance hardware platform

- DC Power Adapter x 1, Power cord x 1(NA361&NA361FL), Power cord x 1(NA361R)
- Mounting screws for disk drive and additional screws for this appliance's spare parts
- Installed NA361/FL cable kits (1 x SATA cable, 1 x SATA power cable)
- Installed NA361R cable kits (2 x SATA cable, 1 x SATA power cable)
- Plastic stand for stack-up x 4
- 1U Rackmount ear kit (NA361R)

If you cannot find this package or any items are missing, please contact AXIOMTEK distributors immediately. If you order any optional components, the package might contain those additional hardware or documents accordingly.

### 2.2 Memory Module (UDIMM)

The main board supports two DDR3 1600 UDIMM socket. Maximum memory capacity is up to 32GB ECC/Non-ECC unbuffer memory.

The following steps show you how to install the memory modules:

- 1 Push down each side of the UDIMM socket.
- 2 Align the memory module with the socket that notches of memory module must match the socket keys for a correct installation.
- 3 Install the memory module into the socket and push it firmly down until it is fully seated. The socket latches are levered upwards and clipped on to the edges of the DIMM.
- 4 Install any remaining UDIMM modules.

DIMM1 channelB DIMM1

DIMM2 channelB DIMM0

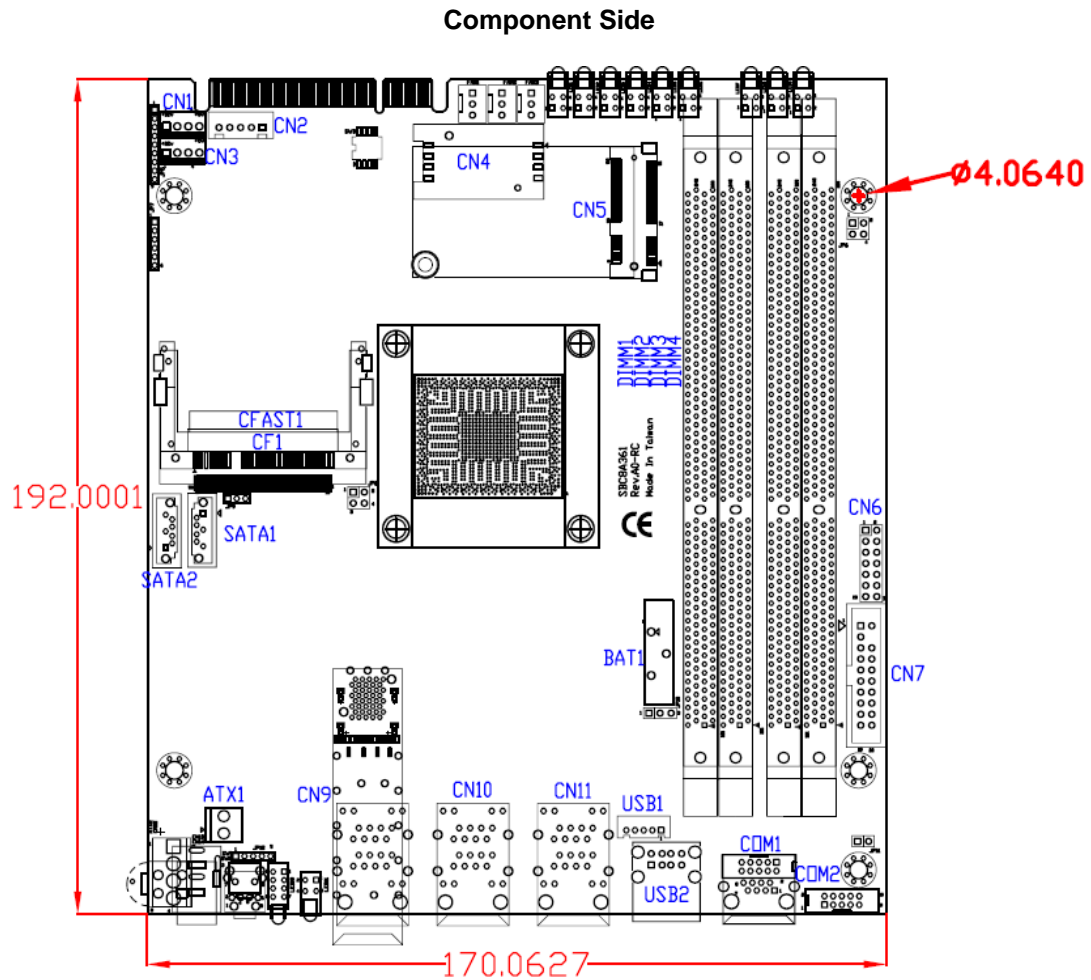
DIMM3 channelA DIMM1

DIMM4 channelA DIMM0



**NOTE:** if processor is dual core ,please install the memory from DIMM4(channel A DIMM0),if the processor is quad core or 8 core can support duanl channel from DIMM4(channel A DIMM0) and DIMM2(channel B DIMM0)

## 2.3 Board Layout



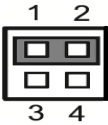
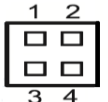
## 2.4 Jumper Settings

This section provides the information about jumpers and connectors of **NA361 Series**. Proper jumper settings configure the main board in this appliance to meet your application purpose. We are herewith listing a summary table of all jumpers and default settings for onboard devices, respectively.



Jumper	Definition	Jumper Settings	Function
JP6	DDR3/DDR3L Voltage Selection	Short (1-2)	+VDDRA=1.35V
		NC	+VDDRA=1.5V(Default)
JP9	CF card Voltage Selection	Short(1-2)	CF power +3.3V(Default)
		Short(2-3)	CF power +5V
JP10	Clear CMOS Setting	Short (1-2)	Normal(Default)
		Short (2-3)	Clear BIOS CMOS
JP12	TACT SW2 Selection	Short (1-2)	N/A
		Short (2-3)	Reset(Default)
		Short (4-5)	GPI
SW3	LAN Bypass Selection	Pin1 OFF Pin2 OFF	SEGN1 & SEGN2 Bypass as same as Power Off status
		Pin1 ON Pin2 OFF	SEGN1 & SEGN2 Bypass Disable(Default)
		Pin1 ON Pin2 ON	SEGN1 & SEGN2 Bypass Enable
	Auto Power Button Selection	Pin4 ON	Auto Power Button Disable
		Pin4 OFF	Auto Power Button Enable(default)

### 2.4.1 DDR3/DDR3L Voltage Selection Jumper (JP6)

This jumper is for DDR3/DDR3L voltage level selection. Use it to set 1.5V or 1.35V



Description	Function	Jumper Setting
DDR3/DDR3L Voltage Selection	+VDDRA=1.35V	
	+VDDRA=1.5V	

### 2.4.2 CompactFlash™ Voltage Selection Jumper (JP9)

Description	Function	Jumper Setting
CF card Voltage Selection	CF power +3.3V	
	CF power +5V	

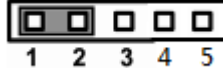
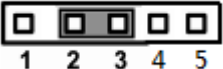

### 2.4.3 Clear CMOS Jumper (JP10)

You may need to use this jumper is to clear the CMOS memory if incorrect settings in the Setup Utility.

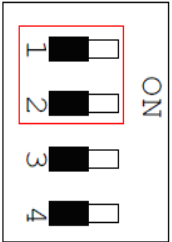
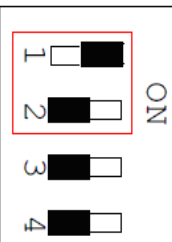
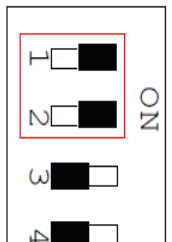
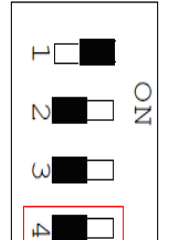
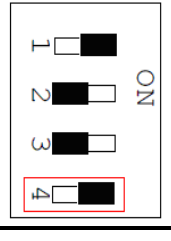
Description	Function	Jumper Setting
CMOS Clear	Normal (Default)	
	Clear CMOS	

### 2.4.4 TACT SW2 Function Selection Jumper (JP12)

Use this jumper to select the TACT SW2 Function.

Description	Function	Jumper Setting
TACT SW2 Function Selection	Power On/Off	
	Reset (Default)	
	GPI	

### 2.4.5 LAN Bypass and Auto Power Button Selection Switch (SW3)

Description	Function	Switch Setting
LAN Bypass Selection	SEGN1 & SEGN2 Bypass as same as Power Off status	
	SEGN1 & SEGN2 Bypass Disable(Default)	
	SEGN1 & SEGN2 Bypass Enable	
Auto Power Button Selection	Auto Power Button(Enable)	
	Auto Power Button(disable)	

## 2.5 Connectors

Connectors connect the board with other parts of the system. Loose or improper connection might cause problems. Make sure all connectors are properly and firmly connected. Here is a summary table shows you all connectors on the main board.

Connectors	Function
CN1,3	Power out connector
CN2	LCM or SATA port Connector
CN4	SIM card
CN5	MINI card
CN6	Front panel
CN7	TPM connector
CN8	Fiber connector for LAN5~6 (optional)
CN9	RJ-45 LAN 1-2
CN10	RJ-45 LAN 3-4
CN11	RJ-45 LAN 5-6
CN12/ATX2	4P wafer(default) /ATX 2X2 pin; power in connector for NA361R
CN13/CN14	Screw-type DC Jack/ DC Jack(default); power in connector for NA361/NA361FL
COM1/COM_1	COM Port 1 RJ-type(External/ default)/ COM Port 1 Box Header2.0(Internal)
COM2	COM Port 2 Box Header2.0(Internal)
CF1/CFast1	Compact Flash/CFast(optional)
PCIE1	PCIEX8 slot
SATA1~2	SATA Conn.
USB1	USB port 2 Conn.(Internal)
USB2	USB port 0-1 Conn.(External)
DIMM1~4	DDR III DIMM
FAN1	CPU FAN
FAN2	System FAN
FAN3	AUX FAN
ATX1	Power switch connector

### 2.5.1 Power output Connector (CN1&CN3)

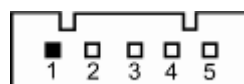
Pin	Signal
1	+12V
2	GND
3	GND
4	+5V



### 2.5.2 LCM or SATA Power Connector (CN2)

Support 2.5" SATA HDD power

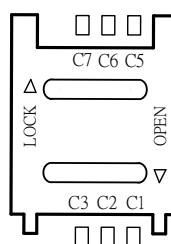
Pin	Signal
1	+5V
2	RXD of COM2
> 3	No Connection
> 4	TXD of COM2
> 5	GND



### 2.5.3 SIM card connector (CN4)

In order to work properly, the SIM Card must be used together with Mini Card which is inserted to socket CN5. It is mainly used in 3G wireless network application.

Pin	Signal
C1	PWR
C2	RST
C3	CLK
C5	Ground (GND)
C6	VPP
C7	DATA





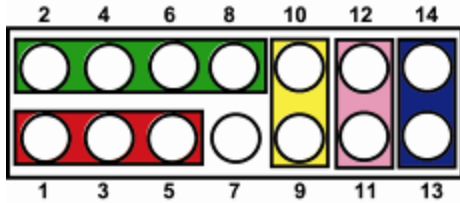
## 2.5.4 Mini Card Connector (CN5) for optional

Pin	Signal	Pin	Signal
1	WAKE#	2	+3.3VSB
3	No use	4	GND
5	No use	6	+1.5V
7	CLKREQ#	8	PWR
9	GND	10	I/O
11	REFCLK-	12	CLK
13	REFCLK+	14	RST
15	GND	16	VPP
17	No use	18	GND
19	No use	20	+3.3VSB
21	GND	22	PERST#
23	PE_RXN	24	+3.3VSB
25	PE_RXP	26	GND
27	GND	28	+1.5V
29	GND	30	SMB_CLK
31	PE_TXN	32	SMB_DATA
33	PE_TXP	34	GND
35	GND	36	USB_D-
37	GND	38	USB_D+
39	+3.3VSB	40	GND
41	+3.3VSB	42	No use
43	GND	44	No use
45	No use	46	No use
47	No use	48	+1.5V
49	No use	50	GND
51	No use	52	+3.3VSB



**NOTE:** Dual code processor support USB signal only.

## 2.5.5 Front Panel Bezel Connector (CN6)



### 1. Power LED :

This 3-pin connector (Pin 1, 3, 5) connects a LED indicator to the system power switch on the case. Pin 1 is assigned as +, and Pin 3, Pin 5 as -. The Power LED lights up when the system is powered ON.

### 2. External Speaker and Internal Buzzer Connector :

This 4-pin connector (Pin 2, 4, 6, 8) can be connected to the case-mounted speaker unit or internal buzzer. While connecting the CPU card to an internal buzzer, please short pins 2-4; while connecting to an external speaker, you need to set pins 2-4 to Open and connect the speaker cable to pin 8 (+) and pin 2 (-).

### 3. System Reset Switch :

This 2-pin connector (Pin 11, 12) can be connected to the case-mounted reset switch that reboots your computer instead of turning OFF the power switch. It is a better way to reboot your system for a longer life of the system's power supply.

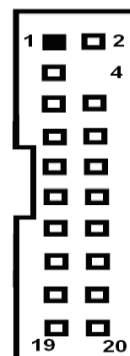
### 4. HDD Activity LED :

This connection is linked to hard drive activity LED on the control panel. LED flashes when HDD is being accessed. The 2-pin connector (Pin 13, 14) connects the hard disk drive to the front panel HDD LED, Pin 13 assigned as -, and Pin 14 as +.

## 2.5.6 TPM Connector (CN7)

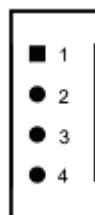
The board supports TPM with a 20-pin TPM connector for the TPM function.

Pin	Signal
1	CK_25M_TPM
2	GND
3	L_FRAME_N
4	NC
5	PLTRST_S_N
6	+5V
7	LPC_AD3
8	LPC_AD2
9	+3.3V
10	LPC_AD1
11	LPC_AD0
12	GND
13	SMBCLK_MAIN
14	SMBDAT_MAIN
15	+3VSBY
16	SUS_STAT_N
17	GND
18	SERIRQ
19	SUSCLK
20	NC



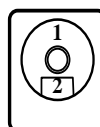
### 2.5.7 4P Wafer Power Input Connector (CN12) for NA361R

Pin	Signal
1	+12V
2	+12V
3	GND
4	GND



### 2.5.8 DC-In Power Jack (CN13/CN14) for NA361 & NA361FL

Pin	Signal
1	+12V
2	GND



### 2.5.9 Serial Port1 (For Console) Connector (COM1)

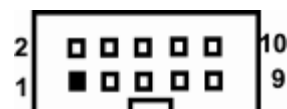
The COM1 Port connector is a RJ-type connector.

Pin	Signal
1	Request to Send (RTS)
2	Data Terminal Ready (DTR)
3	Transmit Data (TXD)
4	Ground (GND)
5	Ground (GND)
6	Receive Data (RXD)
7	Data Set Ready (DSR)
8	Clear to Send (CTS)



### 2.5.10 Serial Port2 Connector (COM2& COM1\_1)

Pin	Signal
1	Data Carrier Detect (DCD)
2	Data Set Ready(DSR)
3	Receive Date(RXD)
4	Request to Send(RTS)
5	Transmit Data(TXD)
6	Clear to Send(CTS)
7	Data Terminal Ready (DTR)
8	Ring Indicator(RI)
9	GND
10	NC



### 2.5.11 CFast Socket: CFast1

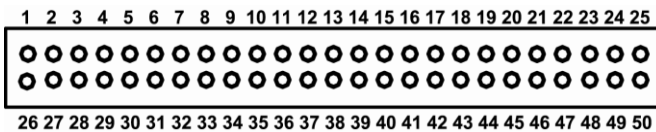
The board is equipped with a CFast™ socket on the solder side to support a SATA signal card. The socket is especially designed to avoid incorrect installation of the CFast™ card. When installing or removing the CFast™ card, please make sure the system power is off.

Pin	Signal	Pin	Signal
S1	GND	P5	NC.
S2	TXP	P6	NC.
S3	TXN	P7	GND
S4	GND	P8	NC.
S5	RXN	P9	NC.
S6	RXP	P10	NC.
S7	GND	P11	NC.
		P12	NC.
		P13	+3.3 V
P1	NC.	P14	+3.3 V
P2	GND	P15	GND
P3	NC.	P16	GND
P4	NC.	P17	NC.

### 2.5.12 Compact Flash™ Socket (CF1)

The board is equipped with a CFTM socket on the solder side to support a SATA signal card. The socket is especially designed to avoid incorrect installation of the CFTM card. When installing or removing the CFTM card, please make sure the system power is off.

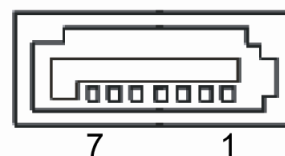
Pin	Signal	Pin	Signal
1	GND	2	Data 3
3	Data 4	4	Data 5
5	Data 6	6	Data 7
7	CS0#	8	GND
9	GND	10	GND
11	GND	12	GND
13	VCC	14	GND
15	GND	16	GND
17	GND	18	Address 2
19	Address 1	20	Address 0
21	Data 0	22	Data 1
23	Data 2	24	NC
25	CARD_DT-	26	CARD_DT-
27	Data 11	28	Data 12
29	Data 13	30	Data 14
31	Data 15	32	CS1#
33	NC	34	IORD#
35	IOWR#	36	WE#
37	INTR	38	VCC
39	CSEL#	40	GND
41	RESET#	42	IORDY#
43	DMAREQ	44	DMAACK#
45	DASP#	46	PDIAG#
47	Data 8	48	Data 9
49	Data 10	50	GND



### 2.5.13 Serial ATA Connector: SATA1, SATA2

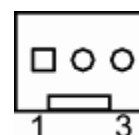
The SATA connector is for high-speed SATA interface port and it can be connected to hard disk device.

Pin	Signal	Pin	Signal
1	GND	2	TX+
3	TX-	4	GND
5	RX-	6	RX+
7	GND		



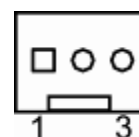
### 2.5.14 CPU FAN Connector (FAN1)

Pin	Signal
1	Ground
2	+12V
3	Rotation Detection



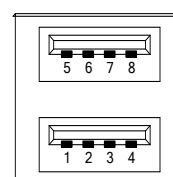
### 2.5.15 System /AUX Fan Connector (FAN2/FAN3)

Pin	Signal
1	Ground
2	+12V
3	Rotation Detection



### 2.5.16 USB connector (USB2)


Pin	Signal
1	USB VCC (+5V level standby power)
2	USB #0_D-
3	USB #0_D+
4	Ground (GND)
5	USB VCC (+5V level standby power)
6	USB #1_D-
7	USB #1_D+
8	Ground (GND)



## 2.5.17 LED1~LED8

LED1~9 for NA361/NA361FL

LED10-11 for NA361R

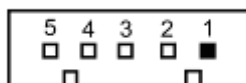
LED	Signal
LED1	For Lan1 Up : LINK (Green : LINK100 ; Amber : LINK1000) Down : Active (Orange)
LED2	For Lan2 Up : LINK (Green : LINK100 ; Amber : LINK1000) Down : Active (Orange)
LED3	For Lan3 Up : LINK (Green : LINK100 ; Amber : LINK1000) Down : Active (Orange)
LED4	For Lan4 Up : LINK (Green : LINK100 ; Amber : LINK1000) Down : Active (Orange)
LED5	For Lan5 Up : LINK (Green : LINK100 ; Amber : LINK1000) Down : Active (Orange)
LED6	For Lan6 Up : LINK (Green : LINK100 ; Amber : LINK1000) Down : Active (Orange)
LED7	Up : Lan Bypass 1 LED Green (optional) Down : Lan Bypass2 LED 2 Green(optional)
LED8	Up : GPIO 1(Programmable LED) Down : GPIO 2 (Programmable LED)
LED9	Up : Power LED (Green) Down : HDD LED (Green)
LED10	Lan Bypass 1 LED Lan Bypass 2 LED Power LED HDD LED
	
LED11	Up : GPO1 (Programmable LED) Down : GPO2 (Programmable LED)



### 2.5.18 USB Port2~Port3 Connector (USB2)

The Universal Serial Bus (USB) connector on the board is for the installation of peripherals supporting the USB interface. **USB2** is a 10-pin standard onboard USB connectors.

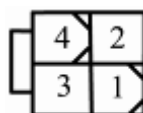
Pin	Signal
1	USB_POWER
2	USB_PN2
3	USB_PP2
4	GND
5	GND



### 2.5.19 Power Input 12V Connector (ATX2) for optional

This connector could be colay with CN12.

Pin	Signal
1	GND
2	GND
3	+12V
4	+12V



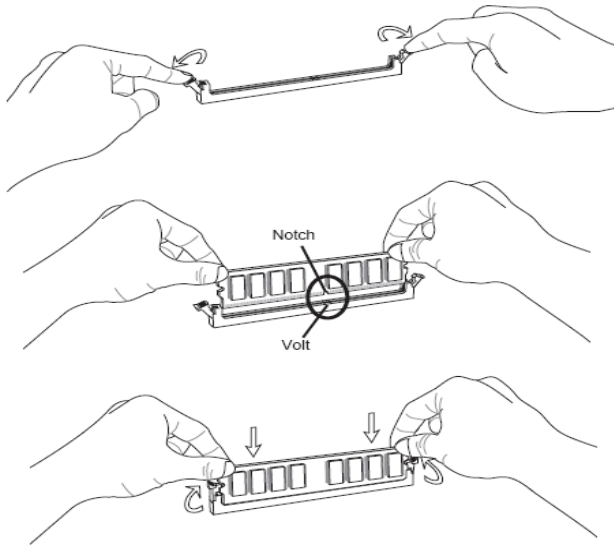
## 2.6 Hardware Installation

### 2.6.1 Installing the Memory

The board supports four 240-pin DDR3 DIMM memory sockets with maximum memory capacity up to 32GB.

Please follow steps below to install the memory modules:

1. Push down latches on each side of the DIMM socket.
2. Align the memory module with the socket that notches of memory module must match the socket keys for a correct installation.
3. Install the memory module into the socket and push it firmly down until it is fully seated. The socket latches are levered upwards and clipped on to the edges of the DIMM.
4. Install any remaining DIMM modules.



DIMM1 channelB DIMM1

DIMM2 channelB DIMM0

DIMM3 channelA DIMM1

DIMM4 channelA DIMM0

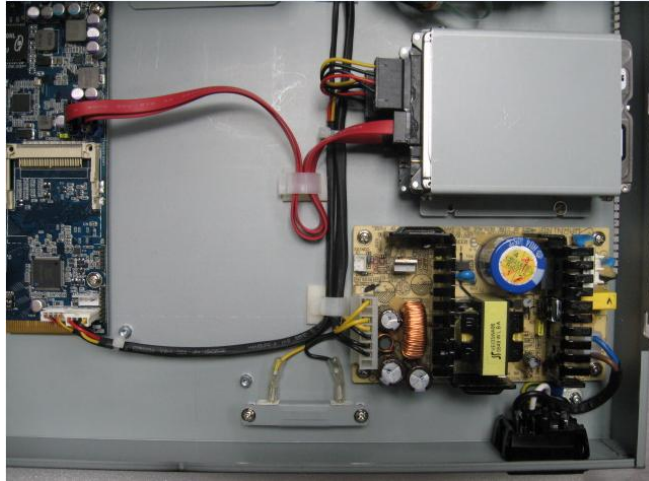


**NOTE:** if processor is dual core ,please install the memory from DIMM4(channel A DIMM0),if the processor is quad core or 8 core can support duanl channel from DIMM4(channel A DIMM0) and DIMM2(channel B DIMM0)

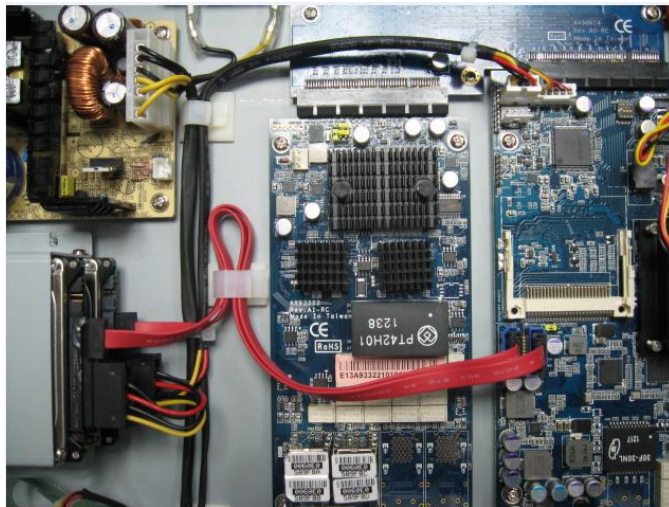
## 2.6.2 Installing the Hard Disks for NA361R

The system supports two 2.5" HDDs.

- ◆ Two 2.5" HDD (without LAN module)



- ◆ Two 2.5" HDD (with LAN module)



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## CHAPTER 3

# AMI BIOS SETUP UTILITY

This chapter provides users with detailed description how to set up basic system configuration through the AMIBIOS8 BIOS setup utility.

### 3.1 Starting

To enter the setup screens, follow the steps below:

1. Turn on the computer and press the <Del> key immediately.
2. After you press the <Delete> key, the main BIOS setup menu displays. You can access the other setup screens from the main BIOS setup menu, such as the Chipset and Power menus.

### 3.2 Navigation Keys

The BIOS setup/utility uses a key-based navigation system called hot keys. Most of the BIOS setup utility hot keys can be used at any time during the setup navigation process.

These keys include <F1>, <F10>, <Enter>, <ESC>, <Arrow> keys, and so on.

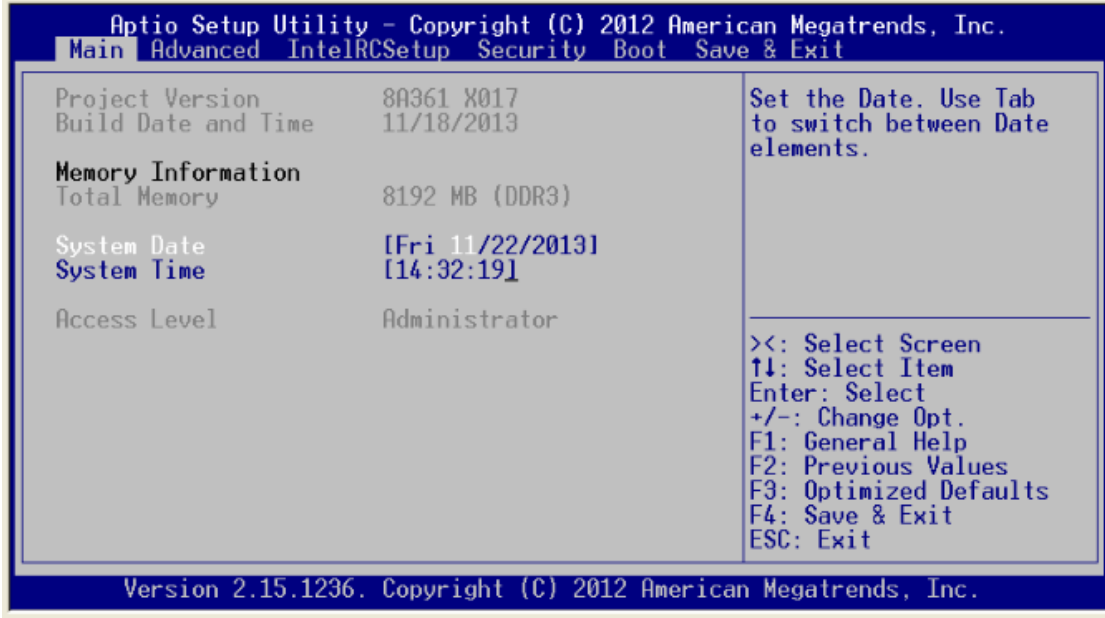


**NOTE:** Some of navigation keys differ from one screen to another.

<b>← Left/Right</b>	The Left and Right <Arrow> keys allow you to select a setup screen.
<b>↑↓ Up/Down</b>	The Up and Down <Arrow> keys allow you to select a setup screen or sub-screen.
<b>+– Plus/Minus</b>	The Plus and Minus <Arrow> keys allow you to change the field value of a particular setup item.
<b>Tab</b>	The <Tab> key allows you to select setup fields.
<b>F1</b>	The <F1> key allows you to display the General Help screen.
<b>F10</b>	The <F10> key allows you to save any changes you have made and exit Setup. Press the <F10> key to save your changes.
<b>Esc</b>	The <Esc> key allows you to discard any changes you have made and exit the Setup. Press the <Esc> key to exit the setup without saving your changes.
<b>Enter</b>	The <Enter> key allows you to display or change the setup option listed for a particular setup item. The <Enter> key can also allow you to display the setup sub- screens.

### 3.3 Main Menu

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



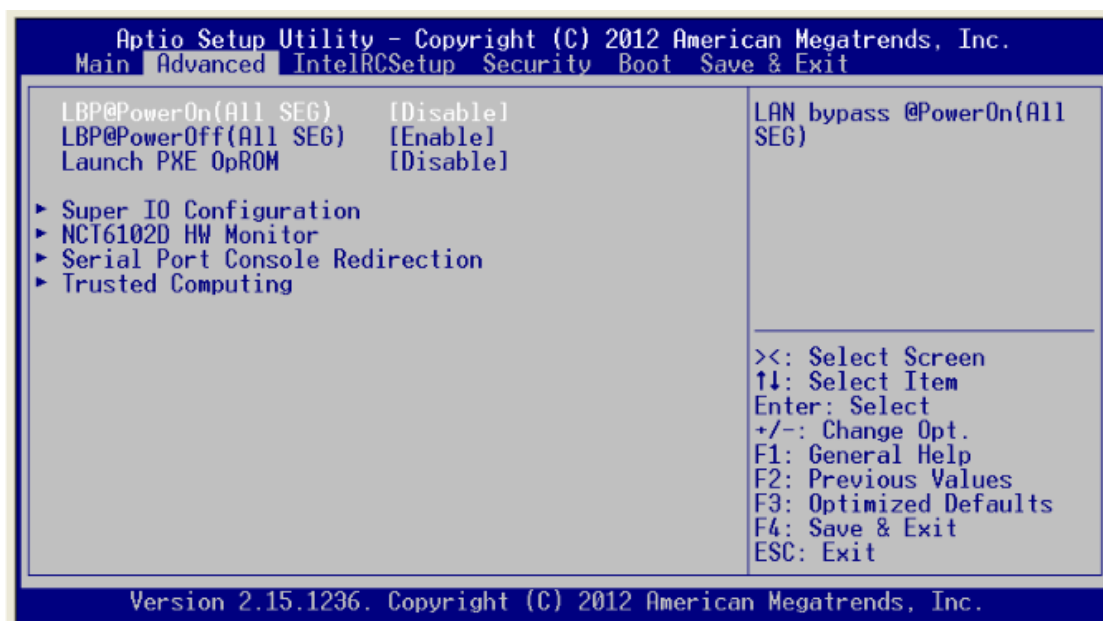
- System Time/Date**  
 Use this option to change the system time and date. Highlight *System Time* or *System Date* using the <Arrow> keys. Enter new values through the keyboard. Press the <Tab> key or the <Arrow> keys to move between fields. The date must be entered in MM/DD/YY format. The time is entered in HH:MM:SS format.

### 3.4 Advanced Menu

The Advanced menu allows users to set configuration of the CPU and other system devices. You can select any of the items in the left frame of the screen to go to the sub menus:

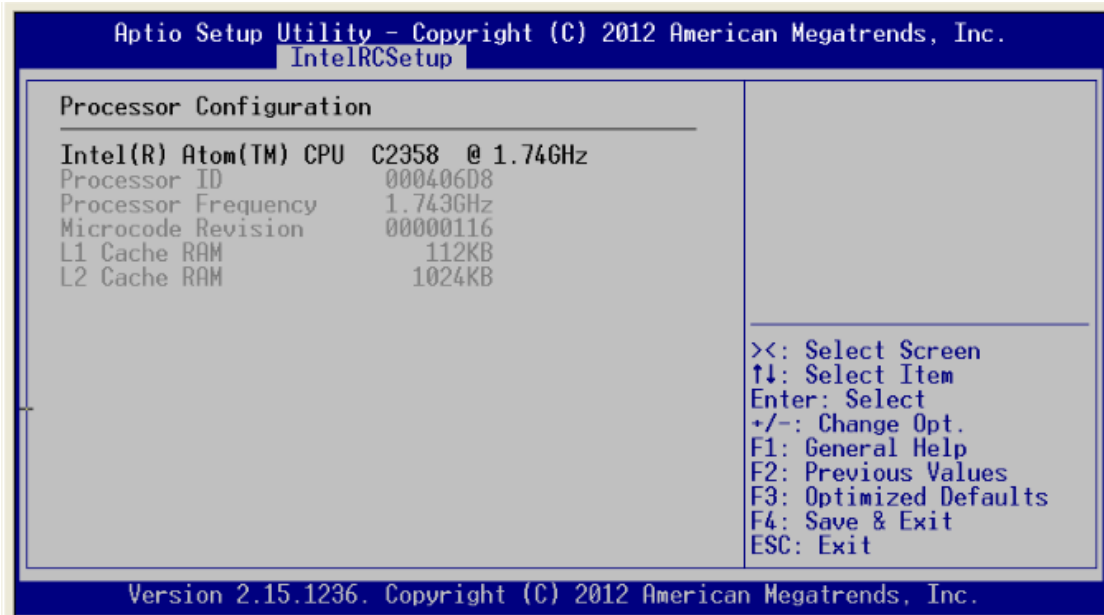
- ▶ CPU Configuration
- ▶ Super I/O Configuration
- ▶ NCT6102D HW Monitor
- ▶ Serial Port Console Redirection
- ▶ Trusted Computing
- ▶ Lanbypass Mode Configuration

For items marked with “▶”, please press <Enter> for more options.



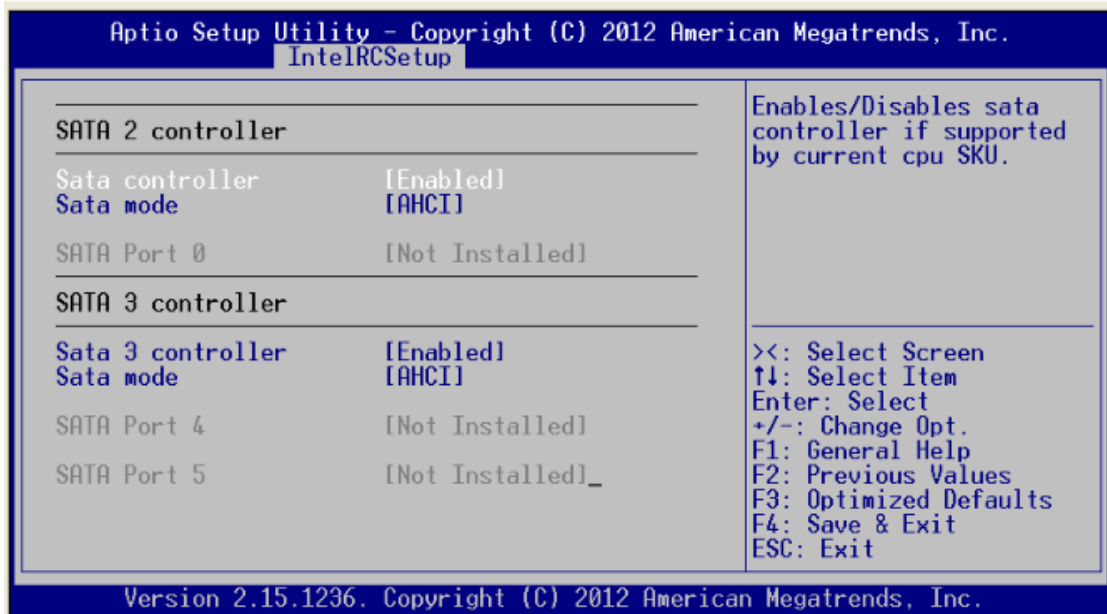
- **CPU Configuration**

This screen shows the CPU Configuration, and you can change the value of the selected option.



- **South Bridge Configuration**

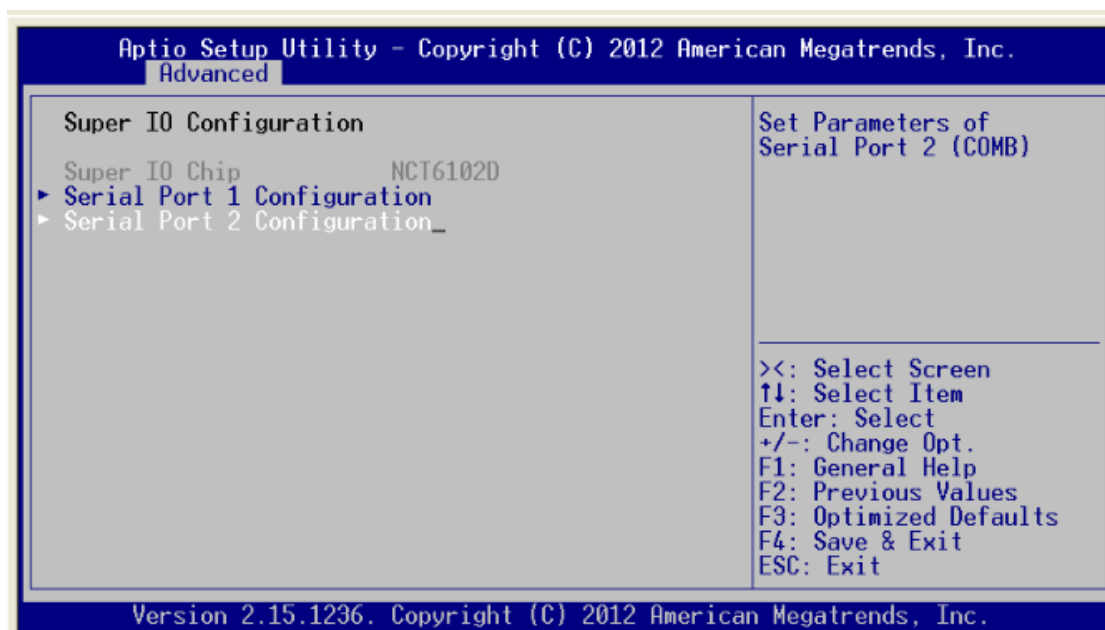
You can use this screen to select options for the south bridge Configuration, and change the value of the selected option. A description of the selected item appears on the right side of the screen. For items marked with “▶”, please press <Enter> for more options.





- **Super IO Configuration**

You can use this screen to select options for the Super IO Configuration, and change the value of the selected option. A description of the selected item appears on the right side of the screen.



- **Serial Port1 Address**

This option specifies the base I/O port address and Default setting is 3F8.

Here are the options for your selection, Disabled.

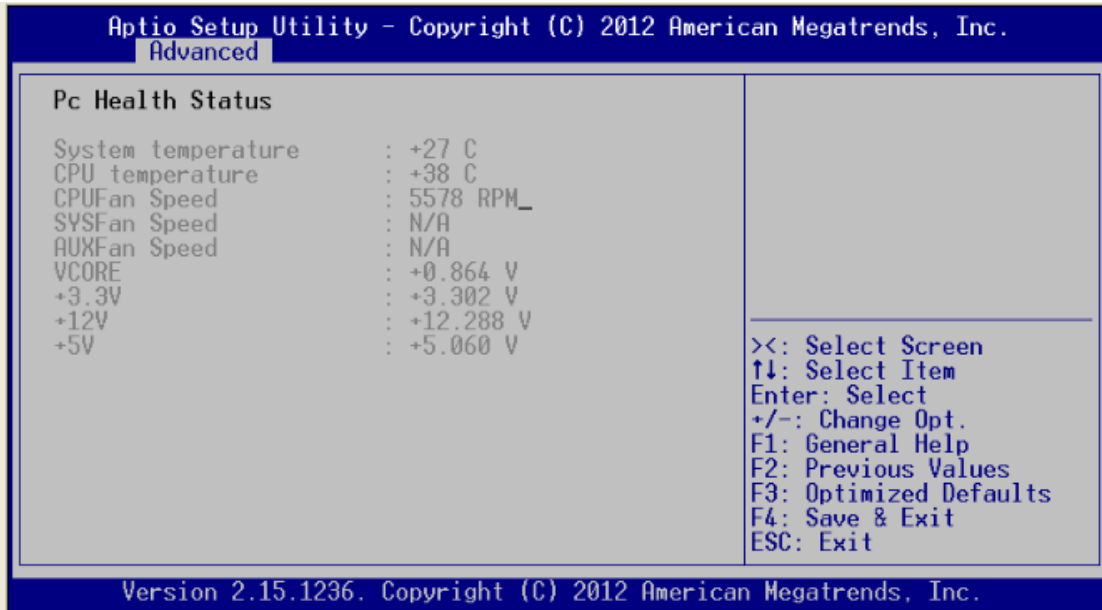
- **Serial Port2 Address**

This option specifies the base I/O port address and Default setting is 2F8.

Here are the options for your selection, Disabled.

- **Hardware Health Configuration**

This screen shows the Hardware Health Configuration, and a description of the selected item appears on the right side of the screen



- **System Temperature**

Show you the current system temperature.

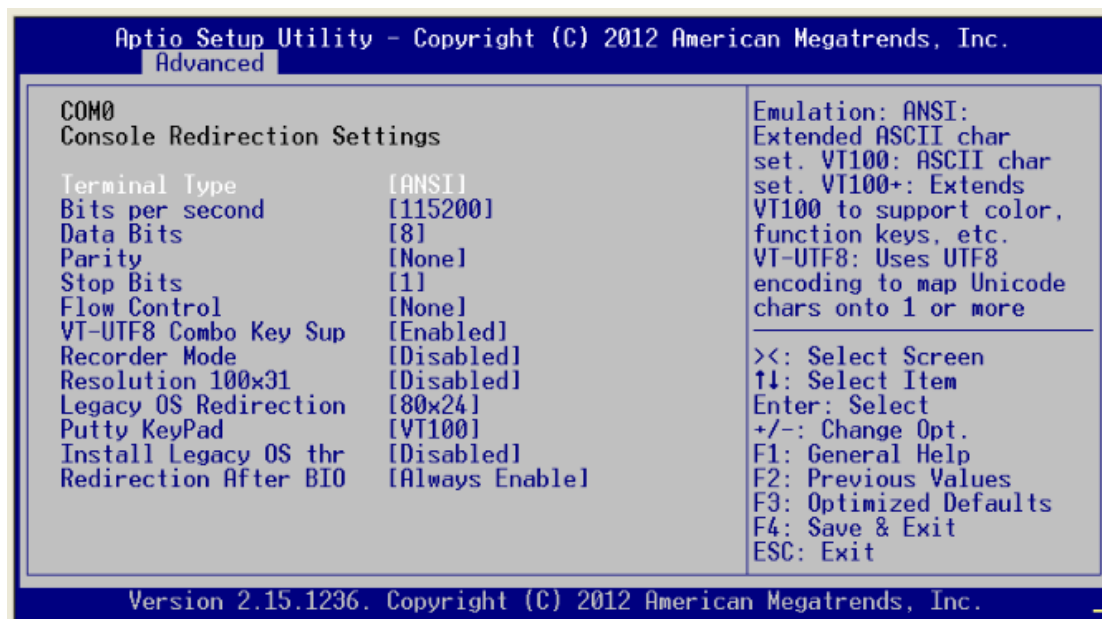
- **CPU Temperature**

These read-only fields show the functions of the hardware thermal sensor by CPU thermal diode that monitors the chip blocks to ensure a stable system.

- **Vcore 12V / 5V / 3.3V**

Show you the voltage of 12V / 5V / 3.3V and etc.

- Serial Port Console Redirection



- **Terminal Type**

This item allows you to select the target terminal type. Configuration options: ANSI, VT100 and VT-UTF8.

- **Bits per second**

This item allows you to setup the data transfer rate for the console port. The default value is 115200. Available options are "9600", "19200", "38400", "57600" and "115200".

- **Flow Control**

This item allows you to select flow control for console redirection. The configuration options: None, Hardware and Software.

- **VT-UTF8 Combo Key Support**

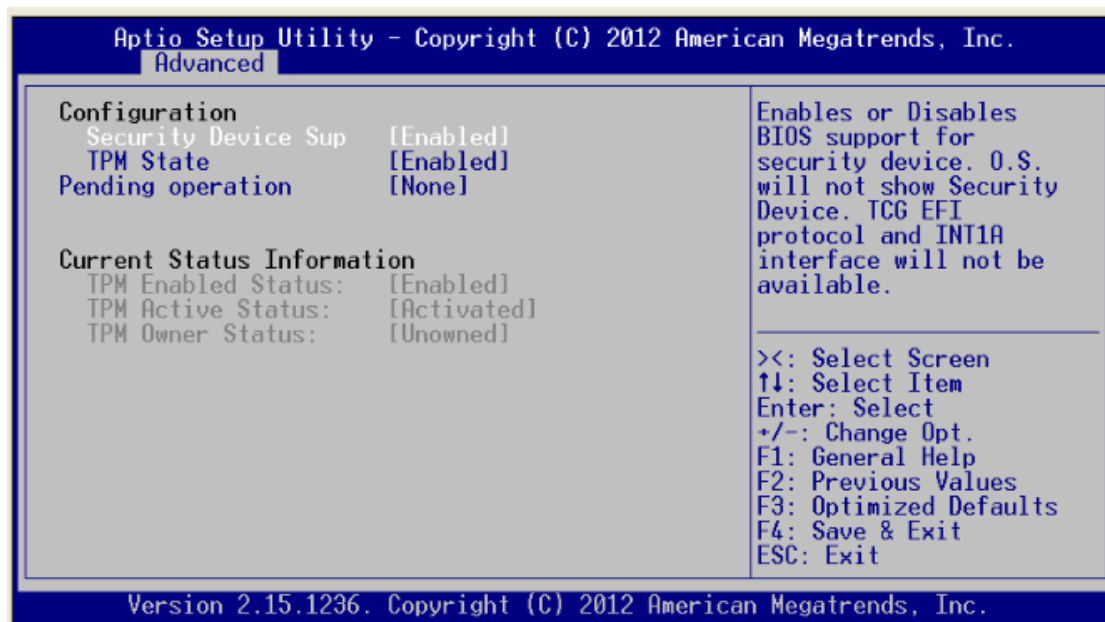
Use this item to "Enabled" or "Disabled" VT-UTF8 combination key supports for ANSI / VT100 terminals.

- **Redirection After BIOS POST**

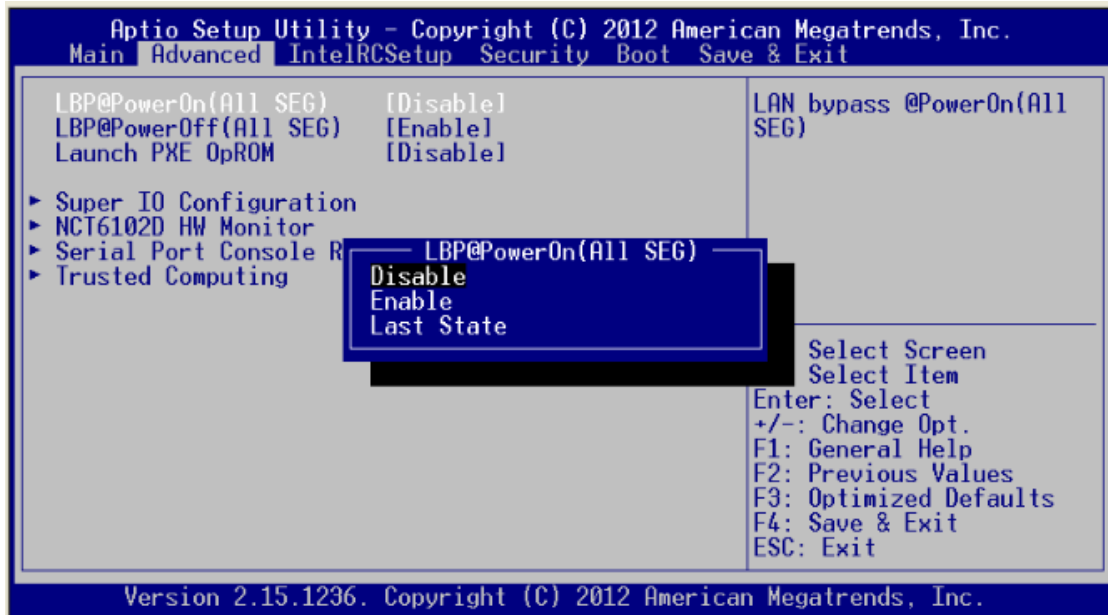
Use this item to enable or disable the function of Console Redirection, which allows you maintain a system from a remote location. The default setting is *Always*.

- **Trusted Computing**

This screen provides function for specifying the TPM settings.



- Lanbypass Mode Configuration

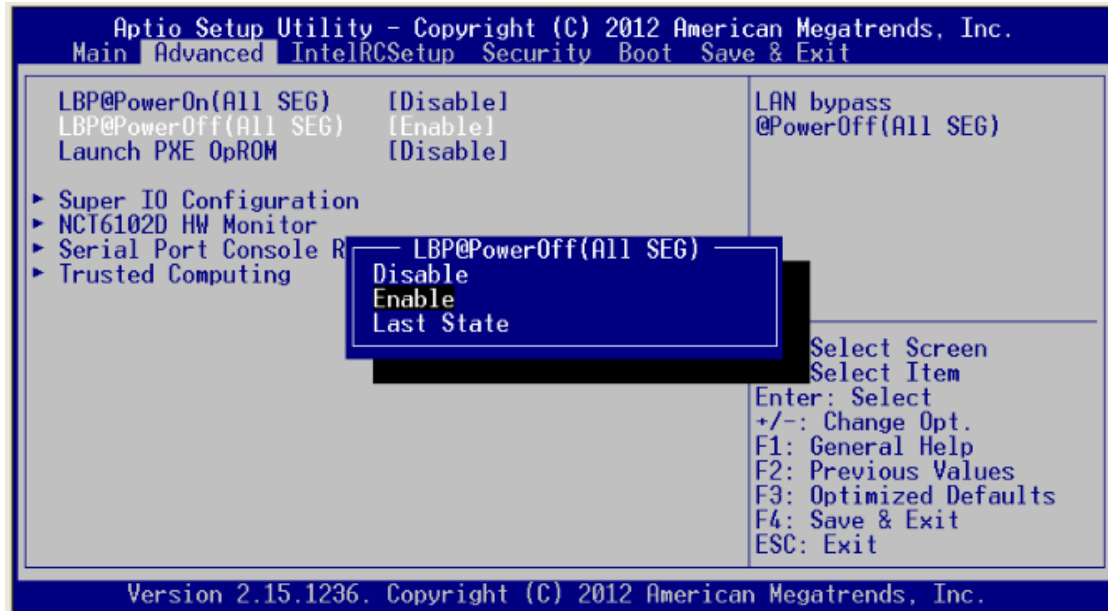


- Lan bypass Mode @power On

Use this item to select lanbypass to “disabled” or “enabled” or Keep “Last State”

- Lanbypass Mode @power OFF

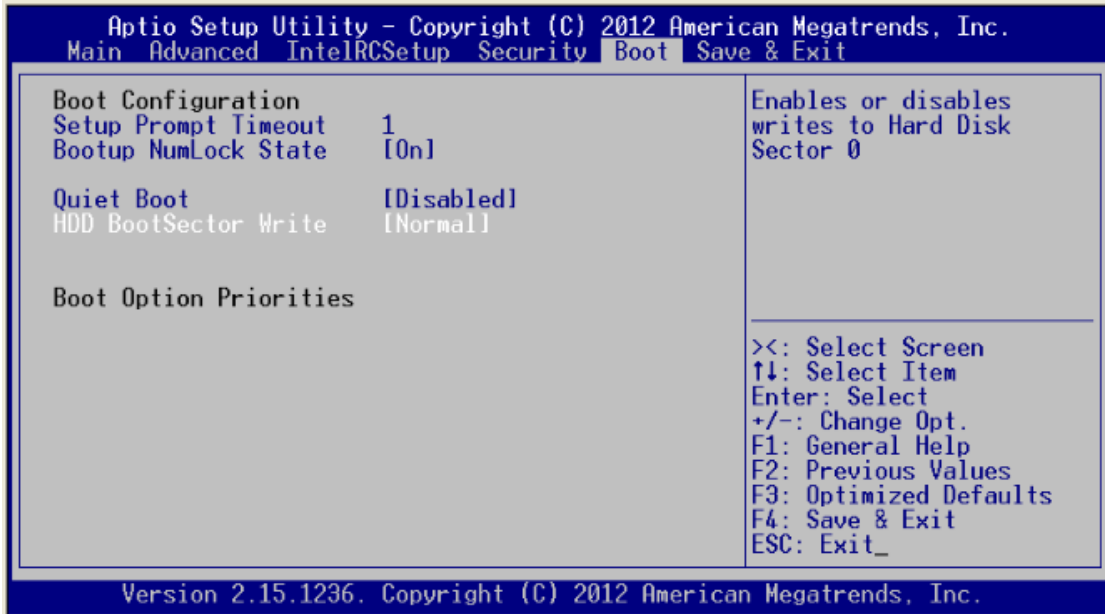
Use this item to select lanbypass to “disabled” or “enabled” or keep “last state.”



### 3.5 Boot Menu

The Boot menu allows users to change boot options of the system. You can select any of the items in the left frame of the screen to go to the sub menus:

For items marked with “▶”, please press <Enter> for more options.



➤ **Boot Num-Lock**

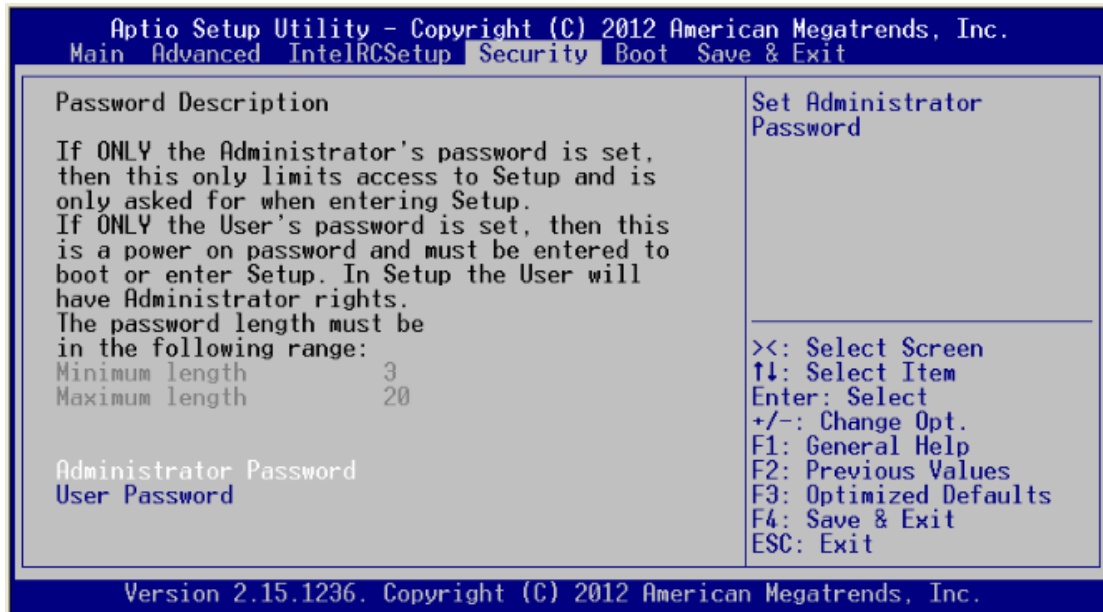
Use this item to select the power-on state for the NumLock. The default setting is *On*.

➤ **Quiet Boot**

Enable or disable quiet boot option.

### 3.6 Security Menu

The Security menu allows users to change the security settings for the system.



➤ **Administrator Password**

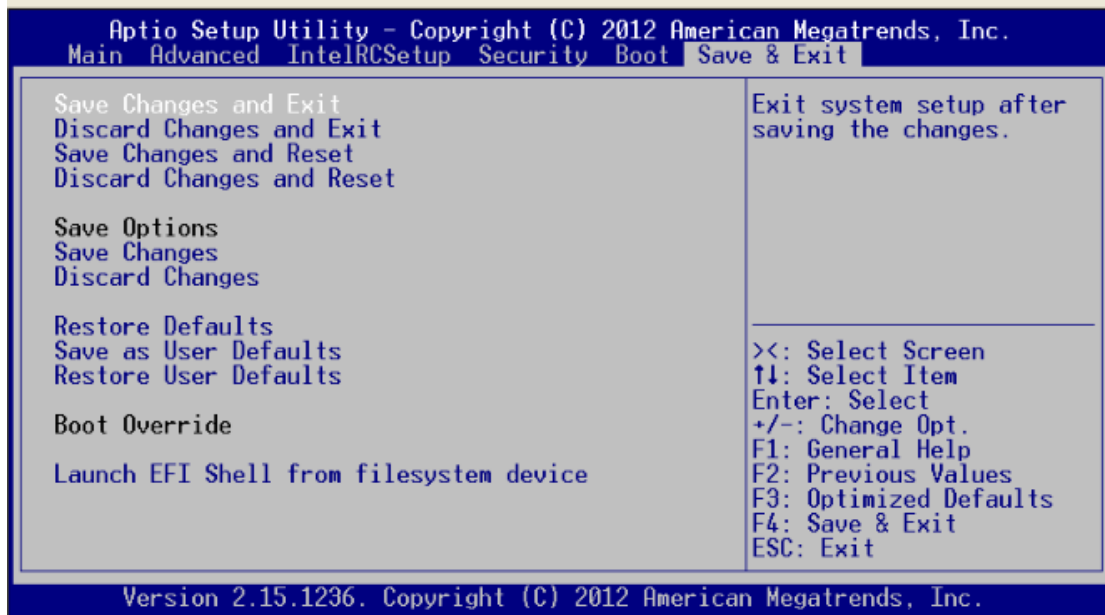
This item indicates whether an administrator password has been set (installed or uninstalled).

➤ **User Password**

This item indicates whether any user password has been set (installed or uninstalled).

### 3.7 Exit Menu

The Exit menu allows users to load your system configuration with optimal or failsafe default values.



➤ **Save Changes and Exit**

When you have completed the system configuration changes, select this option to leave Setup and reboot the computer so the new system configuration parameters can take effect. Select *Save Changes and Exit* from the Exit menu and press <Enter>. Select Ok to save changes and exit.

➤ **Discard Changes and Exit**

Select this option to quit Setup without making any permanent changes to the system configuration. Select *Discard Changes and Exit* from the Exit menu and press <Enter>. Select Ok to discard changes and exit.

➤ **Discard Changes**

Use this item to abandon all changes.

➤ **Load Optimal Defaults**

It automatically sets all Setup options to a complete set of default settings when you select this option. The Optimal settings are designed for maximum system performance, but may not work best for all computer applications. In particular, do not use the Optimal Setup options if your computer is experiencing system configuration problems. Select Load Optimal Defaults from the Exit menu and press <Enter>.

➤ **Load Fail-Safe Defaults**

It automatically sets all Setup options to a complete set of default settings when you select this option. The Fail-Safe settings are designed for maximum system stability, but not maximum performance. Select the Fail-Safe Setup options if your computer is experiencing system configuration problems. Select Load Fail-Safe Defaults from the Exit menu and press <Enter>. Select Ok to load Fail-Safe defaults.



## Appendix A LAN Bypass Configuration

### About LAN Bypass

In network security application, it is very important to ensure that network traffic to continue passing through the device even if hardware failure occurs or operating system crashes. LAN bypass gives us a solution for this problem.

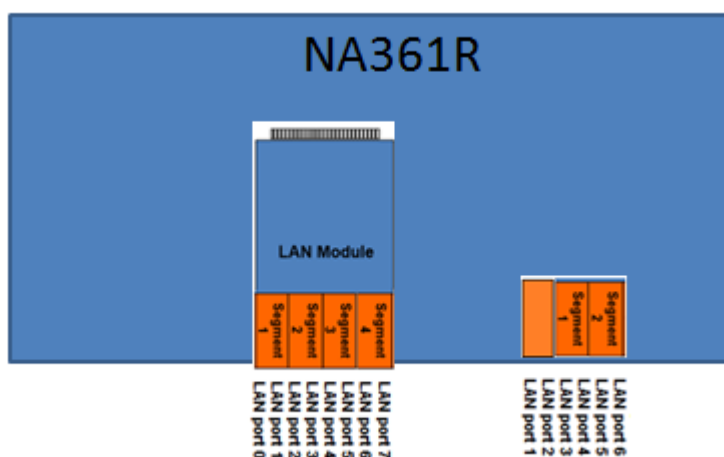
The NA361 series LAN bypass function is very flexible. It can be selected at any time and any stage. You can enable LAN bypass for power on state by jumper, BIOS, or by software program when entering into the OS.

Moreover, for power off state, you can set up LAN Bypass through BIOS, or use software program when entering into the OS. If you don't do any change, the state will keep the previous power off state.

The NA361 series have LAN bypass capability with the special designed latch relay circuitry. When LAN bypass function is enabled, a relay closes to act as a bridge to route network data flow between LAN port 3- LAN6. The bypass feature can be activated immediately or according to timer which is configurable from 1 up to 64 seconds. You can write a software program to control bypass operation behavior to fit your requirement.



**NOTE:** If you need sample codes please contact our FAE directly, and they are for reference purposes only.



LAN Bypass Register Configuration

- **Power ON Bypass Control Register**

Address:

On board	Lan module
0x8E0	0x8E4

7	6	5	4	3	2	1	0
BYM1	BYM0	X	X	SEGN4	SEGN3	SEGN2	SEGN1
W	W	--	--	W	W	W	W

Default value: 00000000

Bit 7~6 BYM1~0


These bits are used to set bypass mode.

- 00 Not used.
- 01 Force bypass enable  
Relay closes immediately to form LAN bypass on selected segment when power on.
- 10 Force bypass disable  
LAN bypass is disabled immediately on selected segment when power on.
- 11 Timer enable  
When power on, the selected segments are controlled by the setting of LAN bypass Timer Control register.

Bit 5~4 Not used.

Bits 3~0 SEGN4~1

Select each segment by setting the corresponding bit to 1. When the bit is set to 0, no action happens upon the segment.

 **NOTE:** NA361 onboard LAN bypass function support SEGN1&2 for LAN3& LAN4, LAN5&LAN6)

Data read back from this register is not defined and therefore must be ignored. Reading from this register makes no effect on LAN bypass function. All data in this register will be cleared when system is turned off. If you still want to use power on LAN bypass function, turn on the system and make sure to rewrite the register. Otherwise, if you don't rewrite the register, the status will be kept on power off bypass state.

- **Power OFF Bypass Control Register**

Address:

On board	Lan module
0x8E1	0x8E5

7	6	5	4	3	2	1	0
X	X	X	X	SEGF4	SEGF3	SEGF2	SEGF1
--	--	--	--	W	W	W	W

Default value: 00000000

Bit 7~4 Not used.

Bits3~0 SEGF4~1

Use the corresponding bit to configure each segment. Setting the bit to 1 enables LAN bypass on the segment when power off. Clearing the bit to 0 disables LAN bypass on the segment when power off.



**NOTE:** NA361 onboard LAN bypass function support SEGF1&2 for LAN3& LAN4, LAN5&LAN6)

Data read back from this register is not defined and therefore must be ignored. Reading from this register makes no effect on LAN bypass function. When system is turned off, last data written onto this register will be kept. If you want to make any change, turn on the system and make sure to reconfigure the register.

- **LAN Bypass Timer Control Register**

Address:

<b>On board</b>	<b>Lan module</b>
<b>0x8E2</b>	<b>0x8E6</b>

7	6	5	4	3	2	1	0
<b>TEXP</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>TVAL2</b>	<b>TVAL1</b>	<b>TVAL0</b>
R	--	--	--	--	W	W	W

Default value: 00000000

Bit 7      TEXP (Read Only)

This bit indicates status of hardware timer.

- 0          Timer has not expired
- 1          Timer has expired

Bits 6~3 Not used.

Bits 2~0 TVAL2~0

These bits determine the amount of count value in second(s).

- 001      1 (sec)
- 010      2 (sec)
- 011      4 (sec)
- 100      8 (sec)
- 101      16 (sec)
- 110      32 (sec)
- 111      64 (sec)
- 000      Timer is not activated.

Writing a value to these bits will reset the hardware timer. The counting process begins again according to the new written value. Software must write count value periodically to ensure that timer will never expire. If timer timeout occurs, relay(s) automatically close to form LAN bypass on selected segment(s) based on the setting of Power On Bypass Control register (SEGN4~SEGN1).



**NOTE: NA361 onboard LAN bypass function support SEGN1&2 for LAN3& LAN4, LAN5&LAN6)**

Data (bits 6~0) read back from this register is not defined and therefore must be ignored. A read operation upon this register should not refresh the hardware timer.

- **LAN Bypass Status / Firmware Version Register**

Address:

On board	Lan module
0x8E3	0x8E7

7	6	5	4	3	2	1	0
VER3	VER2	VER1	VER0	BY4	BY3	BY2	BY1
R	R	R	R	R	R	R	R

Bit3~0 Lan Bypass Seg.1 status → Disable=0; Enable=1

Bit 7~4 Firmware version

Without Lan bypass function=1111



**NOTE: NA361 onboard LAN bypass function support BY1&BY2 for LAN3& LAN4, LAN5&LAN6)**

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## Appendix B WDT Timer for System Reset

WDT (Watchdog Timer)

The hardware supports the WDT (Watchdog Timer) function. While time-out happens after a defaulted period, the WDT will reset the system.



***NOTE: If you need sample codes please contact our FAE directly, and they are for reference purposes only.***

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## Appendix C LAN Module Expansion

You can install LAN module(s) into NA361R front-accessible expansion slots to meet your application requirement. Here are some LAN module configurations for your selection:

### 8-port LAN Module

	LAN Chipset/Qty	Number of Ports	LAN Bypass Pairs (Latch Relay)	Copper/Fiber (SFP)
AX93316-8GI	Intel® 82580EB/4	8	0	8/0
AX93322-8FI	Intel® 82580EB/4	8	0	0/8
AX93322-8MIL	Intel® 82580EB/4	8	2	4/4
AX93316-8GIL	Intel® 82580EB/4	8	4	8/0

**AX93316-8GIL**



**AX93322-8FI**



**AX93322-8MIL**



### 2-port 10G LAN Module

	LAN Chipset	Number of Ports	LAN Bypass Pairs (Latch Relay)	Copper/Fiber (SFP)
AX93307	Intel® 82599ES	2	1	0/2
AX93317	Intel® x540	2	1	2/0

**AX93307-2TI**



**AX93307-2TIL**





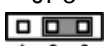
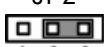


**AX93317-2TIL**



## LAN Bypass Control Jumper (JP2/JP3)

Use this jumper to select the LAN Bypass Function.

Description	Function	Jumper Setting
LAN Bypass Trigger when Power On	All SEG. Bypass as same as Power Off status	JP3  1 2 3 JP2  1 2 3
	All SEG Bypass Disable(Default)	JP3  1 2 3 JP2  1 2 3
	All SEG Bypass Enable	JP3  1 2 3 JP2  1 2 3



**NOTE:** When the system is turned on, you can select LAN bypass function by Jumper and Bios when power on state, when enter the OS, you can select LAN pass function at power on/ off state by software ,the detail information please refer to the appendix A.

## LED Definition

### AX93316/AX93326



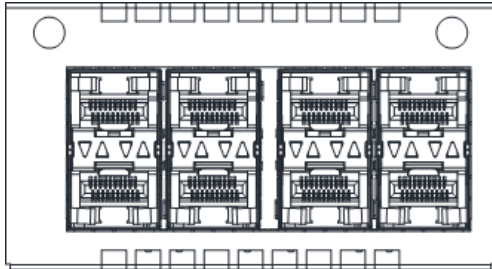
### LAN bypass LED

- **LAN bypass LED**
  - While running the LAN By-Pass function, the LED always lights up.
- **Active LED (Single color) for LAN port #1, port#2, port#3, port#4, port #5, port#6, port#7, port#8**
  - The orange LED is on when the LAN port connection is working.
  - The LED flashes when transmitting or receiving any signals to or from the appliance.
  - The LED is dark when the appliance is off.
- **Link LED for LAN port #1, port#2, port#3, port#4, port#5 and port#6, port#7, port#8**
  - The double-color LED light indicates 10/100/1000Mbps transfer rate.
  - When the orange-color LED light is radiating, it should be 1000Mbps transfer rate.
  - When the green-color LED light is radiating, it should be 100Mbps transfer rate.
  - If the Link LED is dark and Active LED is light on or flashing, it should be 10Mbps transfer rate.

When this LED and Link/Active LED both are dark. No networking devices are attached

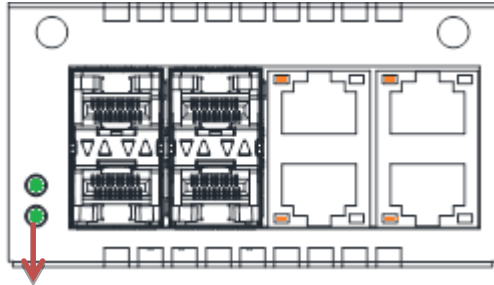
Transfer Rate	LED Light Color
10Mbps	Dark
100Mbps	Green
1000Mbps	Orange

**AX93322-8FI**



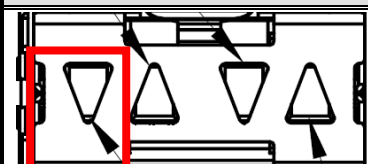
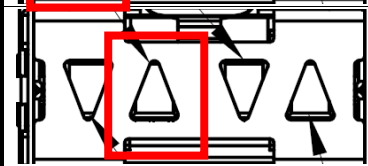
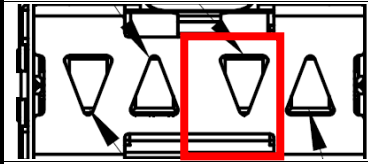
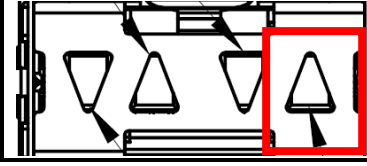
Transfer Rate	LED Light Color
	Down Fiber port Active: Orange
	Up Fiber port Active: Orange
	Down Fiber port Link: Orange
	Up Fiber port Link: Orange

AX93322-8MIL



**LAN bypass LED**

**FIBER:**

Transfer Rate	LED Light Color
	Down Fiber port Active: Orange
	Up Fiber port Active: Orange
	Down Fiber port Link: Orange
	Up Fiber port Link: Orange

**Copper:**

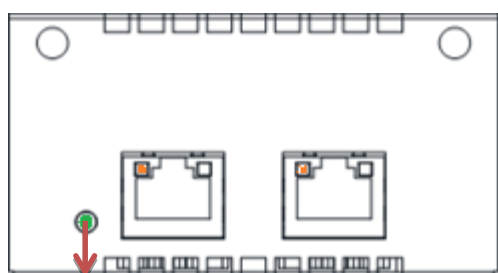
- **LAN bypass LED**
  - While running the LAN By-Pass function, the LED always lights up.
- **Active LED (Single color) for LAN port #1, port#2, port#3, port#4**
  - The orange LED is on when the LAN port connection is working.
  - The LED flashes when transmitting or receiving any signals to or from the appliance.
  - The LED is dark when the appliance is off.

- **Link LED for LAN port #1, port#2, port#3, port#4**
  - The double-color LED light indicates 10/100/1000Mbps transfer rate.
  - When the orange-color LED light is radiating, it should be 1000Mbps transfer rate.
  - When the green-color LED light is radiating, it should be 100Mbps transfer rate.
  - If the Link LED is dark and Active LED is light on or flashing, it should be 10Mbps transfer rate.

When this LED and Link/Active LED both are dark. No networking devices are attached

Transfer Rate	LED Light Color
10Mbps	Dark
100Mbps	Green
1000Mbps	Orange

### AX93317



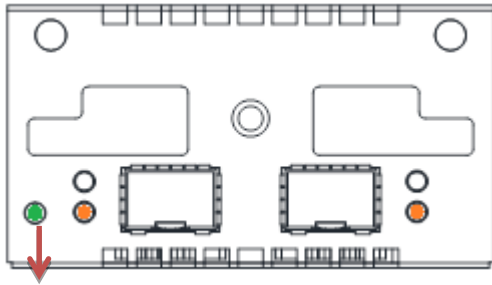
### LAN bypass LED

- **LAN bypass LED**
  - While running the LAN By-Pass function, the LED always lights up.
- **Active LED (Single color)for for LAN port #1, port#2**
  - The orange LED is on when the LAN port connection is working.
  - The LED flashes when transmitting or receiving any signals to or from the appliance.
  - The LED is dark when the appliance is off.
- **Link LED for LAN port #1, port#2**
  - The double-color LED light indicates 1000/10000Mbps transfer rate.
  - When the orange-color LED light is radiating, it should be 10000Mbps transfer rate.
  - When the green-color LED light is radiating, it should be 1000Mbps transfer rate.

When this LED and Link/Active LED both are dark. No networking devices are attached

Transfer Rate	LED Light Color
1000Mbps	Green
10000Mbps	Orange

**AX93307**



**LAN bypass LED**

- **LAN bypass LED**
  - While running the LAN By-Pass function, the LED always lights up.
- **Active LED (Single color)for for LAN port #1, port#2**
  - The orange LED is on when the LAN port connection is working.
  - The LED flashes when transmitting or receiving any signals to or from the appliance.
  - The LED is dark when the appliance is off.
- **Link LED for LAN port #1, port#2**
  - The double-color LED light indicates 1000/10000Mbps transfer rate.
  - When the orange-color LED light is radiating, it should be 10000Mbps transfer rate.
  - When the green-color LED light is radiating, it should be 1000Mbps transfer rate.

When this LED and Link/Active LED both are dark. No networking devices are attached

Transfer Rate	LED Light Color
1000Mbps	Green
10000Mbps	Orange



## Appendix D Warning

- 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.

- It will be danger if battery is incorrectly replaced. Replacing only with the same or equivalent type is highly recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

- **Warning for Hard Disk Drive Selection:**  
TUV approved Hard Disk Drive is preferred for TUV compliance Hard Disk drive-Optional, (NWGQ2), generic, Input Voltage rated 5V DC/1.0A, 12V DC/1.8A maximum. Minimum clearance from uninsulated live parts 4.0 mm.

- The equipment is to be installed in an environment with maximum ambient temperature must not exceed 40°C
- The openings on the enclosure are for air convection hence protected the equipment from overheating. DO NOT COVER THE OPENINGS.
- Lay this equipment on a reliable surface when install. A drop or fall could cause injury.
- The equipment shall be installed according to specification as nameplate. Make sure the voltage of the power source when connect the equipment to the power outlet.
- The current of load and output power of loads shall be not over the specification.
- This equipment must be connected to the reliable earthing before using.



**Electric shock hazard inside the redundant power supply.**

The exchange of modules shall be done by service person.

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