ACP-1073

7" WSVGA Ultra-slim
Fanless Multi-Touch Panel PC
Intel® Atom™ N2600 Processor
RS-232, RS-232/422/485
USB2.0, Mini HDMI

ACP-1073 Manual 5th Ed
December 8, 2014

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Packing List

Before you begin installing your Panel PC, please make sure that the following items have been shipped:

- ACP-1073 Fanless Multi-Touch Panel PC
- RJ-48 Type COM Port Cable x 3
- Power Adapter x 1
- Product DVD

  Contains User's Manual (in PDF format), Drivers and Utilities

If any of these items are missing or damaged, you should contact your distributor or sales representative immediately.

Safety & Warranty

1. Read these safety instructions carefully.
2. Keep this user's manual for later reference.
3. Disconnect this equipment from any AC outlet before cleaning. Do not use liquid or spray detergents for cleaning. Use a damp cloth.
4. For pluggable equipment, the power outlet must be installed near the equipment and must be easily accessible.
5. Keep this equipment away from humidity.
6. Put this equipment on a reliable surface during installation. Dropping it or letting it fall could cause damage.
7. The openings on the enclosure are for air convection. Protect the equipment from overheating. DO NOT COVER THE OPENINGS.
8. **Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.**
9. Position the power cord so that people cannot step on it. Do not place anything over the power cord.
10. All cautions and warnings on the equipment should be noted.
11. If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient over-voltage.
12. Never pour any liquid into an opening. This could cause fire or electrical shock.
13. Never open the equipment. For safety reasons, only qualified service personnel should open the equipment.

14. If any of the following situations arises, get the equipment checked by service personnel:

a. The power cord or plug is damaged.

b. Liquid has penetrated into the equipment.

c. The equipment has been exposed to moisture.

d. The equipment does not work well, or you cannot get it to work according to the user's manual.

e. The equipment has been dropped and damaged.

f. The equipment has obvious signs of breakage.

15. DO NOT LEAVE THIS EQUIPMENT IN AN UNCONTROLLED ENVIRONMENT WHERE THE STORAGE TEMPERATURE IS BELOW -20° C (-4°F) OR ABOVE 70° C (158° F). IT MAY DAMAGE THE EQUIPMENT.

16. External equipment intended for connection to signal input/output or other connectors, shall comply with relevant UL / IEC standard (e.g. UL 1950 for IT equipment and UL 60601-1 / IEC 60601 series for systems – shall comply with the standard IEC 60601-1-1, Safety requirements for medical electrical systems. Equipment not complying with UL 60601-1 shall be kept outside the patient environment, as defined in the standard.

17. When the temperature of CPU is higher than 35°C, the frequency of CPU will be adjusted automatically. For example, if the temperature of Intel Core i7 is 40°C, the frequency of the CPU will be between 1.8~1.3 GHz.

18. As most electronic components are sensitive to static electrical charge, be sure to ground yourself to prevent static charge when installing the internal components. Use a grounding wrist strap

and contain all electronic components in any static-shielded devices.

Caution:

It may cause the danger of explosion if battery is incorrectly replaced. Replace only with same or equivalent type recommended by the manufacturer.

Classification

1. Degree of production against electric shock: not classified
2. Degree of protection against the ingress of water: IPX1
3. Equipment not suitable for use in the presence of a flammable anesthetic mixture with air or with oxygen or nitrous oxide.
4. Mode of operation: Continuous
5. Type of protection against electric shock: Class I equipment

FCC

This device complies with Part 15 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.

Safety Symbol Description

The following safety symbols are further explanations for your reference.

	*Attention, consult ACCOMPANYING DOCUMENTS.*
	*Ground wire* *Protective Ground wire.*

China RoHS Requirements
产品中有毒有害物质或元素名称及含量

AAEON Panel PC/ Workstation

部件名称	有毒有害物质或元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
印刷电路板及其电子组件	×	○	○	○	○	○
外部信号连接器及线材	×	○	○	○	○	○
外壳	×	○	○	○	○	○
中央处理器与内存	×	○	○	○	○	○
硬盘	×	○	○	○	○	○
液晶模块	×	○	○	○	○	○
光驱	×	○	○	○	○	○
触控模块	×	○	○	○	○	○
电源	×	○	○	○	○	○

O：表示该有毒有害物质在该部件所有均质材料中的含量均在 **SJ/T 11363-2006** 标准规定的限量要求以下。

X：表示该有毒有害物质至少在该部件的某一均质材料中的含量超出 **SJ/T 11363-2006** 标准规定的限量要求。

备注：
一、此产品所标示之环保使用期限，系指在一般正常使用状况下。
二、上述部件物质中央处理器、内存、硬盘、光驱、触控模块为选购品。

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Chapter

1

General Information

1.1 Introduction

The ACP-1073 is a Multi-Touch Industrial Panel PC with onboard Intel® Atom™ N2600 processor-based computer. It is a PC-based system with 7" true color TFT LCD display, integrated multimedia functions make them the perfect platforms to build comprehensive lifestyle computing applications.

The ACP-1073 includes all the features of a powerful computer into a slim and attractive mechanism design. The ACP-1073 adopts 250 nits TFT display with 1024 x 600 resolution. This model supports two-point Multi-Touch function (Window 7 : Two finger, Win XP : Single finger, Window embedded version : Single Finger.) and full flat design is easy to clean. Moreover, its front bezel is IP65/NEMA4 for auxiliary water-proof protection. In addition, the ACP-1073 deploys 7H hardness Anti-Scratch Surface to avoid accidental damage.

The ACP-1073 supports one mSATA Hard Disk Drive for the storage function, and has optional wireless function with WiFi module by USB interface. Moreover, this model has one RS-232 and two RS-232/422/485 RJ-48 connectors, four USB2.0 ports, and one Mini HDMI. It is ideal for versatile applications.

1.2 Features

- 7” WSVGA (1024 x 600) TFT LCD Display
- Aluminum Design
- 7H Two-point Multi-Touch Display
- Intel® Atom™ N2600 Processor
- Fanless System
- VESA75 / Stand

1.3 Specification

System

●	Processor	Onboard Intel® Atom™ N2600 Processor
●	System Memory	DDR3 SODIMM x 1, Max. 2 GB (Default is 2G RAM)
●	LCD / CRT Controller	Integrated graphics in Intel® NM10
●	I/O Port	RS-232 x 1 (RJ-48 connector) RS-232/422/485 x 2 (RJ-48 connector) LAN x 1 (RJ-45 connector) USB2.0 x 4 Mini HDMI x 1 Power button x 1 Lockable power connector x 1
●	Storage Disk Drive	Half-size mSATA Hard Disk Drive bay x 1
●	Expansion	WiFi module by USB interface x 1
●	OS Support	Windows® XP 32-bit, Windows®7 32-bit, Linux Kernal 2.6.3 or higher

Note : Suggest to use AAEON Pre-installed SSD storage.

Mechanical

●	Construction	IP-65/ NEMA4 for front bezel
●	Mounting	VESA 75
●	Dimension	7.96”(W) x 5.28”(H) x 1.46”(D) (202.19mm x 134.18mm x 37.2mm)

- Carton Dimension 13.58” x 7.87” x 9.65’’ (345mm x 200mm x 245mm)
- Net Weight 2.42 lb (1.1 kg)
- Gross Weight 5.5 lb (2.5 kg)

Environmental

- Operating Temperature $32^{o}F$~$113^{o}F$ ($0^{o}C$~$45^{o}C$) without airflow
  $32^{o}F$~$122^{o}F$ ($0^{o}C$~$50^{o}C$) with airflow
- Storage Temperature $-4^{o}F$~$158^{o}F$ ($-20^{o}C$~$70^{o}C$)
- Storage Humidity 95% @ $40^{o}C$, non-condensing
- Vibration 1 g rms/ 5-500Hz/ Random Operation (HDD)
- Shock 15G peak acceleration (11 msec. duration) (HDD)
- EMC CE/FCC Class A

Power Supply

- DC Input DC 12V, with AC power adapter with lock

LCD

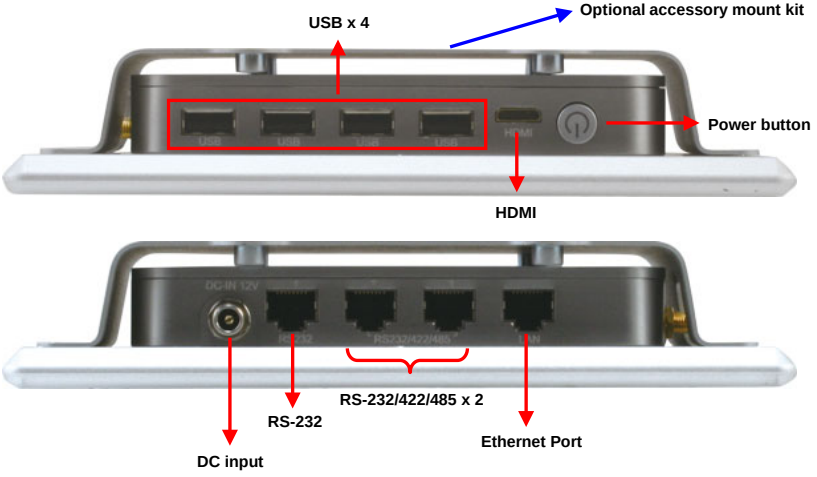
- Display Type 7” TFT-LCD, LED
- Max. Resolution 1024 x 600
- Max. Colors 26 M colors (6/8-bit for R, G, B)
- Luminance (cd/m^2) 250 cd/m^2
- Contrast Ratio 700:1
- Viewing Angle 150º (H), 145º (V)

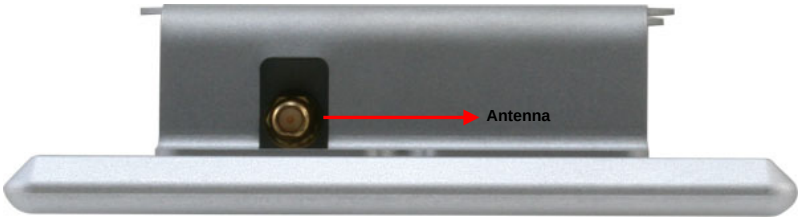
- Backlight MTBF (Hours) 50,000

Touchscreen

- Type Projected Capacitive Multi-Touch (Two points)
- Resolution 2048x2048
- Light Transmission 90%

1.4 General Information




Antenna


VESA mount

Chapter

2

Hardware Installation

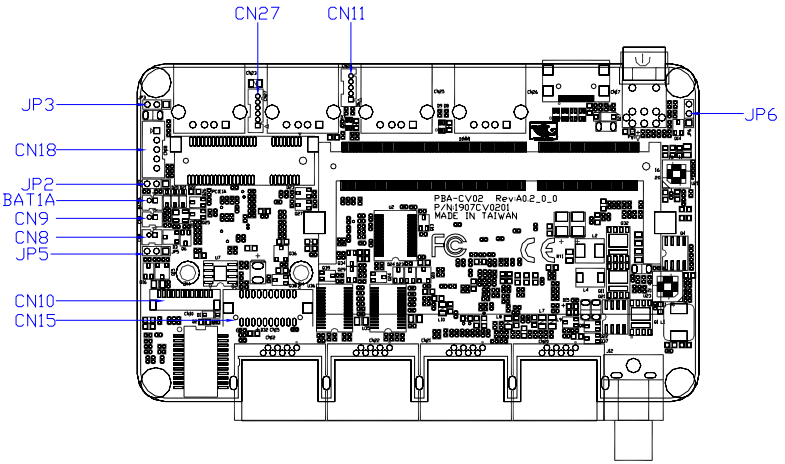
2.1 Safety Precautions

Always completely disconnect the power cord from your board whenever you are working on it. Do not make connections while the power is on, because a sudden rush of power can damage sensitive electronic components.

Always ground yourself to remove any static charge before touching the board. Modern electronic devices are very sensitive to static electric charges. Use a grounding wrist strap at all times. Place all electronic components on a static-dissipative surface or in a static-shielded bag when they are not in the chassis

2.2 Connectors and Jumpers of The Main Board

Component Side



2.3 List of Jumpers

The board has a number of jumpers that allow you to configure your system to suit your application.

The table below shows the function of each of the board's jumpers:

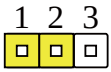
Label	Function
JP2	Clear CMOS
JP3	LVDS Voltage Selection
JP5	Inverter Power Selection
JP6	AT/ATX MODE SELECT

2.4 List of Connectors

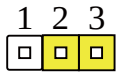
The board has a number of connectors that allow you to configure your system to suit your application. The table below shows the function of each board's connectors:

Label	Function
CN7	RJ-45 Ethernet
CN8	BUZZER
CN9	RESET
CN10	LPC Expansion I/F
CN11	1X5 USB Connector
CN15	1X20 LVDS Connector
CN18	LVDS Inverter/ Backlight Connector
CN20	COM1 RS232
CN21	COM2 RS232/422/485
CN22	COM3 RS232/422/485
CN27	1X6 USB Connector

2.5 Clear CMOS Jumper (JP2)



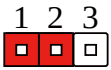
Normal (Default)



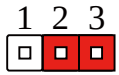
Clear CMOS

JP2	Function
1-2	Normal (Default)
2-3	Clear CMOS

2.6 LVDS Port 1 Backlight Inverter VCC Selection (JP3)



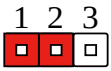
+12V



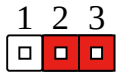
+5V (Default)

JP3	Function
1-2	+12V
2-3	+5V (Default)

2.7 LVDS Port 1 Operating VDD Selection (JP5)



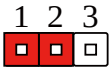
+5V



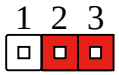
+3.3V (Default)

JP5	Function
1-2	+5V
2-3	+3.3V (Default)

2.8 AT/ATX Power Supply Mode Selection (JP6)



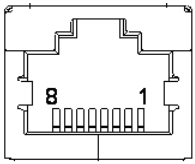
AT Mode



ATX Mode(Default)

JP6	Function
1-2	AT Mode
2-3	ATX Mode(Default)

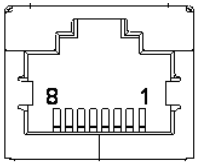
2.9 Realtek LAN (RJ-45) Port (CN12)



Pin	Pin Name	Signal Type	Signal Level
1	MDI0+	DIFF	
2	MDI0-	DIFF	
3	MDI1+	DIFF	
4	MDI2+	DIFF	
5	MDI2-	DIFF	
6	MDI1-	DIFF	
7	MDI3+	DIFF	
8	MDI3-	DIFF	

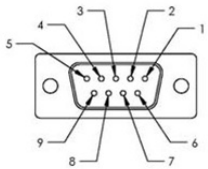
2.10 COM1,RJ-45 Port (CN20)

RJ-45 port



Pin	Pin Name	Signal Type	Signal Level
1	DSR	IN	
2	RTS	OUT	
3	GND	GND	
4	TX	OUT	
5	RX	IN	
6	DCD	DIFF	
7	CTS	IN	
8	DTR	OUT	

COM1



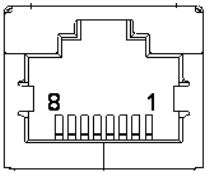
Pin	Signal	Pin	Signal
1	DCD	2	RXD

3	TXD	4	DTR
5	GND	6	DSR
7	RTS	8	CTS
9	NC		

Note: 1700090156 External COM Port Converter Cable

2.11 COM2,COM3 RS232/422/485 ,RJ-45 Port (CN21,CN22)

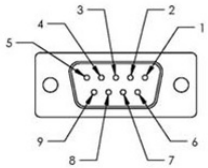
RJ-45 Port



Pin	Pin Name	Signal Type	Signal Level
1	DSR		
2	RTS		
3	GND		
4	TX		RX+
5	RX	DATA+	TX+

6	DCD	DATA-	TX-
7	CTS		
8	DTR		RX-

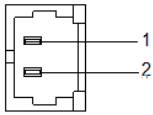
COM2, COM3



Pin	Signal	Pin	Signal
1	DCD (422TXD-/485DATA-)	2	RXD (422TXD+/485DATA+)
3	TXD (422RXD+)	4	DTR(422RXD-)
5	GND	6	DSR
7	RTS	8	CTS
9	NC		

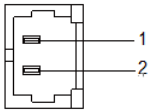
Note: 1700090156 External COM Port Converter Cable

2.12 Buzzer (CN8)



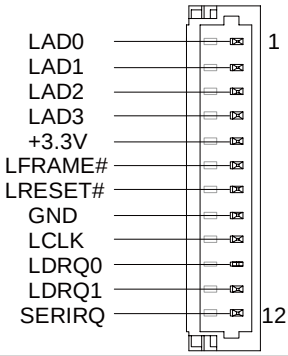
Pin	Pin Name	Signal Type	Signal Level
1	+3.3V	PWR	+3.3V
2	SPK	OUT	

2.13 RESET (CN9)



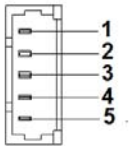
Pin	Pin Name	Signal Type	Signal Level
1	RESET	IN	+3.3V
2	GND	GND	
8	DTR	OUT	

2.14 LPC Debug Port (CN10)



Pin	Pin Name	Signal Type	Signal Level
1	LAD0	I/O	+3.3V
2	LAD1	I/O	+3.3V
3	LAD2	I/O	+3.3V
4	LAD3	I/O	+3.3V
5	+3.3V	PWR	+3.3V
6	LFRAME#	IN	
7	LRESET#	OUT	+3.3V
8	GND	GND	
9	LCLK	OUT	
10	LDRQ0	IN	
11	LDRQ1	IN	
12	SERIRQ	I/O	+3.3V

2.15 USB 2.0 Port 5 (CN11)



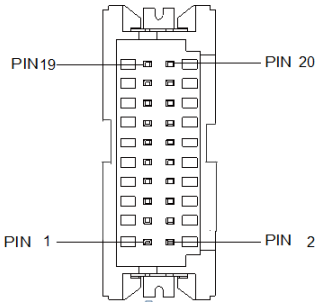
Pin	Pin Name	Signal Type	Signal Level
1	+5V	PWR	+5V
2	USB5_D-	DIFF	
3	USB5_D+	DIFF	
4	GND	GND	

5	GND	GND	

2.16 USB 2.0 Port 4 (CN27)

Pin	Pin Name	Signal Type	Signal Level
1	+5V	PWR	+5V
2	USB4_D-	DIFF	
3	USB4_D+	DIFF	
4	GND	GND	
5	GND	GND	
6	WIR_DIS	SINGLE	

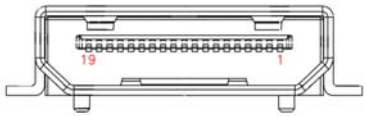
2.17 18-bits LVDS Output (CN15)



Pin	Pin Name	Signal Type	Signal Level
1	BKL_ENABLE	OUT	
3	LCD_PWR		+3.3V/+5V
5	LVDS_A_CLK-	DIFF	
7	LVDS_A_CLK+	DIFF	

9	LCD_PWR	DIFF	+3.3V/+5V
11	LVDS_DA0+	DIFF	
13	LVDS_DA0-	DIFF	
15	GND	GND	
17	LVDS_DA1+	DIFF	
19	LVDS_DA1-	DIFF	
2	BKL_CONTROL	OUT	
4	LCD_PWR	PWR	+3.3V/+5V
6	LVDS_DA2+	DIFF	
8	LVDS_DA2-	DIFF	
10	GND	GND	
12	LVDS_DA3+	DIFF	
14	LVDS_DA3-	DIFF	
16	GND	GND	
18	DDC_DATA	I/O	+3.3V
20	DDC_CLK	I/O	+3.3V

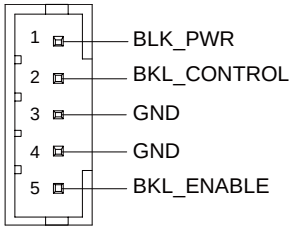
2.18 HDMI Type C (CN17)



Pin	Pin Name	Signal Type	Signal Level
1	GND	GND	
3	HDMI_TX2-	DIFF	

5	HDMI_TX1+	DIFF	
7	GND	GND	
9	HDMI_TX0-	DIFF	
11	HDMI_CLK+	DIFF	
13	GND	GND	
15	HDMI_DDC_CLK	I/O	+5V
17	NC	NC	
19	DPD_PWR	PWR	+5V
2	HDMI_TX2+	DIFF	
4	GND	GND	
6	HDMI_TX1-	DIFF	
8	HDMI_TX0+	DIFF	
10	GND	GND	
12	HDMI_CLK-	DIFF	
14	NC	NC	
16	HDMI_DDC_DATA	I/O	+5V
18	DPD_HPD	IN	

2.19 Inverter / Backlight Connector (CN18)



Pin	Pin Name	Signal Type	Signal Level
1	BKL_PWR	PWR	+5V / +12V
2	BKL_CONTROL	OUT	
3	GND	GND	
4	GND	GND	
5	BKL_ENABLE	OUT	+5V

2.20 DDR3 SODIMM Slot (DIMM1)

Standard specification

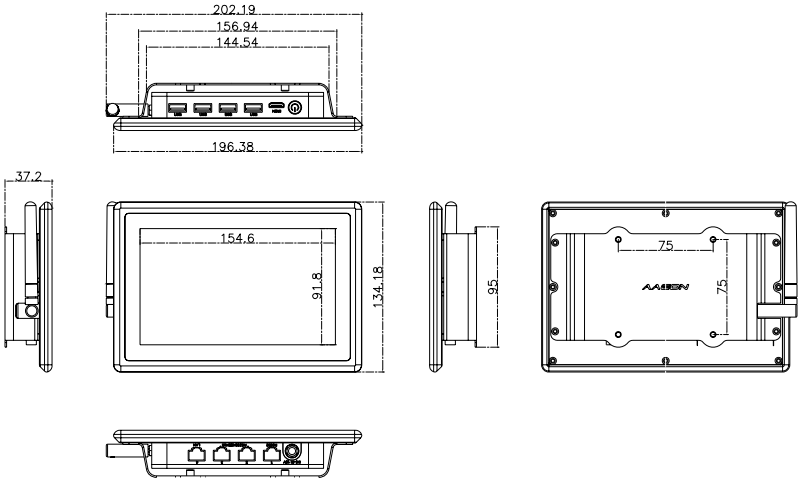
2.21 Mini Card Slot (mSATA function only)

Pin	Pin Name	Signal Type	Signal Level
1	NC		
3	NC		
5	NC		
7	NC		
9	GND	GND	
11	NC		
13	NC		
15	GND	GND	
17	NC		
19	NC		
21	GND	GND	
23	mSATA_RX+	DIFF	

25	mSATA_RX-	DIFF	
27	GND	GND	
29	GND	GND	
31	mSATA_TX-	DIFF	
33	mSATA_TX+	DIFF	
35	GND	GND	
37	GND	GND	
39	+3.3V	PWR	+3.3V
41	+3.3V	PWR	+3.3V
43	NC		
45	NC		
47	NC		
49	NC		
51	NC		
2	+3.3V	PWR	+3.3V
4	GND	GND	
6	+1.5V	PWR	+1.5V
8	NC		
9	NC		
10	NC		
12	NC		
14	NC		
18	GND	GND	
20	NC		

22	NC		
24	+3.3V	PWR	+3.3V
26	GND	GND	
28	+1.5V	PWR	+1.5V
30	SMB_CLK	I/O	+3.3V
32	SMB_DATA	I/O	+3.3V
34	GND	GND	
36	NC		
38	NC		
40	GND	GND	
42	NC		
44	NC		
46	NC		
48	+1.5V	PWR	+1.5V
50	GND	GND	
52	+3.3V	PWR	+3.3V

2.22 Mechanical Drawing of the ACP-1073



Chapter

3

AMI BIOS Setup

3.1 System Test and Initialization

These routines test and initialize board hardware. If the routines encounter an error during the tests, you will either hear a few short beeps or see an error message on the screen. There are two kinds of errors: fatal and non-fatal. The system can usually continue the boot up sequence with non-fatal errors.

System configuration verification

These routines check the current system configuration stored in the CMOS memory and BIOS NVRAM. If system configuration is not found or system configuration data error is detected, system will load optimized default and re-boot with this default system configuration automatically.

There are four situations in which you will need to setup system configuration:

1. You are starting your system for the first time
2. You have changed the hardware attached to your system
3. The system configuration is reset by Clear-CMOS jumper
4. The CMOS memory has lost power and the configuration information has been erased.

The ACP-1073 CMOS memory has an integral lithium battery backup for data retention. You have to replace the battery when it

finally runs down.

3.2 AMI BIOS Setup

AMI BIOS ROM has a built-in Setup program that allows users to modify the basic system configuration. This type of information is stored in battery-backed CMOS RAM and BIOS NVRAM so that it retains the Setup information when the power is turned off.

Entering Setup

Power on the computer and press <Del>or <F2> immediately. This will allow you to enter Setup.

Main

Set the date, use tab to switch between date elements.

Advanced

Enable disable boot option for legacy network devices.

Chipset

Host bridge parameters.

Boot

Enables/disable quiet boot option.

Security

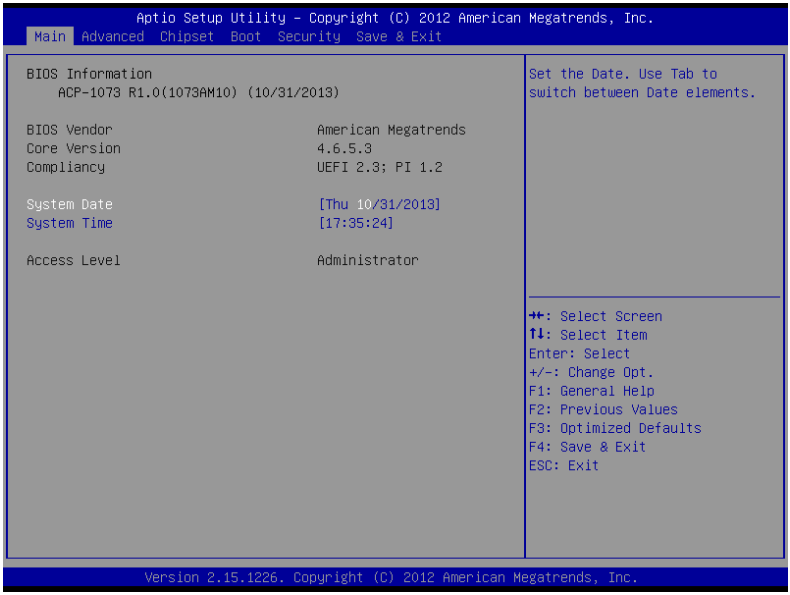
Set setup administrator password.

Save & Exit

Exit system setup after saving the changes.

Setup Menu

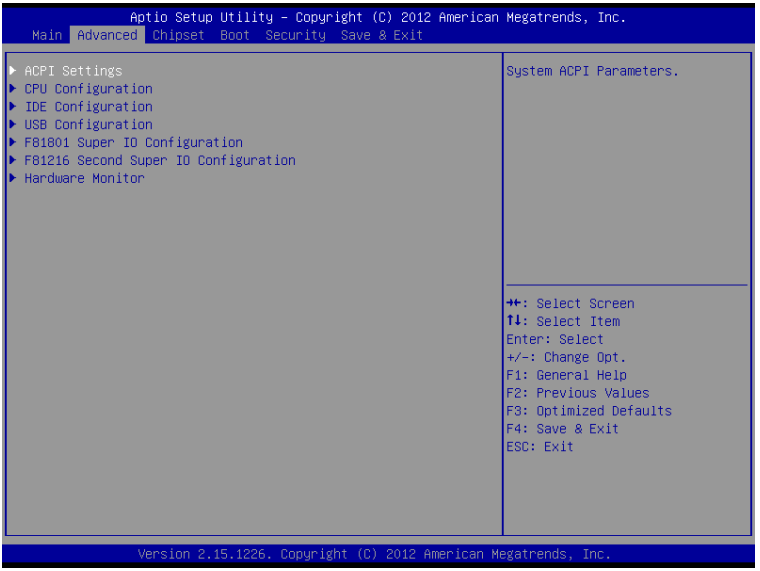
Setup submenu: Main



Options summary: (***default setting***)

System Date	Day MM:DD:YYYY	
Change the month, year and century. The 'Day' is changed automatically.		
System Time	HH : MM : SS	
Change the clock of the system.		

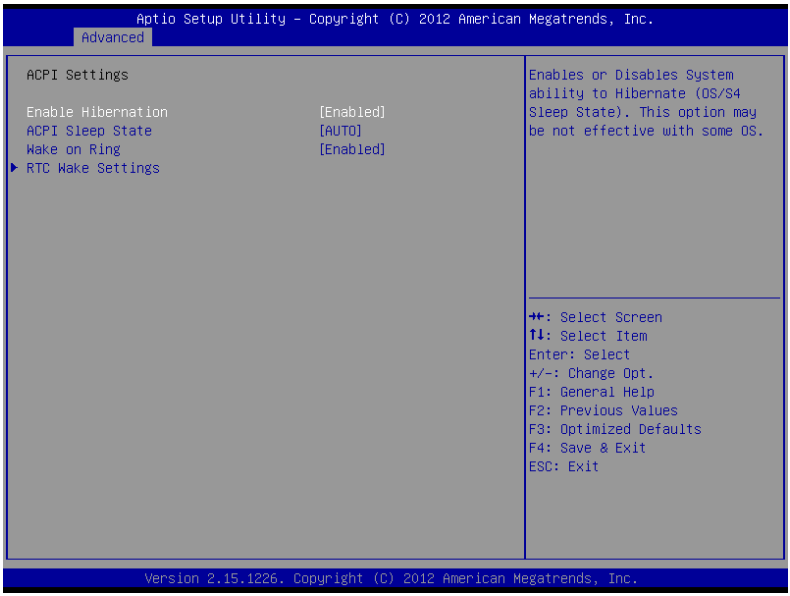
Setup submenu: Advanced



Options summary: (***default setting***)

ACPI Settings		
System ACPI Parameters		
CPU Configuration		
CPU Configuration Parameters		
IDE Configuration		
IDE Device Options Settings		
USB Configuration		
USB Configuration Parameters		
F81801 Super IO Configuration		
System Super IO Parameters		
F81216 Second Super IO Configuration		
System Second Super IO Parameters		
Digital IO Port Configuration		
DIO configuration		
H/W Monitor		
Monitor hardware status		

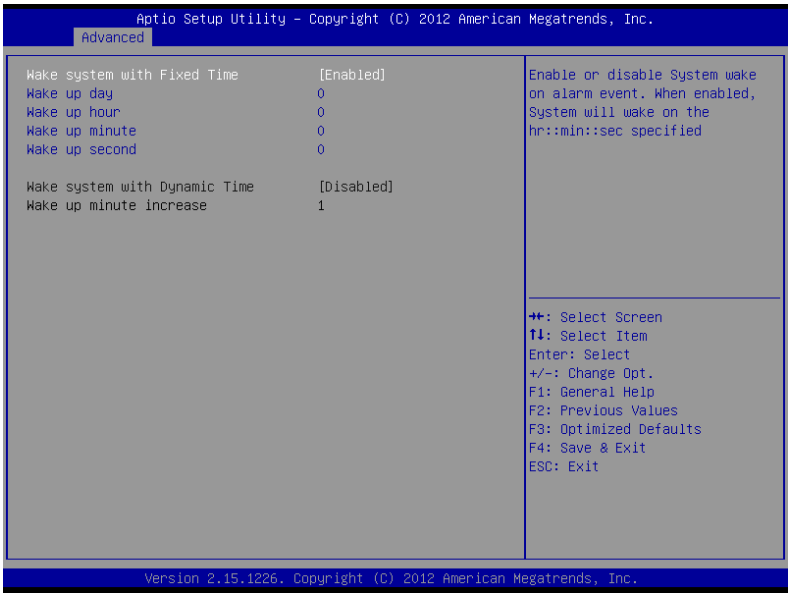
ACPI Settings



Options summary: (***default setting***)

Enable Hibernation	***Enabled***	
	Disabled	
Enabled or disabled hibernate (OS/S4 Sleep State).		
ACPI Sleep State	Suspend Disabled	
	S1 only(CPU Stop Clock)	
	S3 only(Suspend to RAM)	
	AUTO	
Select the ACPI state used for System Suspend		
Wake on Ring	***Enabled***	
	Disabled	
Enabled or disabled wake on ring function.		
RTC Wake Settings		
Enable system to wake from S5 using RTC alarm.		

RTC Wake Settings



Options summary: (***default setting***)

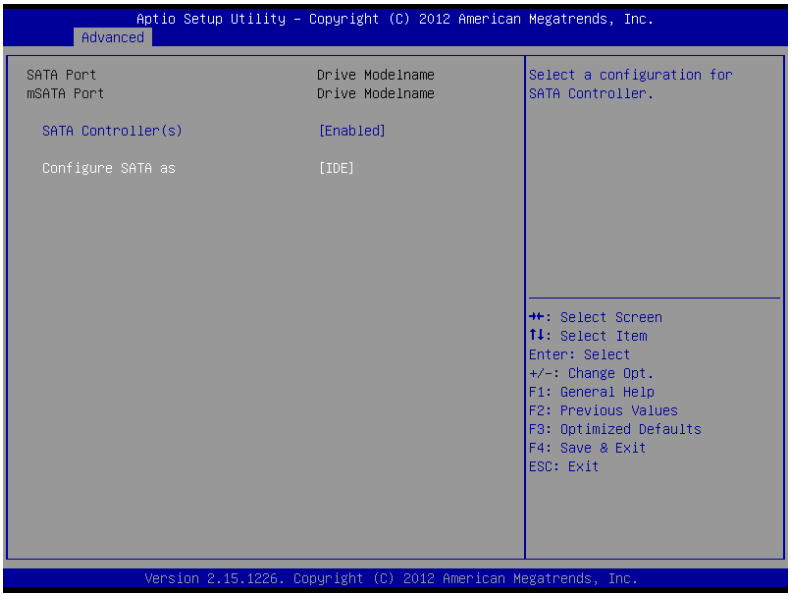
Wake system with Fixed Time	***Disabled***	
	Enabled	
Enable or disable System wake on alarm event. Wake up time is setting by following settings.		
Wake up day	0-31	
Select 0 for daily system wake up 1-31 for which day of the month that you would like the system to wake up		
Wake up hour	0-23	
Wake up minute	0-59	
Wake up second	0-59	
Wake system with Dynamic Time	***Disabled***	
	Enabled	
Enable or disable System wake on alarm event. Wake up time is current time + Increase minutes.		
Wake up minute increase	1-5	

CPU Configuration

Options summary: (***default setting***)

Hyper-Threading	Disabled	
	Enabled	
En/Disable CPU Hyper-Threading function		
Execute Disable Bit	Disabled	
	Enabled	
En/Disable XD bit for supporting OS		
Limit CPUID Maximum	***Disabled***	
	Enabled	
Disabled for Windows XP		
CPU Smart Thermal Control	***Disabled***	
	55	
	60	
	65	
	70	
CPU will reduce frequency automatically when CPU temperature higher than the setting value.		

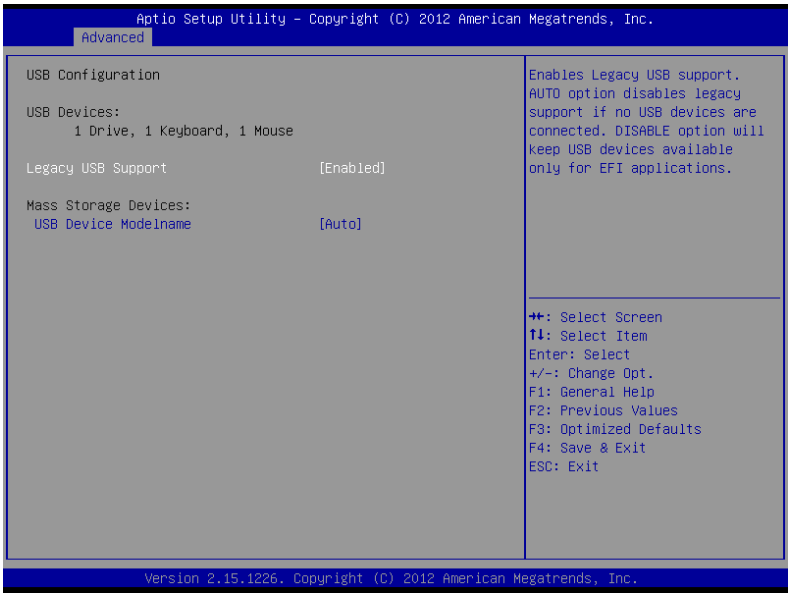
IDE Configuration



Options summary: (***default setting***)

SATA Controller(s)	Disabled	
	Enabled	
En/Disable SATA controller		
Configure SATA as	IDE	
	AHCI	
Configure SATA controller operating as IDE/AHCI mode.		

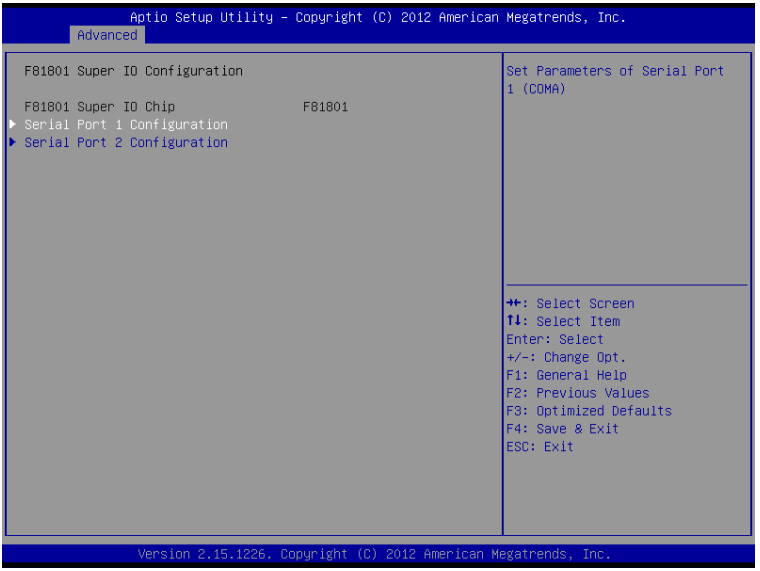
USB Configuration



Options summary: (***default setting***)

Legacy USB Support	***Enabled***	
	Disabled	
	Auto	
Enables BIOS Support for Legacy USB Support. When enabled, USB can be functional in legacy environment like DOS. AUTO option disables legacy support if no USB devices are connected. DISABLE option will keep USB devices available only for EFI application		
Device Name (Emulation Type)	**Auto**	
	Floppy	
	Forced FDD	
	Hard Disk	
	CD-ROM	
If Auto. USB devices less than 530MB will be emulated as Floppy and remaining as Floppy and remaining as hard drive. Forced FDD option can be used to force a HDD formatted drive to boot as FDD(Ex. ZIP drive)		

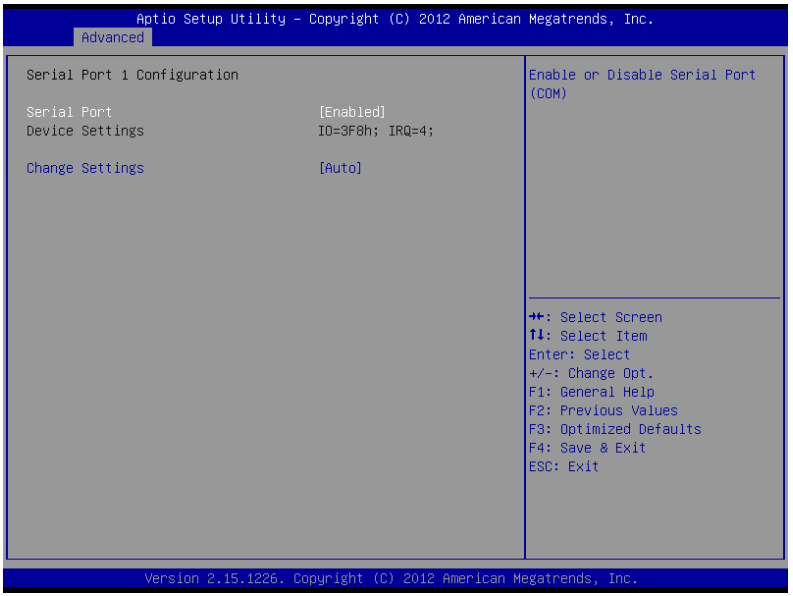
F81801 Super IO Configuration



Options summary: (***default setting***)

Serial Port 1/2 Configuration		
Set Parameters of Serial Port 1/2		

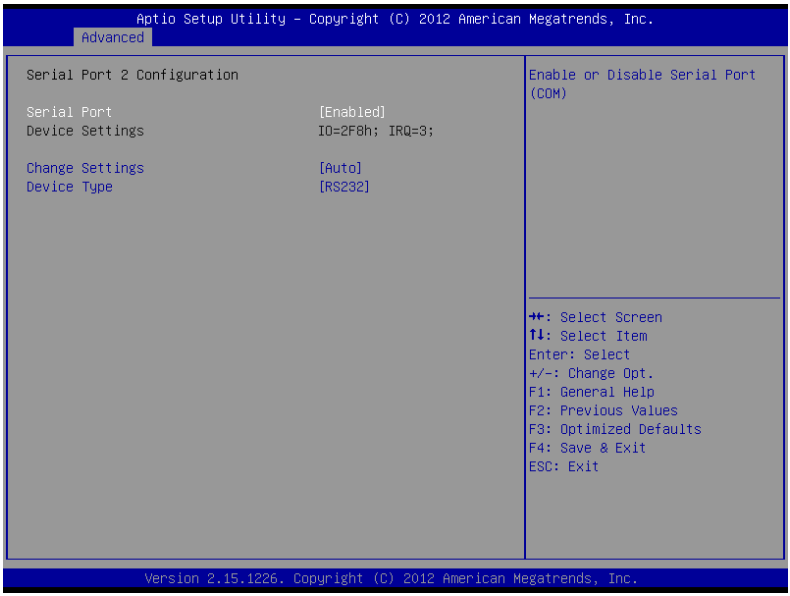
Serial Port 1 Configuration



Options summary: (***default setting***)

Serial Port	Disabled	
	Enabled	
En/Disable specified serial port.		
Change Settings	***Auto***	
	IO=3F8h; IRQ=4;	
	IO=3F8h; IRQ=3,4,5,7,10,11,12;	
	IO=2F8h; IRQ=3,4,5,7,10,11,12;	
	IO=3E8h; IRQ=3,4,5,7,10,11,12;	
	IO=2E8h; IRQ=3,4,5,7,10,11,12;	
Select a resource setting for Super IO device.		

Serial Port 2 Configuration



Options summary: (***default setting***)

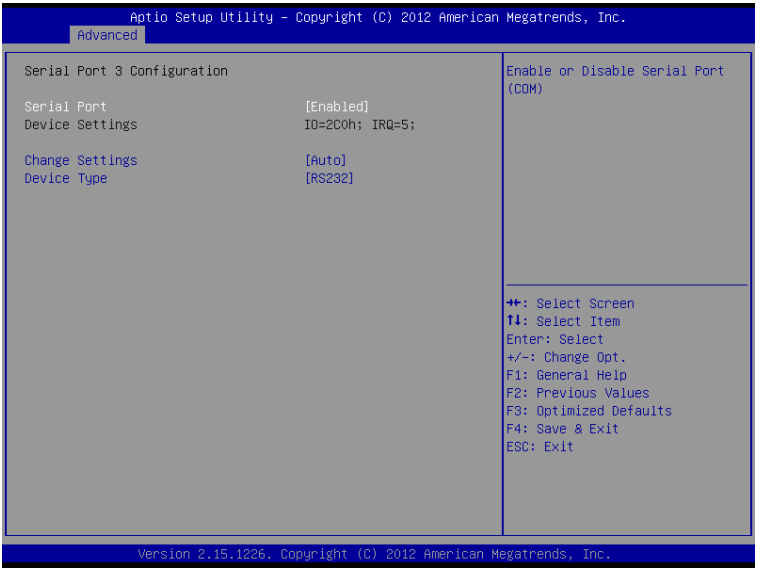
Serial Port	Disabled	
	Enabled	
En/Disable specified serial port.		
Change Settings	***Auto***	
	IO=2F8h; IRQ=3;	
	IO=3F8h; IRQ=3,4,5,7,10,11,12;	
	IO=2F8h; IRQ=3,4,5,7,10,11,12;	
	IO=3E8h; IRQ=3,4,5,7,10,11,12;	
	IO=2E8h; IRQ=3,4,5,7,10,11,12;	
Select a resource setting for Super IO device.		
Device Type	***RS232***	
	RS422	
	RS485	
Configure COM2 operated as RS232, RS422 or RS485.		

F81216 Second Super IO Configuration

Options summary: (***default setting***)

Serial Port 3 Configuration		
Set Parameters of Serial Port 3		

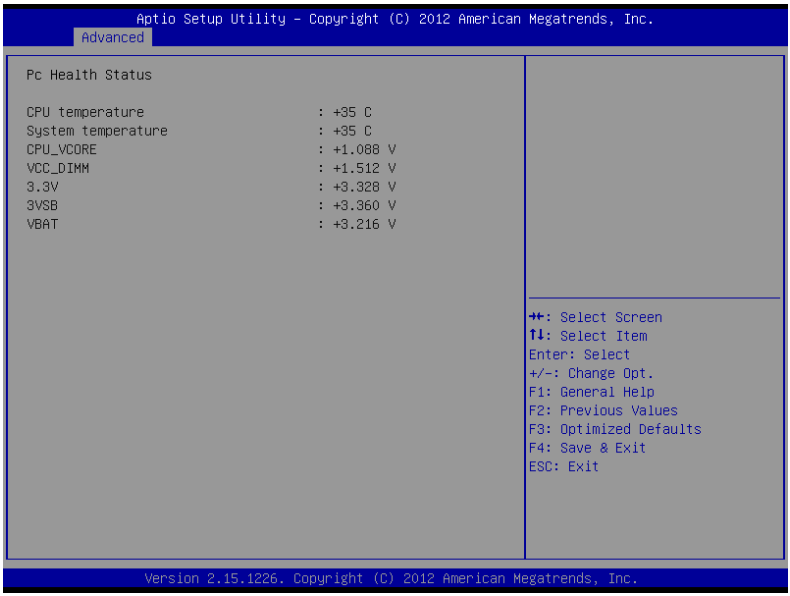
Serial Port 3 Configuration



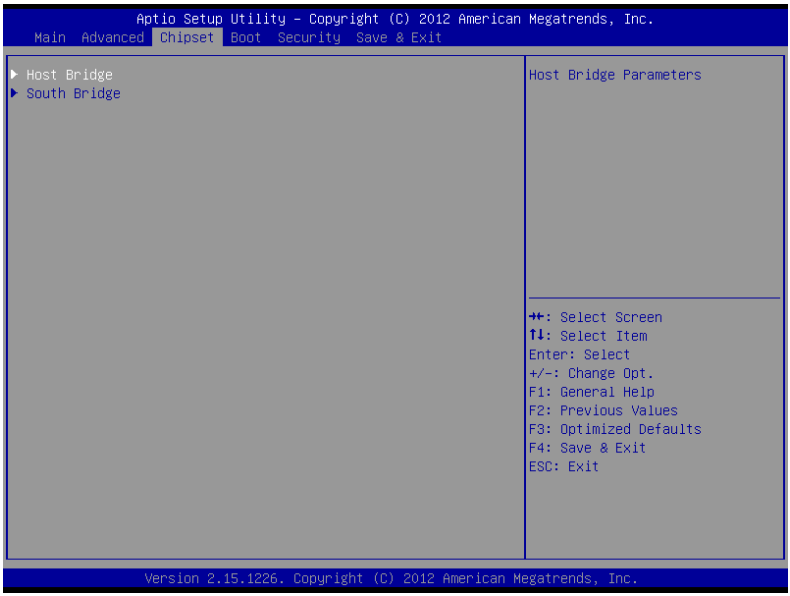
Options summary: (***default setting***)

Serial Port	Disabled	
	Enabled	
En/Disable specified serial port.		
Change Settings	***Auto***	
	IO=2C0h; IRQ=5;	
	IO=2C0h; IRQ=3,4,5,9,10,11;	
	IO=2C8h; IRQ=3,4,5,9,10,11;	
	IO=2B0h; IRQ=3,4,5,9,10,11;	
	IO=2B8h; IRQ=3,4,5,9,10,11;	
Select a resource setting for Super IO device.		
Device Type	***RS232***	
	RS422	
	RS485	
Configure COM2 operated as RS232, RS422 or RS485.		

H/W Monitor


Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.
Advanced
Pc Health Status
CPU temperature : +35 C
System temperature : +35 C
CPU_VCORE : +1.088 V
VCC_DIMM : +1.512 V
3.3V : +3.328 V
3VSB : +3.360 V
VBAT : +3.216 V
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.15.1226. Copyright (C) 2012 American Megatrends, Inc.

Setup submenu: Chipset



Options summary: (***default setting***)

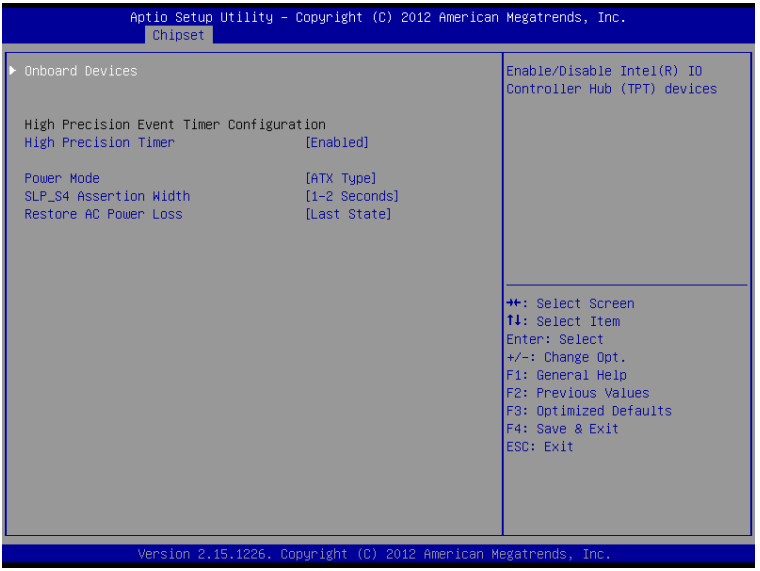
Host Bridge		
Host Bridge Parameters		
South Bridge		
South Bridge Parameters		

Host Bridge

Options summary: (***default setting***)

Fixed Graphics Memory Size	***128MB***	
	256MB	
Configure Fixed Graphics Memory Size		
IGFX – Boot Type	***LVDS***	
	HDMI	
Select the Video Device which will be activated during POST.		
LVDS Backlight Level	***80%***	0~100%
Select Backlight brightness of LVDS		

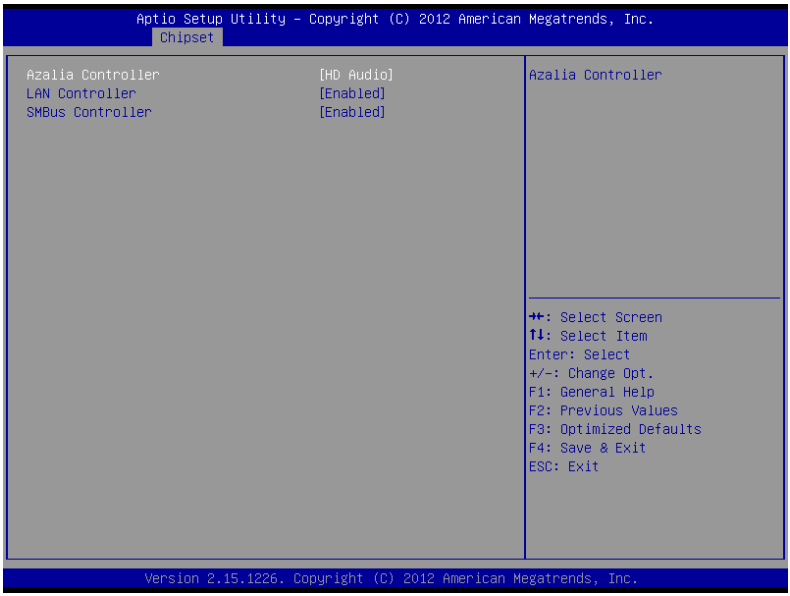
South Bridge



Options summary: (***default setting***)

Onboard Devices		
Onboard devices parameters configurations		
High Precision Timer	***Enabled***	
	Disabled	
Enable or Disable the High Precision Event Timer		
Power Mode	***ATX Type***	
	AT Type	
Select the power type used on the system		
SLP_S4 Assertion Width	***1-2 Seconds***	
	2-3 Seconds	
	3-4 Seconds	
	4-5 Seconds	
Select a minimum assertion width of the SLP_S4# signal		
Restore AC Power Loss	Power On	
	Power Off	
	Last State	
Select AC power state when power is re-applied after a power failure.		

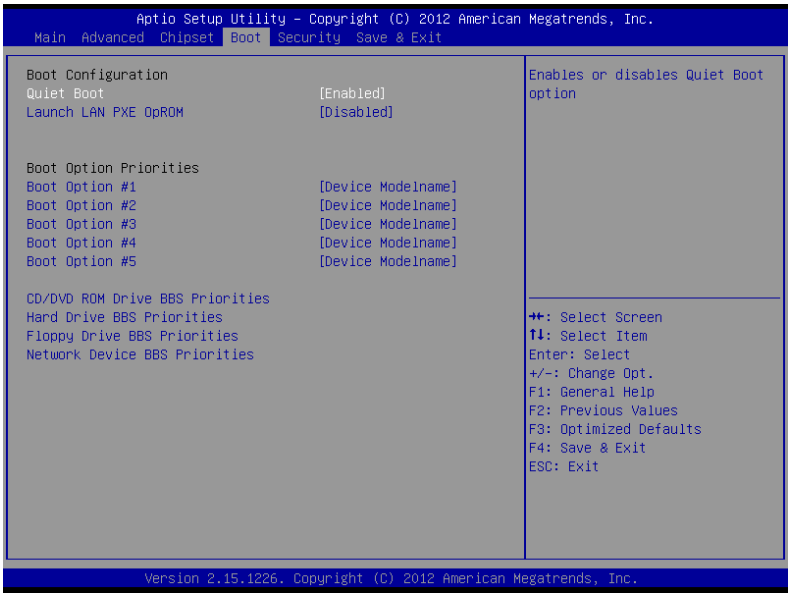
Onboard Devices



Options summary: (***default setting***)

Azalia Controller	Disabled	
	HD Audio	
Select a OnBoard Azalia Configuration		
LAN Controller	Disabled	
	Enabled	
Enable or disable Realtek R8111E PCIE LAN Device		
SMBus Controller	Disabled	
	Enabled	
Enable or Disable OnChip SMBus Controller		

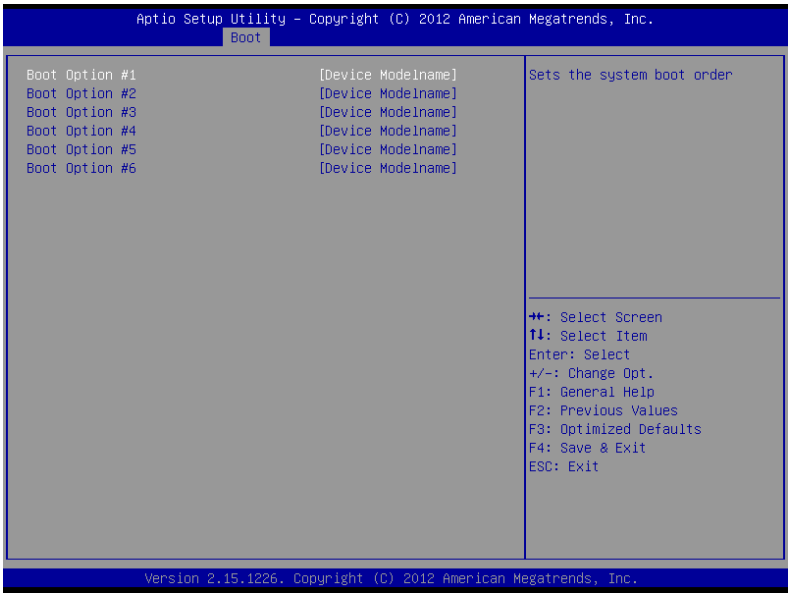
Setup submenu: Boot



Options summary: (***default setting***)

Quiet Boot	Disabled	
	Enabled	
En/Disable showing boot logo.		
Launch LAN PXE OpROM	***Disabled***	
	Enabled	
En/Disable PXE boot for RTL8111E LAN		
Boot Option #X/ XXXX Drive BBS Priorities		
The order of boot priorities.		

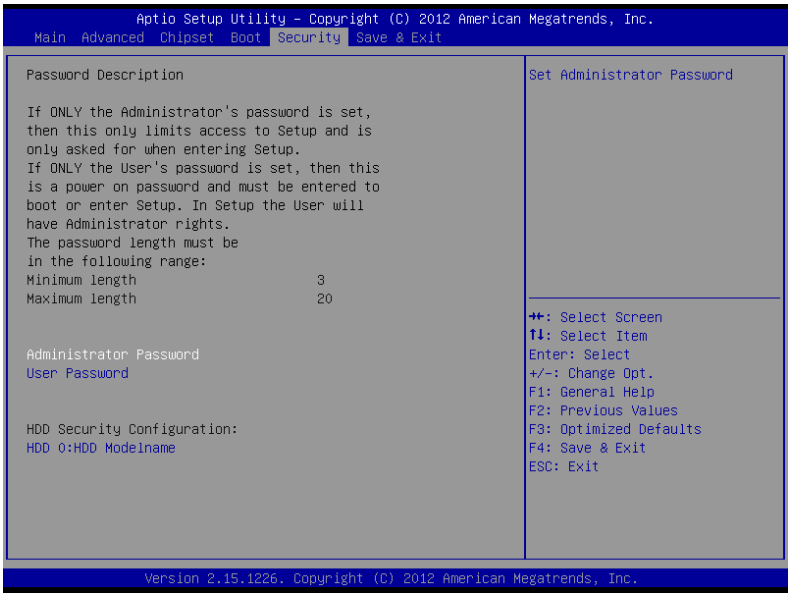
BBS Priorities



Options summary: (***default setting***)

Boot Option #x	Disabled	
	Device name	
Sets the system boot order		

Setup submenu: Security



Options summary: (***default setting***)

Administrator Password/ User Password	***Not set***	

You can install a Supervisor password, and if you install a supervisor password, you can then install a user password. A user password does not provide access to many of the features in the Setup utility.

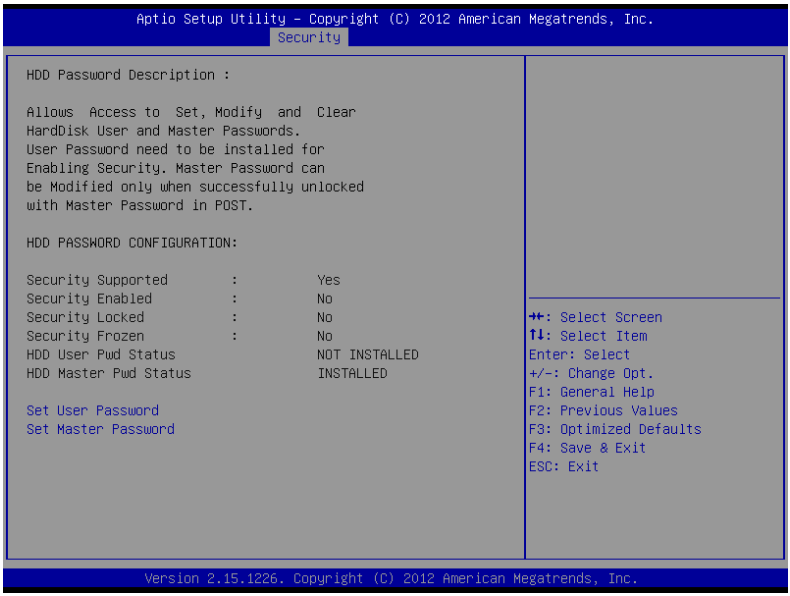
Install the Password:

Press Enter on this item, a dialog box appears which lets you enter a password. You can enter no more than six letters or numbers. Press Enter after you have typed in the password. A second dialog box asks you to retype the password for confirmation. Press Enter after you have retyped it correctly. The password is required at boot time, or when the user enters the Setup utility.

Removing the Password:

Highlight this item and type in the current password. At the next dialog box press Enter to disable password protection.

HDD Security



Options summary: (***default setting***)

Set User Password/	***Not set***	
Set Master Password		

You can install a Master and User password. Before booting to OS, HDD will be set to frozen state. On S3 resume HDD will be unlocked using the HDD Password we entered while system booting.

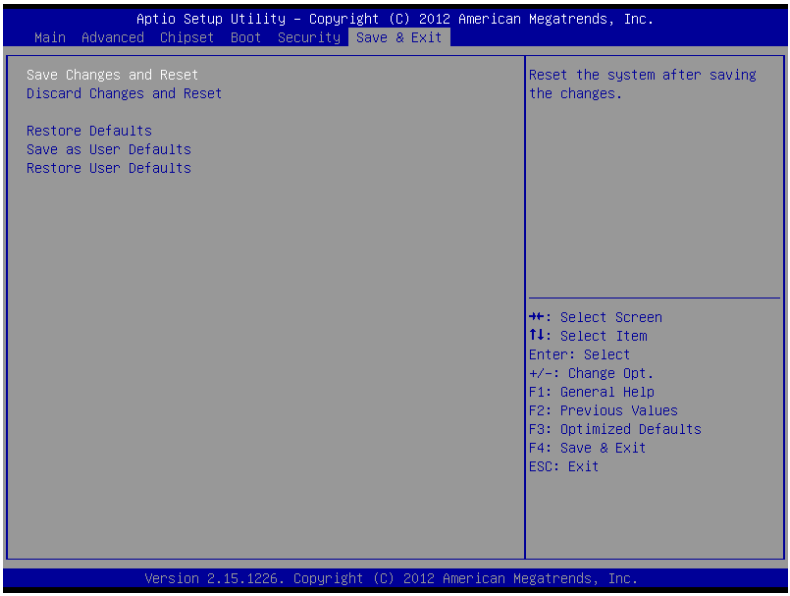
Install the Password:

Press Enter on this item, a dialog box appears which lets you enter a password. You can enter no more than six letters or numbers. Press Enter after you have typed in the password. A second dialog box asks you to retype the password for confirmation. Press Enter after you have retyped it correctly. The password is required at boot time, or when the user enters the Setup utility.

Removing the Password:

Highlight this item and type in the current password. At the next dialog box press Enter to disable password protection.

Setup submenu: Exit



Options summary: (***default setting***)

Save Changes and Reset		
Reset the system after saving the changes		
Discard Changes and Reset		
Reset system setup without saving any changes		
Restore Defaults		
Restore/Load Default values for all the setup options.		
Save as User Defaults		
Save the changes done so far as User Defaults		
Restore User Defaults		
Restore the User Defaults to all the setup options		

Chapter

4

Driver Installation

The ACP-1073 comes with an AutoRun CD-ROM that contains all drivers and utilities that can help you to install the driver automatically.

Insert the driver CD, the driver CD-title will auto start and show the installation guide. If not, please follow the sequence below to install the drivers.

Follow the sequence below to install the drivers:

Step 1 – Install Chipset Driver

Step 2 – Install VGA Driver

Step 3 – Install LAN Driver

Step 4 – Install AHCI Driver

Step 5 – Install Touch Driver

Step 6 – Install Serial Port Driver (Optional)

Step 7 – Install Wireless Driver (Optional)

Please read instructions below for further detailed installations.

4.1 Installation:

Insert the ACP-1073 CD-ROM into the CD-ROM drive. And install the drivers from Step 1 to Step 6 in order.

Step 1 – Install Chipset Driver

1. Click on the ***STEP1-Chipset*** folder and select the OS folder your system is
2. Double click on the ***infinst_autol_1034.exe*** file located in each OS folder
3. Follow the instructions that the window shows
4. The system will help you install the driver automatically

Step 2 – Install VGA Driver

For Windows® 7

1. Click on the ***STEP2-VGA*** folder and select the folder of ***WIN7_32***
2. Double click on the ***Setup.exe*** file
3. Follow the instructions that the window shows
4. The system will help you install the driver automatically

For Windows® XP

1. Click on the ***dotnetfx35.exe*** and select the folder of ***WINXP_32***
2. Double click on the ***WindowsDriverSETUP.exe*** file located in ***WINXP_32*** folder
3. Follow the instructions that the window shows

4. The system will help you install the driver automatically

Step 3 –Install LAN Driver

1. Click on the ***STEP3-LAN*** folder and select the OS folder your system is
2. Double click on the ***setup.exe*** file located in each OS folder
3. Follow the instructions that the window shows
4. The system will help you install the driver automatically

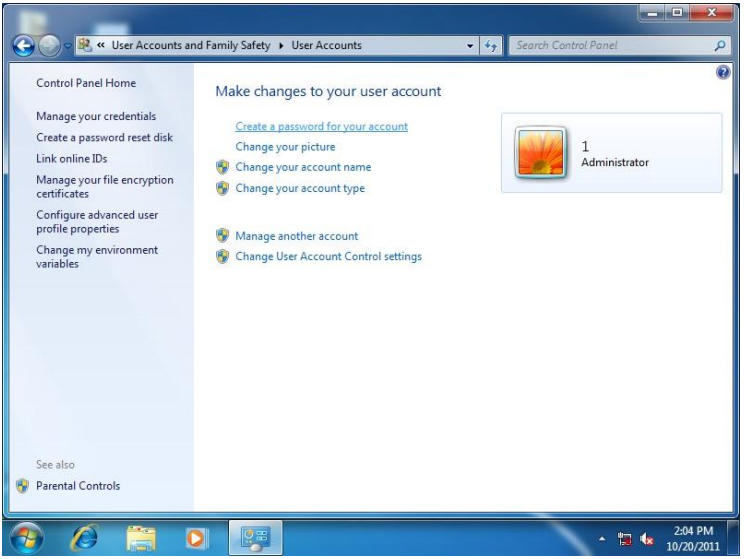
Step 4 – Install AHCI Driver

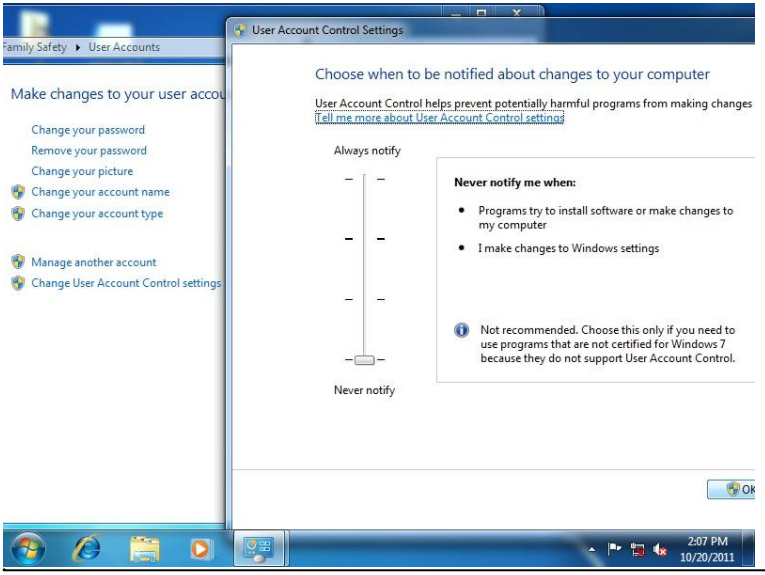
Please refer to the ***Appendix D AHCI Setting***

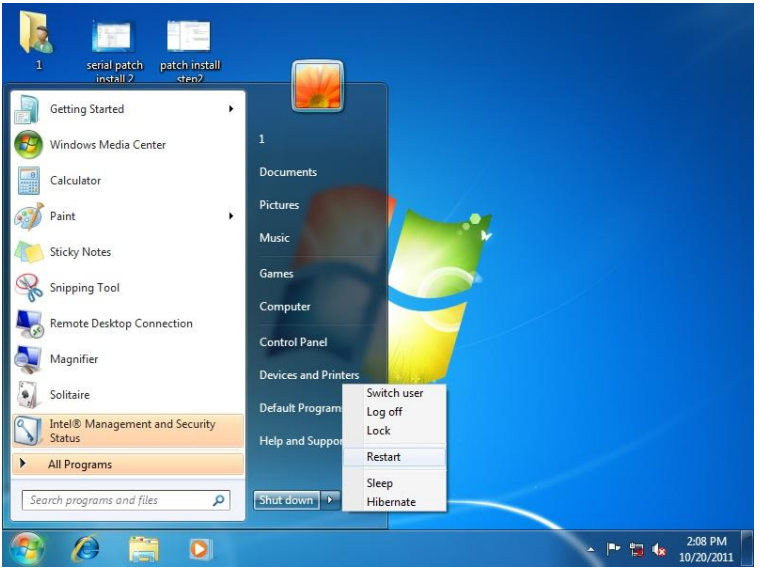
Step 5 – Install Touch Driver

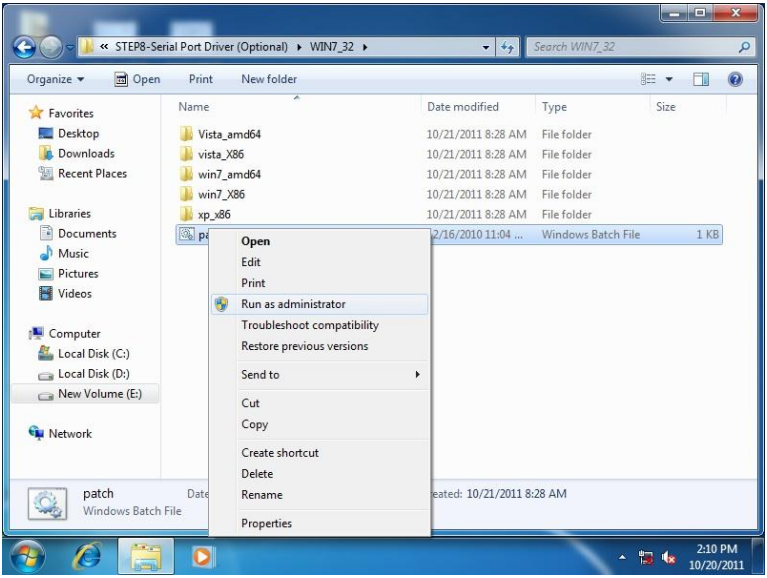
1. Click on the ***STEP5-TOUCH*** folder and select the ***WIN_XP*** folder
2. Double click on the ***ModifyDBArea*** file
3. Follow the instructions that the window shows
4. The system will help you install the driver automatically

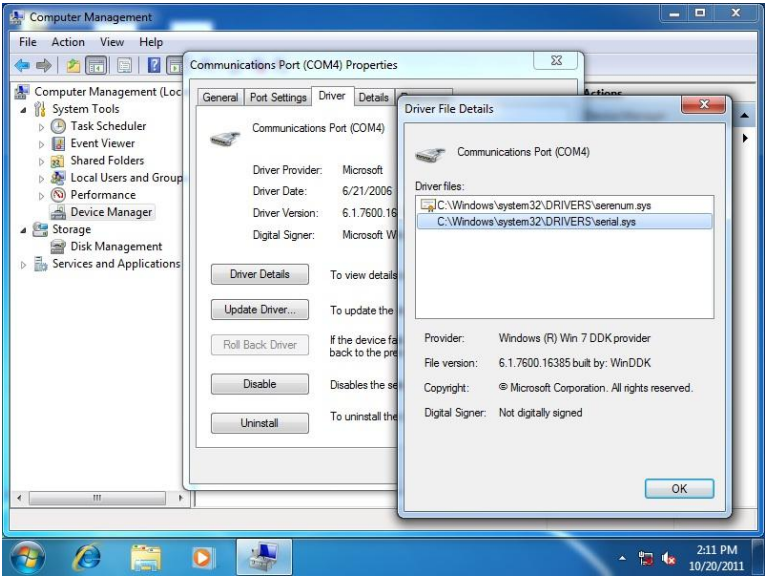
Step 6 –Install Serial Port Driver (Optional)






1
serial patch install 2
patch install step2
Getting Started
Windows Media Center
Calculator
Paint
Sticky Notes
Snipping Tool
Remote Desktop Connection
Magnifier
Solitaire
Intel® Management and Security Status
All Programs
Search programs and files
1
Documents
Pictures
Music
Games
Computer
Control Panel
Devices and Printers
Default Program
Help and Suppor
Switch user
Log off
Lock
Restart
Sleep
Hibernate
Shut down
2:08 PM
10/20/2011


« STEP8-Serial Port Driver (Optional) ▸ WIN7_32 ▸
Search WIN7_32
Organize
Open
Print
New folder
Favorites
Desktop
Downloads
Recent Places
Libraries
Documents
Music
Pictures
Videos
Computer
Local Disk (C:)
Local Disk (D:)
New Volume (E:)
Network
Name
Date modified
Type
Size
Vista_amd64 10/21/2011 8:28 AM File folder
vista_X86 10/21/2011 8:28 AM File folder
win7_amd64 10/21/2011 8:28 AM File folder
win7_X86 10/21/2011 8:28 AM File folder
xp_x86 10/21/2011 8:28 AM File folder
Windows Batch File 1 KB
Open
Edit
Print
Run as administrator
Troubleshoot compatibility
Restore previous versions
Send to
Cut
Copy
Create shortcut
Delete
Rename
Properties
patch
Windows Batch File
eated: 10/21/2011 8:28 AM
2:10 PM
10/20/2011



Step 7 – Install Wireless Driver (Optional)

1. Click on the ***STEP6-Wireless (Optional)*** folder and select the OS folder your system is
2. Double click on the ***VN9271_Windows_V1.3.0.0_x86.exe*** file located in each OS folder
3. Follow the instructions that the window shows
4. The system will help you install the driver automatically

Appendix

A

Programming the Watchdog Timer

A.1 Watchdog Timer Registers

Table 1 : Watch dog relative IO address		
	Default Value	**Note**
I/O Base Address	**0xA00**	I/O Base address for Watchdog operation. This address is assigned by SIO LDN7, register 0x60-0x61.

Table 2 : Watchdog relative register table				
Register	**Offset**	**BitNum**	**Value**	**Note**
Watchdog WDTRST# Enable	**0x00**	**7**	**1**	Enable/Disable time out output via WDTRST# 0: Disable 1: Enable
Pulse Width	**0x05**	**0:1**	**01**	Width of Pulse signal 00: 1ms (do not use) 01: 25ms 10: 125ms 11: 5s ***Pulse width is must longer then 16ms.***
Signal Polarity	**0x05**	**2**	**0**	0: low active 1: high active ***Must set this bit to 0***
Counting Unit	**0x05**	**3**	**0**	Select time unit. 0: second 1: minute
Output Signal Type	**0x05**	**4**	**1**	0: Level 1: Pulse ***Must set this bit to 1***
Watchdog Timer Enable	**0x05**	**5**	**1**	0: Disable 1: Enable
Timeout Status	**0x05**	**6**	**1**	1: timeout occurred. Write a 1 to clear timeout status
Timer Counter	**0x06**			Time of watchdog timer (0~255)

A.2 WatchDog Sample Program

```
*****************************************************************************
// WDT I/O operation relative definition (Please reference to Table 1)
#define  WDTAddr      0xA00  // WDT I/O base address
Void  WDTWriteByte(byte Register, byte Value);
byte  WDTReadByte(byte Register);
Void  WDTSetReg(byte Register, byte Bit, byte Val);
// Watch Dog relative definition (Please reference to Table 2)
#define  DevReg       0x00  // Device configuration register
    #define  WDTRstBit  0x80  // Watchdog WDTRST# (Bit7)
    #define  WDTRstVal  0x80  // Enabled WDTRST#
#define  TimerReg     0x05  // Timer register
    #define  PSWidthBit   0x00   // WDTRST# Pulse width (Bit0:1)
    #define  PSWidthVal   0x01   // 25ms for WDTRST# pulse
    #define  PolarityBit  0x02   // WDTRST# Signal polarity (Bit2)
    #define  PolarityVal  0x00   // Low active for WDTRST#
    #define  UnitBit      0x03   // Unit for timer (Bit3)
    #define  ModeBit      0x04   // WDTRST# mode (Bit4)
    #define  ModeVal      0x01   // 0:level 1: pulse
    #define  EnableBit    0x05   // WDT timer enable (Bit5)
    #define  EnableVal    0x01   // 1: enable
    #define  StatusBit    0x06   // WDT timer status (Bit6)
#define  CounterReg  0x06  // Timer counter register
*****************************************************************************

*****************************************************************************
VOID  Main(){
      // Procedure : AaeonWDTConfig
      // (byte)Timer : Counter of WDT timer.(0x00~0xFF)
      // (boolean)Unit : Select time unit(0: second, 1: minute).
      AaeonWDTConfig(Counter, Unit);

      // Procedure : AaeonWDTEnable
      // This procudure will enable the WDT counting.
```

```
        AaeonWDTEnable();
}
*****************************************************************************

*****************************************************************************
// Procedure : AaeonWDTEnable
VOID  AaeonWDTEnable (){
        WDTEnableDisable(1);
}

// Procedure : AaeonWDTConfig
VOID  AaeonWDTConfig (byte Counter, BOOLEAN Unit){
        // Disable WDT counting
        WDTEnableDisable(0);
        // Clear Watchdog Timeout Status
        WDTClearTimeoutStatus();
        // WDT relative parameter setting
        WDTParameterSetting(Timer, Unit);
}

VOID  WDTEnableDisable(byte Value){
        If (Value == 1)
            WDTSetBit(TimerReg, EnableBit, 1);
        else
            WDTSetBit(TimerReg, EnableBit, 0);
}

VOID  WDTParameterSetting(byte Counter, BOOLEAN Unit){
        // Watchdog Timer counter setting
        WDTWriteByte(CounterReg, Counter);
        // WDT counting unit setting
        WDTSetBit(TimerReg, UnitBit, Unit);
        // WDT output mode set to pulse
        WDTSetBit(TimerReg, ModeBit, ModeVal);
        // WDT output mode set to active low
        WDTSetBit(TimerReg, PolarityBit, PolarityVal);
        // WDT output pulse width is 25ms
```

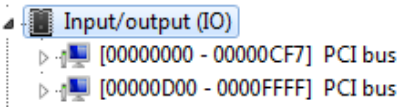
```
        WDTSetBit(TimerReg, PSWidthBit, PSWidthVal);
        // Watchdog WDTRST# Enable
        WDTSetBit(DevReg, WDTRstBit, WDTRstVal);
}

VOID  WDTClearTimeoutStatus(){
        WDTSetBit(TimerReg, StatusBit, 1);
}
*****************************************************************************

*****************************************************************************
VOID  WDTWriteByte(byte Register, byte Value){
        IOWriteByte(WDTAddr+Register, Value);
}

byte  WDTReadByte(byte Register){
        return IOReadByte(WDTAddr+Register);
}

VOID  WDTSetBit(byte Register, byte Bit, byte Val){
        byte TmpValue;

        TmpValue = WDTReadByte(Register);
        TmpValue &= ~(1 << Bit);
        TmpValue |= Val << Bit;
        WDTWriteByte(Register, TmpValue);
}

*****************************************************************************
```

Appendix

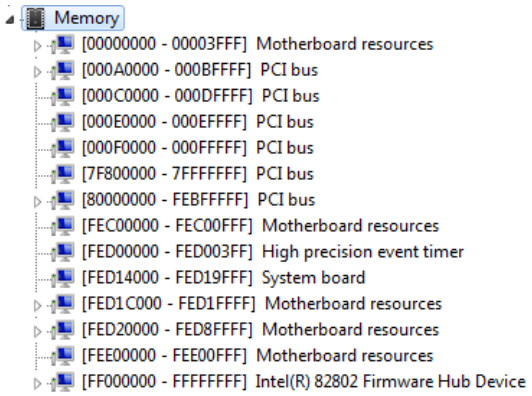
B

I/O Information

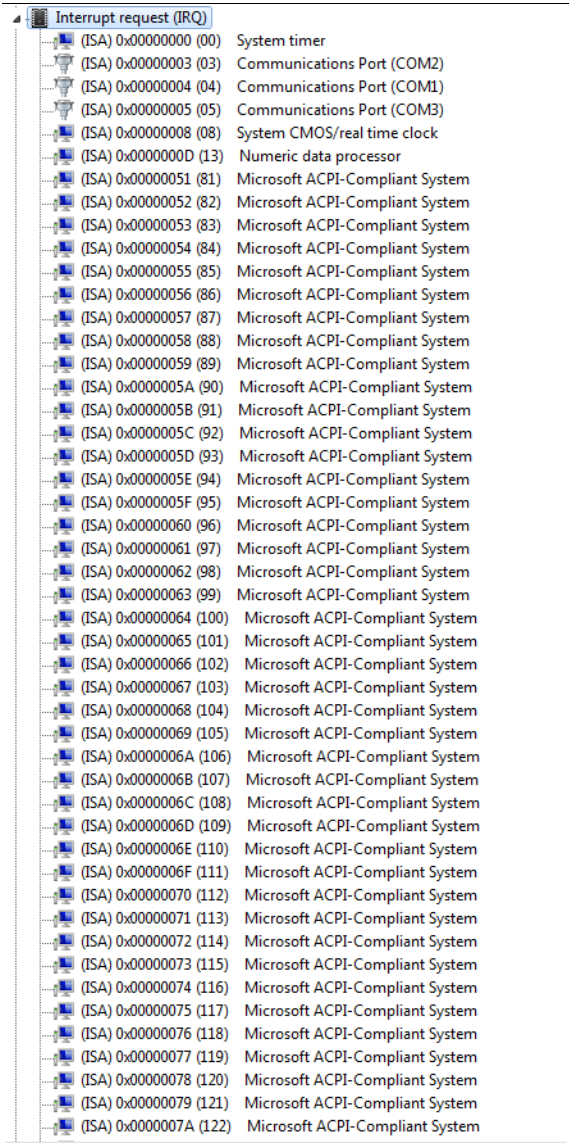
B.1 I/O Address Map



B.2 Memory Address Map



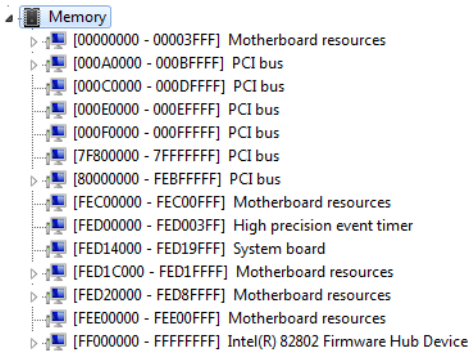
B.3 IRQ Mapping Chart



- (ISA) 0x0000007B (123) Microsoft ACPI-Compliant System
- (ISA) 0x0000007C (124) Microsoft ACPI-Compliant System
- (ISA) 0x0000007D (125) Microsoft ACPI-Compliant System
- (ISA) 0x0000007E (126) Microsoft ACPI-Compliant System
- (ISA) 0x0000007F (127) Microsoft ACPI-Compliant System
- (ISA) 0x00000080 (128) Microsoft ACPI-Compliant System
- (ISA) 0x00000081 (129) Microsoft ACPI-Compliant System
- (ISA) 0x00000082 (130) Microsoft ACPI-Compliant System
- (ISA) 0x00000083 (131) Microsoft ACPI-Compliant System
- (ISA) 0x00000084 (132) Microsoft ACPI-Compliant System
- (ISA) 0x00000085 (133) Microsoft ACPI-Compliant System
- (ISA) 0x00000086 (134) Microsoft ACPI-Compliant System
- (ISA) 0x00000087 (135) Microsoft ACPI-Compliant System
- (ISA) 0x00000088 (136) Microsoft ACPI-Compliant System
- (ISA) 0x00000089 (137) Microsoft ACPI-Compliant System
- (ISA) 0x0000008A (138) Microsoft ACPI-Compliant System
- (ISA) 0x0000008B (139) Microsoft ACPI-Compliant System
- (ISA) 0x0000008C (140) Microsoft ACPI-Compliant System
- (ISA) 0x0000008D (141) Microsoft ACPI-Compliant System
- (ISA) 0x0000008E (142) Microsoft ACPI-Compliant System
- (ISA) 0x0000008F (143) Microsoft ACPI-Compliant System
- (ISA) 0x00000090 (144) Microsoft ACPI-Compliant System
- (ISA) 0x00000091 (145) Microsoft ACPI-Compliant System
- (ISA) 0x00000092 (146) Microsoft ACPI-Compliant System
- (ISA) 0x00000093 (147) Microsoft ACPI-Compliant System
- (ISA) 0x00000094 (148) Microsoft ACPI-Compliant System
- (ISA) 0x00000095 (149) Microsoft ACPI-Compliant System
- (ISA) 0x00000096 (150) Microsoft ACPI-Compliant System
- (ISA) 0x00000097 (151) Microsoft ACPI-Compliant System
- (ISA) 0x00000098 (152) Microsoft ACPI-Compliant System
- (ISA) 0x00000099 (153) Microsoft ACPI-Compliant System
- (ISA) 0x0000009A (154) Microsoft ACPI-Compliant System
- (ISA) 0x0000009B (155) Microsoft ACPI-Compliant System
- (ISA) 0x0000009C (156) Microsoft ACPI-Compliant System
- (ISA) 0x0000009D (157) Microsoft ACPI-Compliant System
- (ISA) 0x0000009E (158) Microsoft ACPI-Compliant System
- (ISA) 0x0000009F (159) Microsoft ACPI-Compliant System
- (ISA) 0x000000A0 (160) Microsoft ACPI-Compliant System
- (ISA) 0x000000A1 (161) Microsoft ACPI-Compliant System
- (ISA) 0x000000A2 (162) Microsoft ACPI-Compliant System
- (ISA) 0x000000A3 (163) Microsoft ACPI-Compliant System
- (ISA) 0x000000A4 (164) Microsoft ACPI-Compliant System
- (ISA) 0x000000A5 (165) Microsoft ACPI-Compliant System
- (ISA) 0x000000A6 (166) Microsoft ACPI-Compliant System
- (ISA) 0x000000A7 (167) Microsoft ACPI-Compliant System
- (ISA) 0x000000A8 (168) Microsoft ACPI-Compliant System
- (ISA) 0x000000A9 (169) Microsoft ACPI-Compliant System
- (ISA) 0x000000AA (170) Microsoft ACPI-Compliant System

- (ISA) 0x000000AB (171) Microsoft ACPI-Compliant System
- (ISA) 0x000000AC (172) Microsoft ACPI-Compliant System
- (ISA) 0x000000AD (173) Microsoft ACPI-Compliant System
- (ISA) 0x000000AE (174) Microsoft ACPI-Compliant System
- (ISA) 0x000000AF (175) Microsoft ACPI-Compliant System
- (ISA) 0x000000B0 (176) Microsoft ACPI-Compliant System
- (ISA) 0x000000B1 (177) Microsoft ACPI-Compliant System
- (ISA) 0x000000B2 (178) Microsoft ACPI-Compliant System
- (ISA) 0x000000B3 (179) Microsoft ACPI-Compliant System
- (ISA) 0x000000B4 (180) Microsoft ACPI-Compliant System
- (ISA) 0x000000B5 (181) Microsoft ACPI-Compliant System
- (ISA) 0x000000B6 (182) Microsoft ACPI-Compliant System
- (ISA) 0x000000B7 (183) Microsoft ACPI-Compliant System
- (ISA) 0x000000B8 (184) Microsoft ACPI-Compliant System
- (ISA) 0x000000B9 (185) Microsoft ACPI-Compliant System
- (ISA) 0x000000BA (186) Microsoft ACPI-Compliant System
- (ISA) 0x000000BB (187) Microsoft ACPI-Compliant System
- (ISA) 0x000000BC (188) Microsoft ACPI-Compliant System
- (ISA) 0x000000BD (189) Microsoft ACPI-Compliant System
- (ISA) 0x000000BE (190) Microsoft ACPI-Compliant System
- (PCI) 0x0000000B (11) Intel(R) N10/ICH7 Family SMBus Controller - 27DA
- (PCI) 0x00000010 (16) Intel(R) N10/ICH7 Family PCI Express Root Port - 27D0
- (PCI) 0x00000010 (16) Intel(R) N10/ICH7 Family USB Universal Host Controller - 27CB
- (PCI) 0x00000012 (18) Intel(R) N10/ICH7 Family USB Universal Host Controller - 27CA
- (PCI) 0x00000013 (19) Intel(R) N10/ICH7 Family Serial ATA Storage Controller - 27C0
- (PCI) 0x00000013 (19) Intel(R) N10/ICH7 Family USB Universal Host Controller - 27C9
- (PCI) 0x00000016 (22) High Definition Audio Controller
- (PCI) 0x00000017 (23) Intel(R) N10/ICH7 Family USB Universal Host Controller - 27C8
- (PCI) 0x00000017 (23) Intel(R) N10/ICH7 Family USB2 Enhanced Host Controller - 27CC
- (PCI) 0xFFFFFFFD (-3) Realtek PCIe GBE Family Controller
- (PCI) 0xFFFFFFFE (-2) Intel(R) Graphics Media Accelerator 3600 Series

B.4 DMA Channel Assignments



Appendix

C

Miscellanea

C.1 General Cleaning Tips

You may need the following precautions before you begin to clean the computer. When you clean any single part or component for the computer, please read and understand the details below fully.

1. Never spray or squirt the liquids directly onto any computer component. If you need to clean the device, please rub it with a piece of dry cloth.
2. Be cautious of the tiny removable components when you use a vacuum cleaner to absorb the dirt on the floor.
3. Turn the system off before you start to clean up the component or computer.
4. Never drop the components inside the computer or get circuit board damp or wet.
5. Be cautious of all kinds of cleaning solvents or chemicals when you use it for the sake of cleaning. Some individuals may be allergic to the ingredients.
6. Try not to put any food, drinks or cigarettes around the computer.

C.2 Cleaning tools

Although many companies have created products to help improve the process of cleaning your computer and peripherals users can also use household items to clean their computers and peripherals. Below is a listing of items you may need or want to use while cleaning your computer or computer peripherals.

Keep in mind that some components in your computer may only be able to be cleaned using a product designed for cleaning that component, if this is the case it will be mentioned in the cleaning tips.

- **Cloth** - A piece of cloth is the best tool to use when rubbing up a component. Although paper towels or tissues can be used on most hardware as well, we still recommend you to rub it with a piece of cloth.
- **Water or rubbing alcohol** – You may moisten a piece of cloth a bit with some water or rubbing alcohol and rub it on the computer. Unknown solvents may be harmful to the plastics parts.
- **Vacuum cleaner** - Absorb the dust, dirt, hair, cigarette particles, and other particles out of a computer can be one of the best methods of cleaning a computer. Over time these items can restrict the airflow in a computer and cause circuitry to corrode.

- **Cotton swabs** - Cotton swaps moistened with rubbing alcohol or water are excellent tools for wiping hard to reach areas in your keyboard, mouse, and other locations.
- **Foam swabs** - Whenever possible it is better to use lint free swabs such as foam swabs.

Note:
We strongly recommended that you should shut down the system before you start to clean any single components.

Please follow the steps below.

1. Close all application programs
2. Close operating software
3. Turn off power switch
4. Remove all device
5. Pull out power cable

C.3 Scrap Computer Recycling

If the computer equipments need the maintenance or are beyond repair, we strongly recommended that you should inform us as soon as possible for the suitable solution. For the computers that are no longer useful or work well, please contact with worldwide distributors for recycling.

The worldwide distributors show on the following website:

http://www.aaeon.com/?TabIndex=Contact&TabID=Distributors

Note:

Follow the national requirements to dispose unit.

Appendix

D

AHCI Setting

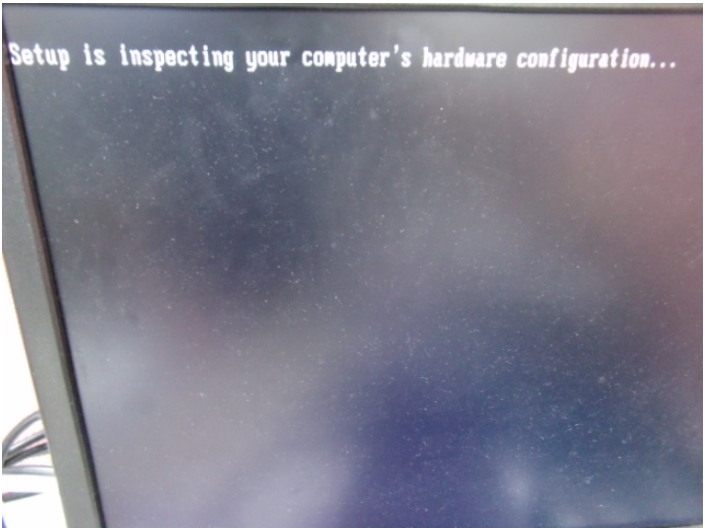
D.1 Setting AHCI

OS installation to setup AHCI Mode.

Step 1: Copy the files below from “Driver CD -> STEP4-AHCI\WINXP_32” to Disk

Step 2: Connect the USB Floppy to the board (The photo below is for reference only)

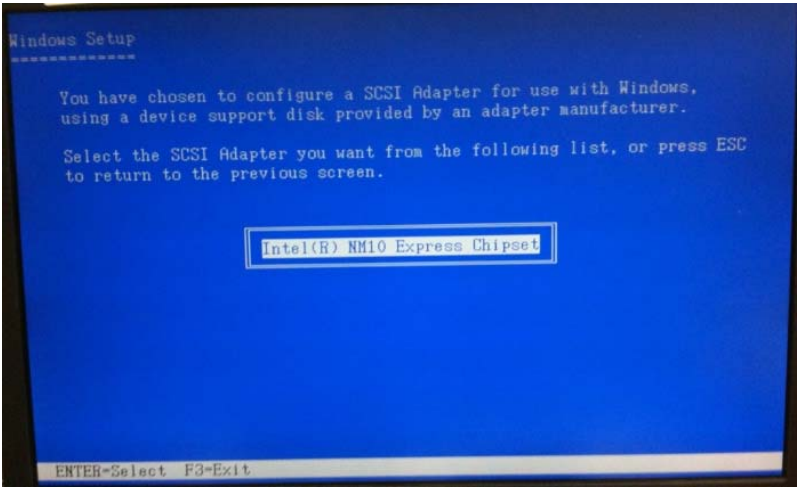
Step 3: Setup OS



Step 4: Press "**F6**"

Step 5: Choose "**S**"

Step 6: Choose "**Intel(R) NM10 Express Chipset**"



Step 7: It will show the model number you select and then press “**ENTER**

Step 8: Setup is loading files