

# AMS200 User Manual

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## **Safety Information**

Your AMS200 is designed and tested to meet the latest standards of safety for information technology equipment. However, to ensure your safety, it is important that you read the following safety instructions

#### Setting up your system

- Read and follow all instructions in the documentation before you operate your system.
- Do not use this product near water.
- Set up the system on a stable surface. Do not secure the system on any unstable plane.
- Do not place this product on an unstable cart, stand, or table. The product may fall, causing serious damage to the product.
- Slots and openings on the chassis are for ventilation. Do not block or cover these
  openings. Make sure you leave plenty of space around the system for ventilation.
   Never insert objects of any kind into the ventilation openings.
- This system should be operated from the type of power indicated on the marking label. If you are not sure of the type of power available, consult your dealer or local power company.
- Use this product in environments with ambient temperatures between 0°C and 40°C.
- If you use an extension cord, make sure that the total ampere rating of the devices plugged into the extension cord does not exceed its ampere rating.
- DO NOT LEAVE THIS EQUIPMENT IN AN ENVIRONMENT WHERE
   THESTORAGE TEMPERATURE MAY GO BELOW -20° C (-4° F) OR ABOVE
   80° C (176° F). THIS COULD DAMAGE THE EQUIPMENT. THE EQUIPMENT
   SHOULD BE IN A CONTROLLED ENVIRONMENT.

#### **Care during use**

- Do not walk on the power cord or allow anything to rest on it.
- Do not spill water or any other liquids on your system.
- When the system is turned off, a small amount of electrical current still flows.
   Always unplug all power, and network cables from the power outlets before cleaning the system.
- If you encounter the following technical problems with the product, unplug the power cord and contact a qualified service technician or your retailer.
  - The power cord or plug is damaged.
  - Liquid has been spilled into the system.
  - > The system does not function properly even if you follow the operating instructions.
  - The system was dropped or the cabinet is damaged.

#### **Lithium-Ion Battery Warning**

**CAUTION**: Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

#### NO DISASSEMBLY

The warranty does not apply to the products that have been disassembled by users

## WARNING HAZARDOUS MOVING PARTS KEEP FINGERS AND OTHER BODY PARTS AWAY

## Acknowledgments

- AMI is a registered trademark of AMI Software International, Inc.
- AMD and ATI are registered trademarks of AMD Corporation.
- Microsoft Windows is a registered trademark of Microsoft Corporation.
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#### CHAPTER 1 INTRODUCTION

#### 1.1 General Description

The AMS200 system comes with the ABP-MB70 customized motherboard and integrates the Intel® Core™ i7/i5/i3/Celeron processor with HM76 PCH that featuring 22nm microarchitecture and 3-D Tri-Gate transistors. With unparalleled reliability, the 2.71GHz processor allows the AMS200 to operate in wide temperatures at -10°C to +55°C in harsh industrial environments for 24/7 operation. The AMS200 is ideal for factory automation machine, In-vehicle and other rugged applications that could utilize its 24V DC power input.

Incorporating the HM76 PCH, the AMS200 comes on board with two pieces of 2GB DDR3-133 SO-DIMM memory. The maximum system memory capacity is 16GB. Moreover, it comes with a variety of functional interface at the rear panel including four USB 2.0, four USB 3.0, two DVI-I displays, two serial ports, two Gigabit LAN, and one Terminal block connector for 24V DC input.

Measuring 297.4mm(w) by 266.2mm(d) by 78.5mm(h), the AMS200 unit comes with a wall mount kit and DC-input with terminal block type. The model is currently available with either a 2.5-inch 500GB SATA HDD or SATA SSD and 4GB industrial grade memory. Expansion is provided by two PCI slots or 1x PCI-E(x16) + 1x PCI-E(x4) or 1x PCI-E(x16) + 1x PCI slot .



## **1.2 System Specifications**

## **1.2.1** Hardware Specifications

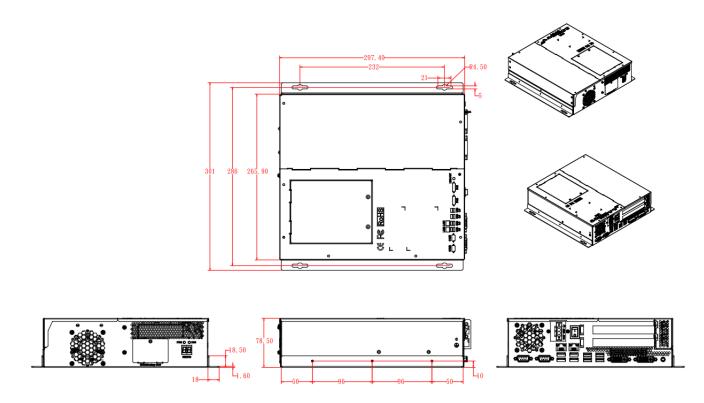
	Specification –System		
CPU			
Model	3nd Generation Core I™ processor, Ivy bridge		
	- Part number: (iBASE or Vender P/N)		
	Sub-sub 1		
Model	3nd Generation Core I ™ processor, Ivy bridge		
	- Part number: (iBASE or Vender P/N)		
	Sub-sub 1		
Speed	Up to 2.7GHz		
Cache	Up to 8MB		
Socket	rPGA 988B (Socket G2) , 37.5 mm x 37.5mm		
	Passive CPU cooling, heat sink plus system fan.		
TDP	QC = 45W/DC = 35W		
	Memory		
Configuration	Intel® Ivy-Bridge mobile processors integrated memory controller		
	DDRIII 1067/1333/1600 MHz		
	- SO-DIMM [204-pin Horizontal type stacking] x 2 (Non-ECC)		
	- Memory socket to be located near CPU		
Max. Support	Max. 16GB		
Onboard	- 512k SRAM (C02S0903000007000P)		
backup	- attach the 1/2AA battery holder (A043HDBAT11030000P) to the		
memory SRAM	removable plate on the rear side of the chassis		
	Rear Panel I/O **reference appendix 1**		
Other	- 7-segment display: LPC 80 port Via ABP-ID45		
	DF11-26pin (2 rows) to DF11-26pins (2 rows) extension cable		
	PN: C501EXT3170152000P		
	- Fan		
	<ul> <li>60mm x 60mm DC Fan x1 for CPU (on rear chassis).</li> </ul>		
	• 50mm x 50mm DC Fan x 1 for PSU(on front Side).		
	- CPU fan x 1.		
	Front Panel I/O **reference appendix 1**		
Display	- 2 x DVI-I connector		

- 2 x Gigabit LAN	LANL/DUN/	
> Intel® Lewisville 82579 <u>V</u> GbE PHY for 1st LAN	LAN / PHY	
PRealtek RTL8111E PCI-e Gigabit LAN for 2nd LAN - Add the componet of strain relief. Please see the design in appendix 2. (廣鑫有在客製)  Audio  Intel® HM76 PCH built-in High Definition Audio controller + Realtek ALC662 w/ 5.1 channels (如果 Audio jack 放不下,就用 box header 代替) - Audio jack: Line out x 1  USB - USB 3.0 host controller [Panther Point integrated], supports 4 ports • 2x RJ45+USB3.0 edge connectors to support 4 ports in the front panel - USB 2.0 host controller [Panther Point integrated], support 6 ports • 2x stacking USB2.0 ege connectors to support 4x USB2.0 in the front panel - mPCle slot for mSTAT: use one USB2.0 signal  SATA  Intel® HM76 PCH built-in SATA controller, supports total 2 SATA3.0 ports - 2 x SATA (3.0) 6Gbps • The location and design of the 2.5" HDD will be the same as ABP102-945's • HDD SATA cable PN: C501SATA430153000P		
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■ □ □ 夕· ○RI·S ΔΤΔ 13 3 HD 舶 15/15 CM		<ul> <li>HDD SATA cable PN: C501SATA430153000P</li> </ul>
■ □□·□· CDL,3ATA-43 3-HD 3 3/13/13CM		● 品名: CBL;SATA-43 3-HD 線 15/15CM
● 規格: SATA-7+15=>/∫\ 4P-F=>SATA-7 ROHS		● 規格: SATA-7+15=>小 4P-F=>SATA-7 ROHS
LPC I / O - COM1 (R\$232/422/485), COM2 (R\$232)	LPCI/O	- COM1 (R\$232/422/485), COM2 (R\$232)
<ul> <li>2X COM connectors to support 2 COM ports</li> </ul>		<ul> <li>2X COM connectors to support 2 COM ports</li> </ul>
● COM1 RS422/485 Auto Flow control		COM1 RS422/485 Auto Flow control
RS-232/422/485 on COM1 selectable in BIOS		<ul> <li>RS-232/422/485 on COM1 selectable in BIOS</li> </ul>
Expansion slot - Riser card series number: ABP-IP702 (two golden fingers)	Expansion slot	- Riser card series number: ABP-IP702 (two golden fingers)
1xPCle(x16) at upper slot		1xPCle(x16) at upper slot
1xPCI at lower slot		1xPCI at lower slot
Other - +24V phoenix contact DC power input		- +24V phoenix contact DC power input
(Same design • Terminal box to power switch cable	Other	'

	00 A DD100 045\	DNI: 0501DW07/000000D		
★機管: TERMAIL BLOCK-3P => PWR SW ROHS     Power switch to ATX con. cable     Power SW 277 2-HD 2C    Power SW => ATX PW CN-4F ROHS	as ABP102-945)	PN: C501PW27602082000P		
● Power switch to ATX con. cable  > PN: C501PW27702402000P  > 品名: CABLE:PW277 2-HD 2C 線 40CM  ● 規格: PWR SW ⇒ ATX PW CN-4F ROHS   Storage  Drive Bays  Other  - mSATA via mPCle slot    Dimension				
PN: C501PW27702402000P		1.77		
Fower Fower Power Power Power Power Power Power Power Power Poperating: 0°C~60°C (32°F~140°F) (做不到 60°C 就做 55°C) Storage: -20°C~70°C (-4°F~158°F) Power Po				
■ 技術: PWR SW ⇒ ATX PW CN-4F RoHS  Storage  Drive Bays No Other - mSATA via mPCle slot    Dimension				
Drive Bays   No   Other   - msATA via mPCle slot				
Drive Bays   No		V-11-		
Dither   - mSATA via mPCle slot				
System   - 297mm(W) x 265mm(D) x 78.5mm(H)   - The outer chassis dimension and mounting hole (with bracket) must be the same as ABP102-945.   - Comes with 2 mounting plate to support horizontal and vertical installation (Default), see appendix 3 for mounting hole design   Power   - +24V phoenix contact DC power input   - Max DC output power 320(W)   Other   - Optional PSU with AC input   Environmental	•	+		
System	Other			
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Power Power  - +24V phoenix contact DC power input - Max DC output power 320(W)  Other - Optional PSU with AC input  Environmental  Temperature Operating: 0°C~60°C (32°F~140°F) (做不到 60°C 就做 55°C)  Storage: -20°C~70°C (-4°F~158°F)  Humidity 5%~90% (non-condensing)  Shock - In operation 50 m/s2, 30 ms - Storage/transport 250 m/s2, 6 ms  Vibration - In operation: 10 to 58Hz: 0.075mm, 58 to 500Hz: 9.8 m/s2 - Storage/transport: 5 to 9 Hz: 3.5mm, 9 to 500Hz: 9.8 m/s2  Drop ISTA-3A  Brightness +/- 20% of normal (1200 nits)  Other - IP20 - Noise Emission: <55 dB(A) according to EN ISO7779  Regulation N/A  EMC  Certification - CE/FCC		- Comes with 2 mounting plate to support horizontal and		
Power - +24V phoenix contact DC power input - Max DC output power 320(W)  Other - Optional PSU with AC input  Environmental  Temperature Operating: 0°C~60°C (32°F~140°F) (做不到 60°C 就做 55°C)  Storage: -20°C~70°C (-4°F~158°F)  Humidity 5%~90% (non-condensing)  Shock - In operation 50 m/s2, 30 ms - Storage/transport 250 m/s2, 6 ms  Vibration - In operation: 10 to 58Hz: 0.075mm, 58 to 500Hz: 9.8 m/s2 - Storage/transport: 5 to 9 Hz: 3.5mm, 9 to 500Hz: 9.8 m/s2  Drop ISTA-3A  Brightness +/- 20% of normal (1200 nits)  Other - IP20 - Noise Emission: <55 dB(A) according to EN ISO7779  Regulation N/A  EMC  Certification - CE/FCC		, , , , , , , , , , , , , , , , , , , ,		
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- Max DC output power 320(W)  Other - Optional PSU with AC input  Environmental  Temperature Operating: 0°C~60°C (32°F~140°F) (做不到 60°C 就做 55°C)  Storage: -20°C~70°C (-4°F~158°F)  Humidity 5%~90% (non-condensing)  Shock - In operation 50 m/s2, 30 ms - Storage/transport 250 m/s2, 6 ms  Vibration - In operation: 10 to 58Hz: 0.075mm, 58 to 500Hz: 9.8 m/s2 - Storage/transport: 5 to 9 Hz: 3.5mm, 9 to 500Hz: 9.8 m/s2  Drop ISTA-3A  Brightness +/- 20% of normal (1200 nits)  Other - IP20 - Noise Emission: <55 dB(A) according to EN ISO7779  Regulation N/A  EMC  Certification - CE/FCC	Power			
Temperature Operating: 0°C~60°C (32°F~140°F) (做不到 60°C 就做 55°C) Storage: -20°C~70°C (-4°F~158°F) Humidity 5%~90% (non-condensing) Shock In operation 50 m/s2, 30 ms - Storage/transport 250 m/s2, 6 ms  Vibration In operation: 10 to 58Hz: 0.075mm, 58 to 500Hz: 9.8 m/s2 - Storage/transport: 5 to 9 Hz: 3.5mm, 9 to 500Hz: 9.8 m/s2  Drop ISTA-3A Brightness +/- 20% of normal (1200 nits) Other IP20 - Noise Emission: <55 dB(A) according to EN ISO7779  Regulation N/A  EMC Certification - CE/FCC	Power	- +24V phoenix contact DC power input		
Environmental  Temperature Operating: 0°C~60°C (32°F~140°F) (做不到 60°C 就做 55°C)  Storage: -20°C~70°C (-4°F~158°F)  Humidity 5%~90% (non-condensing)  Shock In operation 50 m/s2, 30 ms - Storage/transport 250 m/s2, 6 ms  Vibration In operation: 10 to 58Hz: 0.075mm, 58 to 500Hz: 9.8 m/s2 - Storage/transport: 5 to 9 Hz: 3.5mm, 9 to 500Hz: 9.8 m/s2  Drop ISTA-3A  Brightness +/- 20% of normal (1200 nits)  Other IP20 - Noise Emission: <55 dB(A) according to EN ISO7779  Regulation N/A  EMC  Certification - CE/FCC		- Max DC output power 320(W)		
Temperature Operating: 0°C~60°C (32°F~140°F) (做不到 60°C 就做 55°C)  Storage: -20°C~70°C (-4°F~158°F)  Humidity 5%~90% (non-condensing)  Shock - In operation 50 m/s2, 30 ms - Storage/transport 250 m/s2, 6 ms  Vibration - In operation: 10 to 58Hz: 0.075mm, 58 to 500Hz: 9.8 m/s2 - Storage/transport: 5 to 9 Hz: 3.5mm, 9 to 500Hz: 9.8 m/s2  Drop ISTA-3A  Brightness +/- 20% of normal (1200 nits)  Other - IP20 - Noise Emission: <55 dB(A) according to EN ISO7779  Regulation N/A  EMC  Certification - CE/FCC	Other	- Optional PSU with AC input		
Storage: -20°C~70°C (-4°F~158°F)  Humidity 5%~90% (non-condensing)  Shock - In operation 50 m/s2, 30 ms - Storage/transport 250 m/s2, 6 ms  Vibration - In operation: 10 to 58Hz: 0.075mm, 58 to 500Hz: 9.8 m/s2 - Storage/transport: 5 to 9 Hz: 3.5mm, 9 to 500Hz: 9.8 m/s2  Drop ISTA-3A  Brightness +/- 20% of normal (1200 nits)  Other - IP20 - Noise Emission: <55 dB(A) according to EN ISO7779  Regulation N/A  EMC  Certification - CE/FCC				
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Shock  In operation 50 m/s2, 30 ms Storage/transport 250 m/s2, 6 ms  Vibration  In operation: 10 to 58Hz: 0.075mm, 58 to 500Hz: 9.8 m/s2 Storage/transport: 5 to 9 Hz: 3.5mm, 9 to 500Hz: 9.8 m/s2  Drop  ISTA-3A  Brightness  +/- 20% of normal (1200 nits)  Other  IP20 Noise Emission: <55 dB(A) according to EN ISO7779  Regulation  N/A  EMC  Certification  - CE/FCC		Storage: -20°C~70°C (-4°F~158°F)		
- Storage/transport 250 m/s2, 6 ms  Vibration - In operation: 10 to 58Hz: 0.075mm, 58 to 500Hz: 9.8 m/s2 - Storage/transport: 5 to 9 Hz: 3.5mm, 9 to 500Hz: 9.8 m/s2  Drop ISTA-3A  Brightness +/- 20% of normal (1200 nits)  Other - IP20 - Noise Emission: <55 dB(A) according to EN ISO7779  Regulation N/A  EMC  Certification - CE/FCC	Humidity	5%~90% (non-condensing)		
Vibration - In operation: 10 to 58Hz: 0.075mm, 58 to 500Hz: 9.8 m/s2 - Storage/transport: 5 to 9 Hz: 3.5mm, 9 to 500Hz: 9.8 m/s2  Drop ISTA-3A  Brightness +/- 20% of normal (1200 nits)  Other - IP20 - Noise Emission: <55 dB(A) according to EN ISO7779  Regulation N/A  EMC  Certification - CE/FCC	Shock	- In operation 50 m/s2, 30 ms		
- Storage/transport: 5 to 9 Hz: 3.5mm, 9 to 500Hz: 9.8 m/s2  Drop ISTA-3A  Brightness +/- 20% of normal (1200 nits)  Other - IP20 - Noise Emission: <55 dB(A) according to EN ISO7779  Regulation N/A  EMC  Certification - CE/FCC		- Storage/transport 250 m/s2, 6 ms		
Drop ISTA-3A  Brightness +/- 20% of normal (1200 nits)  Other - IP20 - Noise Emission: <55 dB(A) according to EN ISO7779  Regulation N/A  EMC  Certification - CE/FCC	Vibration	- In operation: 10 to 58Hz: 0.075mm, 58 to 500Hz: 9.8 m/s2		
Brightness +/- 20% of normal (1200 nits)  Other - IP20 - Noise Emission: <55 dB(A) according to EN ISO7779  Regulation N/A  EMC  Certification - CE/FCC		- Storage/transport: 5 to 9 Hz: 3.5mm, 9 to 500Hz: 9.8 m/s2		
Other - IP20 - Noise Emission: <55 dB(A) according to EN ISO7779  Regulation N/A  EMC  Certification - CE/FCC	Drop	ISTA-3A		
- Noise Emission: <55 dB(A) according to EN ISO7779  Regulation N/A  EMC  Certification - CE/FCC	Brightness	+/- 20% of normal (1200 nits)		
Regulation N/A  EMC  Certification - CE/FCC	Other	- IP20		
EMC Certification - CE/FCC		- Noise Emission: <55 dB(A) according to EN ISO7779		
Certification - CE/FCC	Regulation	N/A		
		EMC		
	Certification	- CE/FCC		
Safety		Safety		

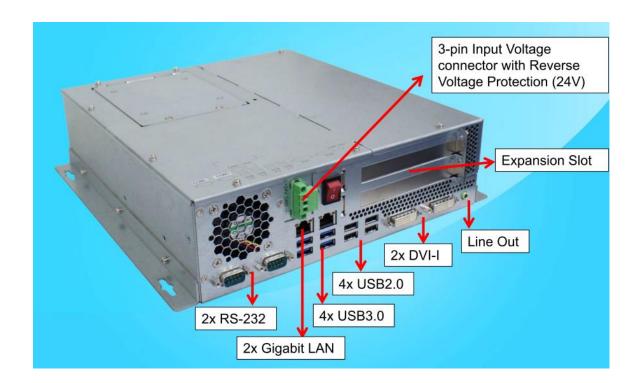
-	UL 60950-1 (AC input)
-	UL 508 (DC input)

## 1.2.2 Dimensions

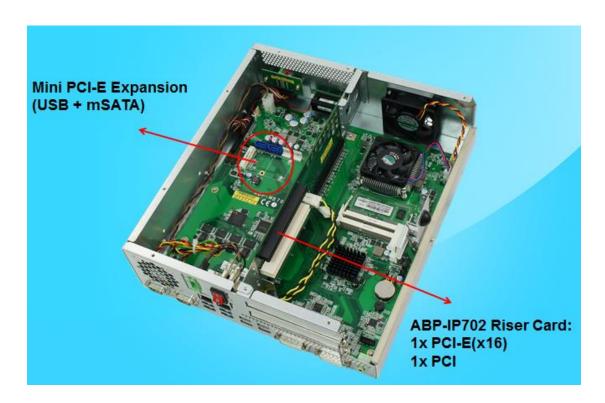


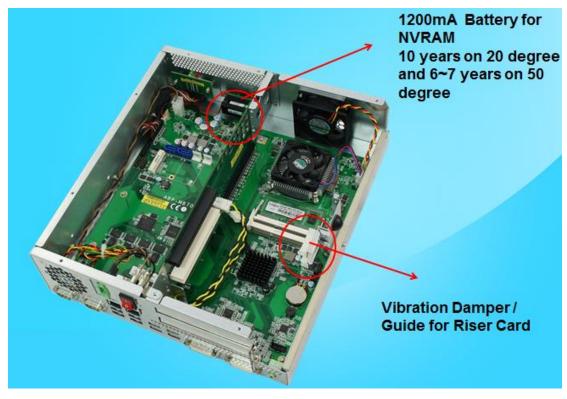
<sup>·</sup>This specification is subject to change without prior notice.

## 1.2.3 Product I/O view & Introduction of specify function

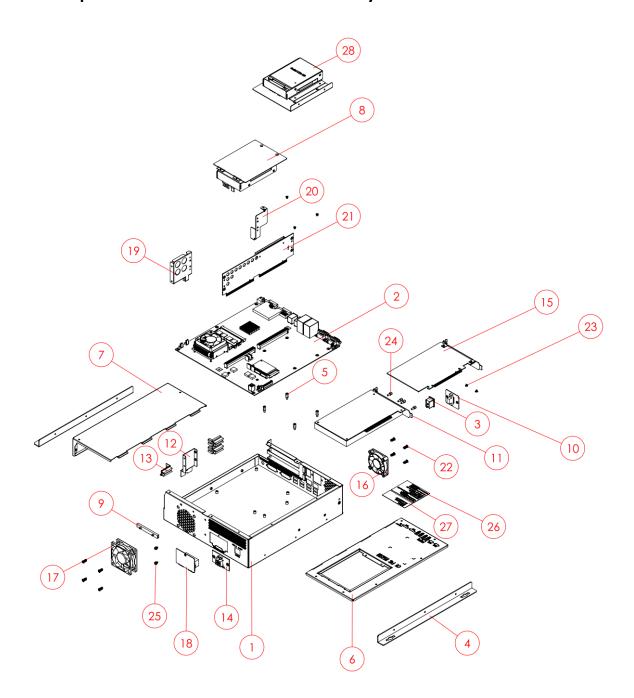








## 1.3 Exploded View of the AMS200 Assembly



## 1.3.1 Parts Description

Part No.	Description	Part No.	Description
1	AMS200_base	2	DIP PCBA, ABP-MB70
3	rocker sw_13.5x19_reset	4	AMS200_bracket
5	NUT-BT20	6	AMS200_cover brk
7	AMS200_pci cover brk	8	AMS200_HDD_asm

9	CG-6F	10	AMS200_DC-in_asm
11	PCI expansion card_asm	12	AMS200_side brk
13	AMS200_L_asm	14	ABP-ID45_asm
15	PCle card_asm	16	SYS_FAN
17	SYS_FAN	18	AMS200_batt_asm
19	AMS200_pci brk2	20	AMS200_pci brk1
21	ABP-IP702_asm	22	SCREW-E2
23	SCREW-B30	24	NUTBOSS-S6
25	SCREW-B28A	26	AMS200 cover label
27	System label	28	AMS200_HDD2_asm

## 1.4 Packing List

Item No.	Description	Qty
1	Driver CD	1
2	User manual	1
3	Wall mount kit	2

## 1.4.1 Optional Items

Riser card Solution	Description	
ABP-IP701	1x PCI-e(x16) slot+ 1x PCI -e(x4) slot	ARA 1778 C
ABP-IP702	1x PCI-e(x16) slot + 1x PCI slot (Default)	AP-1PTOS GG
ABP-IP703	2x PCI slots	A8-1970

## CHAPTER 2 MOTHERBOARD INTRODUCTION

#### 2.1 Introduction

The ABP-MB70 is a customized board computer based on the Intel® 3<sup>rd</sup> Generation Core<sup>TM</sup> i7/i5/i3/Celeron processors.

The ABP-MB70 platform is wide temperature for low-power and high-performance designs in a broad range of markets including Industrial Control & Automation, Digital Signage, Thin Client, Electronic Gaming Machines, and SMB storage appliances.

#### ABP-MB70 Features:

- Supports Intel® 3<sup>rd</sup> Generation Core<sup>TM</sup> i7/i5/i3/Celeron processors
- Two DDR3 SO-DIMM, 1600 MHz, Max. 16GB memory
- Integrated graphics for two DVI-I ports
- 2 x SATA III connector
- 2x COM port connector
- 1 x Mini-PCle(x1) slots
- Wide temperature operating supporting
- 1x 24V DC-IN power connector

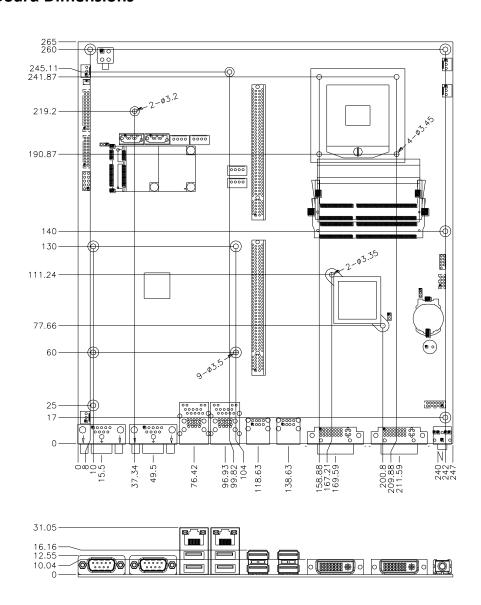
	<u> </u>		
	Specification – Mainboard		
Model	ABP-MB70		
Form Factor	265 x 247mm		
	CPU		
Model	Intel® Ivy-Bridge mobile processors (22nm monolithic)		
Speed	Up to 2.7GHz		
Cache	Up to 8MB		
Socket	rPGA 988B (Socket G2) , 37.5 mm x 37.5mm		
	Passive CPU cooling, heat sink plus system fan.		
TDP	QC = 45W/DC = 35W		
	Chipset		
Model	Intel® Panther Point Mobile Platform Controller Hub		
	(HM76 PCH)		
	25 x 27 mm package size		
BIOS			
Model	AMI BIOS		
Memory			
Configuration	Intel® Ivy-Bridge mobile processors integrated memory		
	controller		
	DDRIII 1067/1333/1600 MHz		
	- SO-DIMM [204-pin Horizontal type stacking] x 2		
	(Non-ECC)		

Max. Support	Max. 16GB
Onboard	Yes
backup SRAM	
	Edge I/O
Display	<ul> <li>Intel® Ivy-Bridge mobile processor integrated Gfx, supports 2 independent displays, Direct X 11, OpenGL 3.1, Open CL 1.1</li> <li>First DVI-I X 1 (thru Level shifter ASM1442)         <ul> <li>Digital: display port B converted to DVI via ASM1442</li> <li>Analog: inhere analog VGA signal from HM76</li> </ul> </li> <li>Second DVI-I x 1         <ul> <li>Digital: display port C converted to DVI via ASM1442</li> <li>Digital: display port D converted to DVI via IT6512FN</li> </ul> </li> </ul>
LAN / PHY	Two Gigabit Ethernet connections  - 2x RJ45 + Dual USB 3.0 stack connectors Intel® Lewisville 82579VGbE PHY for 1st LAN Realtek RTL8111E PCI-e Gigabit LAN for 2rd LAN
Audio	Intel® HM76 PCH built-in High Definition Audio controller + Realtek ALC662 w/ 5.1 channels  • Audio jack: Line out x 1  DF11 2X6 pin header support Line-out, Line-in, Mic
USB	<ul> <li>USB 3.0 controller [Panther Point integrated], supports 4 ports</li> <li>2x RJ45+USB3.0 edge connectors to support 4 ports in the front panel (Reference LAN section)</li> <li>USB 2.0 controller [Panther Point integrated], support 12 ports</li> <li>2x stacking USB2.0 edge connector, support 4 USB2.0</li> <li>mPCIe slot for mSTAT: use one USB2.0 signal</li> </ul>
LPC I / O	- COM1 (RS232/422/485),  ● COM1 RS422/485 Auto Flow control  ● RS-232/422/485 on COM1 selectable in BIOS  - COM2 (RS232)  - COM1&2 edge connector + COM3&4 (RS232) onboard header  - Super I/O: Fintek F81866AD-I

Internal I/O			
USB	-USB <u>2.0</u> controller [Panther Point integrated], supports 12		
030	ports,		
	<ul><li>Box header: 2x4 DF11 header x2 to support 4 ports USB</li></ul>		
	2.0		
Serial ATA	Intel® HM76 PCH built-in SATA controller, supports total 2		
22	ports		
	-2 x SATA (3.0) 6Gbps		
	- 2 x Headers of power output for floppy, 4-pin		
LPC I / O	- COM3, COM4 (RS232)		
	Connector: DF11 2x10 pin header to support 2 ports		
	RS232		
Expansion	- The riser card of ABP-IP702 with two golden fingers for 2		
Slot	slots		
	- The riser card of ABP-IP703 with two golden fingers for 3		
	slots		
	- The riser card of ABP-IP705 with two golden fingers for 5		
	slots		
System FAN	60mm x 60mm DC Fan x1 for CPU (on rear chassis) + 50mm		
	x 50mm DC Fan x 1 for PSU (on front Side) + CPU fan x 1.		
	- Connector: 3-pin DC fan connector		
Other	- LPC 80 port Via ABP-ID45		
	• Connector type: 2x13 DF11 pin headerfor ABP-ID45		
	(2x7-Seg + power LED + HDD LED)		
	- Digital I/O: 4 in & 4 out		
	• Connector type: 2x5 pin-header		
	- Mini PCI-Express x 1 port [Full-sized] w/mSATA +USB 2.0		
	support Add On Footure		
Watabalas	Add-On Feature		
Watchdog	Yes (256 segments, 0, 1, 2255 sec/min)		
H/W Monitor	, , , , , , , , , , , , , , , , , , , ,		
	monitor inputs & 3 Fan headers) [SYS FAN "CPU" & SYS FAN "HDD" (DC Fan type, 3-pin connector)]		
iSNANDT	· · · · · · · · · · · · · · · · · · ·		
iSMART Other	No  Pemovable plate accommodating 1/244 battery holder		
Olliel	Removable plate accommodating 1/2AA battery holder  Dimension		
PCB	- 265 x 247 (mm)		
Dimension	- 265 x 247 (11111) - 10.43 x 9.72 (inch)		
ווופוואטוו	Power		
Power	- DC-IN 24V		
. 5 5.	With Reverse, OVP, UVP, UVLO protection		
	Delay on for 2 seconds when main power is switched		
	on		
	Maximum DC power wattage: 320W		
	Connector: ATX 4-pin 2x2 connector x1 for DC power		
	- Power consumption:		
	● 2x <u>12V, 8A</u>		

	● 1x <u>5V, 10A</u>
	● 1x <u>3.3V, 10A</u>
	Environmental
Temperatur	Operating: 0°C~60°C
е	Storage: -20°C~70°C (-4°F~158°F)
Humidity	5%~90% (non-condensing)
Shock	In operation 50 m/s2, 30 ms
	Storage/transport 250 m/s2, 6 ms
Vibration	In operation: 10 to 58Hz: 0.075mm, 58 to 500Hz: 9.8 m/s2
	Storage/transport: 5 to 9 Hz: 3.5mm, 9 to 500Hz: 9.8 m/s2
Certification	RoHS
Other	- OS: XPP, XPe, Win7 Pro, Windows Embedded Standard
	- Uses Solid Capacitors

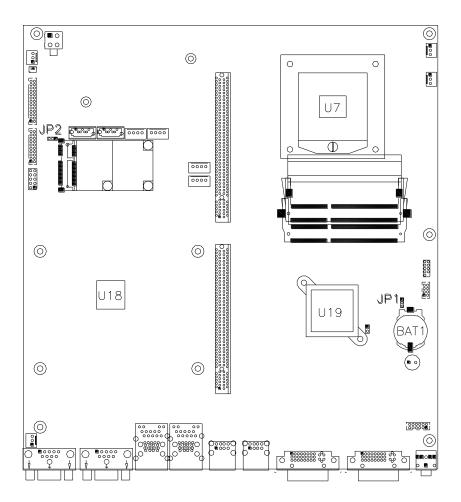
#### 2.2 Board Dimensions



#### 2.3 Setting the Jumpers

Jumpers are used on ABP-MB70 to select various settings and features according to your needs and applications. Contact your supplier if you have doubts about the best configuration for your needs. The following lists the connectors on ABP-MB70 and their respective functions.

## 2.4 Jumper Locations on ABP-MB70



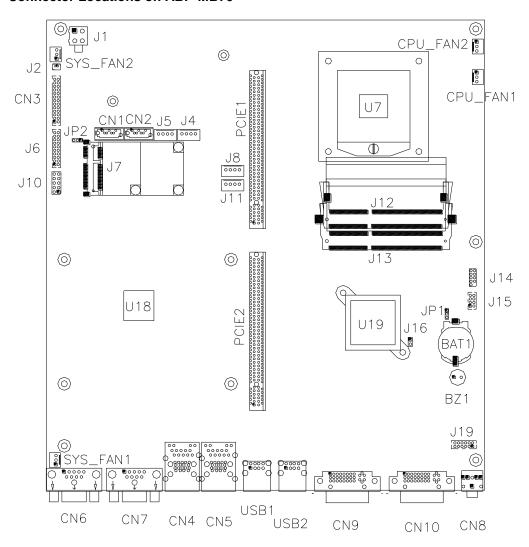
#### **JP1: Clear CMOS Contents**

JP1	Setting	Function
123	Pin 1-2 Short/Closed	Normal
1 2 3	Pin 2-3 Short/Closed	Clear CMOS

#### JP2: ATX or AT Power Selection

JP2	Setting	Function	
	Pin 1-2	ATV Modo	
123	Short/Closed	ATX Mode	
	Pin 2-3		
123	Short/Closed	AT Mode	

#### **Connector Locations on ABP-MB70**





CN1, CN22: SATA3 Connector

**CN3: Interface to ABP-ID45** 

This connects to ABP-ID45 two seven-segment on daughter card BIOS need to support

**POST codes IBASE standard** 

CN4: Gigabit LAN (82579V) + USB3 0/1, USB2 0/1 port

CN5: Gigabit LAN (RTL8111E) + USB3 2/3, USB2 2/3 port

**CN6: COM2 Serial Ports** 



Signal Name	Pin #	Pin#	Signal Name
DCD	1	6	DSR
RXD	2	7	RTS
TXD	3	8	CTS
DTR	4	9	RI
GND	5	10	Not Used

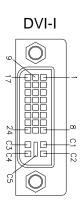
**CN7: COM1 Serial Ports** 



Pin#	Signal Name		
	RS-232	R2-422	RS-485
1	DCD	TX-	DATA-
2	RX	TX+	DATA+
3	TX	RX+	NC
4	DTR	RX-	NC
5	Ground	Ground	Ground
6	DSR	NC	NC
7	RTS	NC	NC
8	CTS	NC	NC
9	RI	NC	NC
10	NC	NC	NC

#### **CN8: Line-out Phone-Jack Connector**

CN9, CN10: DVI-I Connector



Signal Name	Pin#	Pin #	Signal Name
DATA 2-	1	16	HOT POWER
DATA 2+	2	17	DATA 0-
Shield 2/4	3	18	DATA 0+
DATA 4-	4	19	SHIELD 0/5
DATA 4+	5	20	DATA 5-
DDC CLOCK	6	21	DATA 5+
DDC DATA	7	22	SHIELD CLK
CRT_VSYNC	8	23	CLOCK -
DATA 1-	9	24	CLOCK +
DATA 1+	10	C1	CRT_R
SHIELD 1/3	11	C2	CRT_G
DATA 3-	12	C3	CRT_B
DATA 3+	13	C4	CRT_HSYNC
DDC POWER	14	C5	A GROUND2
A GROUND 1	15	C6	A GROUND3

USB1, USB2: USB2 8/9/10/11 port

#### J1: +24V Power Connector



Pin#	Signal Name
1	Ground
2	Ground
3	+24V
4	+24V

#### J2: Battery 1/2AA Connector



Pin#	Signal Name	
1	BAT	
2	Ground	

#### J4, J5: HDD Power Connector

Pin#	Signal Name	
1	+5V	
2	Ground	
3	Ground	
4	+12V	

#### J6: COM3, COM4 Serial Port (DF11 Connector)

		ı
2		1
	100	
	lŏŏ	
	00	
	100	
	188	
	lŏŏ	
20	00	19

Signal Name	Pin #	Pin#	Signal Name
DSR1	2	1	DCD1
Data set ready	2	ı	Data carrier detect
RTS1	4	3	RXD1
Request to send	4	S	Receive data
CTS1	6	5	TXD1
Clear to send	6		Transmit data
RI1	0	7	DTR1
Ringing indicator	8	/	Data terminal ready
Not used	10	9	Ground
DSR2	12	11	DCD2
RTS2	14	13	RXD2
CTS2	16	15	TXD2
RI2	18	17	DTR2
Not used	20	19	Ground

#### J7: Mini-PCIE Connector and mSATA/share

#### J8, 11: PCI Power Connector

Pin#	Signal Name		
1	+5V		
2	Ground		
3	Ground		
4	+12V		

#### J10: Digital I/O Connector (4 in, 4 out)



Signal Name	Pin#	Pin#	Signal Name
Ground	1	2	+5V
Out3	3	4	Out1
Out2	5	6	Out0
IN3	7	8	IN1
IN2	9	10	IN0

J12: DDR SO-DIMM Channel A

J13: DDR SO-DIMM Channel B

J14: SPI Flash Connector (factory use only)

J15: USB2 4/5 Port Connector (DF11 Connector)



Signal	Pin	Pin	Signal
Name	#	#	Name
Ground	2	1	Vcc
D8+	4	3	D7-
D8-	6	5	D7+
Vcc	8	7	Ground

J16: Flash Descriptor Security Override (Factory use only)

Setting	Flash Descriptor Security Override	
Open	Disabled (Default)	
Close	Enabled	

#### J19: Audio Connector (DF11 Connector)



Signal Name	Pin #	Pin#	Signal Name
LINEOUT_R	2	1	LINEOUT_L
Ground	4	3	JD_FRONT
LINEIN_R	6	5	LINEIN
Ground	8	7	JD_LINEIN
MIC-In	10	9	MIC_L
Ground	12	11	JD_MIC1

#### **CPU\_FAN1: CPU Fan Power Connector**



Pin#	Signal Name	
1	Ground	
2	+12V	
3	Rotation	
	detection	

## CPU\_FAN2: System Fan Power Connector



Pin #	Signal Name	
1	Ground	
2	+12V	
3	Rotation	
	detection	

#### **SYS\_FAN1: System Fan Power Connector**



Pin#	Signal Name	
1	Ground	
2	+12V	
3	Rotation	
	detection	

#### **SYS\_FAN2: System Fan Power Connector**



Pin#	Signal Name	
1	Ground	
2	+12V	
3	NC	

PCIE1: PCIEx16 Slot (Including PCI-E(x16) signal)

PCIE2: PCIEx16 Slot

(Including PCI-E(x4) & PCI signals)

## **CHAPTER 3 BIOS SETUP**

This chapter describes the different settings available in the AMI BIOS that comes with the board. The topics covered in this chapter are as follows:

#### **BIOS Introduction**

The BIOS (Basic Input/Output System) installed in your computer system's ROM supports Intel processors. The BIOS provides critical low-level support for a standard device such as disk drives, serial ports and parallel ports. It also password protection as well as special support for detailed fine-tuning of the chipset controlling the entire system.

#### **BIOS Setup**

The BIOS provides a Setup utility program for specifying the system configurations and settings. The BIOS ROM of the system stores the Setup utility. When you turn on the computer, the BIOS is immediately activated. Pressing the <Del> key immediately allows you to enter the Setup utility. If you are a little bit late pressing the <Del> key, POST (Power On Self Test) will continue with its test routines, thus preventing you from invoking the Setup. If you still wish to enter Setup, restart the system by pressing the "Reset" button or simultaneously pressing the <Ctrl>, <Alt> and <Delete> keys. You can also restart by turning the system Off and back On again. The following message will appear on the screen:

In general, you press the arrow keys to highlight items, <Enter> to select, the <PgUp> and <PgDn> keys to change entries, <F1> for help and <Esc> to quit.

When you enter the Setup utility, the Main Menu screen will appear on the screen. The Main Menu allows you to select from various setup functions and exit choices.

Warning: It is strongly recommended that you avoid making any changes to the chipset defaults. These defaults have been carefully chosen by both AMI and your system manufacturer to provide the absolute maximum performance and reliability. Changing the defaults could cause the system to become unstable and crash in some cases.

#### **Main Settings**

Aptio Setup Utility - Copyright © 2013 American Megatrends, Inc.

Main	Advanced	Chipset	Boot	Securit	y Save & Exit
BIOS Inform	ation				Choose the system default
					language
System Lan	guage		[English]		→ ← Select Screen
System Date	Э		[Tue 01/20/2009]		↑↓ Select Item
System Tim	e		[21:52:06]		Enter: Select
					+- Change Field
Access Leve	el		Administrator		F1: General Help
					F2: Previous Values
					F3: Optimized Default
					F4: Save ESC: Exit

#### **System Language**

Choose the system default language.

#### **System Date**

Set the Date. Use Tab to switch between Data elements.

#### **System Time**

Set the Time. Use Tab to switch between Data elements.

#### **Advanced Settings**

This section allows you to configure and improve your system and allows you to set up some system features according to your preference.

**Aptio Setup Utility** 

Main	Advanced Chipset	Boot	Security	Save & Exit	
► PCI S	ubsystem Settings				
► ACPI	Settings				
► Wake	up event setting				
► Truste	ed Computing				
► CPU (	Configuration				

► SATA Configuration	
► Shutdown Temperature Configuration	
► USB Configuration	→ ←Select Screen
► F81866 Super IO Configuration	↑
► F81866 H/W Monitor	Enter: Select
► CPU PPM Configuration	+- Change Field
	F1: General Help
	F2: Previous Values
	F3: Optimized Default
	F4: Save ESC: Exit

## **PCI Subsystem Settings**

#### **Aptio Setup Utility**

Main	Advanced Chipset	Boot	Security	y Save & Exit
PCI Bus [	PCI Bus Driver Version		V 2.0502	
				→ ←Select Screen
PCI 64bit	Resources Handing			↑
Above 4G	Decoding	Disabled		Enter: Select
				+- Change Field
PCI Comr	mon Settings			F1: General Help
	·	32 PCI Bus C	la alsa	F2: Previous Values
PCI Later	icy i imer	32 PCI Bus C	IOCKS	F3: Optimized Default
VGA Pale	ette Snoop	Disabled		F4: Save ESC: Exit
PERR# G	eneration	Disabled		
SERR# G	eneration	Disabled		
► PCI Ex	press Settings			

#### **Above 4G Decoding**

Enables or Disables 64bit capable devices to be decoded in above 4G address space (only if system supports 64 bit PCI decoding).

#### **PCI Latency Timer**

Value to be programmed into PCI Latency Timer Register.

#### **VGA Palette Snoop**

Enables or disables VGA Palette Registers Snooping.

#### **PERR# Generation**

Enables or disables PCI device to generate PERR#.

#### **SERR# Generation**

Enables or disables PCI device to generate SERR#.

#### **PCI Express Settings**

Change PCI Express devices settings.

#### **PCI Express Settings**

#### Aptio Setup Utility

Main Advanced Chipset	Boot Securit	y Save & Exit
PCI Express Device Register Settings		
Relaxed Ordering	Disabled	
Extended Tag	Disabled	
No Snoop	Enabled	
Maximum Payload	Auto	→ ←Select Screen
Maximum Read Request	Auto	↑ ↓ Select Item
		Enter: Select
PCI Express Link Register Settings		+- Change Field
ASPM Support	Disabled	F1: General Help
WARNING: Enabling ASPM may cause	Disabled	F2: Previous Values
PCI-E devices to fa	il	F3: Optimized Default F4: Save ESC: Exit
Extended Synch	Disabled	r4: Save ESC: EXIL
Link Training Retry	5	
Link Training Timeout (uS)	100	
Unpopulated Links	Keep Link ON	
, ,	•	

#### **Relaxed Ordering**

Enables or disables PCI Express Device Relaxed Ordering.

#### **Extended Tag**

If ENABLED allows device to use 8-bit Tag field as a requester.

#### No Snoop

Enables or disables PCI Express Device No Snoop option.

#### **Maximum Payload**

Set Maximum Payload of PCI Express Device or allow System BIOS to select the value.

#### **Maximum Read Request**

Set Maximum Read Request Size of PCI Express Device or allow System BIOS to select the value.

#### **ASPM Support**

Set the ASPM Level: Force L0s – Force all links to L0s State:

AUTO – BIOS auto configure: DISABLE – Disables ASPM.

#### **Extended Synch**

If ENABLED allows generation of Extended Synchronization patterns.

#### **Link Training Retry**

Defines number of Retry Attempts software will take to retrain the link if previous training attempt was unsuccessful.

#### Link Training Timeout (uS)

Defines number of Microseconds software will wait before polling 'Link Training' bit in Link Status register. Value range from 10 to 1000 uS.

#### **Unpopulated Links**

In order to save power, software will disable unpopulated PCI Express links, if this option set to 'Disable Link'.

#### **ACPI Settings**

#### **Aptio Setup Utility**

Main	Advanced Chipset	Boot Secu	urity Save & Exit
ACPI Settings			
			→ ←Select Screen
Enable Hi	bernation	Enabled	↑ ↓ Select Item
ACPI Slee	ep State	S1 (Suspend to R)	Enter: Select
Lock Lega	acy Resources	Disabled	+- Change Field
S3 Video	Repost	Disabled	F1: General Help
			F2: Previous Values
			F3: Optimized Default
			F4: Save ESC: Exit

#### **Enable Hibernation**

Enables or Disables System ability to Hibernate (OS/S4 Sleep State). This option may be not effective with some OS.

#### **ACPI Sleep State**

Select ACPI sleep state the system will enter, when the SUSPEND button is pressed.

#### **Lock Legacy Resources**

Enabled or Disabled Lock of Legacy Resources.

#### S3 Video Repost

Enable or disable S3 Video Repost.

#### Wake up event settings

#### Aptio Setup Utility

Main Advanced Chipset	Boot Secur	ity Save & Exit
Wake system with Fixed Time	Disabled	
Wake up hour	0	
Wake up minute	0	
Wake up second	0	
		→ ←Select Screen
Wake on Ring	Enabled	↑
Wake on PCI PME	Enabled	Enter: Select
Wake on PCIE Wake Event	Enabled	+- Change Field
		F1: General Help
		F2: Previous Values
		F3: Optimized Default
		F4: Save ESC: Exit

#### Wake system with Fixed Time

Enables or Disables System wake on alarm event. When enabled, System will wake on the hr::min:: sec specified.

#### Wake on PCIE PME Wake Event

The options are Disabled and Enabled.

### **CPU Configuration**

This section shows the CPU configuration parameters.

**Aptio Setup Utility** 

Main Advanced Chipset	Boot	Security	/ Save & Exit
CPU Configuration			
Intel® Core ™ i7-3770 CPU @ 3.40	)GHz		
Processor Stepping	306a8		
Microcode Revision	С		
Max CPU Speed	3400 MHz		
Min CPU Speed	1600 MHz		
CPU Speed	3400 MHz		
Processor Cores	4		
Intel HT Technology	Supported		
Intel VT-x Technology	Supported		
Intel SMX Technology	Supported		
64-bit	Supported		
			$ ightarrow$ $\leftarrow$ Select Screen
			↑ ↓ Select Item
Hyper-threading	Enabled		Enter: Select
Active Processor Cores	All		+- Change Field
Limit CPUID Maximum	Disabled		F1: General Help
Execute Disable Bit	Enabled		F2: Previous Values
Intel Virtualization Technology	Disabled		F3: Optimized Default
Hardware Prefetcher	Disabled		F4: Save ESC: Exit
Adjacent Cache Line Prefetch	Enabled		

#### Hyper-threading

Enabled for Windows XP and Linux (OS optimized for Hyper-Threading Technology) and Disabled for other OS (OS not optimized for Hyper-Threading Technology). When Disabled, only one thread per enabled core is enabled.

#### **Active Processor Cores**

Number of cores to enable in each processor package.

### **Limit CPUID Maximum**

Disabled for Windows XP.

#### **Execute Disable Bit**

XD can prevent certain classes of malicious buffer overflow attacks when combined with a supporting OS (Windows Server 2003 SP1, Windows XP SP2, SuSE Linux 9.2, Re33dHat Enterprise 3 Update 3.)

#### **Intel Virtualization Technology**

When enabled, a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology.

#### **Hardware Prefetcher**

To turn on/off the Mid level Cache (L2) streamer Prefetcher.

### **Adjacent Cache Line Prefetch**

To turn on/off prefetching of adjacent cache lines.

### **SATA Configuration**

SATA Devices Configuration.

Aptio Setup Utility

Main Advanced Chipset	Boot Securit	y Save & Exit
SATA Controller(s)	Enabled	
SATA Mode Selection	IDE	
SATA Port0	Empty	
Software Preserve	Unknown	
SATA Port1	Empty	→ ←Select Screen
Software Preserve	Unknown	↑
SATA Port2	Empty	Enter: Select
Software Preserve	Unknown	+- Change Field F1: General Help
SATA Port3	Empty	F2: Previous Values
Software Preserve	Unknown	

SATA Port4	Empty	F3: Optimized Default
Software Preserve	Unknown	F4: Save ESC: Exit
SATA Port5	Empty	
Software Preserve	Unknown	

# SATA Controller(s)

Enable / Disable Serial ATA Controller.

### **SATA Mode Selection**

- (1) IDE Mode.
- (2) AHCI Mode.
- (3) RAID Mode.

### **Shutdown Temperature Configuration**

Aptio Setup Utility

Main	Advanced Chipset	Boot	Security	/ Save & Exit
APCI Shu	itdown Temperature	Disabled		$ ightarrow$ $\leftarrow$ Select Screen
				↑
				Enter: Select
				+- Change Field
				F1: General Help
				F2: Previous Values
				F3: Optimized Default
				F4: Save ESC: Exit

### **ACPI Shutdown Temperature**

The default setting is Disabled.

### **USB** Configuration

#### **Aptio Setup Utility**

Main Advanced Chipset	Boot	Security	/ Save & Exit
USB Configuration			
USB Devices:			
2 Hubs			
Legacy USB Support	Enabled		
USB3.0 Support	Enabled		
XHCI Hand-off	Enabled		→ ←Select Screen
EHCI Hand-off	Enabled		↑
Port 60/64 Emulation	Enabled		+- Change Field
			F1: General Help
USB hardware delays and time-outs:			F2: Previous Values
USB Transfer time-out	20 sec		F3: Optimized Default
Device reset tine-out	20 sec		F4: Save ESC: Exit
Device power-up delay	Auto		

### **Legacy USB Support**

Enables Legacy USB support.

AUTO option disables legacy support if no USB devices are connected.

DISABLE option will keep USB devices available only for EFI applications.

### **USB3.0 Support**

Enable/Disable USB3.0 (XHCI) Controller support.

### **XHCI Hand-off**

This is a workaround for OSes without XHCI hand-off support. The XHCI ownership change should be claimed by XHCI driver.

#### **EHCI Hand-off**

Enabled/Disabled. This is a workaround for OSes without EHCI hand-off support. The EHCI ownership change should be claimed by EHCI driver.

#### Port 64/60 Emulation

Enables I/O port 60h/64h emulation support. This should be enabled for the complete USB keyboard legacy support for non-USB aware OSes.

#### **USB Transfer time-out**

The time-out value for Control, Bulk, and Interrupt transfers.

#### **Device reset tine-out**

USB mass Storage device start Unit command time-out.

#### Device power-up delay

Maximum time the device will take before it properly reports itself to the Host Controller. 'Auto' uses default value: for a Root port it is 100ms, for a Hub port the delay is taken from Hub descriptor.

#### F81866 Super IO Configuration

#### **Aptio Setup Utility**

Main	Advanced Chipset	Boot	Security	Save & Exit
Super IO	Configuration			
				→ ←Select Screen
F81866 S	uper IO Chip	F81866		↑ ↓ Select Item
➤ Serial	Port 0 Configuration			Enter: Select
► Serial	Port 1 Configuration			+- Change Field
➤ Serial	Port 2 Configuration			F1: General Help
➤ Serial	Port 3 Configuration			F2: Previous Values
	,			F3: Optimized Default
▶Parallel	Port Configuration			F4: Save ESC: Exit
	•			

### **Serial Port Configuration**

Set Parameters of Serial Ports. User can Enable/Disable the serial port and Select an optimal settings for the Super IO Device.

### **Parallel Port Configuration**

Set Parameters of Parallel Port(LPT/LPTE)

### F81866 H/W Monitor

#### Aptio Setup Utility

	Aptio Setup Ut		
Main Advanced Chipset	Boot	Security	/ Save & Exit
PC Health Status			
CPU temperature	+41 C		
SYS temperature	+35 C		
FAN1 Speed	4021RPM		
FAN2 Speed	N/A		
Vcore	+0.976V		
+5V	+5.213 V		
+12V	+12.408 V		→ ←Select Screen
1.5V	+1.504 V		↑
VSB5V	+4.992 V		+- Change Field
VCC3V	+3.392 V		-

F1: General Help Fan1 smart fan control Fan2 smart fan control F4: Save ESC: Exit

### **Temperatures/Voltages**

These fields are the parameters of the hardware monitoring function feature of the motherboard. The values are read-only values as monitored by the system and show the PC health status.

#### Fan1/Fan2 Smart Fan Control

This field enables or disables the smart fan feature. At a certain temperature, the fan starts turning. Once the temperature drops to a certain level, it stops turning again.

# **CPU PPM Configuration**

#### **Aptio Setup Utility**

Main	Advanced Chipset	Boot	Security	/ Save & Exit
CPU PPM	Configuration			
EIST		Enabled		
Turbo Mo	de	Enabled		
				→ ←Select Screen
				↑
				Enter: Select
				+- Change Field
				F1: General Help
				F2: Previous Values
				F3: Optimized Default
				F4: Save ESC: Exit

### **EIST**

Enable/Disable Intel SpeedStep.

# **Chipset Settings**

This section allows you to configure and improve your system and allows you to set up some system features according to your preference.

Aptio Setup Utility

Main	Advanced Chipset	Boot	Security	Save & Exit
► PCH-IO	O Configuration			
► Systen	n Agent (SA) Configuration		$\rightarrow$	←Select Screen
			1	↓ Select Item
			En	ter: Select
			+-	Change Field
			F1	: General Help
			F2	: Previous Values
			F3	: Optimized Default
			F4	: Save ESC: Exit

### **PCH-IO Configuration**

This section allows you to configure the North Bridge Chipset.

#### Aptio Setup Utility

Main	Advanced	Chipset	Boot	Security Save &
Exit				
Intel PCH	RC Version		1.5.0.0	
Intel PCH	SKU Name	H61		
Intel PCH	Rev ID	O5/B3		
► PCI Exp	oress Configuration			
► USB Co	onfiguration			
► PCH Az	alia Configuration			
PCH LAN	Controller	Enabled		
Wake	on LAN	Enabled		
High Preci	sion Event Timer Config	guration		→ ←
High Preci	sion Timer	Enabled		Select Screen
				↑
SLP_S4 A	ssertion Width	4-5 Seconds		

Enter: Select
+- Change Field
F1: General Help
F2: Previous Values
F3: Optimized Default
F4: Save ESC: Exit

### **PCH LAN Controller**

Enable or disable onboard NIC.

### Wake on LAN

Enable or disable integrated LAN to wake the system. (The Wake On LAN cannot be disabled if ME is on at Sx state.)

### **SLP\_S4 Assertion Width**

Select a minimum assertion width of the SLP\_S4# signal.

### **PCI Express Configuration**

Main	Advanced	Chipset	Boot	Security Save &
Exit				
PCI Expr	ess Configuration			
PCI Expr	ess Clock Gating	Enabled		
DMI Link	ASPM Control	Enabled		
DMI Link	Extended Synch Contro	I Disabled		
PCIe-USI	B Glitch W/A	Disabled		
Subtractiv	ve Decode	Disabled		
► PCI Ex	opress Root Port 1			
► PCI Ex	rpress Root Port 2			
► PCI Ex	rpress Root Port 3			→ ← Select Screen
PCI-E	Port 4 is assigned to LA	AN		↑ Velect Item
► PCI Ex	press Root Port 5			Enter: Select
► PCI Ex	rpress Root Port 6			+- Change Field
► PCI Ex	rpress Root Port 7			F1: General Help
► PCI Ex	rpress Root Port 8			F2: Previous Values
				F3: Optimized Default
				F4: Save ESC: Exit

### **PCI Express Clock Gating**

Enable or disable PCI Express Clock Gating for each root port.

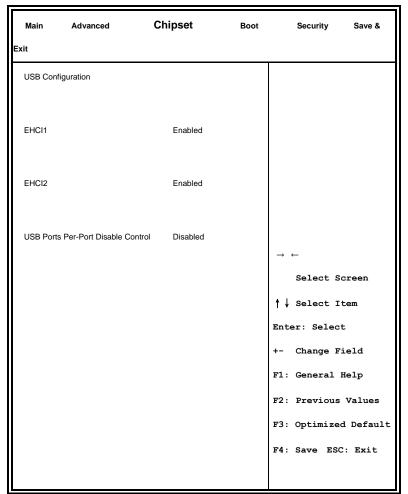
### **DMI Link ASPM Control**

The control of Active State Power Management on both NB side and SB side of the DMI link.

#### PCIe-USB Glitch W/A

PCIe-USB Glitch W/A for bad USB device(s) connected behind PCIE/PEG port.

### **USB** Configuration



### EHCI1/2

Control the USAB EHCI (USB 2.0) functions. One EHCI controller must always be enabled.

### **USB Ports Per-Port Disable Control**

Control each of the USB ports (0~13) disabling.

#### **PCH Azalia Configuration**

Main	Advanced	Chipset	Boot	Security Save &
Exit				
PCH Aza	lia Configuration			
				→ ←
Azalia		Auto		Select Screen
				↑
Azalia Do	cking Support	Disabled		Enter: Select
Azalia PM	1E	Disabled		+- Change Field
Azalia Int	ernal HDMI Code	Disabled		F1: General Help
				F2: Previous Values
				F3: Optimized Default
				F4: Save ESC: Exit

#### Azalia

Control Detection of the Azalia device.

Disabled = Azalia will unconditionally disabled.

Enabled Azalia will be unconditionally enabled.

Auto = Azalia will enabled if present, disabled otherwise.

### System Agent (SA) Configuration

**Aptio Setup Utility** 

Main Advance	ed Chipset	Boot	Security Save &
Exit			
System Agent Bridge	Name	IvyBridge	
System Agent RC Ver	rsion 1.1.0.0		
VT-d Capability	Supported	d	
VT-d	Enabled		
CHAP Device (B0:D7	F0) Disabled		$ ightarrow$ $\leftarrow$ Select Screen
Thermal Device (B0:D	4:F0) Disabled		↑
Enable NB CRID	Disabled		Enter: Select
BDAT ACPI Table Su	pport Disabled		+- Change Field
C-State Pre-Wake	Enabled		F1: General Help
			F2: Previous Values

► Graphics Configuration

F3: Optimized Default

F4: Save ESC: Exit

#### VT-d

Check to enable VT-d function on MCH.

#### **Enable NB CRID**

Enable or disable NB CRID WorkAround.

#### **C-State Pre-Wake**

Controls C-State Pre-Wake feature for ARAT, in SSKPD[57].

### **Graphics Configuration**

#### Aptio Setup Utility

Main	Advanced	Chipset	Boot	Security Save &
Exit				
Graphics	Configuration			
IGFX VBI	OS Version	2132		
IGfx Freq	uency	350 MHz		
Primary D	Display	Auto		
Internal G	Graphics	Auto		$ ightarrow$ $\leftarrow$ Select Screen
GTT Size		2MB		↑ ↓ Select Item
Aperture	Size	256MB		Enter: Select
DVMT Pro	e-Allocated	64M		+- Change Field
				F1: General Help
DVMT To	tal Gfx Mode	Disabled		F2: Previous Values
Gfx Low F	Power Mode	Disabled		F3: Optimized Default
► LCD C	ontrol			F4: Save ESC: Exit

### **Primary Display**

Select which of IGFX/PEG/PCI graphics device should be primary display or select SG for switchable Gfx.

#### **Internal Graphics**

Keep IGD enabled based on the setup options.

#### **DVMT Pre-Allocated**

Select DVMT 5.0 Pre-Allocated (Fixed) graphics memory size used by the internal graphics device.

#### **DVMT Total Gfx Mem**

Select DVMT 5.0 total graphics memory size used by the internal graphics device.

#### **Gfx Low Power Mode**

This option is applicable for SFF only.

### **Primary IGFX Boot Display (LCD Control)**

Select the Video Device that will be activated during POST. This has no effect if external graphics present. Secondary booty display selection will appear based on your selection. VGA modes will be supported only on primary display.

### **Memory Configuration**

**Aptio Setup Utility** 

Main	Advanced	Chipset	Boot	Security	Save &
Exit					
Memory II	Memory Information				
Memory F	requency	1333 MHz			
Total Men	nory	8192 MB (DI	DR3)		
DIMM#0		2048 MB (DI	DR3)		
DIMM#1		Not Present		$ ightarrow$ $\leftarrow$ Select S	creen
DIMM#2		2048 MB (DI	OR3)	↑ ↓ Select I	tem
		•	-,	Enter: Selec	t
DIMM#3		Not Present		+- Change F	ield
CAS Late	ncy (tCL)	11		F1: General	
Minimum	delay time			ri: General	петр

CAS to RAS (tRCDmin)	11	F2: Previous Values
Row Precharge (tRPmin)	11	F3: Optimized Default
Active to Precharge (tRASmin)	28	F4: Save ESC: Exit

# **Boot Settings**

This section allows you to configure the boot settings.

#### Aptio Setup Utility

Main Advanced Chipset	Boot Secur	rity Save & Exit
Boot Configuration		
Setup Prompt Timeout	1	
Bootup NumLock State	On	
Quiet Boot	Disabled	
Fast Boot	Disabled	
		→ ←Select Screen
CSM16 Module Version	07.68	↑
		Enter: Select
GateA20 Active	Upon Request	+- Change Field
		F1: General Help
Option ROM Messages	Force BIOS	F2: Previous Values
INT19 Trap Response	Immediate	F3: Optimized Default
		F4: Save ESC: Exit
Boot Option Priorities		
► CSM parameters		

# **Setup Prompt Timeout**

Number of seconds to wait for setup activation key. 65535(0xFFFF) means indefinite waiting.

### **Bootup NumLock State**

Select the keyboard NumLock state.

#### **Quiet Boot**

Enables/Disables Quiet Boot option.

#### **Fast Boot**

Enables/Disables boot with initialization of a minimal set of devices required to launch active boot option. Has no effect for BBS boot options.

#### **GateA20 Active**

UPON REQUEST – GA20 can be disabled using BIOS services.

ALWAYS – do not allow disabling GA20; this option is useful when any RT code is executed above 1MB.

### **Option ROM Messages**

Set display mode for Option ROM. Options are Force BIOS and Keep Current.

#### **INT19 Trap Response**

Enable: Allows Option ROMs to trap Int 19.

#### **Boot Option Priorities**

Sets the system boot order.

#### **CSM** parameters

This section allows you to configure the boot settings.

Aptio Setup Utility

Main	Advanced Chipset	Boot	Security	Save & Ex	it
Launch CSM		Always			
Boot option filter		UEFI and Legacy			
Launch PXE (	Launch PXE OpROM policy		ınch		
Launch Storage OpROM policy		Legacy only			
Launch Video OpROM policy		Legacy only			
				→ ←Select	Screen
Other PCI dev	rice ROM priority	Legacy O	pROM	↑ ↓ Select	Item

Enter: Select
+- Change Field
F1: General Help
F2: Previous Values
F3: Optimized Default
F4: Save ESC: Exit

### **Boot option filter**

This option controls what devices system can boot to.

#### **Launch PXE OpROM policy**

Controls the execution of UEFI and Legacy PXE OpROM.

### **Launch Storatge OpROM policy**

Controls the execution of UEFI and Legacy Storage OpROM.

### **Launch Video OpROM policy**

Controls the execution of UEFI and Legacy Video OpROM.

### Other PCI device ROM priority

For PCI devices other than Network, Mass storage or Video defines which OpROM to launch.

### **Security Settings**

This section allows you to configure and improve your system and allows you to set up some system features according to your preference.

Aptio Setup Utility

Main	Advanced Chipset	Boot	Sec	curity Save & Exit
Password D	escription			
If ONLY the	Administrator's password is			
this only lim	this only limit access to Setup and is only asked			
for when en	for when entering Setup.			→ ←Select Screen
If ONLY the	User's password is set, then	this is a		↑ ↓ Select Item
power on pa	assword and must be entered	to boot		Enter: Select
or enter Set	up. In Setup the User will hav	/e		+- Change Field
Administrate	or rights			

The password length must be		F1: General Help
in the following range:		F2: Previous Values
Minimum length	3	F3: Optimized Default
Maximum length	20	F4: Save ESC: Exit
Administrator Password		
User Password		

# **Administrator Password**

Set Setup Administrator Password.

#### **User Password**

Set User Password.

# Save & Exit Settings

#### Aptio Setup Utility

Main	Advanced Chipset	Boot	Security	Save & Exit
Save Cha	nges and Exit			
Discard C	hanges and Exit			
Save Cha	nges and Reset			
Discard C	hanges and Reset			→ ←Select Screen
				↑ ↓ Select Item
Save Opti	ons			Enter: Select
Save Cha	nges			+- Change Field
Discard C	hanges			F1: General Help
				F2: Previous Values
				F3: Optimized Default
Restore D	efaults			F4: Save ESC: Exit
Save as U	Jser Defaults			
Restore U	ser Defaults			

### Save Changes and Exit

Exit system setup after saving the changes.

#### **Discard Changes and Exit**

Exit system setup without saving any changes.

#### **Save Changes and Reset**

Reset the system after saving the changes.

#### **Discard Changes and Reset**

Reset system setup without saving any changes.

#### **Save Changes**

Save Changes done so far to any of the setup options.

### **Discard Changes**

Discard Changes done so far to any of the setup options.

#### **Restore Defaults**

Restore/Load Defaults 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 DRIVERS INSTALLATION**

This section describes the installation procedures for software and drivers. The software and drivers are included with the motherboard. If you find the items missing, please contact the vendor where you made the purchase.

#### **IMPORTANT NOTE:**

After installing your Windows operating system, you must install first the Intel Chipset Software Installation Utility before proceeding with the drivers installation.

### 4.1 Intel Chipset Software Installation Utility

The Intel Chipset Drivers should be installed first before the software drivers to enable Plug & Play INF support for Intel chipset components. Follow the instructions below to complete the installation.

1. Insert the CD that comes with the board. Click Intel and then Intel(R) 7 Series Chipset Drivers.



2. Click Intel(R) Chipset Software Installation Utility.



3. When the Welcome screen to the Intel® Chipset Device Software appears, click **Next** to continue.



4. Click **Yes** to accept the software license agreement and proceed with the installation process.



5. On the Readme File Information screen, click *Next* to continue the installation.



6. The Setup process is now complete. Click *Finish* to restart the computer and for changes to take effect.



### 4.2 VGA Drivers Installation

NOTE: Before installing the Intel(R) Q77 Chipset Family Graphics Driver, the Microsoft .NET Framework 3.5 SPI should be first installed.

To install the VGA drivers, follow the steps below.

1. Insert the CD that comes with the board. Click Intel and then Intel(R) Q7 Series Chipset Drivers.



2. Click Intel(R) Q77 Chipset Family Graphics Driver.



3. When the Welcome screen appears, click *Next* to continue.



4. Click Yes to to agree with the license agreement and continue the installation.



5. On the Readme File Information screen, click **Next** to continue the installation of the Intel® Graphics Media Accelerator Driver.



6. On Setup Progress screen, click *Next* to continue.



7. Setup complete. Click *Finish* to restart the computer and for changes to take effect.

#### 4.3 Realtek HD Audio Driver Installation

Follow the steps below to install the Realtek HD Audio Drivers.

Insert the CD that comes with the board. Click *Intel* and then *Intel(R) Q7 Series Chipset Drivers*.



2. Click Realtek High Definition Audio Driver.



- 3. On the Welcome to the InstallShield Wizard screen, click Next to proceed with and complete the installation process.
- 4. The InstallShield Wizard Complete. Click Finish to restart the computer and for changes to take effect.

#### 4.4 LAN Drivers Installation

1. Insert the CD that comes with the board. Click Intel and then Intel(R) Q7 Series Chipset Drivers.



2. Click Intel(R) PRO LAN Network Driver.



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3. Click Install Drivers and Software.



4. When the Welcome screen appears, click Next.



5. Click Next to to agree with the license agreement.



6. Click the checkbox for **Drivers** in the Setup Options screen to select it and click **Next** to continue.



### 4.5 Realtek LAN Controller Drivers Installation

Follow the steps below to install the Realtek LAN Drivers.

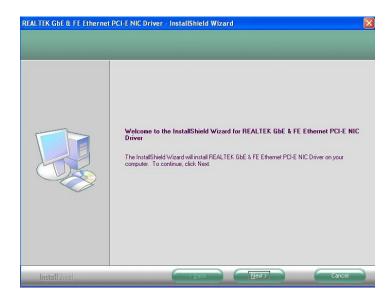
1. Insert the CD that comes with the board. Click Intel, then LAN Card, and then Realtek Lan Controller Drivers.



2. Click Realtek RTL8111E LAN Drivers.



3. When the welcome screen to InstallShield Wizard appears, click Next to start the installation.

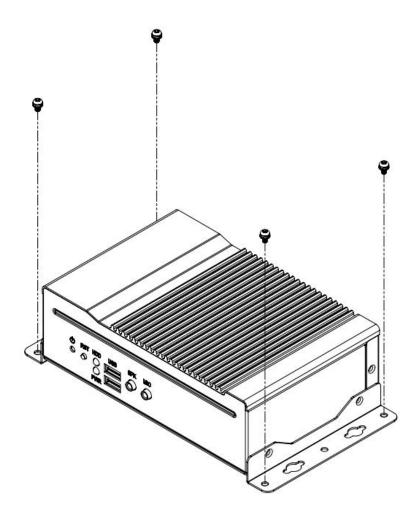


4. When the InstallShieldWizard has finished installing the Realtek LAN drivers, click *Finish*.



# **Appendix**

# Mounting CSB200-897 to the Wall



You can install CSB200-897 on plastic (LCD monitor), wood, drywall surface over studs, or a solid concrete or metal plane directly. Ensure the installer uses at least four M3 length 6mm screws to secure the system on wall. Four M3 length 6mm screws [Four M3 length 4.4mm for VESA mounting] are recommended to secure the system on wall.

Fasteners are not included with the unit, and must be supplied by the installer. The types of fasteners required are dependent on the type of wall construction. Choose fasteners that are rated either "Medium Duty" or "Heavy Duty." To assure proper fastener selection and installation, follow the fastener manufacturer's

recommendations.

### **Wall Mounting Requirements**

**Note:** Before mounting the system on wall, ensure that you are following all applicable building and electric codes.

When mounting, ensure that you have enough room for power and signal cable routing. And have good ventilation for power adapter. The method of mounting must be able to support weight of the CSB110-902 plus the suspend weight of all the cables to be attached to the system. Use the following methods for mounting your system:

### Mounting to hollow walls

- Method 1: Wood surface A minimum wood thickness 38mm (1.5in.) by 25.4 cm (10in.) of high, construction grade wood is recommended.

  Note: This method provides the most reliable attachment of the unit with little risk that the unit will come loose or require ongoing maintenance.
- Method 2: Drywall walls Drywall over wood studs is acceptable.

**Mounting to a solid concrete or brick wall** - Mounts on a flat smooth surface.

### **Selecting the Location**

Plan the mounting location thoroughly. Locations such as walkway areas, hallways, and crowded areas are not recommended. Mount the unit to a flat, sturdy, structurally sound column or wall surface.

The best mounting surface is a standard countertop, cabinet, table, or other structure that is minimally the width and length of the unit. This recommendation reduces the risk that someone may accidentally walk into and damage the device. Local laws governing the safety of individuals might require this type of consideration.