

User Manual

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ASMB-825 Series

Dual LGA 3647-P0 Intel Xeon® Server Board with 6 DDR4, 4 PCIe x16, 8 SATA3, 6 USB3.0, Dual 10GbE, IPMI



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Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.



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Initial Inspection

Before installing motherboard, please make sure that the following materials have been shipped:

- 1 x ASMB-825 ATX motherboard
- 1 x ASMB-825 Startup Manual
- 1 x Driver CD
- 2 x Serial ATA HDD data cables
- 1 x I/O port bracket
- 2 x CPU power cable (8P)
- 2 x SATA power cable
- 1 x Warranty card

If any of these items are missing or damaged, contact distributor or sales representative immediately. We have carefully inspected the ASMB-825 mechanically and electrically before shipment. It should be free of marks and scratches and in perfect working order upon receipt. When unpacking the ASMB-825, check it for signs of shipping damage. (For example, damaged box, scratches, dents, etc.) If it is damaged or it fails to meet the specifications, notify our service department or local sales representative immediately. Also notify the carrier. Retain the shipping carton and packing material for inspection by the carrier. After inspection, we will make arrangements to repair or replace the unit.

Part Number	Chipset	HDD	Expansion Slot	IPMI	10GbE LAN
ASMB-825-00A1E	C621	8*SATA3+ 1*M.2	4 PCle x16 + 2 PCle x8 (Gen 3.0)	No	No
ASMB-825I-00A1E	C621	8*SATA3+ 1*M.2	4 PCle x16 + 2 PCle x8 (Gen 3.0)	Yes	No
ASMB-825T2-00A1E	C622	8*SATA3+ 1*M.2	4 PCIe x16 + 2 PCIe x8 (Gen 3.0)	Yes	Yes

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Overview

1.1 Introduction

The ASMB-825 serverboard is the most advanced Intel Xeon Processor Scalable Family series board for server-grade IPC applications that require high-performance computing power & multi-expansion slots. This serverboard supports Intel Xeon Scalable series processor and DDR4 ECC-REG 2133/2400/2666 MHz memory up to 192 GB. ASMB-825 provides four PCIe x16 slots and two PCIe x8 slots in Gen3.0 high speed. In addition, the ASMB-825 full SKU has dual Gigabit and dual 10GbE Ethernet LAN ports that eliminate network bottlenecks.

Two RJ-45 LAN jacks (one is GbE and the other one is 10GbE) can be shared with IPMI function that allows remote control management. High reliability and outstanding performance makes ASMB-825 the ideal platform for industrial server/networking applications.

By using the Intel C621/C622 chipset, the ASMB-825 offers a variety of features such as 6 x USB3.0 and 5 x USB 2.0 connectivity, 8 x onboard SATA III and 1 x M.2 (SATA and PCIe) interface. It supports software RAID 0, 1, 10 and 5 (Windows only*), and with the latest Intel RSTe (Rapid Storage Technology Enterprise) it provides compelling RAID solution for NVMe SSDs via Intel VROC (Virtual RAID on CPU) HW key.

These powerful I/O capabilities ensure even more reliable data storage capabilities and high-speed I/O peripheral connectivity.



- 1. IPMI module will be included in ASMB-825I and ASMB-825T2 SKUs. Only ASMB-825T2 SKU can support 10GbE LAN ports.
- 2. Please refer to Order Information at the front for chipset, IPMI, and LAN support on individual product SKU.
 - 3. Please refer to the release note of each Linux OS for Intel's C621/ C622 chipset SATA RAID function support.

1.2 Features

General

- Intel Xeon Processor Scalable Family support: ASMB-825 is equipped with two CPU sockets to support Intel Xeon Platinum/Gold/Silver/Bronze series up to 28-core processors.
- High performance I/O capability: 2 x 10GbE + 2 x GbE LAN, 4 x PCIe x16 slot (x16 link) + 2 x PCIe x8 slot (x8 link), 8 x SATA and 1 x M.2 connector, 6 x USB 3.0 and 5 x USB 2.0 (incl. 1 x Type-A) ports.
- Standard ATX form factor with industrial features: ASMB-825 provides industrial features like long product lifecycle, reliable operation under wide temperature range, watchdog timer, etc.
- IPMI 2.0 support: ASMB-825 (T2 and I SKUs) equipped with ASPEED 2500 BMC chip supports IPMI 2.0 (Intelligent Platform Management Interface 2.0) via sharing LAN port.
- KVM over IP: KVM over IP function allows BIOS level remote control of ASMB-825 (T2 and I SKUs) through your own computer.

1.3 Specifications

Table 1.1: Specifications

Processor				
CPU		Dual Intel LGA3647 Xeon processor sockets Supports Intel Xeon processor scalable family, up to 28 cores Supports the TDP of processor up to 150 W		
System Memory				
Memory Capacity		Supports DDR4 memory bus Total 6 memory slots provided Supports up to 192 GB memory One DIMM per channel		
Memory Type	Sup	ports DDR4 2133/2400/2666 MHz ECC-REG DIMM modules		
DIMM Sizes		h memory slot supports 4GB, 8GB, 16GB and 32GB memory lules		
Memory Voltage	1.2	V		
Error Detection		Corrects single-bit errors Detects double-bit errors (using ECC memory)		
On-Board Devices				
Chipsets	Inte	I C621/C622 PCH		
Network Controllers		2 x Intel X557 10GbE and 2 x Intel I210 Gigabit Ethernet Con- troller connected to PCH Above network supports 10 GbE Base-T and 10/100/1000 Base-T, with RJ-45 output		
VGA	ASPEED AST2500/2510 controller with 64 MB VGA memory pro- vides basic 2D VGA function.			
EC	ITE IT8528E chip provide motherboard keyboard mouse, RS-232, and hardware monitor functions			
BMC 8251/825T2 SKUs	One of Intel I210 Gigabit Ethernet and one of Intel X557 10GbE connected to AST2500 for BMC remote management			
Input / Output				
Storage		Total 8 x SATA ports and 1 x M.2 (SATA/PCIe x4 compatible) provide 6 Gb/s and 8 Gb/s bandwidth RAID 0, 1, 5, 10 support (Windows only)		
LAN		4 x RJ-45 LAN ports (2 x 10GbE + 2 x 10/100/1000 Base-T LAN)		
USB	i	2 x USB 3.0 ports at rear window 2 x USB 3.0 internal headers (4 ports) 2 x USB 2.0 internal headers (4ports) 1 x internal Type-A USB 2.0 port.		
Graphics		1 x VGA port.		
Keyboard / Mouse		PS/2 keyboard and mouse internal header (onboard).		
Serial Port / Header		1 x RS232 port at rear window, 1 x internal header (2 x 5P pitch: 2.50 mm)		
Power Connector				
System Power	1 x 24-pin SSI EPS 12V power connector (Input 12V, 5V, 3.3V, 5Vsb)			
CPU Power	2 x 8 (12\	8-pin SSI EPS 12V power connector for CPU & Memory power /)		
PCIe slot power	1 x -	4-pin 12V power connector for PCIe slot 12V input		

Table 1.1: Specifications				
Expansion Slots				
PCI-express	 4 x PCle x16 slot (Gen3 x16 link) PCIEX16_SLOT2 (from CPU 1) PCIEX16_SLOT4 (from CPU 0) PCIEX16_SLOT5 (from CPU 1) PCIEX16_SLOT6 (from CPU 0) 2 x PCle x8 slot (Gen3 x8 link) PCIEX8_SLOT1 (from CPU 0) PCIEX8_SLOT3 (from CPU 1) 			
System BIOS				
BIOS Type	128 Mb SPI Flash EEPROM with AMI BIOS			
PC Health Monitoring				
Voltage	Monitors for CPU Cores, +3.3V, +5V, +12V, +5V Standby, VBAT			
FAN	 Two 4-pin headers for CPU cooler and five 4-pin headers for system fans (front*4 + rear*1) All fans with tachometer status monitoring Thermal control for all fan connectors 	or		
Temperature	Monitoring for CPU (PECI)Monitoring for System (EC)			
Other Features (Case Open)	Chassis intrusion detectionChassis intrusion header			
Operating Environme	/ Compliance			
RoHS	RoHS 6/6 Pb Free Compliant			
Environmental Spec.	 Operating Temperature: 0 to 40° C Non-operating Temperature: -40 to 85° C Operating Relative Humidity: 10% to 90% (non-condensing Non-operating Relative Humidity: 10% to 95% (non-condensing) 			

1.4 Board Layout, Jumpers and Connectors

Connectors on the ASMB-825 are linked to external devices such as hard disk drives. In addition, ASMB-825 has a number of jumpers that are used to configure the system for specific applications.

The tables below list the functions of each jumper and connector. Later sections in this chapter give instructions for setting jumpers. Chapter 2 gives instructions for connecting external devices to ASMB-825.

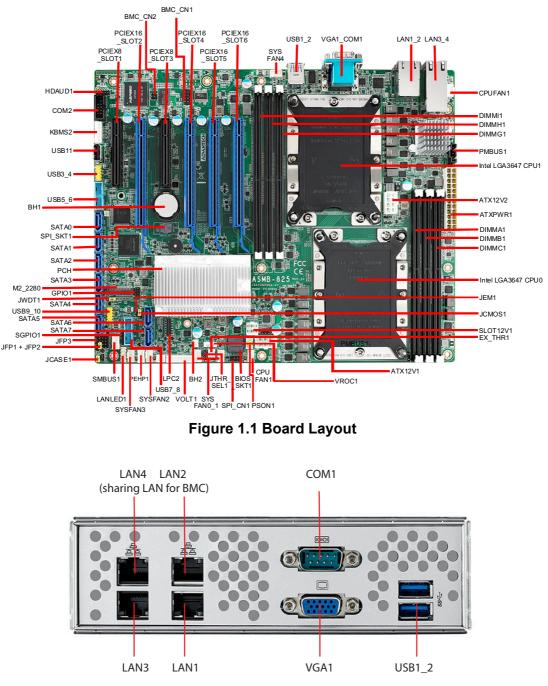


Figure 1.2 Rear I/O of full SKU (ASMB-825T2-00A1E)

Table 1.2: Onboard LAN LED Color Definition

10/100/1000 & 10G Mbps LAN Link/Activity LED Scheme



LAN3 & LAN4 (10G)

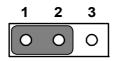
		Left LED	Right LED
100 Mbps	Link	Off	Green
	Active	Off	Blinking green
1C Mboo	Link	Amber	Green
1G Mbps	Active	Amber	Blinking green
10C Mbna	Link	Green	Green
10G Mbps	Active	Green	Blinking green



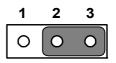
LAN1 & LAN2 (1G)

		Left LED	Right LED
10 Mbpo	Link	Off	Green
10 Mbps	Active	Off	Blinking green
100 Mbpo	Link	Amber	Green
100 Mbps	Active	Amber	Blinking green
1000 Mbpo	Link	Green	Green
1000 Mbps	Active	Green	Blinking green
No Link		Off	Off

Table 1.3: Jumpers					
Label	Function	Default			
JCMOS1	CMOS Clear	1-2			
JME1	ME update	1-2			
JWDT1	Watch Dog Reset	1-2			
PSON1	AT(1-2) / ATX(2-3)	2-3			
JCASE1	Chassis case open alarm	1-2			
JTHR_SEL	On board(1-2)/external thermistor(2-3)	1-2			



Keep CMOS data/ Disable ME update/



Clear CMOS data/ Enable ME update/

Table 1	l.4: C	Connect	tors

Label	Function
ATX12V1	SSI EPS 12V auxiliary power connector (for CPU0) and memory
ATX12V2	SSI EPS 12V auxiliary power connector (for CPU1) and memory
ATXPWR1	SSI EPS 24-pin main power connector (for system)
BH2	For optional battery kit
BIOS_SKT1	BIOS SPI ROM
BMC CN1, BMC CN2	IPMI connector
COM2	Serial port: RS-232
CPU0	Intel LGA3647 CPU0 socket
CPU1	Intel LGA3647 CPU1 socket
CPUFAN0	CPU0 fan connector (4-pin)
CPUFAN1	CPU1 fan connector (4-pin)
DIMMA1	Channel A DIMM1 of CPU0
DIMMB1	Channel B DIMM1 of CPU0
DIMMC1	Channel C DIMM1 of CPU0
DIMMG1	Channel G DIMM1 of CPU1
DIMMH1	Channel H DIMM1 of CPU1
DIMMI1	Channel I DIMM1 of CPU1
EX THR1	Connector for external thermistor
GPIO1	GPIO function for customize usage
HDAUD1	Audio header
JFP1/JFP2/JFP3	Front panel pin header
KBMS2	For additional keyboard/mouse
LAN1 2, LAN3 4	RJ-45 LAN connector
LANLED1	LAN LED extension connector
LPC2	LPC port for debug & TPM module
M2_2280	M.2 connector (SATA & PCIe x4)
 PEHP1	NVMe RAID LED control
PMBUS1	PMBUS connector to communicate with power supply
SATA0~SATA7	Serial ATA0~7
SGPI01	Supports Serial_Link interface for onboard SATA connections
SLOT1	PCIE x8 slot of CPU0
SLOT2	PCIE x16 slot of CPU1
SLOT3	PCIE x8 slot of CPU1
SLOT4	PCIE x16 slot of CPU0
SLOT5	PCIE x16 slot of CPU1
SLOT6	PCIE x16 slot of CPU0
SLOT12V1	For PCIe slot 12V input only
SMBUS1	SMBus header (SMBus from either BMC or PCH)
SPI_CN1	Connector for BIOS update tool
SPI SKT1	EC EEPROM
	System FAN connector (4-pin)
SYS_LED1	System LED connector (T2/I SKUs)
 USB1_2, USB5_6, USB7_8	USB 3.0 port 1, 2; USB 3.0 port 5, 6, 7, 8 (20-pin)
USB3_4, USB9_10	USB 2.0 header 3, 4, 9, 10 (10-pin)
,	, , - , (,)

Table 1.4: Connectors				
USB11	USB 2.0 port 11 (Type-A)			
VGA1_COM1	VGA+COM connector			
VOLT1	Voltage display			
VROC1	Intel Virtual RAID (VROC) key			

Table 1.5: Onboard LED							
LED	Description	LED Definition					
5V_LED1	Power on LED	Off: Power off	On (Green): System is On				
5VSB_LED1	Standby LED	Off: No input AC Power	On (Green): System is ON, in sleep mode, or in soft-off mode				
LED3	BMC heartbeat LED (ASMB-825 T2 and I SKUs)	Blinking (Green): Controller is working normally					

1.5 Block Diagram

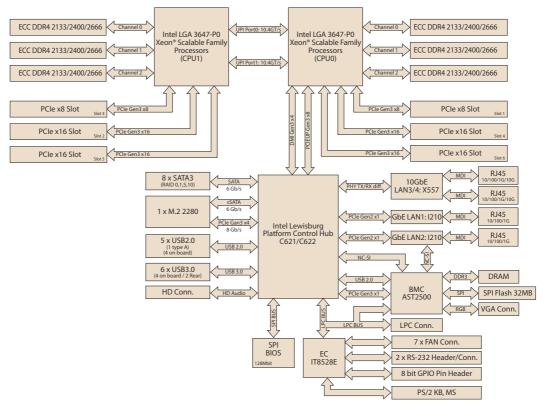


Figure 1.3 Block Diagram

1.6 System Memory

ASMB-825 has six 288-pin memory slots for DDR4 2133/2400/2666 MHz memory modules with maximum capacity of 192 GB (Maximum 32 GB for each DIMM). ASMB-825 supports registered DIMMs memory module.

1.7 Memory Installation

	Single CPU Installed (CPU0)		Dual CPU Installed (CPU0 & CPU1)							
	1	2	3	1	2	3	4	5	6	Quantity of memory installed
DIMM A1	V	V	V	V	V	V	V	V	V	
DIMM B1		V	V			V	V	V	V	
DIMM C1			V					V	V	
DIMM G1					V	V	V	V	V	
DIMM H1							V	V	V	
DIMM I1									V	

1.8 Processor Installation

The ASMB-825 is designed for Intel Xeon processor scalable family.

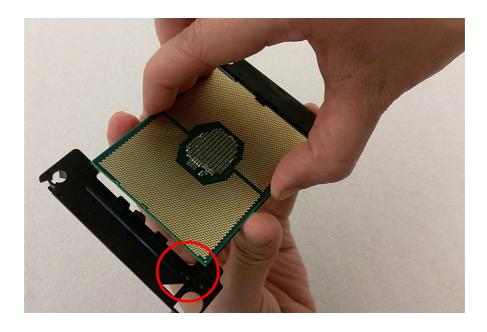
Step 1

Remove dust cover.



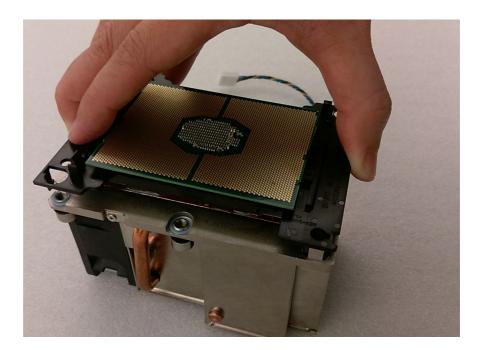
Step 2

Install CPU on CPU clip and align pin 1 mark.



Step 3

Install the CPU clip assembly on the heatsink as a processor + heatsink module.



Chapter 1 Overview

Step 4

Put the processor heatsink module into the motherboard bolster plate by using a T-30 screw driver (follow heatsink label direction 1-2-3-4).





Connections

2.1 Introduction

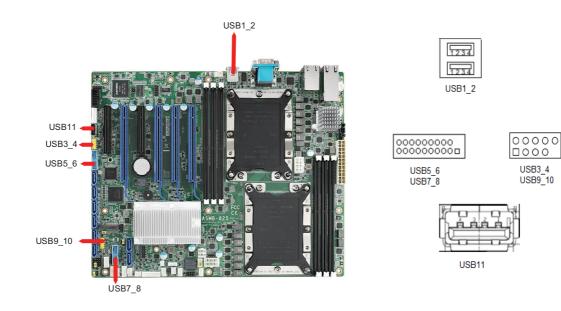
You can access most of the connectors from the top of the board as it is being installed in the chassis. If you have a number of cards installed, you may need to partially remove a card to make all the connections.

2.2 USB Ports (USB1~11)

The two USB 3.0 ports on the rear plate and four USB3.0 on-board ports offer transmission rates up to 5Gbps, besides the four USB 2.0 on-board ports and one Type-A USB2.0 ports with 480 Mbps speed. Fuse protection is supported. The USB interface can be disabled in the system BIOS setup.

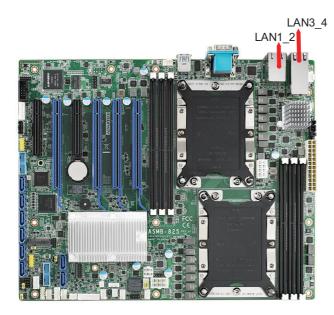
USB3 4

USB9_10



2.3 LAN Ports (LAN1_2, LAN3_4)

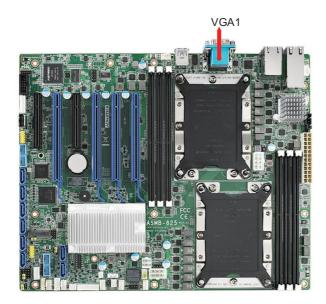
The ASMB-825 is equipped with two 10GbE and two GbE LAN ports. They are all with RJ-45 jacks and supported by all major network operating systems. One GbE LAN and one 10 GbE LAN (LAN2 and LAN4) are shared with IPMI for system management.

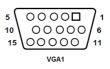




2.4 VGA Connector (VGA1)

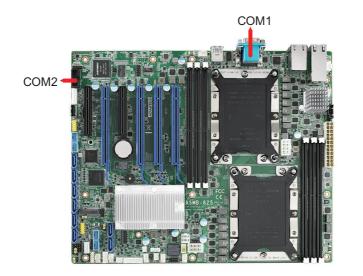
The ASMB-825 includes a VGA interface that can drive conventional CRT and LCD displays.

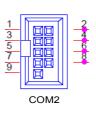




2.5 Serial Ports (COM1~2)

The ASMB-825 offers one serial port on the rear plate and one 2.50mm onboard with 2 x 5-pin pitch.







2.6 PS2 Keyboard and Mouse Connectors (KBMS2)

The 6-pin KBMS2 connector is for additional keyboard & mouse device usage.



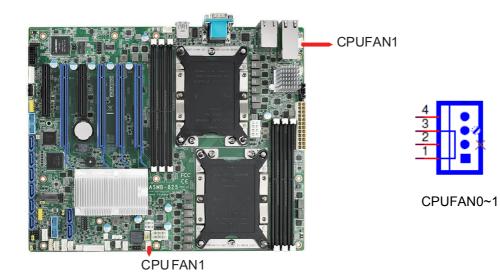




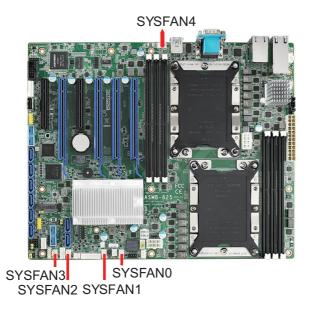
ASMB-825 User Manual

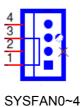
2.7 CPU Fan Connector (CPUFAN0~1)

If a fan is used, this connector supports cooling fans that draw up to 1.5A (18W).



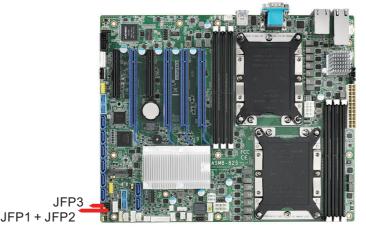
2.8 System Fan Connector (SYSFAN0~4)





2.9 Front Panel Connector (JFP1)

There are several external switches and LEDs to monitor and control the ASMB-825.





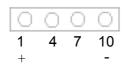
2.9.1 Power LED (JFP3)

JFP3 pin 1 and pin 3 are for the power LED. Refer to Appendix B for detailed information on the pin assignments. If an ATX power supply is used, the system's power LED status will be as indicated.

Table 2.1: ATX Power Supply LED Status			
ACPI Power Mode	LED (ATX power)		
System On (S0)	On		
System Standby (S1)	Fast flashes		
System Hibernation(S4)	Slow flashes		
System Off (S5)	Off		

2.9.2 External Speaker (JFP2 pins 1, 4, 7, 10)

JFP2 pins 1, 4, 7, 10 connects to an external speaker. ASMB-825 provides an onboard buzzer as an alternative. To enable the buzzer, set pins 7-10 closed.



Chapter 2 Connections

2.9.3 HDD LED Connector (JFP1 Pins 2 & 5)

You can connect an LED to JFP1 to indicate when the HDD is active.



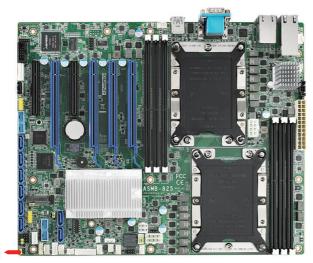
2.9.4 Reset Connector (JFP1 Pins 9 & 12)

Many computer cases offer the convenience of a reset button.

9	12
Ο	Ο

2.9.5 Case Open (JCASE1)

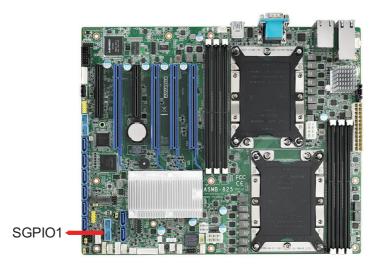
A Chassis Intrusion header is located at JCASE1 on the motherboard. Attach the appropriate cable from the chassis to be informed of a chassis intrusion when the chassis has been opened. The default function is disabled and Pin 1-2 is bridged by a jumper cap.

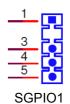


0 1 0 2

JCASE1

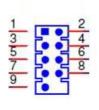
2.10 SATA SGPIO (SGPIO1)





2.11 Front Panel LAN Indicator Connector (LANLED1)



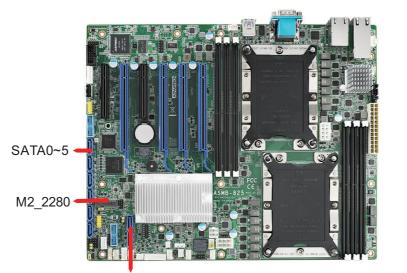


LANLED1

LANLED1

2.12 SATA and M.2 Connector (SATA0~7, M2_2280)

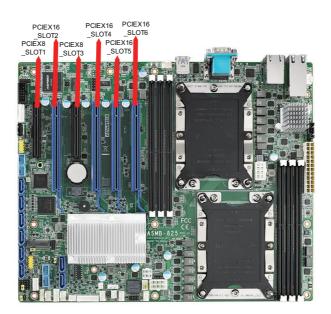
ASMB-825 features eight serial ATA III interfaces (up to 600 MB/s) which eases cabling to hard drives with thin and long cables. The M.2 2280 connector can support both SATA and PCIe SSD devices for higher read/write speeds.





2.13 PCIe Expansion Slots

The ASMB-825 provides six expansion slots that can support three double-deck cards. The riser card for 1U or 2U chassis can be used in slot-6 only.



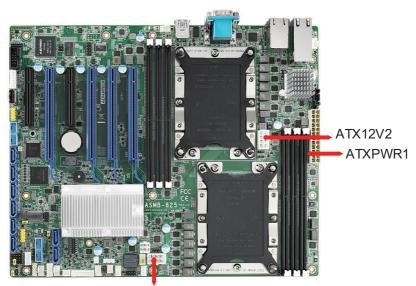
	Slot Length	Link	PCI-E Generation	PCIe link from
SLOT1	PCI-E x8	PCI-E x8	3	CPU0
SLOT2	PCI-E x16	PCI-E x16	3	CPU1
SLOT3	PCI-E x8	PCI-E x8	3	CPU1
SLOT4	PCI-E x16	PCI-E x16	3	CPU0

SATA0~7

SLOT5	PCI-E x16	PCI-E x16	3	CPU1
SLOT6	PCI-E x16	PCI-E x16	3	CPU0

	Part Number	Description	Remarks
	ASMB-RF388-21A1E	ASMB-RF388 (2U riser card)	2*PCI-E x8 or 1*PCI-E x8 + 2*PCI-E x4
Riser Card	ASMB-RF348-21A1E	ASMB-RF348 (2U riser card)	2*PCI-E x4 + 1*PCI-E x8
	ASMB-RF3X8-21A1E	ASMB-RF3X8 (2U riser card)	1*PCI-Ex4 + 2*PCI-X
	AIMB-RF10F-01A1E	AIMB-RF10F (1U riser card)	1*PCI-E x16

2.14 Auxiliary Power Connector (ATXPWR1/ ATX12V1/ATX12V2)



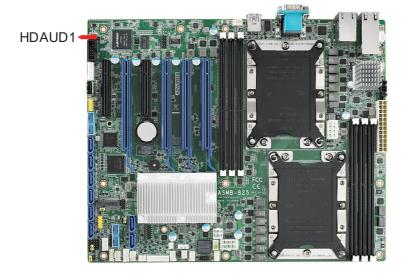
ATX12V1

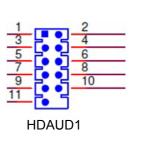


- 1. Please use a power supply of SSI type; minimum output should be at least 500 W.
- ATXPWR1 & ATX12V1 & ATX12V2 sockets should be all connected with power supply, otherwise ASMB-825 will not boot up normally.

2.15 HD Audio Interface Connector (HDAUD1)

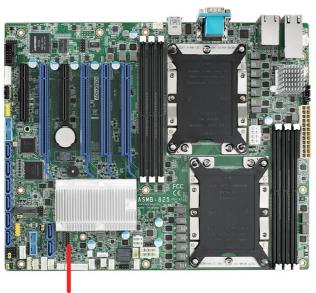
ASMB-825 has one audio connector for Advantech's audio board (P/N: PCA-AUDIO-HDB1E) installation.



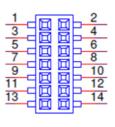


2.16 LPC Connector (LPC2)

ASMB-825 has one LPC connector that can be used to install Advantech's TPM Module (P/N: PCA-TPM-00A1E, PCA-TPM-00B1E) for security management.



LPC2



LPC2

2.17 Clear CMOS Connector (JCMOS1, JME1)

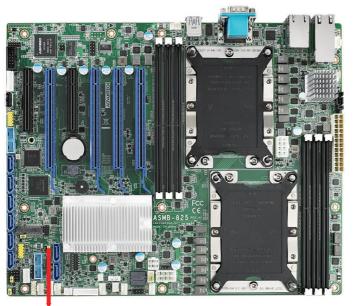
Setting jumper from pin 1-2 to pin 2-3, then back to pin 1-2. resets CMOS data.

2 3

JME1

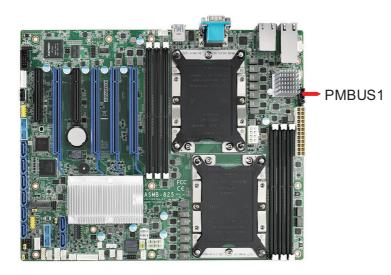
2 3

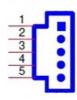
JCMOS1



JCMOS1 JME1

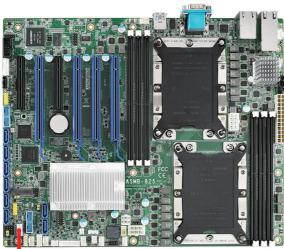
2.18 PMBUS Connector (PMBUS1)

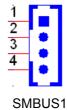




PMBUS1

2.19 Front Panel SMBUS Connector (SMBUS1)

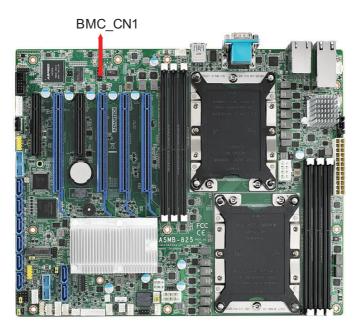




SMBUS1

2.20 IPMI Module Connector (BMC_CN1)

This connector only fits Advantech's BMC Module that will exist in ASMB-825 I & T2 SKUs for enabling IPMI function.



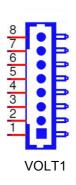


BMC_CN1

2.21 VOLT1 Connector (VOLT1)

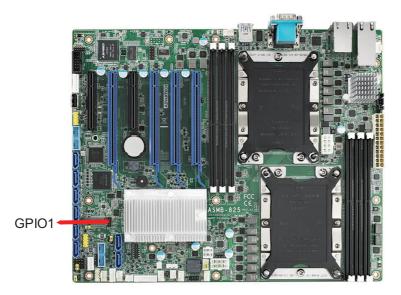
VOLT1 connects to the alarm board on the Advantech chassis. These alarm boards give warnings if a power supply or fan fails, if the chassis overheats, or if the back-plane malfunctions.

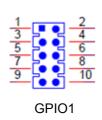




Chapter 2 Connections

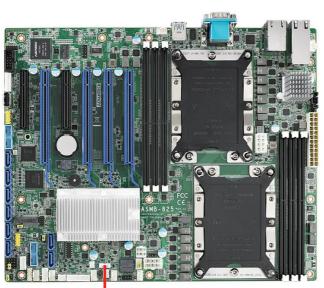
2.22 GPIO Connector (GPIO1)





2.23 Intel Virtual RAID (VROC1)

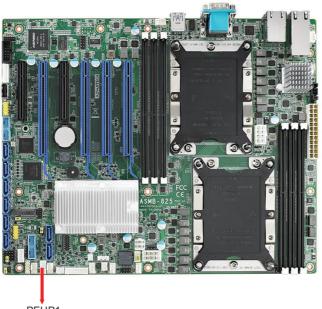
Intel VROC license key of VMD allows NVMe SSDs to connect via PCIe and directly manages the CPU for better RAID performance. ASMB-825 has a VROC connector to enable NVMe SSD RAID, hot-plug and LED management features on Advantech's storage system.



VOC1

2.24 NVMe RAID LED Control (PEHP1)

ASMB-825 has a PEHP1 connector for storage chassis to enable NVMe RAID LED control feature.



PEHP1



AMI BIOS

3.1 Introduction

With the AMI BIOS Setup program, you can modify BIOS settings and control the special features of your computer. The Setup program uses a number of menus for making changes and turning the special features on or off. This chapter describes the basic navigation of the ASMB-825 setup screens.

BIOS Information		Set the Date. Use Tab to
BIOS Vendor	American Megatrends	switch between Date elements.
Core Version	5.12 0.75	Default Ranges:
Compliancy	UEFI 2.5; PI 1.4	Year: 2005–2099
Project Version	ASMB S825X020	Months: 1–12
Build Date and Time	06/30/2017 08:14:56	Days: dependent on month
Access Level	Administrator	
Main Board	ASMB-825T2	
Memory Information		
Total Memory	8192 MB	
System Date	[Fri 07/28/2017]	++: Select Screen
System Time	[11:05:49]	↑↓: Select Item
		Enter: Select
		+/-: Change Opt.
		F1: General Help
		F2: Previous Values
		F3: Optimized Defaults
		F4: Save & Exit
		ESC: Exit

AMI's 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 up CMOS so it retains the Setup information when the power is turned off.

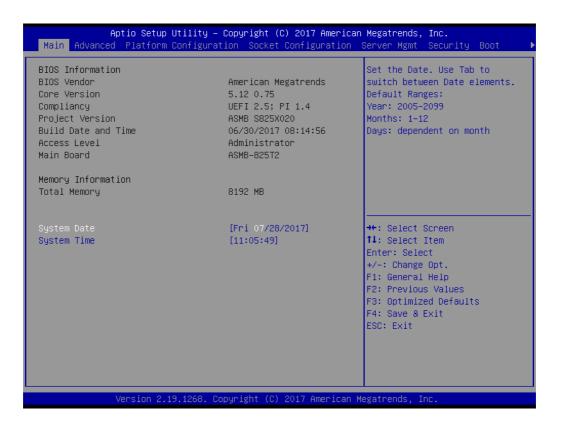
Note!

The BIOS setup screens shown in this chapter are for reference only, they may not exactly match what you see on your display devices.

3.2 BIOS Setup

3.2.1 Main Menu

Press during bootup to enter AMI BIOS CMOS Setup Utility; the Main Menu will appear on the screen. Use arrow keys to select among the items and press <Enter> to accept or enter the sub-menu.



The Main BIOS setup screen has two main frames. The left frame displays all the options that can be configured. Grayed-out options cannot be configured; options in blue can be. The right frame displays the key legend. Above the key legend is an area reserved for a text message. When an option is selected in the left frame, it is highlighted in white. Often a text message will accompany it.

System Date / System Time

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

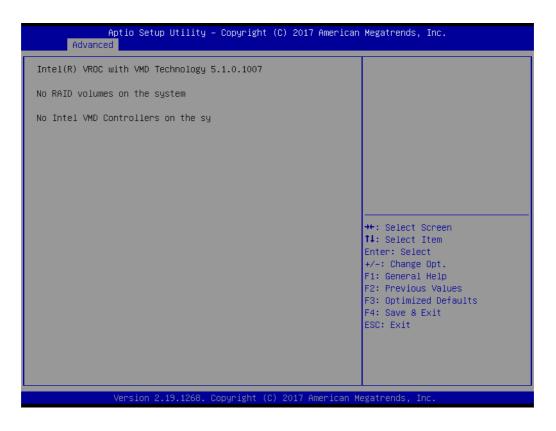
3.2.2 Advanced BIOS Features Setup

Select the Advanced tab from the ASMB-825 setup screen to enter the Advanced BIOS setup screen. You can select any of the items in the left frame of the screen, such as CPU configuration, to go to the sub menu for that item. You can display an Advanced BIOS Setup option by highlighting it using the <Arrow> keys. All Advanced BIOS Setup options are described in this section. The Advanced BIOS Setup screens are shown below. The sub menus are described on the following pages.

gatrends, Inc. ver Mgmt Security Boot →
is formset allows the user manage Intel(R) Virtual ID on CPU
: Select Screen : Select Item ter: Select -: Change Opt. : General Help : Previous Values : Optimized Defaults : Save & Exit C: Exit
:

Chapter 3 AMI BIOS

3.2.2.1 Intel Virtual RAID on CPU



3.2.2.2 Driver Health

Aptio Setup Utility Advanced	y – Copyright (C) 2017 American	Megatrends, Inc.
▶ Apache Pass 1.0.0.1011 Driver	Healthy	Provides Health Status for the Drivers/Controllers
		<pre>++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
Version 2.19.1268	. Copyright (C) 2017 American M	egatrends, Inc.

3.2.2.3 Trusted Computing



Security Device Support

Enables or disables BIOS support for security devices.



Purchase Advantech LPC TPM module to enable TPM function. P/N: PCA-TPM-00A1E_B1E.

3.2.2.4 ACPI Settings

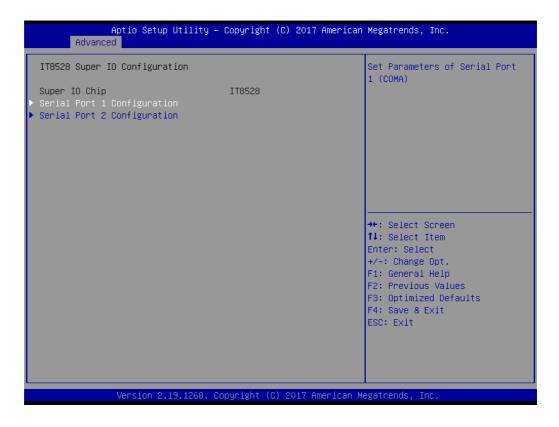
Aptio Setup Uti: Advanced	lity – Copyright (C) 2017 Ar	merican Megatrends, Inc.
ACPI Settings		Enables or Disables System ability to Hibernate (OS/S4 Sleep State). This option may
Enable Hibernation Lock Legacy Resources PowerOn by Modem	[Enabled] [Disabled] [Disabled]	not be effective with some operating systems.
		<pre>++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
Version 2.19.12	268. Copyright (C) 2017 Amer	rican Megatrends, Inc.

Enable Hibernation

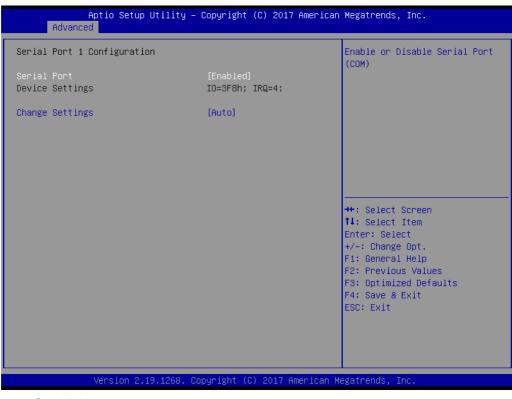
To "Enable or Disable" hibernation feature.

- Lock Legacy Resources
 To "Enable or Disable" lock legacy resources feature.
- PowerOn By Modem
 To "Enable or Disable" power on by modem feature.

3.2.2.5 IT8528 EC Super IO Configuration



Serial Port 1 Configuration



- Serial Port
 To "Enable or Disable" serial port 1.
- Change Settings

To select an optimal setting for serial port 1.

Serial Port 2 Configuration



- Serial Port

To "Enable or Disable" serial Port 2.

- Change Settings

To select an optimal setting for serial port 2.

3.2.2.6 IT8528 HW Monitor

Aptio Setup Utility – Advanced	Copyright (C) 2017 American) Megatrends, Inc.
IT8528 HW Monitor	•	Enabled/Disabled Watchdog
Firmware Version	I28B8X000E	Timer.
Watchdog Timer CPU ACPI Shutdown Temperature CPU Warning Temperatrue ▶ FAN Configuration	[Disabled] [Disabled] [Disabled]	
System Temperature(TR1) CPU 0 Temperature CPU 1 Temperature	: +38°C : +41°C : +45°C	
VBAT +12V +5V +3.3V	: +2.838 V : +12.170 V : +4.920 V : +3.296 V	<pre>++: Select Screen f↓: Select Item Enter: Select +/-: Change Opt.</pre>
CPU Fan O Speed CPU Fan 1 Speed System Fan O Speed System Fan 1 Speed System Fan 3 Speed System Fan 3 Speed	: 7139 RPM : 7260 RPM : N/A : N/A : N/A : N/A	F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
System Fan 4 Speed	: N/A	
Version 2.19.1268. C	opyright (C) 2017 American M	legatrends, Inc.

Watchdog Timer

To "Enable or Disable" the watchdog timer function.

CPU ACPI Shutdown Temperature

"Enable" or "Disable" the ACPI shutdown temperature threshold. When the system reaches the shutdown temperature, it will be automatically shut down by ACPI OS to protect the system from overheat damage.

CPU Warning Temperature

"Enable" or "Disable" the CPU warning temperature threshold. When the system reaches the warning temperature, the speaker will beep.

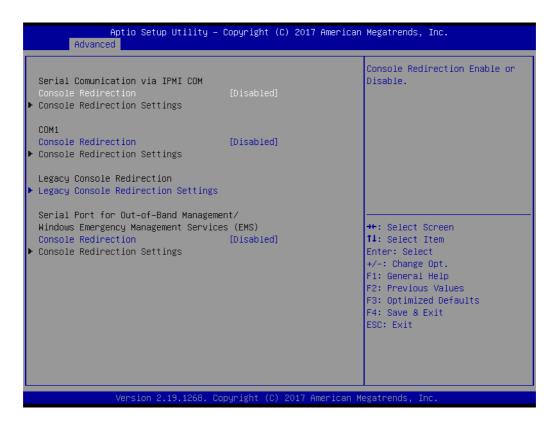
Fan Configuration

The default of CPU/System FAN is Smart FAN mode and the BIOS will automatically control the FAN speed by CPU temperature.

When set to manual mode, fan duty setting can be changed; the range is from 30%~100%, default setting is 50%.



3.2.2.7 Serial Port Console Redirection



COM1 Console Redirection Settings

Aptio Setup Utility - Advanced	· Copyright (C) 2017 Americar) Megatrends, Inc.
Serial Comunication via IPMI COM Console Redirection Settings		Enables or disables extended terminal resolution
Terminal Type Bits per second Data Bits Parity Stop Bits Flow Control VT-UTF8 Combo Key Support Recorder Mode Resolution 100x31 Legacy OS Redirection Resolution Putty KeyPad Redirection After BIOS POST	[ANSI] [115200] [8] [None] [1] [None] [Enabled] [Disabled] [B0x24] [VT100] [Always Enable]	++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.19.1268. C	Copyright (C) 2017 American M	Megatrends, Inc.

Aptio Setup Utility - Advanced	– Copyright (C) 2017 America	n Megatrends, Inc.
COMO Console Redirection Settings Terminal Type Bits per second Data Bits Parity Stop Bits Flow Control VT-UTF8 Combo Key Support Recorder Mode Resolution 100x31 Legacy OS Redirection Resolution Putty KeyPad Redirection After BIOS POST	[ANSI] [115200] [8] [None] [1] [None] [Enabled] [Disabled] [Disabled] [80x24] [VT100] [Always Enable]	Emulation: ANSI: Extended ASCII char set. VT100: ASCII char set. VT100+: Extends VT100 to support color, function keys, etc. VT-UTF8: Uses UTF8 encoding to map Unicode chars onto 1 or more bytes. ++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.19.1268. (Copyright (C) 2017 American	Megatrends, Inc.

- Terminal Type

Select a terminal type to be used for console redirection. Options available: VT100/VT100+/ANSI /VT-UTF8.

- Bits Per Second

Select the baud rate for console redirection.

Options available: 9600/19200/57600/115200.

Data Bits

- Parity

A parity bit can be sent with the data bits to detect some transmission errors. Even: parity bit is 0 if the number of 1's in the data bits is even.

Odd: parity bit is 0 if number of 1's the data bits is odd.

Mark: parity bit is always 1. Space: Parity bit is always 0.

Mark and Space Parity do not allow for error detection.

Options available: None/Even/Odd/Mark/Space.

Stop Bits

Stop bits indicate the end of a serial data packet. (A start bit indicates the beginning). The standard setting is 1 stop bit. Communication with slow devices may require more than 1 stop bit.

Options available: 1/2.

- Flow Control

Flow control can prevent data loss from buffer overflow. When sending data, if the receiving buffers are full, a 'stop' signal can be sent to stop the data flow. Once the buffers are empty, a 'start' signal can be sent to re-start the flow. Hardware flow control uses two wires to send start/stop signals.

Options available: None/Hardware RTS/CTS.

- VT-UTF8 Combo Key Support

Enable VT-UTF8 combination key support for ANSI/VT100 terminals

- Recorder Mode

When this mode enabled, only text will be send. This is to capture Terminal data.

Options available: Enabled/Disabled.

- Resolution 100x31

Enables or disables extended terminal resolution.

- Legacy OS Redirection Resolution

On Legacy OS, the number of Rows and Columns supported redirection. Options available: 80x24/80X25.

Putty Keypad

Select function key and keypad on putty.

Redirection After BIOS Post

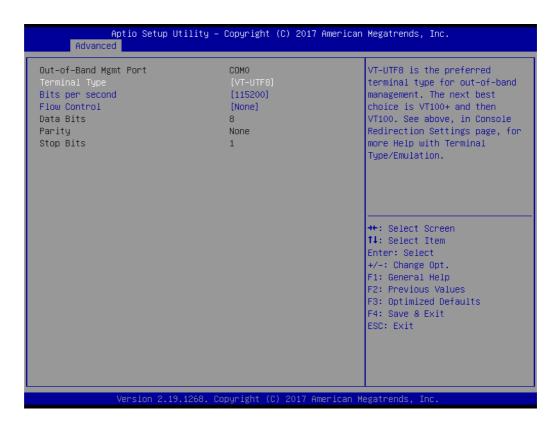
When Bootloader is selected, then Legacy Console Redirection is disabled before booting to legacy OS. When Always Enable is selected, then Legacy Console Redirection is enabled for legacy OS. Default setting for this option is set to Always Enable.

Legacy Console Redirection Settings

Select a COM port to display redirection of Legacy OS and Legacy OPROM Messages.

Advanced		Utility –	Copyright	(C) 201	7 American	Megatrends, Inc.
Legacy Serial R	edirection	Port	[СОМО]			Select a COM port to display redirection of Legacy OS and Legacy OPROM Messages
						<pre> ++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
	Version 2.1	l9.1268. Co	pyright (C	C) 2017 (American Me	egatrends, Inc.

Console Redirection Settings



- Out-of-Band Mgmt Port

To select the com port user would like to set for having console redirection feature.

- Terminal Type

Set as "VT100", "VT100+", "VT-UTF8", or "ANSI". "VT-UTF8" is the default setting.

- Bits Per Second

To select serial port transmission. Speed must be matched on the other side. It can be set as "9600", "19200", "57600", or "115200". "115200" is the default setting.

- Flow Control

Flow control can prevent data loss from buffer overflow. It can be set as "None",

"Hardware RTS/CTS", or "Software Xon/Xoff". "None" is the default setting.

- Data Bits
- Parity
- Stop Bits

3.2.2.8 PCI Subsystem Settings

Aptio Setup Utili Advanced	ty – Copyright (C) 2017 f.	American Megatrends, Inc.
PCI Bus Driver Version	A5.01.12	Enables or Disables 64bit capable Devices to be Decoded
PCI Devices Common Settings: Above 4G Decoding	[Enabled]	in Above 4G Address Space (Only if System Supports 64 bit PCI Decoding).
		<pre>++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
Version 2.19.126	8. Copyright (C) 2017 Ame	erican Megatrends, Inc.

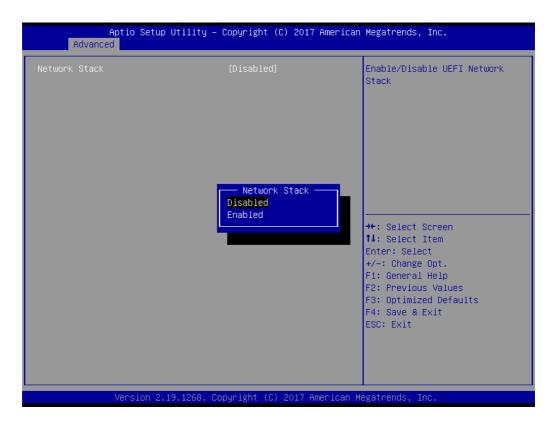
Above 4G Decoding

Enable or Disable 64-bit capable devices to be decoded in above 4G address space (Only if system supports 64-bit PCI decoding).

Note! Some graphics or GPU cards need to enable 4G decoding.



3.2.2.9 UEFI Network Stack Configuration



To "Enable or Disable" UEFI network stack function.

3.2.2.10 CSM Configuration

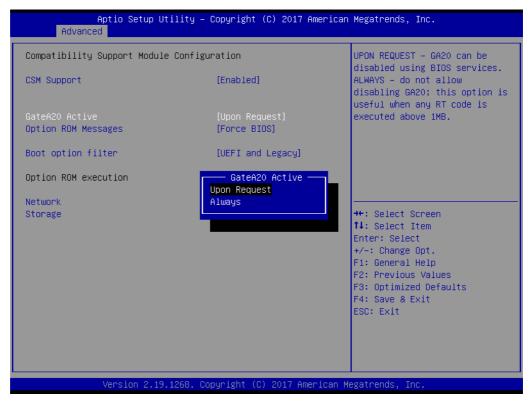
Aptio Setup Uti Advanced	lity — Copyright (C) 2017 Amer	rican Megatrends, Inc.
Compatibility Support Module	Enable/Disable CSM Support.	
CSM Support	[Enabled]	
GateA20 Active Option ROM Messages Boot option filter	[Upon Request] [Force BIOS] [UEFI and Legacy]	
Option ROM execution		
Network Storage	[Legacy] [Legacy]	<pre>++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
Version 2.19.1	268. Copyright (C) 2017 Americ	an Megatrends, Inc.

CSM Support

To "Enables or disables" UEFI CSM (Compatibility Support Module) to support a legacy PC boot process.

GateA20 Active

This items is useful when RT code is executed above 1MB. When it's set as "Upon Request", GA20 can be disabled using BIOS services. When it's set as "Always", it does not allow disabling GA20.



Option ROM Messages

To "Force BIOS or keep current" to set the display mode for Option ROM.

Boot option filter

Change UEFI/legacy ROM priority for boot option.

Aptio Setup Utilit Advanced	y – Copyright (C) 2017 American	Megatrends, Inc.
Compatibility Support Module Configuration CSM Support [Enabled]		This option controls Legacy/UEFI ROMs priority
GateA2O Active Option ROM Messages Boot option filter	[Upon Request] [Force BIOS] [UEFI and Legacy]	
Option ROM execution Network Storage	Boot option filter UEFI and Legacy Legacy only UEFI only	<pre> ++: Select Screen 1↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
Version 2.19.1268	. Copyright (C) 2017 American M	egatrends, Inc.

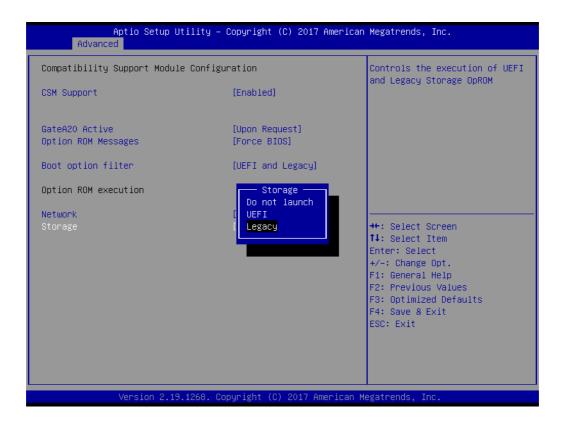
Network

Control the execution of UEFI and legacy PXE OpROM.



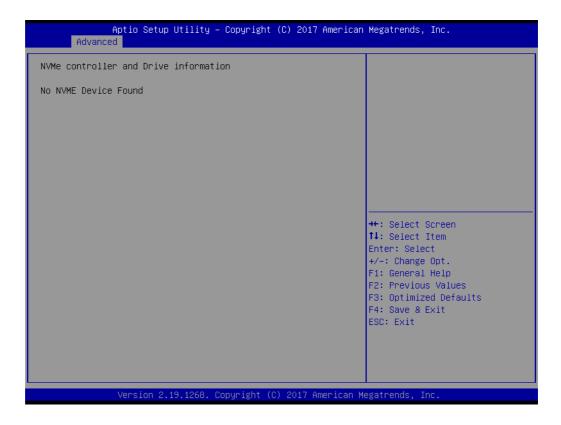
Storage

Control the execution of UEFI and legacy storage OpROM.



3.2.2.11 NVMe Configuration

Set NVMe device options.



3.2.2.12 USB Configuration

USB Configuration		Enables Legacy USB support. AUTO option disables legacy
USB Module Version	17	support if no USB devices are connected. DISABLE option wil
USB Controllers:		keep USB devices available
1 XHCI		only for EFI applications.
USB Devices:		
1 Drive, 1 Keyboard		
Legacy USB Support	[Enabled]	
XHCI Hand-off	[Enabled]	
USB Mass Storage Driver Support	[Enabled]	
USB hardware delays and time-outs:		++: Select Screen
USB transfer time-out	[20 sec]	↑↓: Select Item
Device reset time-out	[20 sec]	Enter: Select
Device power-up delay	[Auto]	+/-: Change Opt.
		F1: General Help
Mass Storage Devices:		F2: Previous Values
JetFlashTranscend 16GB 1100	[Auto]	F3: Optimized Defaults
		F4: Save & Exit
		ESC: Exit

Legacy USB Support

This is for supporting USB device under a legacy OS such as DOS. When choosing "Auto", the system will automatically detect if any USB device is plugged into the computer and enable USB legacy mode when a USB device is plugged, or disable USB legacy mode when no USB device is attached.

XHCI Hand-off

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

USB Mass Storage Driver Support
 To "Disable or enable" USB mass storage driver support.

USB Transfer Time-out

Selects the USB transfer time-out value. [1,5,10,20sec]

Aptio Setup Utili Advanced	ty – Copyright (C) 2017 American	Megatrends, Inc.
USB Configuration		The time-out value for Control, Bulk, and Interrupt
USB Module Version	17	transfers.
USB Controllers: 1 XHCI		
USB Devices: 1 Drive, 1 Keyboard		
Legacy USB Support	┌── USB transfer time-out ────	
XHCI Hand-off	1 sec	
USB Mass Storage Driver Support		
USB hardware delays and time–ou	10 sec 20 sec	+: Select Screen
USB transfer time-out		↓: Select Item
Device reset time-out		nter: Select
Device power-up delay	[Auto]	+/-: Change Opt.
Mass Storage Devices:		F1: General Help F2: Previous Values
JetFlashTranscend 16GB 1100	[Auto]	F3: Optimized Defaults
		F4: Save & Exit
		ESC: Exit

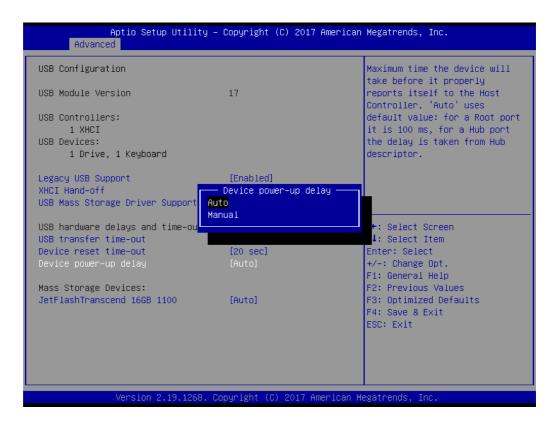
Device Reset Time-out

Selects the USB device reset time-out value. [10,20,30,40 sec]

Aptio Setup Utili Advanced	ty – Copyright (C) 2017 America	an Megatrends, Inc.
USB Configuration		USB mass storage device Start Unit command time-out.
USB Module Version	17	onit command time-out.
USB Controllers: 1 XHCI		
USB Devices: 1 Drive, 1 Keyboard		
Legacy USB Support XHCI Hand-off	Device reset time-out	
USB Mass Storage Driver Support		
USB hardware delays and time-ou USB transfer time-out		+: Select Screen ↓: Select Item
Device reset time–out		nter: Select
Device power-up delay	[Auto]	+/−: Change Opt. F1: General Help
Mass Storage Devices:		F2: Previous Values
JetFlashTranscend 166B 1100	[Auto]	F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.19.126	8. Copyright (C) 2017 American	Megatrends, Inc.

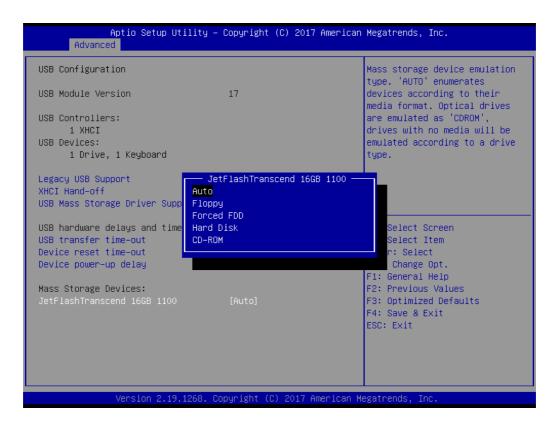
Device Power-up Delay

This item appears only when Device power-up delay item is set to [manual].



Mass Storage Devices

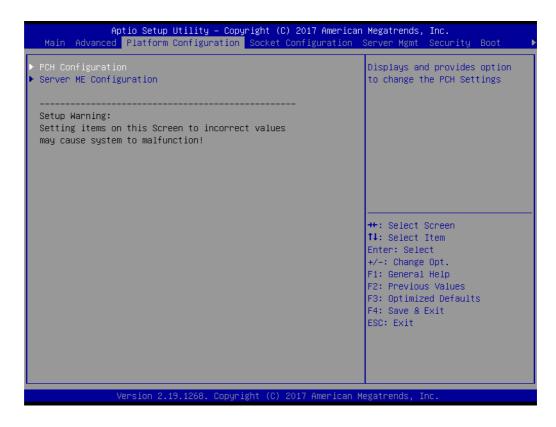
Default is "Auto" to enumerate mass storage devices according to media format.



3.2.3 Platform Configuration

PCH Configuration Server ME Configuration	Displays and provides option to change the PCH Settings
Setup Warning: Setting items on this Screen to incorrect values may cause system to malfunction!	
	++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.19.1268. Copyright (C) 2017 Ame	erican Megatrends, Toc.

3.2.3.1 PCH Configuration



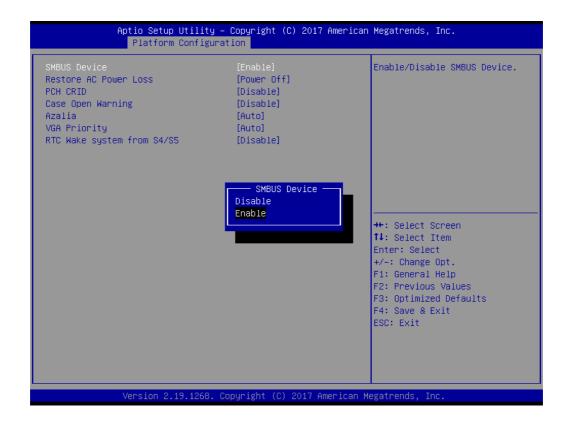
Aptio Setup Utility – Copyright (C) Platform Configuration	2017 American Megatrends, Inc.
<pre>PCH Configuration PCH Devices PCIE M.2 Slot Configuration PCH SATA Configuration PCH sSATA/M.2 Configuration Networking</pre>	Enable/Disable Intel(R) IO Controller Hub devices
	++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.19.1268. Copyright (C) 2	017 American Megatrends, Inc.

PCH Devices

This item is to set up IO Controller Hub devices.

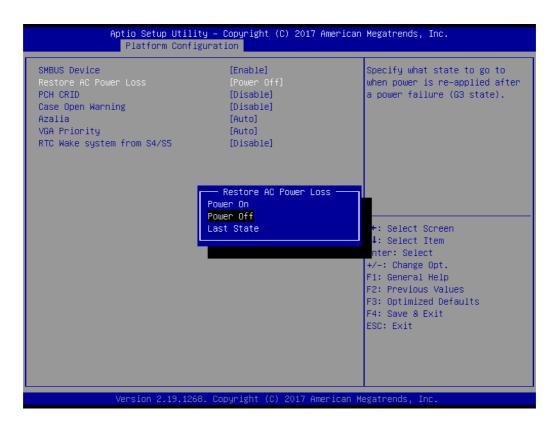
- SMBus Controller

To "Enable or Disable" SMBus controller.



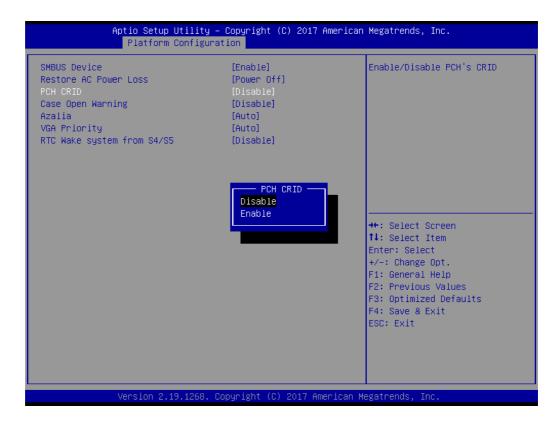
Restore AC Power Loss

Specify what state to go to when power is re-applied after a power failure (G3 state).



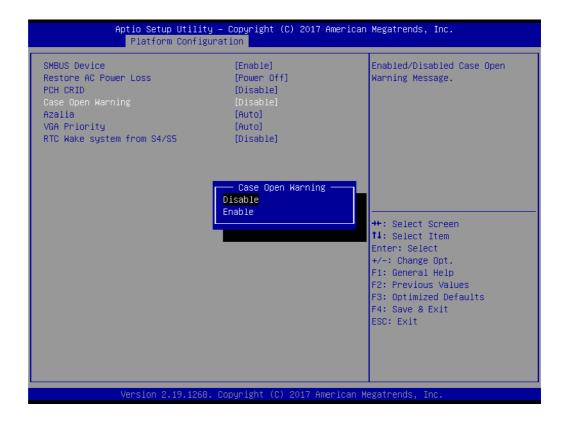
– PCH CRID

To "Enable or Disable" PCH compatibility revision ID (CRID) functionality.



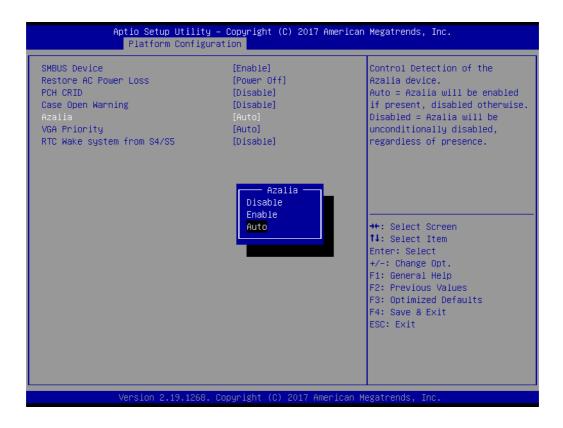
- Case Open Warning

To "Enable or disable" the chassis intrusion monitoring function. When enabled and the case is opened, the warning message will show in POST screen.



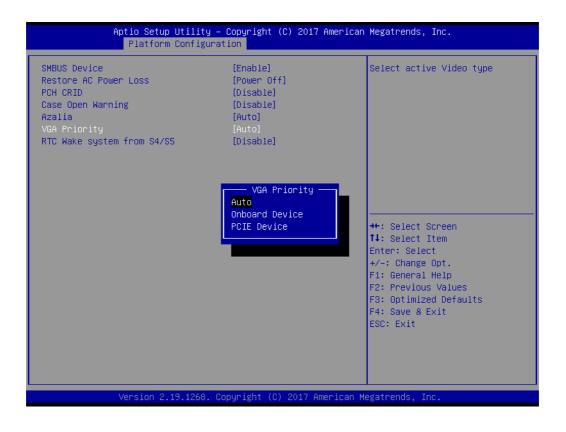
Azalia

To "Enable or Disable" Azalia device.



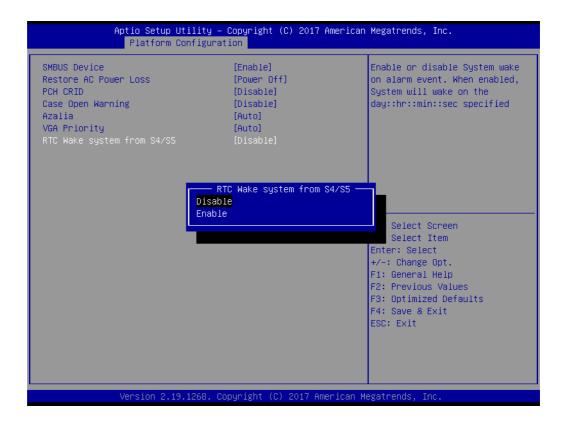
- VGA Priority

Determines priority between onboard and 1st off-board video device found.



- RTC Wake system from S4/S5

To "Enable or Disable" system wake on alarm event.



PCIe M.2 Slot Configuration

- PCIe M.2 Slot

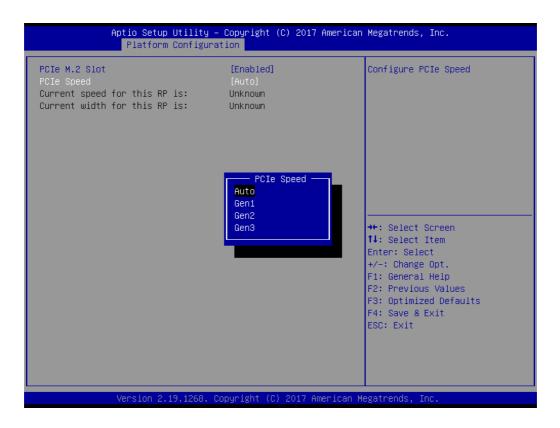
To "Enable or Disable" the PCI Express root port.

		Utility — Copy Configuration		rican Megatrends, Inc.	
PCIe M.2 Slot PCIe Speed Current speec Current width	for this RP	[En [Au is: Unk is: Unk	abled] to] nown nown PCIe M.2 Slot abled bled	Control the PCI Port. ++: Select Scree 11: Select Item Enter: Select +/-: Change Opt.	
	Version 2.	19.1268. Copyri	ght (C) 2017 Americ	F1: General Help F2: Previous Valu F3: Optimized De F4: Save & Exit ESC: Exit	

Chapter 3 AMI BIOS

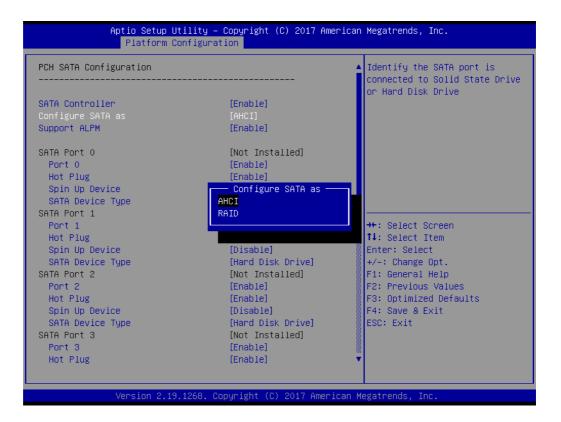
– PCle Speed

Configure PCI Express speed.



PCH SATA Configuration

PCH SATA Configuration		 Enable or Disable SATA Controller
SATA Controller	[Enable]	
Configure SATA as Support ALPM	[AHCI] [Enable]	
SATA Port 0 Port 0 Hot Plug Spin Up Device SATA Device Type SATA Port 1	[Not Installed] [Enable] [Enable] [Disable] [Hard Disk Drive] [Not Installed]	
Port 1 Hot Plug Spin Up Device SATA Device Type SATA Port 2 Port 2 Hot Plug Spin Up Device SATA Device Type SATA Port 3 Port 3 Hot Plug	[Enable] [Enable] [Disable] [Hard Disk Drive] [Hard Disk Drive] [Enable] [Enable] [Disable] [Hard Disk Drive] [Not Installed] [Enable] [Enable]	++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit



- SATA Controller

To "Enable or Disable" SATA devices.

- Configure SATA as

Set as AHCI or RAID when SATA Controllers are enabled.

- Support ALPM

To "Enable or Disable" Aggressive Link Power Management (ALPM) protocol for Advanced Host Controller Interface-compliant (AHCI) Serial ATA (SATA) devices.

– SATA Port 0~7

To Enable or Disable SATA port 0~7.

Hot Plug Port 0~7

Designates SATA port 0~7 as hot pluggable.

SATA Port 0~7 Spin Up Device

On an edge detect from 0 to 1, the PCH starts a COMRESET initialization sequence to the device.

- SATA Port 0~7 Device Type

To identify the SATA is connected to Solid State Drive or Hard Disk Drive.

PCH sSATA/M.2 Configuration

Aptio Setup Utility – Platform Configurat	Copyright (C) 2017 American <mark>ion</mark>	Megatrends, Inc.
PCH sSATA/M.2 Configuration		Enable or Disable sSATA/M.2 Controller
sSATA/M.2 Controller	[Enable]	
SATA M.2 Port Port	[Not Installed] [Enable]	<pre>++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
Version 2.19.1268. Co	pyright (C) 2017 American M	egatrends, Inc.

- sSATA/M.2 Controller

To "Enable or Disable" sSATA/M.2 Controller.

 SATA M.2 Port To "Enable or Disable" SATA port.

Networking

	[[] =] =]	Enabled/Disabled onboard LAN1
LAN1 Controller LAN1 PXE OpROM	[Enable] [Disable]	Enabled/Disabled Unboard LANI.
LAN2 Controller	[Enable]	
LAN2 PXE OpROM	[Disable]	
LAN3/LAN4 Controller	[Enable]	
LAN3 PXE OpROM	[Disable]	
LAN4 PXE OpROM	[Disable]	
		++: Select Screen
		↑↓: Select Item
		Enter: Select
		+/-: Change Opt. F1: General Help
		F2: Previous Values
		F3: Optimized Defaults
		F4: Save & Exit
		ESC: Exit

- LAN1 Controller

To "Enable or Disable" Intel I210 Controller support.

- LAN1 PXE OpROM

To "Enable or Disable" Boot option for Intel I210 controller.

- LAN2 Controller

To "Enable or Disable" Intel I210 Controller support.

- LAN2 PXE OpROM

To "Enable or Disable" Boot option for Intel I210 controller.

- LAN3/LAN4 Controller

To "Enable or Disable" Intel X557 controller support.

- LAN3 PXE OpROM

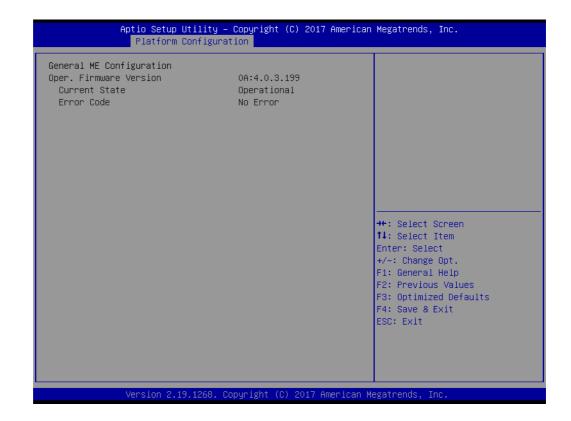
To "Enable or Disable" boot option for Intel X557 controller.

- LAN4 PXE OpROM

To "Enable or Disable" boot option for Intel X557 controller.

3.2.3.2 Server ME Configuration

This page shows the Server ME configuration information.



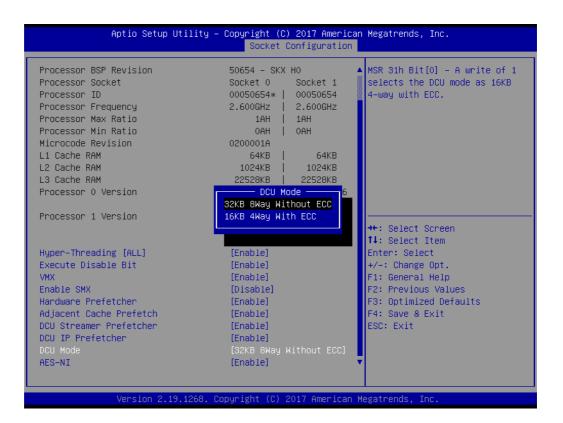
Chapter 3 AMI BIOS

3.2.4 Socket Configuration



3.2.4.1 Processor Configuration

Aptio Setup Utility	– Copyright (C) 2017 Americar Socket Configuration) Megatrends, Inc.
Processor Configuration		Change Per-Socket Settings
 Per-Socket Configuration Processor BSP Revision Processor Socket Processor ID Processor Frequency Processor Max Ratio Processor Min Ratio Microcode Revision L1 Cache RAM L2 Cache RAM L3 Cache RAM Processor 0 Version Processor 1 Version Processor 1 Version Hyper-Threading [ALL] Execute Disable Bit VMX Enable SMX Hardware Prefetcher Adjacent Cache Prefetcher 	50654 - SKX H0 Socket 0 Socket 1 00050654* 00050654 2.600GHz 2.600GHz 1AH 1AH 0AH 0AH 020001A 64KB 64KB 1024KB 1024KB 22528KB 22528KB Intel(R) Xeon(R) Gold 6 142M CPU @ 2.60GHz Intel(R) Xeon(R) Gold 6 142M CPU @ 2.60GHz [Enable] [Enable] [Enable] [Enable] [Enable] [Enable] [Enable] [Enable] [Enable] [Enable] [Enable] [Enable] [Enable]	++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.19.1268.	Copyright (C) 2017 American ⊧	legatrends, Inc.



Per-Socket Configuration

Use this to select how many processor cores you want to activate when you are using a dual or quad core processor.

Hyper-threading [All]

To "Enable or Disable" Intel Hyper Threading technology.

Execute Disable Bit

To "Enable or Disable" the Execute Disable Bit feature. The Optimal and Fail-Safe default setting is Enabled. If Disabled is selected, the BIOS forces the XD feature flag to always return to 0.

VMX

Enable or Disable Intel Virtual Machine Extensions (VMX) for IA-32 processors that support Intel® Vanderpool Technology

Enable SMX

To "Enable or Disable" Safer Mode Extensions. Safer Mode Extensions (SMX) provide a means for system software to launch an MLE and establish a measured environment within the platform to support trust decisions by end users.

Hardware Prefetcher

Hardware Prefetcher is a technique that fetches instructions and/or data from memory into the CPU cache memory well before the CPU needs it, so that it can improve the load-to-use latency.

Adjacent Cache Prefetch

The Adjacent Cache-Line Prefetch mechanism, like automatic hardware prefetch, operates without programmer intervention. When enabled through the BIOS, two 64-byte cache lines are fetched into a 128-byte sector, regardless of whether the additional cache line has been requested or not.

DCU Streamer Prefetcher

Enable prefetch of next L1 data line based upon multiple loads in same cache line.

DCU IP Prefetcher

Enable prefetch of next L1 line based upon sequential load history.

DCU Mode

Change the data cache unit mode.

AES-NI

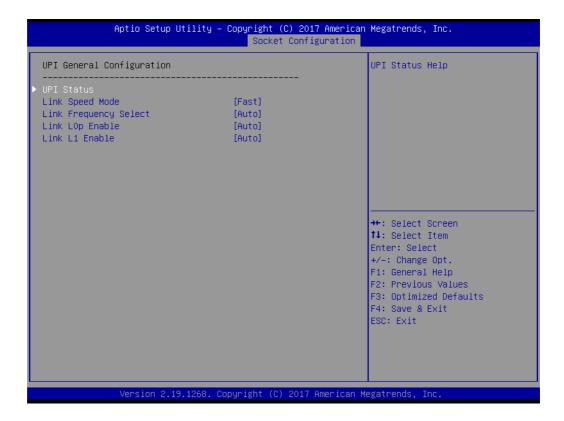
This item is to Enable or Disable CPU advanced encryption standard instructions.

3.2.4.2 UPI Configuration

Aptio Setup Utility – Copyright (C) 2017 American Socket Configuration	Megatrends, Inc.
	Displays and provides option to change the UPI General
▶ UPI General Configuration	Settings
	↔: Select Screen ↓: Select Item Enter: Select
	+/–: Change Opt. F1: General Help F2: Previous Values
	F3: Optimized Defaults F4: Save & Exit
	ESC: Exit
Version 2.19.1268. Copyright (C) 2017 American Me	egatrends, Inc.

UPI Status

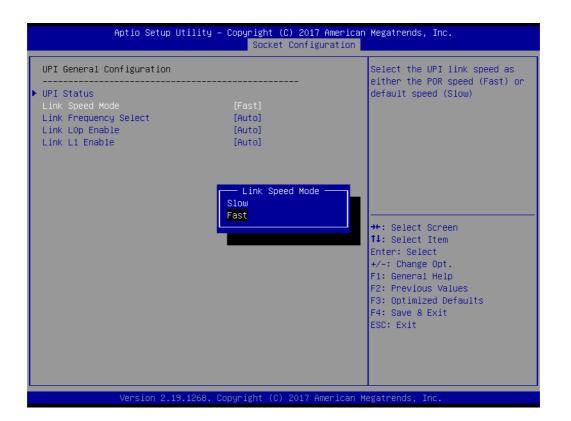
Display information of Intel UltraPath Interconnect (UPI).



UPI Status 	Aptio Setup Utility –	Copyright (C) 2017 Americar Socket Configuration) Megatrends, Inc.
Number of IIO 2 Current UPI Link Speed Fast Current UPI Link Frequency 10.4 GT/s UPI Global MMID Low Base / Limit 90000000 / FBFFFFFF UPI Global MMID High Base / Limit 000000000000 / 00 UPI Pci-e Configuration Base / Siz 8000000 / 10000000 ++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit	UPI Status		
	Number of IIO Current UPI Link Speed Current UPI Link Frequency UPI Global MMIO Low Base / Limit UPI Global MMIO High Base / Limit	2 Fast 10.4 GT/s 90000000 / FBFFFFFF 000000000000000 / 00	<pre>↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit</pre>

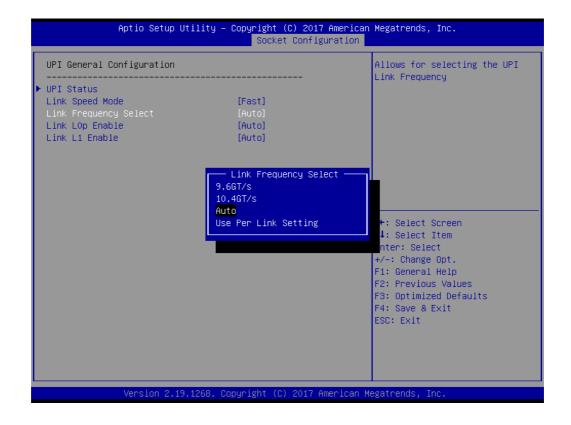
Link Speed Mode

Select the QPI link speed as either the Fast mode or Slow mode.



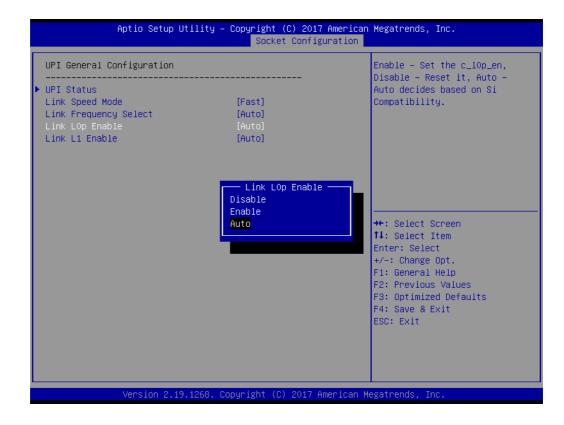
Link Frequency Select

Allows for selecting the QPI Link frequency.



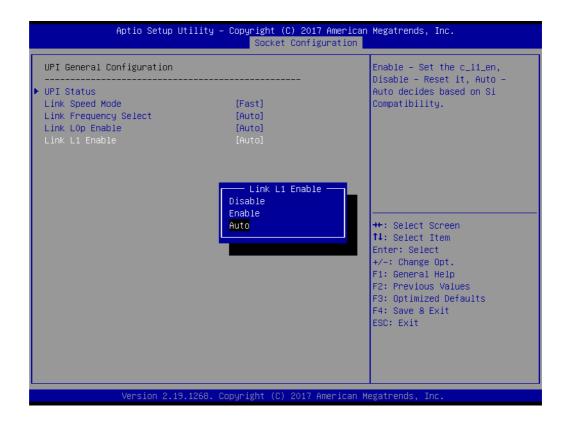
Link L0p Enable

To "Enable or Disable" QPI Link0p.

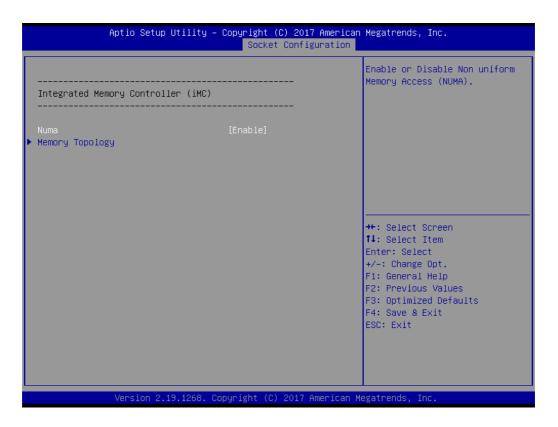


Link L1 Enable

To "Enable or Disable" QPI Link1.



3.2.4.3 Memory Configuration



Numa

To "Enable or Disable" non uniform memory access (NUMA).

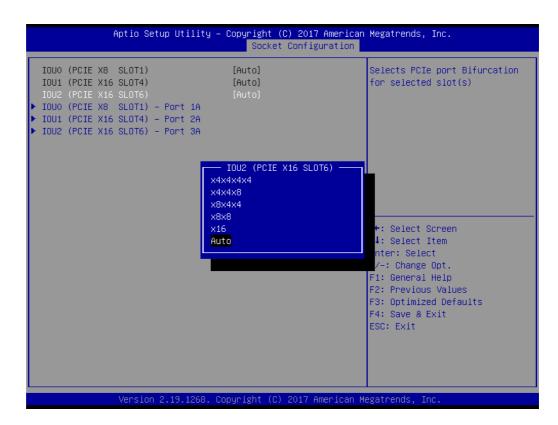
Memory Technology Display memory topology with DIMM population information.

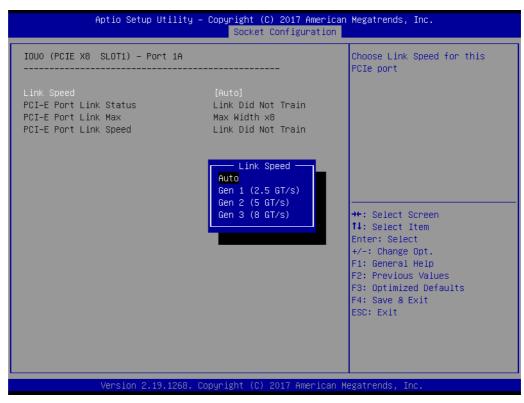
3.2.4.4 IIO Configuration

	Socket Configu	ration
IIO Configuration ▶ Socket0 Configuration		
 Socket1 Configuration Intel® VT for Directed I/O (VT-d) 		
▶ Intel® VMD technology PCIe Hot Plug PCI-E ASPM Support (Global)	[Disable] [Disable]	
		++: Select Screen fl: Select Item Enter: Select
		+/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

Socket0 PCIe Configuration

PCIe port bifurcation control and select target link speed as Gen1, Gen2, Gen3.





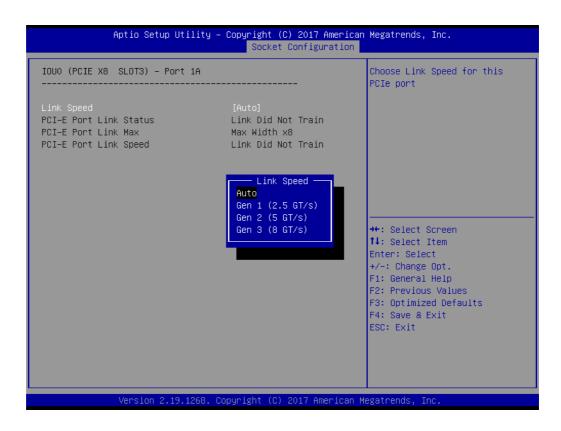
PCI-E Port Link Status Link Did Not Train PCI-E Port Link Max Max Width x16	IOU1 (PCIE X16 SLOT4) – Port 2A		Choose Link Speed for this PCIe port
Version 2.19.1268. Copyright (C) 2017 American Megatrends, Inc.	Link Speed PCI-E Port Link Status PCI-E Port Link Max PCI-E Port Link Speed	Link Did Not Train Max Width x16 Link Did Not Train Link Speed Auto Gen 1 (2.5 GT/s) Gen 2 (5 GT/s)	<pre>\$\$\$ \$</pre>
	Version 2.19.1268. (Copyright (C) 2017American ⊧	legatrends, Inc.

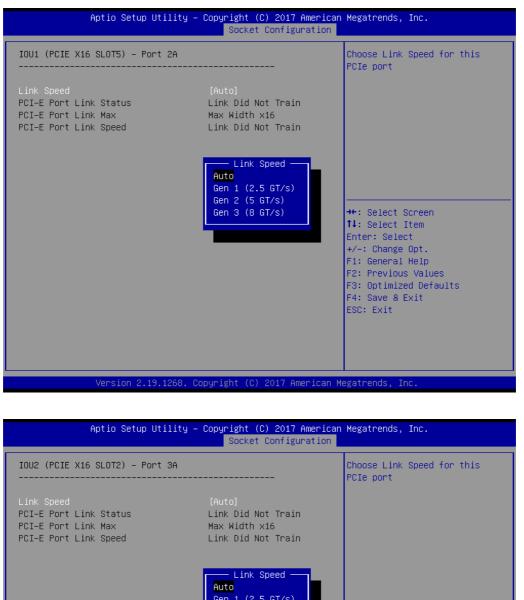
	Socket Configuration			
IOU2 (PCIE X16 SLOT6) – Port 3A		Choose Link Speed for this PCIe port		
Link Speed PCI-E Port Link Status PCI-E Port Link Max PCI-E Port Link Speed	[Auto] Link Did Not Train Max Width x16 Link Did Not Train			
	Link Speed Auto Gen 1 (2.5 GT/s) Gen 2 (5 GT/s) Gen 3 (8 GT/s)	<pre>++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>		
Version 2.19.1268. C	Version 2.19.1268. Copyright (C) 2017 American Megatrends, Inc.			

Socket1 PCIe Configuration

PCIe port bifurcation control and select target link speed as Gen1, Gen2, Gen3.

	Aptio Setup Utility –	Copyright (C) 2017 American Socket Configuration	Megatrends, Inc.
▶ IOU1 (PCIE X1	6 SLOTS)	[Auto] [Auto] [Auto]	Settings related to PCI Express Port
			<pre>++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>





Aptio Setup Utility - Copyright (C) 2017 American Megatrends, Inc. Socket Configuration IOU2 (PCIE X16 SLOT2) - Port 3A Link Speed PCI-E Port Link Status PCI-E Port Link Max PCI-E Port Link Speed I Link Did Not Train Max Width x16 Link Speed Auto Gen 1 (2.5 GT/s) Gen 3 (8 GT/s) H*: Select Screen 14: Select Item Enter: Select H-E Select Item Enter: Select F3: Optimized Defaults F4: Save 8 Exit ESC: Exit Version 2.19.1268. Copyright (C) 2017 American Megatrends, Inc.

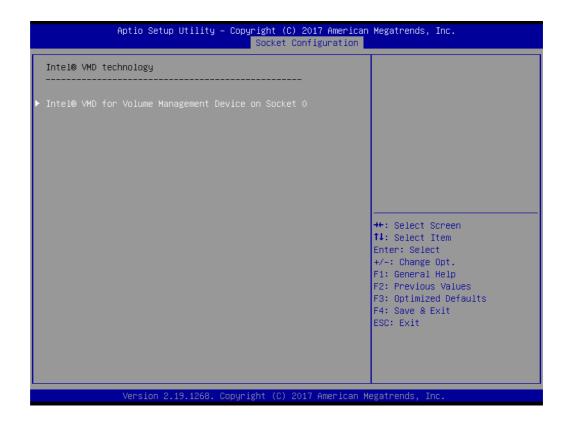
Intel VT for Directed I/O (VT-d)

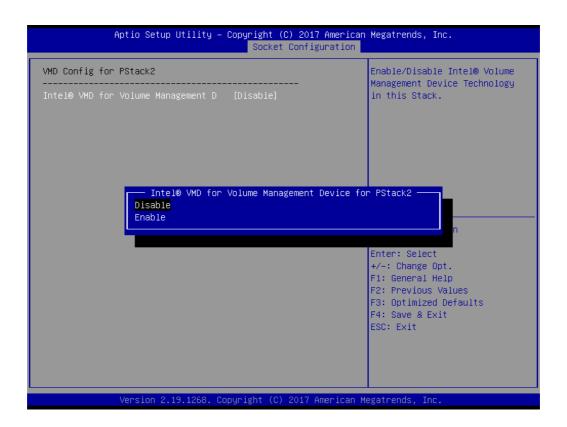
To "Enable or Disable" Intel Virtualization Technology for Directed I/O.

Aptio Setup Utility – Copyright (C) 2017 American Socket Configuration	Megatrends, Inc.
Intel® VT for Directed I/O (VT-d) Intel® VT for Directed I/O (VT-d) [Disable]	Enable/Disable Intel® Virtualization Technology for Directed I/O (VT-d) by reporting the I/O device assignment to VMM through DMAR ACPI Tables.
Intel® VT for Directed I/O (VT-d) Enable Disable	ect Screen ect Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.19.1268. Copyright (C) 2017 American Mo	egatrends, Inc.

Intel VMD technology

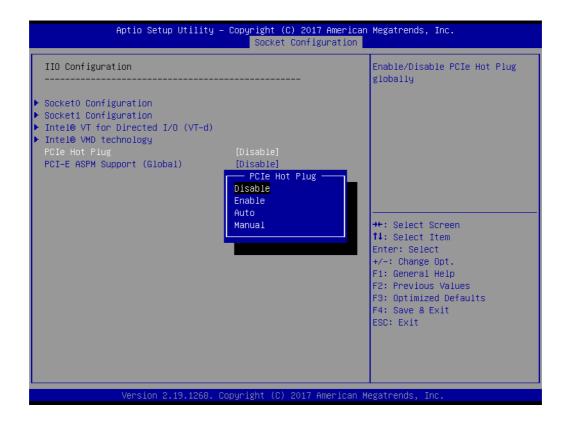
To "Enable or Disable" Intel Volume Management Device Tehnology.





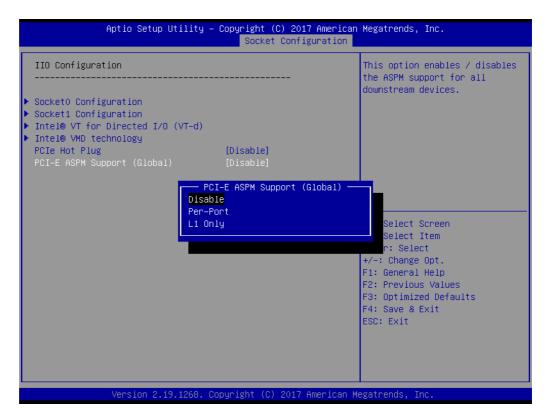
PCIe Hot Plug

To "Enable or Disable" PCIe hot plug globally.

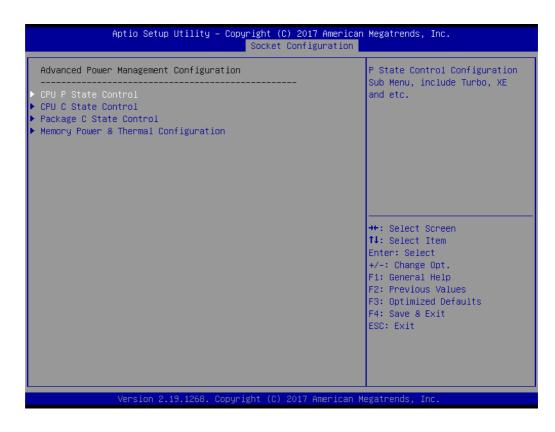


PCI-E ASPM Support (Global)

Set the ASPM level to Disable, Per-Port or L1 state only.



3.2.4.5 Advanced Power Management Configuration



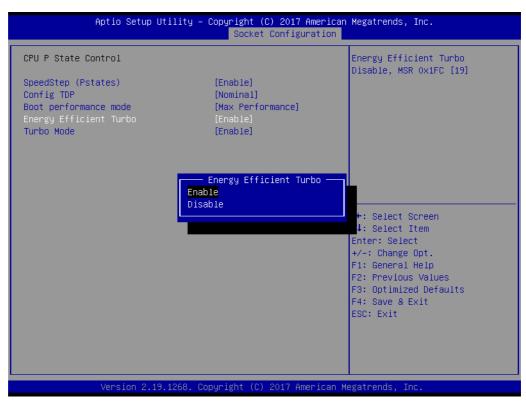
Chapter 3 AMI BIOS

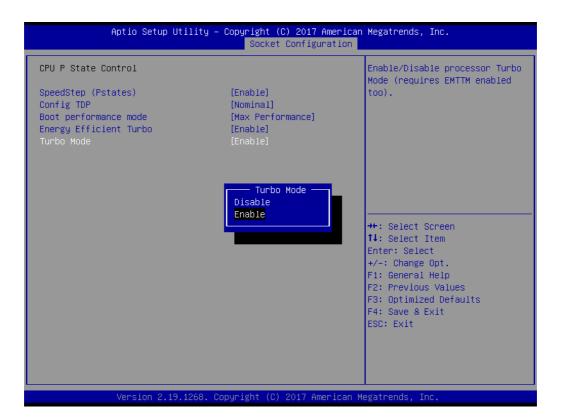
CPU P State Control

Aptio Setup Uti:	Lity – Copyright (C) 2017 Ame Socket Configurat	
CPU P State Control SpeedStep (Pstates) Config TDP Boot performance mode Energy Efficient Turbo Turbo Mode	[Enable] [Nominal] [Max Performance] [Enable] [Enable]	Enable/Disable EIST (P-States)
	SpeedStep (Pstates) – Disable Enable	<pre>++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
Version 2.19.12	268. Copyright (C) 2017 Ameri	can Megatrends, Inc.
Aptio Setup Uti:	lity – Copyright (C) 2017 Ame Socket Configurat	
CPU P State Control		Config TDP level selection

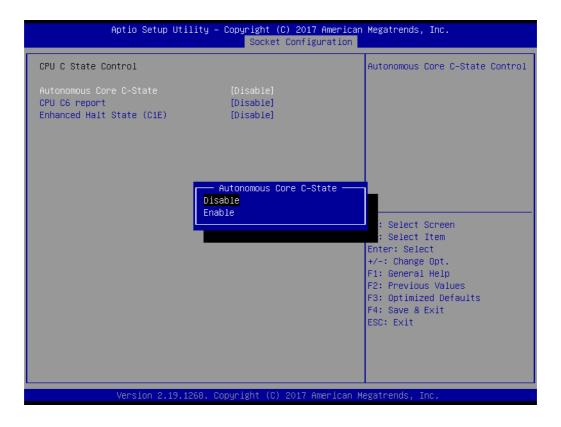
	Socket Configuration	r negati chus, inc.
CPU P State Control		Config TDP level selection
SpeedStep (Pstates) Config TDP Boot performance mode Energy Efficient Turbo Turbo Mode	[Enable] [Nominal] [Max Performance] [Enable] [Enable]	
	Config TDP Nominal Level 1 Level 2	<pre>++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
Version 2.19.1268.	Copyright (C) 2017American ⊧	Wegatrends, Inc.

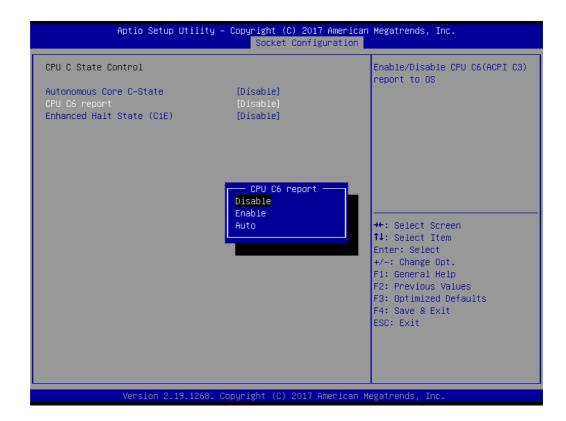


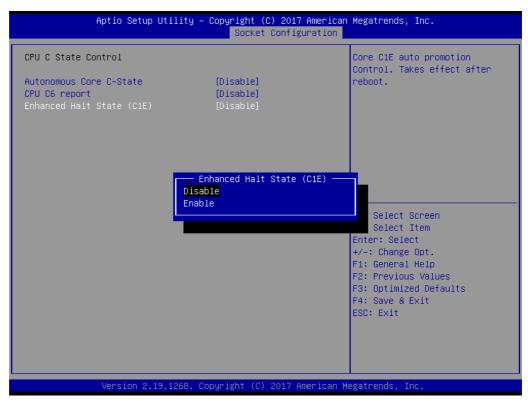




CPU C State Control







Chapter 3 AMI BIOS

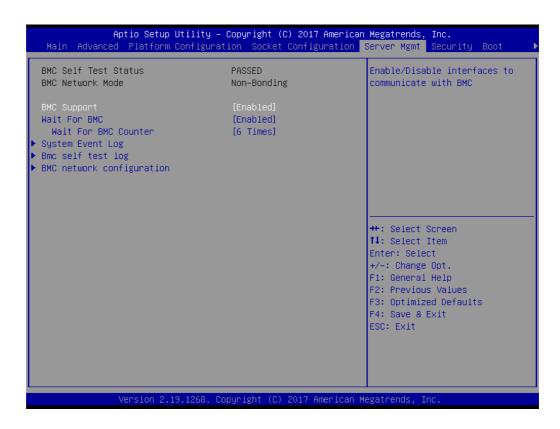
Package C State Control



Memory Power & Thermal Configuration

Memory Power & Thermal Configuration Configure MEMHOT Input and Output Mode: Mem Hot Sense MEMHOT Throttling Mode [Disable] MEMHOT Throttling Mode Therm Throt or Mem Hot Outp Disable Output-only Input -only Input and Output Enabled +: Select Screen 1: Select Item t: Select Item term Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit	Aptio Setup Ut.	ility – Copyright (C) 2017 Amer Socket Configurati	
Disable Output-only Input-only Input and Output Enabled +: Select Screen 4: Select Item nter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit	-		Output Mode: Mem Hot Sense Therm Throt or Mem Hot Output
		Disable Output-only Input-only	4: Select Item nter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit

3.2.5 Server Management



BMC Support

To "Enable or Disable" interfaces to communicate with BMC.

Wait for BMC

If enabled, motherboard will wait 30 ~ 60 seconds until BMC module boots up completely. After that, the normal BIOS post screen will be displayed. If disabled, motherboard will not wait for BMC module's response.

Wait for BMC counter

Initialize host to BMC interfaces. The MB beeps per 5 seconds to check it.

3.2.5.1 System Event Log

Enabling/Disabling Options		Change this to enable or
SEL Components	[Enabled]	disable all features of Syster Event Logging during boot.
Erasing Settings		Event Logging during boot.
Erase SEL	[No]	
When SEL is Full	[Do Nothing]	
Queter FFI Logging Options		
Custom EFI Logging Options Log EFI Status Codes	[Error_code]	
LOB LEI STATUS COUES		
NOTE: All values changed here do no until computer is restarted.	ot take effect	
		++: Select Screen
		↑↓: Select Item
		Enter: Select
		+/-: Change Opt.
		F1: General Help F2: Previous Values
		F3: Optimized Defaults
		F4: Save & Exit
		ESC: Exit

SEL Components

Enable/Disable all features of system event logging during boot.

Erase SEL

Choose options for erasing SEL.

When SEL is Full

Choose options for reactions to a full SEL.

Log EFI Status Codes

Disable the logging of EFI status codes or log only error code or only progress code or both.

3.2.5.2 BMC Self Test Log



Erase Log

Erase log options.

When Log is Full

Select the action to be taken when log is full.

3.2.5.3 BMC Network Configuration

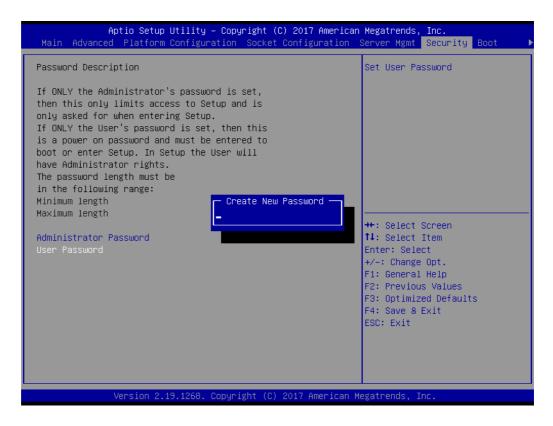
Lan channel 1 or dynamically(by BIOS or	Aptio Setup Utility -	Copyright (C) 2017 Americar	Megatrends, Inc. Server Mgmt
Lan channel 2 Configuration Address source [Unspecified] Current Configuration Address sour StaticAddress Station IP address 192.168.0.11 ++: Select Screen Subnet mask 255.255.00 11: Select Item Station MAC address 00-c0-a8-12-34-57 Enter: Select Router IP address 0.0.0.0 +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit	Lan channel 1 Configuration Address source Current Configuration Address sour Station IP address Subnet mask	StaticAddress 192.168.0.10 255.255.255.0	channel parameters statically or dynamically(by BIOS or BMC). Unspecified option will not modify any BMC network
F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit	Lan channel 2 Configuration Address source Current Configuration Address sour Station IP address Subnet mask Station MAC address	[Unspecified] StaticAddress 192.168.0.11 255.255.255.0 00-c0-a8-12-34-57	†∔: Select Item Enter: Select
			F2: Previous Values F3: Optimized Defaults F4: Save & Exit

Configuration Address Source

Select to configure LAN channel parameters statically or dynamically (by BMC). Unspecified option will not modify any BMC network parameters during BIOS phase.

3.2.6 Security

	lity – Copyright (C) 2017 f figuration Socket Configur	American Megatrends, Inc. ration Server Mgmt Security Boot →
Password Description		Set Administrator Password
If ONLY the Administrator's p then this only limits access only asked for when entering If ONLY the User's password if is a power on password and mu boot or enter Setup. In Setup have Administrator rights. The password length must be in the following range: Minimum length Maximum length	to Setup and is Setup. s set, then this st be entered to	
Administrator Password User Password		<pre>++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>



Note!

With AC power & Battery. Short CMOS1 Jumper: Date/Time & Password: Keep Setting: reset to default AC power and CMOS battery are removed. Short CMOS1 Jumper: Date/Time: reset to default Password: Keep

Setting: reset to default

Chapter 3 AMI BIOS

3.2.7 Boot

	<mark>tility – Copyright (C) 2017 Americ</mark> a configuration Socket Configuration	
Boot Configuration Setup Prompt Timeout Bootup NumLock State Quiet Boot	1 [On] [Disabled]	Number of seconds to wait for setup activation key. 65535(0xFFFF) means indefinite waiting.
Boot Option Priorities Boot Option #1 Boot Option #2 Boot Option #3	[UEFI: JetFlashTrans] [JetFlashTranscend 1] [UEFI: Built-in EFI]	
Hard Drive BBS Priorities		++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.19	.1268. Copyright (C) 2017 American I	Wegatrends, Inc.

Setup Prompt Timeout

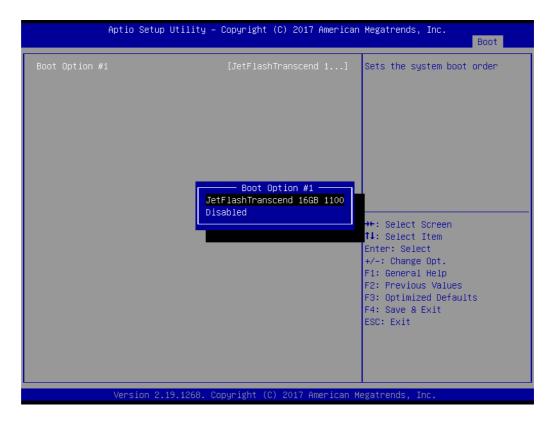
Number of seconds to wait for setup activation key.

- Bootup NumLock State
 Select the keyboard NumLock state as "On" or "Off".
- Quiet Boot

To "Enable or Disable" quiet boot option.

- Boot Option Priorities
 Sets the system boot priorities.
- Hard Drive BBS Priorities

Display this item when external legacy devices are plugged in to set boot priorities.



3.2.8 Save & Exit

Aptio Setup Utility – Copyright (C) 2017 Americar ≺ Save & Exit) Megatrends, Inc.
Save Options Save Changes and Exit Discard Changes and Exit Save Changes and Reset Discard Changes and Reset Save Changes Discard Changes Default Options Restore Defaults	Exit system setup after saving the changes.
Save as User Defaults Restore User Defaults Boot Override UEFI: Built-in EFI Shell UEFI: JetFlashTranscend 16GB 1100, Partition 1 JetFlashTranscend 16GB 1100	<pre>++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
Version 2.19.1268.Copyright (C) 2017 American ⊨	legatrends, Inc.

- 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 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 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.



Chipset Software Installation Utility

4.1 Before Beginning

To facilitate the installation of the enhanced display drivers and utility software, read the instructions in this chapter carefully. The drivers for the ASMB-825 are located on the software installation CD.

Before beginning, it is important to note that most display drivers need to have the relevant software application already installed on the system prior to installing the enhanced display drivers. In addition, many of the installation procedures assume that you are familiar with both the relevant software applications and operating system commands. Review the relevant operating system commands and the pertinent sections of your application software's user manual before performing the installation.

4.2 Introduction

The Intel Chipset Software Installation (CSI) utility installs the Windows INF files that outline to the operating system how the chipset components will be configured. This is needed for the proper functioning of the following features:

- Core PCI PnP services
- Serial ATA interface support
- USB 1.1/2.0/3.0 support
- Identification of Intel chipset components in the Device Manager

Note!

The files on the software installation CD are compressed. Do not attempt to install the drivers by copying the files manually. You must use the supplied SETUP program to install the drivers.

The chipset driver is used for the following versions of Windows, and it has to be installed before installing all the other drivers:

Windows Server 2016 Standard	x64
Windows Server 2012 R2 Standard	x64
Windows 10 Ultimate	x64

Note!

It is necessary to update all the latest Microsoft hot fix files when using this OS.

4.3 Windows Series Driver Setup

Insert the driver CD into your system's CD-ROM drive. When the folder is displayed, move the mouse cursor over the folder "01_Chipset". Find the executable in this folder, click to install the driver.

퉬 00_Manual	
퉬 01_Chipset	
퉬 02_Graphic	
퉬 03_LAN	
퉬 04_USB	
퉬 05_RSTe	



Graphic Setup

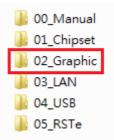
5.1 Introduction

Install the ASPEED VGA driver to enable this function, which includes the following features:

- 32-bit 2D graphics engine on board for normal use.
- 64 MB RAM for this chip, the highest resolution is 1920x1200.

5.2 Windows Series Driver Setup

Insert the driver CD into your system's CD-ROM drive. When the folder is displayed, navigate to the "02_Graphic" folder and click the executable file to complete the installation of the drivers for OS that you need.



Note!

- 1. If ASMB-825 carries an additional graphics card for VGA output, please set this additional graphic card as "major output" under the "Display properties" of OS.
- 2. The WDDM driver can support for the following OS versions:
 - Windows 8 x86/x64 version
 - Windows 8.1 x86/x64 version
 - Windows Server 2012 version (WHQL)
 - Windows Server 2012R2 version (WHQL)
 - Windows 10 x86/x64 version
 - Windows Server 2016 version (WHQL)
- 3. ASPEED Graphics WDDM Driver Limitation on Microsoft Windows OS.
 - It is a non-WHQL certified driver because ASPEED VGA is a 2D VGA, it cannot meet the WHQL requirement of WDDM drivers which require 3D VGA functions.
 - Because it is a non-WHQL certified driver, it may have some compatibility issues with some specific applications
 - Does not support modes with different display frequencies.



LAN, USB 3.0 and RSTe RAID

6.1 LAN Configuration

6.1.1 Introduction

The ASMB-825 has two Gigabit Ethernet LAN connections via dedicated PCI Express x1 lanes: GbE LAN1 - Intel I210 and GbE LAN2 - I210; two 10G Base-T LAN connectors LAN3 and LAN4 - Intel X557 PHY. They eliminate the bottleneck of network data flow and incorporating Gigabit Ethernet at 10Gbps.

- 10/100/1000 & 10G Base-T Ethernet controller
- 10/100/1000 & 10G Base-T triple-speed MAC
- Full duplex at 10/100/1000 Mbps or 10 Gbps and half duplex at 10/100/1000 Mbps
- Wake-on-LAN (WOL) support
- PCIe x1 host and PHY interface

The integrated Intel gigabit Ethernet controller supports all major network operating systems. However, the installation procedure varies with different operating systems.

6.1.2 Windows Series Driver Setup

Insert the driver CD into your system's CD-ROM drive. Select folder "03_LAN" then click the proper LAN driver for the OS.



6.2 USB 3.0

6.2.1 Introduction

ASMB-825 offers six USB 3.0 ports, two in rear side and four via onboard header. The USB 3.0 could provide the bandwidth up to 500MB/s to shorter the time for data transmission.

6.2.2 Windows Series Driver Setup

Insert the driver CD into your system's CD-ROM drive. Select folder "04_USB" then click the Setup.exe file for the installation.



6.3 SATA & PCIe SSD RAID

6.3.1 Introduction

Intel C621/C622 PCH chip offers SATA & PCIe SSD RAID under Windows operating system.



1.Please visit the Intel download center for "Intel Rapid Storage Technology enterprise for Microsoft Windows Operating System Software User's Guide" file download,

2.For the hotfix file download, please visit Microsoft website.

6.3.2 Windows Series Driver Setup

Insert the driver CD into your system's CD-ROM drive. Select folder "05_RSTe" then click to install the proper driver for the OS.





Programming the Watchdog Timer

The ASMB-825's watchdog timer can be used to monitor system software operation and take corrective action if the software fails to function within the programmed period. This section describes the operation of the watchdog timer and how to program it.

A.1 Watchdog Timer Overview

The watchdog timer is built in to the EC controller IT8528E. It provides the following functions for user programming:

- Can be enabled and disabled by user's program
- Timer can be set from 1 to 255 seconds
- Generates an interrupt or reset signal if the software fails to reset the timer before time-out

A.2 Programming the Watchdog Timer

The I/O port address of the watchdog timer is as below:

Address	Description		
0x57	Event - Warm Reset: 0x04		
0x5E	Warm Reset Timer (High BYTE)	Deced 100mg	
0x5F	Warm Reset Timer (Low BYTE)	Based 100ms	

Here is an example to step by step program the Watchdog Timer.

Step	Action	Description
00	Read 0x299 port	Clear I/O port
	Wait IBF clear	0x29A, BIT1, = 0
01	Write 0x89 to 0x29A	
	Wait IBF clear	0x29A, BIT1, = 0
02	Write 0x5E to 0x299 port	
	Wait IBF clear	0x29A, BIT1, = 0
03	Write 0x00 to 0x299 port	Set 10 sec (high byte)
	Wait IBF clear	0x29A, BIT1, = 0
04	Write 0x89 to 0x29A	
	Wait IBF clear	0x29A, BIT1, = 0
05	Write 0x5F to 0x299 port	
	Wait IBF clear	0x29A, BIT1, = 0
06	Write 0x64 to 0x299 port	Set 10 sec (low byte)
	Wait IBF clear	0x29A, BIT1, = 0
07	Write 0x89 to 0x29A	
	Wait IBF clear	0x29A, BIT1, = 0

Write 0x57 to 0x299 port	Watchdog Event
Wait IBF clear	0x29A, BIT1, = 0
Write 0x04 to 0x299 port	(Warm) Reset event
Wait IBF clear	0x29A, BIT1, = 0
Write 0x28 to 0x29A	Start watchdog
Wait	1~9 sec
Wait IBF clear	0x29A, BIT1, = 0
Write 0x29 to 0x29A	Stop watchdog
Wait IBF clear	0x29A, BIT1, = 0
Go to Step 07	
	Write 0x04 to 0x299 port Wait IBF clear Write 0x28 to 0x29A Wait IBF clear Wait IBF clear Write 0x29 to 0x29A Wait IBF clear Write 0x29 to 0x29A Wait IBF clear



I/O Pin Assignments

B.1 USB2.0 Header (USB3_4, USB9_10)



Table B.1: USB Header (USB3_4, USB9_10)			
Pin	Signal	Pin	Signal
1	USB_VCC5	2	USB_VCC5
3	USB_D-	4	USB_D-
5	USB_D+	6	USB_D+
7	GND	8	GND
9	Key	10	GND

B.2 USB3.0 Header (USB5_6, USB7_8)

11	19
00000	00000
10	2 1

+5 V2STDA_SSRX-STDA_SSRX+4GNDSTDA_SSRX-TX-6STDA_SSRX+TZGND8D-D+10OC#D+12D-SGND14STDA_SSRX+TZSSTDA_SSRX-TX-16GND	Table B.2: USB Header (USB5_6, USB7_8)			
STDA_SSRX+4GNDSTDA_SSRX-TX-6STDA_SSRX+TXGND8D-D+10OC#D+12D-3GND14STDA_SSRX+TX5STDA_SSRX-TX-16GND	Pin	Signal	Pin	Signal
STDA_SSRX-TX- 6 STDA_SSRX+TX GND 8 D- D+ 10 OC# D+ 12 D- 3 GND 14 STDA_SSRX+TX 5 STDA_SSRX-TX- 16 GND	1	+5 V	2	STDA_SSRX-
GND 8 D- D+ 10 OC# D+ 12 D- 3 GND 14 STDA_SSRX+TX- 5 STDA_SSRX-TX- 16 GND	3	STDA_SSRX+	4	GND
D+ 10 OC# D+ 12 D- B GND 14 STDA_SSRX+TX- 5 STDA_SSRX-TX- 16 GND	5	STDA_SSRX-TX-	6	STDA_SSRX+TX+
D+ 12 D- 3 GND 14 STDA_SSRX+TX 5 STDA_SSRX-TX- 16 GND	7	GND	8	D-
BGND14STDA_SSRX+TX5STDA_SSRX-TX-16GND	9	D+	10	OC#
5 STDA_SSRX-TX- 16 GND	11	D+	12	D-
	13	GND	14	STDA_SSRX+TX+
7 STDA_SSRX+ 18 STDA_SSRX-	15	STDA_SSRX-TX-	16	GND
	17	STDA_SSRX+	18	STDA_SSRX-
9 +5 V 20	19	+5 V	20	

B.3 VGA Connector (VGA1)

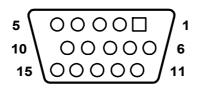


Table B.3: VGA Connector (VGA1)			
Signal	Pin	Signal	
RED	9	VCC	
GREEN	10	GND	
BLUE	11	N/C	
N/C	12	SDT	
GND	13	H-SYNC	
GND	14	V-SYNC	
GND	15	SCK	
GND			
	Signal RED GREEN BLUE N/C GND GND GND	Signal Pin RED 9 GREEN 10 BLUE 11 N/C 12 GND 13 GND 14 GND 15	

B.4 RS-232 Interface (COM2)

2468
0000
0000
13579

Table B.4: RS-232 Connector (COM2)		
Pin	Signal	
1	DCD	
2	DSR	
3	RXD	
4	RTS	
5	TXD	
6	CTS	
7	DTR	
8	RI	
9	GND	

B.5 External Keyboard Connector (KBMS2)



Table B.5: External Keyboard Connector (KBMS2)		
Pin	Signal	
1	KB CLK	
2	KB DATA	
3	MS DATA	
4	GND	
5	VCC	
6	MS CLK	

B.6 System & CPU Fan Power Connector (SYSFAN0~4, CPUFAN0~1)

	1
\bigcirc	
\bigcirc	
\bigcirc	4

Table B.6: CPU FAN Connector (CPUFAN0~1)			
	CPUFAN0	CPUFAN1	
1	GND	GND	
2	+12V	+12V	
3	CPU_TACH	CPU_TACH	
4	CPU0_PWM	CPU1_PWM	

Table B.7: SYS FAN Connector (SYSFAN0~4)					
	SYS FAN0	SYS FAN1	SYS FAN2	SYSFAN3	SYSFAN4
1	GND	GND	GND	GND	GND
2	+12V	+12V	+12V	+12V	+12V
3	FAN0_TACH	FAN1_TACH	FAN2_TACH	FAN3_TACH	FAN4_TACH
4	FAN0_PWM	FAN1_PWM	FAN2_PWM	FAN3_PWM	FAN4_PWM

B.7 Power LED (JFP3)



Table B.8: Power LED Connector (JFP1)	
Pin	Function
1	LED power (3.3 V)
2	NC
3	Ground

B.8 External Speaker Connector (JFP2)

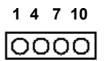


Table B.9: External Speaker Connector (JFP2)		
Pin	Function	
1	SPK+	
4	NC	
7	BZ-	
10	SPK-	

B.9 Reset Connector (JFP1)

9	12
	б

Table B.10: Reset Connector (JFP1)		
Pin	Signal	
9	RESET	
12	GND	

B.10 HDD LED Connector (JFP1)

2	5	5
	\mathbf{c}	2

Table B.11: HDD LED Connector (JFP1)		
Pin	Signal	
2	HDD_LED+	
5	HDD_LED-	

B.11 ATX Soft Power Switch (JFP1)



Table B.12: ATX Soft Power Switch (JFP1)		
Pin	Signal	
3	PWR-BTN	
6	GND	

B.12 SMBus Connector (SMBUS1)

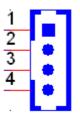


Table B.13: Front panel SMBus Connector (SMBUS1)		
Pin	Signal	
1	+3.3V_AUX	
2	SMB_SCL_FRU	
3	SMB_SDA_FRU	
4	GND	

B.13 USB & LAN Ports (USB1_2 and LAN1_2, LAN3_4)



Table B.14: USB Port (USB1_2)		
Pin	Signal	
1	VBUS	
2	D-	
3	D+	
4	GND	
5	StdA_SSRX-	
6	StdA_SSRX+	
7	GND_DRAIN	
8	StdA_SSTX-	
9	StdA_SSTX-	

Table B.1	5: Giga LAN 10/10)0/1000 Base-T RJ-4	5 Port (LAN1_	2, LAN3_4)
Pin	Signal	Pin	Signal	
1	MID0+	4	MID2+	
2	MID0-	5	MID2-	
3	MID1+	7	MID3+	
6	MID1-	8	MID3-	

B.14 Audio Connector (HDAUD1)



Table B.16: Front Panel Audio Connector (HDAUD1)			
Pin	Signal	Pin	Signal
1	ACZ_VCC	2	GND
3	ACZ_SYNC	4	ACZ_BITCLK
5	ACZ_SDOUT	6	ACZ_SDIN0
7	ACZ_SDIN1	8	ACZ_RST
9	ACZ_12V	10	GND
11	GND	12	N/C

B.15 Alarm Board Connector (VOLT1)

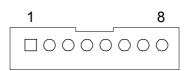


Table B.17: Alarm Board Connector (VOLT1)				
Pin	Signal	Pin	Signal	
1	5VSB	5	+5V	
2	GND	6	+3.3V	
3	GND	7	-12V	
4	-5V	8	+12V	

B.16 Case Open Connector (JCASE1)

Table B.18: Case Open Connector (JFP1)			
Pin	Signal		
1	CASEOP		
2	GND		

0 1 0 2

B.17 Front Panel LAN LED Connector (LANLED1)

_	2	4	6	8	10
	0	0	0	0	
Þ		Ο	Ο	Ο	Ο
	1	3	5		9

Table B.19: LAN LED Connector (LANLED1)			
Pin	Signal	Pin	Signal
1	LAN1_ACT#	2	LAN2_ACT#
3	+3V3_LAN1LED	4	+3V3_LEN2LED
5	LAN3_ACT#	6	LAN4_ACT#
7	+3V3_LAN3LED	8	+3V3_LEN4LED
9	NC	10	NC

B.18 SATA SGPIO Connector (SGPIO1)



Table B.20: SATA SGPIO Connector (SGPIO1)		
Pin	Signal	
1	SCLOCK_PCH	
2	NC	
3	SLOAD_PCH	
4	SDATAOUT0_PCH	
5	SDATAOUT1_PCH	

B.19 LPC Connector (LPC2)

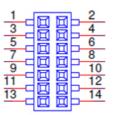


Table B.21: LPC Connector (LPC2)			
Pin	Signal	Pin	Signal
1	CLK_33M_TPM	2	LPC_AD1
3	PLTRST_LPC	4	LPC_AD0
5	LPC_FRAME	6	+3.3V
7	LPC_AD3	8	GND
9	LPC_AD2	10	SMB_SCL_LPC
11	SERIRQ_PCH	12	SMB_SDA_LPC
13	+5V_AUX	14	+5V

B.20 Clear CMOS Connector (JCMOS1, JME1)

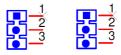


Table B.22: Clear CMOS Connector (JCMOS1, JME1)			
Pin	Signal	Signal	
	JCMOS1	JME1	
1	NC	NC	
2	RTC_RST_PCH	HDA_SDOUT_PCH	
3	GND	3.3V	

B.21 PMBUS Connector (PMBUS1)



Table B.23: PMBUS Connector (PMBUS1)		
Pin	Signal	
1	SMB_SCL_PM	
2	SMB_SDA_PM	
3	SMB_ALT_PM	
4	GND	
5	+3.3V	

B.22 GPIO Connector (GPIO1)

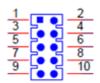


Table B.24: GPIO Connector (GPIO1)				
Pin	Signal	Pin	Signal	
1	SIO_GPIO0	2	SIO_GPIO4	
3	SIO_GPIO1	4	SIO_GPIO5	
5	SIO_GPIO2	6	SIO_GPIO6	
7	SIO_GPIO3	8	SIO_GPI07	
9	VCC_GPIO0	10	GND	



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