SBC-6512

Full-size PICMG1.3 SBC

Supports Intel 12th/13th/14th Generation Core i3/i5/i7 Processor



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Packing List

Please check the content:

SBC-6512 Single Board Computer	1 PC
Utility CD (including user manual)	1 PC
SATA Cable	2 PCS

Index

Chapter 1 Product Introduction
1.1 Product Overview
1.2 Product Specifications
Chapter 2 Hardware Installation
2.1Board Layout1
2.3 Connector & Jumper List12
2.4 Jumpers14
2.4 CPU Installation1
2.5 Memory Installation18
2.6 CMOS Setup
2.7 Serial ATA Ports20
2.8 Ethernet Interface2
2.9 Audio Interface (CN5)22
2.10 USB Ports23
2.11 Serial Ports (COM1~4)20
2.12 Parallel Port (CN2)28
2.13 Temperature Sensor Connector (CN15/CN16)
2.14 Fan Connectors (CPUFAN/FAN2/FAN3)
2.15 Power Connectors (CN13)

	2.16 TPM Connector (CN7)	. 34
	2.17 Front Panel Header (CN26)	. 35
C	Chapter 3 AMI BIOS Setup Utility	37
	3.1 Starting	. 37
	3.2 Menu Bar	. 38
	3.3 Navigation Keys	. 39
	3.4 Main Menu	. 40
	3.5 Advanced Menu	. 41
	3.5.1 ACPI Settings	. 42
	3.5.2 Trusted Computing	. 43
	3.5.3 Platform Misc Configuration	. 44
	3.5.4 CPU Configuration	. 45
	3.5.5 Storage Configuration	. 47
	3.5.6 NVMe Configuration	. 50
	3.5.7 AMT Configuration	. 51
	3.5.8 F81966 Super IO Configuration	. 52
	3.5.9 Hardware Monitor	. 55
	3.5.10 NCT7802Y Hardware Monitor	. 57
	3.5.11 USB Configuration	. 58
	3.5.12 PCI Subsystem Settings	. 59

3.6 Chipset Menu	60
3.6.1 System Agent (SA) Configuration	61
3.6.2 PCH-IO Configuration	63
3.7 Security Menu	66
3.8 Boot Menu	67
3.9 Save & Exit Menu	69
Chapter 4 System Configuration	72
4.1 Watchdog Timer	72
4.2 VMD (RAID) Configuration	76
4.2.1 Configuring SATA Hard Drive(s) for RAID (Controller:	
Intel® R680E)	76
4.3 iAMT Settings	80
4.3.1 Entering MEBx	80
4.3.2 Set and Change Password	81
4.3.3 iAMT Settings	83

Chapter 1 Product Introduction

1.1 Product Overview

The **SBC-6512** is a full-size PICMG 1.3 Single Board Computer, based on the 12th/13th/14th Generation Intel® Core[™] i7/ i5/ i3/ Celeron® processors in LGA1700 socket with Intel® R680E/H610E PCH. The optimized **SBC-6512** is specially designed for better computing and visual performance; ideally used in every major industry for tasks ranging from financial modeling to designing complex buildings and vehicles.

With its built-in last Intel® HD Graphics technology, this industrial grade SBC delivers great 3D visual performance with triple display capability through DVI and VGA ports demanded by professional-grade CAD and media/entertainment fields.

In addition, the **SBC-6512** supports Intel® Turbo Boost 2.0 technology, Intel® Hyper-Threading technology, Intel® HD Graphics with DX11 support, 3-D Tri-Gate transistors, 128GB DDR5 4400MHz memory, and PCI-Express 3.0 x16 slot. It also features Intel® Active Management Technology 11 (iAMT), SATA RAID, as well as PCI-Express x4. x1 expansion making it ideal for applications with added security features.

1.2 Product Specifications

General Specification	
Form Factor	PICMG 1.3 Full-size Single Board Computer
CPU	LGA1151 for 12 th /13 th /14 th generation Intel® Core™
	processors, TDP up to 125W
Memory	(2) 288-pin DDR5-4400 un-buffered DIMM max. up
	to 128 GB, R680E supports ECC
Chipset	Intel® R680E/H610E Express Chipset
BIOS	AMI BIOS via SPI interface with socket
Watchdog Timer	System reset programmable watchdog timer with
	1~255min.
Serial ATA	Intel® R680E PCH built-in (6) Serial ATAIII interface
	up to 600MB/s Support RAID 0, 1, 5, 10 and Intel
	Rapid Storage Technology.
	Intel® H310 PCH built-in (4) Serial ATAIII

Multiple I/O Ports	
Chipset	FINTEK® F81966 Controller
Serial Port	(2) RS-232 and (2) RS232/422/485 serial ports
Parallel Port	(1) 26-pin 2.54-pitch box-header; SPP/EPP/ECP
	supported
Keyboard/Mouse	Internal PS/2 keyboard and mouse ports with
	header
USB	R680E: (3) USB 2.0 & (2) USB 3.2 Gen.2 & (4) USB 3.2
	Gen.1 ports
	H610: (2) USB 2.0 & & (2) USB 3.2 Gen.2 & (2) USB 3.2
	Gen.1 ports

Smart Fan	One CPU fan and one chassis fan connectors for
	fan speed controllable

Display	
Graphic Engine	Intel® Core™ integrated HD Graphics Technology
Frame Buffer	Up to 1.7GB shared with system memory
Display Type	DVI-I with DVI-D and VGA output
	Onboard internal DP 1.4 connector
Resolution	DVI/VGA Resolution max. up to 1920 x 1200 @ 60Hz
	DP1.4 Resolution max. up to 4096 x 2304

Ethernet	
Controller	LAN1/LAN2: Intel® i225LM with iAMT / Intel® i225V
	Ethernet controller
Туре	2500/1000/100/10Mbps
	Auto-switching Fast Ethernet
	Full duplex, IEEE802.3U compliant
Connector	Two External RJ45 connectors on rear I/O panel

Audio	
Codec	Optional Audio Codec with module

Expansion	
PCI	(4) 32-bit PCI slots
PCI Express	One PCI-Express x16 (Gen.3)
	One PCI-Express x4 (or four PCI-Express x1) (Gen.3)

Power & Environment	
Power Requirement	Standard 24-pin ATX power supply
Dimension	338 (L) x 126 (H) mm
Temperature	Operating within 0° ~ 60°C (32° ~ 140°F)
	Storage within -20° ~ 85°C (-4° ~ 185°F)

Chapter 2 Hardware Installation 2.1Board Layout



2.3 Connector & Jumper List

Connector		Function		
1	CN13	ATX Power Connector		
2	DIMM0/DIMM1	DDR5 DIMM Socket		
3	CN7	TPM Pin Header		
4	FAN2	FAN Connector		
5	FAN3	FAN Connector		
6	CN2	Parallel Port Connector		
7	COM1	Serial Port Connector		
8	COM2	Serial Port Connector		
9	СОМЗ	Serial Port Connector		
10	COM4	Serial Port Connector		
11	CN5	Optional Audio Digital Module Header		
12	CN10~CN12/CN17~19	SATA 3.0 Connector		
13	CN15	Temperature Sensor Connector		
14	CN16	Temperature Sensor Connector		
15	CN30	Display Port 1.4 Connector		
16	CN27	M.2 E Key 2230 interface		
17	JP2	Clear BIOS CMOS Jumper		
18	JP1	Auto Power On Jumper		
19	CN21	DEBUG PORT Connector		
20	CN23	Internal USB 2.0 Connector		
21	CN25	Internal USB 3.2 Gen1x1 Connector		
22	CN24	Internal USB 3.2 Gen1x1 Connector		
23	CN26	Front Panel Connector		
24	CPU Fan	CPU FAN Connector		
25	CN34	M.2 2280 Key M interface for NVMe SSD		

26	CN33	Internal USB 2.0 Connector		
27	CN28	Internal PS/2 Mouse Connector		
28	CN29	Internal PS/2 Keyboard Connector		
29	BAT1	RTC Battery Socket		
30	CN22	RJ45 LAN Port		
31	CN22	RJ45 LAN Port		
32	CN31	DVI-I Connector		
33	CN35/CN36	USB 3.2 Gen2x1 Connector		

2.4 Jumpers

Jumper is a small component consisting of jumper clip and jumper pins. Install jumper clip on 2 jumper pins for close. And remove jumper clip from 2 jumper pins for open. The following illustration shows how to set up jumper.



Jumper	Function	Default
JP1	Auto Power On	1-2 Close
	Default: Disable	
JP2	Restore BIOS Optimal Defaults	1-2 Close
	Default: Normal Operation	

2.4 CPU Installation

The LGA1151 processor socket comes with a cover to protect the processor. Please install the processor into the CPU socket step by step as below:

Step 1: Open the socket

- Disengage load lever by releasing down and out on the hook. This will clear retention tab.
- Rotate load lever to open position at approximately 135°
- Rotate load plate to open position at approximately 150°



Step 2: Removing the socket protective cover

- Place thumb against the front edge of the protective cover and rest index finger on the rear grip to maintain control of the cover.
- Lift the front edge of the protective cover to disengage from the socket. Keep control of the cover by holding the rear grip with index finger.
- Lift protective cover away from the socket, being careful not to touch the electrical contacts.
- Carefully place the processor into the socket body vertically (see image below)

Step 3: Processor installation

- Lift processor package from shipping media by grasping the substrate edges.
- Scan the processor package gold pads for any presence of foreign material. If necessary, the gold pads can be wiped clean with a soft lint-free cloth and isopropyl alcohol.
- Locate connection 1 indicator on the processor which aligns with connection 1 indicator chamfer on the socket,



Step 4: Close the socket (see image below)

- Gently lower the load plate.
- Make sure load plate's front edge slides under the shoulder screw cap as the lever is lowered.
- Latch the lever under the top plate's corner tab, being cautious not to damage the motherboard with the tip of the lever.



Step 5: Fan and Heatsink handling

1. Orientate the CPU cooling fan to fixing holes on the board.



2. Screw the CPU cooling fan onto the board.



3. Make sure the CPU fan is plugged to the CPU fan connector.



2.5 Memory Installation

The board supports two 288-pin DDR5 DIMM memory sockets with maximum 128GB.

Please follow steps below to install the memory modules:

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



2.6 CMOS Setup

JP2 allows you to clear the data in CMOS. To clear and reset the system parameters to default setup, please turn off the computer and unplug the power cord from the power supply. After waiting for 15 seconds, use a jumper cap to short pin 2 and pin 3 on JP2 for 5 seconds. If you need to clear the CMOS after updating the BIOS, you must boot up the system first, and then shut it down before you do the clear-CMOS. Please be noted that the password, date, time, user default profile and MAC address will be cleared only if the CMOS battery is removed.

JP2	Mode	
1-2	Normal Operation	
2-3	Clear CMOS	
Default setting: 1-2		





2.7 Serial ATA Ports

The board has six Serial ATA III interfaces with RAID function, the transfer rate of the Serial ATA III can be up to 600MB/s, but not supports SATAII device. Based on Intel® PCH, it supports Intel® Matrix Storage Technology with combination of RAID 0, 1, 5 and 10. The main features of RAID on Intel® R80E PCH are listed below:

- Supports for up to RAID volumes on a single, two-hard drive RAID array.
- Supports for two, two-hard drive RAID arrays on any of six Serial ATA ports.
- Supports for Serial ATA ATAPI devices.
- Supports for RAID spares and automatic rebuild.
- Supports on RAID arrays, including NCQ and native hot plug.



2.8 Ethernet Interface

The board integrates with one Intel I226V 2.5 Gigabit Ethernet & one Intel I226-LM controllers, as the PCI Express bus. The Intel I226V & I226-LM supports triple speed of 100/1000/2500 Base-T, with IEEE802.3 compliance and Wake-On-LAN supported.

Onboard Intel® I226LM controller support Intel® AMT feature on primary LAN port. The BIOS is ready to support Intel® AMT feature. The necessary prerequisite is your CPU must support Intel® vPro technology, ex : Intel® Core™ i7

LAN Port LED Indications

Activity/Link	LED	SPEED LED		
Status Description		Status	Description	
OFF	No link	OFF	10/100Mbps connection	
Blinking	Data activity	Orange	1000Mbps connection	
ON	Link	Green	2.5Gbps connection	



2.9 Audio Interface (CN5)

The board supports HD audio with optional expansion board through CN5.

Intel HD Audio Digital Header (CN5)

Pin	Description	Pin	Description
1	BCLK	2	Ground
3	RST#	4	N/C
5	SYNC	6	Ground
7	SDO	8	+3.3VS
9	SDIO	10	+12VS
11	N/C	12	
13	N/C	14	N/C
15	N/C	16	Ground



2.10 USB Ports

Besides two USB 3.1 ports on the I/O panel, there are three headers on this board. Each USB 2.0 header can support two ports.

CN33: USB 2.0 Port

Pin	Description	Pin	Description
1	PWR	2	PWR
3	USB DX-	4	USB DY-
5	USB DX+	6	USB DY+
7	Ground	8	Ground
9		10	Ground

CN35/CN36: USB 3.2 Gen.2x1 Port

Pin	Description	
1	USB3_PWR12	
2	D-	
3	D+	
4	Ground	
5	StdA_SSRX-	
6	StdA_SSRX+	
7	GND_DRAIN	
8	StdA_SSTX-	
9	StdA_SSTX+	

The CN24 & CN25 are internal box connectors for versatile USB 3.2 Gen. 1x1 compliant peripherals. These connectors are compatible with LOTES AUSB0418-P001A.

Pin	Description	Pin	Description
1	GND	11	GND
2	SSTX2+	12	SSTX3-
3	SSTX2-	13	SSTX3+
4	GND	14	GND
5	SSRX2+	15	SSRX3-
6	SSRX2-	16	SSRX3+
7	GND	17	GND
8	USBP3P_C	18	USBP4P_C
9	USBP3N_C	19	USBP4N_C
10	GND	20	+3.3VS

CN24/CN25: internal USB 3.2 Gen.1x1 Port



2.11 Serial Ports (COM1~4)

COM1 to COM4 are 10-pin (Pitch = 2.54mm) connectors, which are compliant with CATCH 1137-000-10S, and support RS/232/422/485 modes through BIOS settings.

RS-232:

Pin	Description	Pin	Description
1	DCD	2	DSR
3	RXD	4	RTS
5	TXD	6	CTS
7	DTR	8	RI
9	GND	10	N/C

RS-422:

Pin	Description	Pin	Description
1	TX-	2	N/C
3	TX+	4	N/C
5	RX+	6	N/C
7	RX-		

RS-485:

Pin	Description	Pin	Description
1	RTX-	2	N/C
3	RTX+	4	N/C
5	N/C	6	N/C



2.12 Parallel Port (CN2)

The board provides one parallel port with multiple mode.

- 1. Standard Mode: IBM PC/XT, PC/AT and PS/2 are compatible with bidirection.
- Enhanced Mode: Enhance Parallel Port (EPP) is compatible with EPP
 1.7 and EPP 1.9 (IEEE 1284 compliant).
- 3. High Speed Mode: Microsoft and Hewlett Packard Extended Capabilities Port (ECP) is IEEE 1284 compliant.

Pin	Description	Pin	Description
1	Strobe#	2	Auto Form Feed#
3	Data 0	4	Error#
5	Data 1	6	Initialize#
7	Data 2	8	Printer Select In#
9	Data 3	10	GND
11	Data 4	12	GND
13	Data 5	14	GND
15	Data 6	16	GND
17	Data 7	18	GND
19	Acknowledge#	20	GND
21	Busy	22	GND
23	Paper Empty#	24	GND
25	Printer Select	26	N.C



2.13 Temperature Sensor Connector (CN15/CN16)

This is a 2-pin connector for temperature sensor (NTC thermistor) interface. The thermistor value should be 10K and its B value is 3435K.

Pin Description	
1	Sensor Input
2	Ground



2.14 Fan Connectors (CPUFAN/FAN2/FAN3)

The CPUFAN is for CPU fan interfaces, FAN1 & FAN2 are for system cooling. Please connect the CPU fan cable to the connector and match the black wire to the ground pin.

Pin	FAN3 Signal
1	GND
2	+12V
3	CPU_FAN_SPEED
4	FAN_SPEED_CONTROL

Pin	FAN1 & FAN2 Signal
1	GND
2	+12V
3	CPU_FAN_SPEED



2.15 Power Connectors (CN13)

The CN13 is an 8-pin ATX power connector. Please connect a 12V ATX

power supply to this connector.

Pin	Description	Pin	Description
1	GND	5	+12V
2	GND	6	+12V
3	GND	7	+12V
4	GND	8	+12V



Auto Power On (JP1)

If JP1 is enabled for power input, the system will be automatically powered on without pressing the soft power button. If JP 3 is disabled for power input, it is necessary to manually press the soft power button to power on the system.

JP1	Mode	
1-2	Disable auto power on (Default)	
2-3	Enable auto power on	
Default setting: 1-2		



2.16 TPM Connector (CN7)

CN7 is 7x2 pin p=2.0mm header for SPI interface with a TPM module.

Pin	Description	Pin	Description
1	VCC3P3	2	GND
3	MOSI	4	MISO
5	CLK	6	CS2
7	RST	8	PIRQ
9	PP	10	NC
11	NC	12	NC
13	NC	14	МС



2.17 Front Panel Header (CN26)

This header accommodates several system front panel functions.

PWRBTN (Power Switch)

Connect to the power switch on the chassis front panel. You may configure the way to turn off your system using the power switch.

RESET (Reset Switch)

Connect to the reset switch on the chassis front panel. Press the reset switch to restart the computer if the computer freezes and fails to perform a normal restart.

PLED (System Power LED)

Connect to the power status indicator on the chassis front panel. The LED is ON when the system is operating. The LED keeps blinking when the system is in S1/S3 sleep state. The LED is OFF when the system is in S4 sleep state or powered off (S5).

HDLED (Hard Drive Activity LED)

Connect to the hard drive activity LED on the chassis front panel. The LED is ON when the hard drive is reading or writing data.

Pin	Description	Pin	Description
1	PWRLED+	2	EXT SPK-
3	GND	4	Buzzer
5	PWRLED-	6	N/C
7	N/C	8	EXT SPK+
9	PWRSW-	10	PWRSW+
11	HW RST-	12	HW RST+
13	HDDLED-	14	HDDLED+


Chapter 3 AMI BIOS Setup Utility

The AMI UEFI BIOS provides users with a built-in setup program to modify basic system configuration. All configured parameters are stored in a flash chip to save the setup information whenever the power is turned off. This chapter provides users with detailed description about how to set up basic system configuration through the AMI BIOS setup utility.

3.1 Starting

To enter the setup screens, follow the steps below:

1. Turn on the computer and press the key immediately.

2. After you press the key, the main BIOS setup menu displays. You can access the other setup screens from the main BIOS setup menu, such as the Advanced and Chipset menus.

It is strongly recommended that you should avoid changing the chipset's defaults. Both AMI and your system manufacturer have carefully set up these defaults that provide the best performance and reliability.

3.2 Menu Bar

The top of the screen has a menu bar with the following selections:

Menu Bar	Description	
Main	To set up the system time/date information.	
Advanced	To set up the advanced BIOS features.	
H/W Monitor	To display current hardware status.	
Boot	To set up the default system device to locate	
	and load the Operating System.	
Security	To set up the security features.	
Exit	To exit the current screen or the BIOS setup	
	utility.	
Menu Bar	Description	

Use $\langle \rightarrow \rangle$ key or $\langle \leftarrow \rangle$ key to choose among the selections on the menu bar, and then press \langle Enter \rangle to get into the sub screen. You can also use the mouse to click your required item.

3.3 Navigation Keys

The BIOS setup/utility uses a key-based navigation system called hot keys. Most of the BIOS setup utility hot keys can be used at any time during the setup navigation process. These keys include <F1>, <F7>, <Enter>, <ESC>, <Arrow> keys, and so on.

Hot Keys	Description
→←Left/Right	The Left and Right <arrow> keys allow you to select a</arrow>
	setup screen.
↑ ↓ Up/Down	The Up and Down <arrow> keys allow you to select a</arrow>
	setup screen or sub-screen.
+– Plus/Minus	The Plus and Minus <arrow> keys allow you to change</arrow>
	the field value of a particular setup item.
Enter	The <enter> key allows you to display or change the</enter>
	setup option listed for a particular setup item. The
	<enter> key can also allow you to display the setup sub-</enter>
	screens.
F1	The <f1> key allows you to display the General Help</f1>
	screen.
F7	Discard changes.
F9	The <f9> key allows you to load optimal default values</f9>
	for all the settings.
F10	The <f10> key allows you to save any changes you have</f10>
	made and exit Setup. Press the <f10> key to save your</f10>
	changes.
Esc	The <esc> key allows you to discard any changes you</esc>
	have made and exit the Setup. Press the <esc> key to</esc>
	exit the setup without saving your changes.

3.4 Main Menu

When you first enter the setup utility, you will enter the Main setup screen. You can always return to the Main setup screen by selecting the Main tab. System Time/Date can be set up as described below. The Main BIOS setup screen is shown below.

Main Advanced Chipset	Aptio Setup – AMI Security Boot Save & Exit	
BIOS Information Build Date and Time Project Version	04/12/2023 10:04:24	Set the Date. Use Tab to switch between Date elements. Default Ranges: Year: 1998-9999
Firmware Information ME Firmware Version ME Firmware Mode ME Firmware SKU	16.0.15.1545 Normal Mode Corporate SKU	Months: 1–12 Days: Dependent on month Range of Years may vary.
Board Information Processor Name Type	AlderLake DT 12th Gen Intel(R)	
Stepping	HO	++: Select Screen ↑↓: Select Item
PCH Name SKU Stepping	PCH-S R680E B1	Enter: Select +/-: Change Opt. F1: General Help
Memory Size Frequency	16384 MB 4400 MHz	F2: Previous Values F3: Optimized Defaults F4: Save & Exit
System Date System Time	[Wed 04/26/2023] [10:08:18]	ESC: Exit
Access Level	Administrator	
Version 2.22.1284 Copyright (C) 2023 AMI		

BIOS Information

Display the auto-detected BIOS information.

System Date/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 is entered in HH:MM:SS format.

3.5 Advanced Menu

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

Aptio Setup – AMI Main <mark>Advanced</mark> Chipset Security Boot Save & Exit		
 ACPI Settings Trusted Computing Platform Misc Configuration CPU Configuration Storage Configuration NWME Configuration AMT Configuration F81966 Super IO Configuration Hardware Monitor USB Configuration PCI Subsystem Settings 	System ACPI Parameters. ++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit	
Version 2.22.1284 Copyright (C) 2023 AMI		

3.5.1 ACPI Settings

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



ACPI Sleep State

Select the ACPI (Advanced Configuration and Power Interface) sleep state. Configuration options are Suspend Disabled and S3 (Suspend to RAM). The default is S3 (Suspend to RAM); this option selects ACPI sleep state the system will enter when suspend button is pressed.

3.5.2 Trusted Computing

This menu provides function for specify the Trusted Computing.

Aptio Setup Utility – Advanced	Copyright (C) 2019 American	Megatrends, Inc.
TPM20 Device Found Firmware Version: Vendor: Security Device Support Active PCR banks Available PCR banks SHA-1 PCR Bank SHA256 PCR Bank Pending operation Platform Hierarchy Storage Hierarchy Endorsement Hierarchy TPM2.0 UEFI Spec Version Physical Presence Spec Version TPM 20 InterfaceType Device Select	71.4 STM [Enable] SHA-1,SHA256 SHA-1,SHA256 [Enabled] [Enabled] [Enabled] [Enabled] [Enabled] [TGG_2] [1.3] [TIS] [Auto]	Enables or Disables BIOS support for security device. O.S. will not show Security Device. TGG EFI protocol and INT1A interface will not be available. ++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.20.1271. C	opuright (C) 2019 American M	egatrends. Inc.

Security Device Support

Enable or disable BIOS support for security device. The default setting is

Disabled.

TPM State

Once the Security Device Support is Enabled, TPM (Trusted Platform Module)

can be used by the operating system.

Current Status Information

Display current TPM status information.

Pending Operation

Schedule a TPM operation which will take effect at the next boot up process.

3.5.3 Platform Misc Configuration

This screen allows you to set Platform Misc Configuration.

Platform Misc Configuration Bit - PCIE Native * control Native PCIE Enable [Disabled] Native ASPM [Disabled] 2 - ~ Power Management E 3 - PCIE Advanced Error Reporting control 4 - PCIE Capability Strucontrol 5 - Latency Tolerance Reporting control *+: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit	Aptio Setup Ut Advanced	ility — Copyright (C) 2019 An	merican Megatrends, Inc.
++: Select Screen ++: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit	Platform Misc Configuration Native PCIE Enable Native ASPM	(Disabled) (Disabled)	Bit - PCIe Native * control 0 - ~ Hot Plug 1 - SHPC Native Hot Plug control 2 - ~ Power Management Events 3 - PCIe Advanced Error Reporting control 4 - PCIe Capability Structure control 5 - Latency Tolerance Reporting control
			<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>

Native PCIE Enable

Bit PCIe Native * control n 0 ~ Hot Plug n 1 SHPC Native Hot Plug control n 2 ~

Power Management Events n 3 PCIe Advanced Error Reporting control n 4 PCIe

Capability Structure control n 5 Latency Tolerance Reporting control

Native ASPM

Enabled OS Controlled ASPM, Disabled BIOS Controlled ASPM

3.5.4 CPU Configuration

This menu shows the CPU information, and let you change the value of the selected option.

Advanced	Aptio Setup — AMI		
CPU Configuration		To turn on/off the MLC	
Туре	12th Gen Intel(R) Core(TM) i5–12500TE		
ID	0x90675		
Speed	1900 MHz		
L1 Data Cache	48 KB x 6		
L1 Instruction Cache	32 KB x 6		
L2 Cache	1280 KB × 6		
L3 Cache	18 MB		
L4 Cache	NZA		
VMX	Supported		
SMX/TXT	Supported		
		++: Select Screen	
Hardware Prefetcher	[Enabled]	T∔: Select Item	
Adjacent Cache Line Prefetch	[Enabled]	Enter: Select	
Package C State Limit	[Disabled]	+/-: Change Opt.	
Hyper-Threading	[Enabled]	F1: General Help	
Intel (VMX) Virtualization	[Enabled]	F2: Previous Values	
Technology		F3: Optimized Defaults	
Active Performance-cores	[A11]	F4: Save & Exit	
AES	[Enabled]	ESC: Exit	
Boot performance mode	[Max Non-Turbo		
	Performancej		
Intel(R) SpeedStep(tm)	[D1Sabled]		
Vencion 2, 22 1284 Convident (C) 2002 AMT			
Version 2.22.1204 copyright (C) 2023 HMI			

Hyper-threading

Enable or disable Hyper-Threading Technology. When enabled, it allows a single physical processor to multitask as multiple logical processors. When disabled, only one thread per enabled core is enabled.

Intel Virtualization Technology

Enable or disable Intel Virtualization Technology. When enabled, a VMM (Virtual Machine Mode) can utilize the additional hardware capabilities. It allows a platform to run multiple operation systems and applications independently, hence enabling a single computer system to work as several virtual systems.

AES

Enable / Disable AES (Advanced Encryption Standard)

Boot performance mode

Select the performance state that the BIOS will set starting from reset vector.

Intel (R) SpeedStep(tm)

Allows more than two frequency ranges to be supported.

This screen shows storage information.

Aptio Setup - AMI Advanced		
Storage Configuration	SATA Device Options Settings	
▶ SATA Configuration		
	<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 2.22.1284 Copyright (C) 2023 AMI		

SATA Controller(s)

Advanced	Aptio Setup – AMI	
SATA Configuration		Enable/Disable SATA Device.
SATA Controller(s) ▶ VMD setup menu		
Serial ATA Port 1 Port 1 Hot Plug Spin Up Device SATA Device Type Serial ATA Port 2 Port 2 Hot Plug Spin Up Device SATA Device Type Serial ATA Port 3 Port 3 Hot Plug Spin Up Device SATA Device Type Serial ATA Port 4 Port 4 Hot Plug Spin Up Device SATA Device Type	Empty [Enabled] [Disabled] [Hard Disk Drive] Empty [Enabled] [Disabled] [Hard Disk Drive] Empty [Enabled] [Disabled] [Disabled] [Hard Disk Drive] Empty [Enabled] [Disabled] [Disabled] [Disabled] [Disabled] [Disabled] [Disabled] [Disabled] [Hard Disk Drive]	<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>

Enable or disable SATA controller feature.

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VMD Setup Menu

VMD Configuration settings. The default is Disabled.

Aptio Setup – AMI Advanced		
VMD Configuration		Enable/Disable to VMD
Enable VMD Global Mapping Map this Root Port under VMD Root Port BDF details	[Enabled] [Disabled] SATA Controller	
RAIDO RAID1 RAID5 RAID10 Intel Rapid Recovery Technology	(Enabled) (Enabled) (Enabled) (Enabled) (Enabled)	
RRT volumes can span internal and eSATA drives Intel(R) Optane(TM) Memory	[Enabled] [Enabled]	++: Select Screen f4: Select Item Enter: Select
		+/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version	2.22.1287 Conuright (C) 2020	3 AMT B4

3.5.6 NVMe Configuration

This screen shows NVMe device information.

Aptio Setup - AMI Advanced	
NVMe Configuration	
No NVME Device Found	
	++: Select Screen
	Enter: Select Item +/-: Change Opt
	F1: General Help F2: Previous Values
	F3: Optimized Defaults F4: Save & Exit
	ESC: Exit
Version 2.22.1284 Copyright (C) 2023	AMI

3.5.7 AMT Configuration

This screen displays Active Management Technology information.

Advanced	Aptio Setup – AMI	
AMT Configuration		When disabled AMT BIOS
AMT BIOS Features	[Disabled]	<pre>Features are no longer supported and user is no longer able to access MEBx Setup. Note: This option does not disable Manageability Features in FW. ++: 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 2.22.1284 Copyright (C)	2023 AMI

AMT BIOS Features

Enable or disable Active Management Technology BIOS features. The default is Enabled.

3.5.8 F81966 Super IO Configuration

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

Aptio Setup - AMI Advanced		
F81966 Super IO Configuration		Set Parameters of Serial Port 1 (COMA)
Super IO Chip > Serial Port 1 Configuration > Serial Port 2 Configuration > Serial Port 3 Configuration > Serial Port 4 Configuration > Parallel Port Configuration	F81966	1 (COMA) ++: Select Screen 11: Select Item Enter: Select +/-: Change Opt.
		F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version	2.22.1284 Copyright (C) 2023	AMI

Serial Port 1~4

This item allows you to use it as RS232/422/485. The default is RS232.

Serial Port 1~4 Configuration

Use these items to set parameters related to serial port 1 ~4.



Parallel Port Configuration

This screen displays Active Management Technology information.

Advanced	Aptio Setup – AMI	
Parallel Port Configuration		Enable or Disable Parallel
Parallel Port Device Settings	[Enabled] IO=378h; IRQ=7;	Port (LPT/LPTE)
Change Settings Device Mode	[Auto] [STD Printer Mode]	
		↑↓: Select Item Enter: Select +/-: Change Ont.
		F1: General Help F2: Previous Values
		F3: Optimized Defaults F4: Save & Exit ESC: Exit
Vanies 0	22, 4204, Porus (dkt. (0), 2022	

3.5.9 Hardware Monitor

This screen monitors hardware health status. This screen displays the temperature of system and CPU, cooling fans speed in RPM and system voltages (VCC_CPU, DDR, +12V, +5V and +3.3V).

Advanced	Aptio Setup – AMI	
Pc Health Status		Config Smart Fan setting
 Smart Fan Configuration Smart Fan Function System temperature1 System temperature2 CPUFan Speed +SVDUAL VCC_RTC +SV VSB3V VSB5V 	<pre>[Enabled] : +32 % : +34 % : 1191 RPM : +4.961 V : +2.896 V : +4.961 V : +3.328 V : +4.968 V</pre>	++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Ver	sion 2.22.1284 Copyright (C)) 2023 AMI

Smart fan configuration

Advanced	Aptio Setup – AMI	
Config Smart Fan setting CPUFan Mode Select CPUFan Boundary 1 temperature CPUFan Boundary 2 temperature CPUFan Boundary 3 temperature CPUFan Boundary 4 temperature	[Auto (RPM)] 50 40 30 20	 FAN Mode selection Auto Speed Control(RPM) -Automatic RPM Speed by Temp Auto Speed Control(duty) -Automatic duty Speed by Temp Manual(RPM) Fixed FAN RPM Count
CPUFan Highest Speed CPUFan Expect Speed 4 CPUFan Expect Speed 3 CPUFan Expect Speed 2 CPUFan Expect Speed 1	100 80 60 40 25	Manual(duty cycle) -Fixed FAN duty cycle
FAN2 Mode Select FAN2 Boundary 1 temperature FAN2 Boundary 2 temperature FAN2 Boundary 3 temperature FAN2 Boundary 4 temperature FAN2 Highest Speed FAN2 Expect Speed 4 FAN2 Expect Speed 3 FAN2 Expect Speed 2 FAN2 Expect Speed 1	[Auto (RPM)] 45 0 0 100 40 40 40 40	<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>
FAN3 Mode Select	[Auto (RPM)]	

This screen allows you to configure Smart Fan mode.

Aptio Setup – AMI	
60 40 25 [Auto (RPM)] 45 0	 Value depending on FAN mode Auto(RPM) value that set in this byte is the relative expect fan speed % of the full speed in this temperature section Auto(duty cycle) Expect PWM duty-cycle
0 100 40 40 40	
40	<pre>++: Select Screen 1↓: Select Item</pre>
[AUTO (RPM)]	Enter: Select
0	F1: General Help F2: Previous Values F3: Optimized Defaults
40	FSP. Evit
40 40 40 40	ESU. EXIT
	Aptio Setup - AMI 60 40 25 [Auto (RFM)] 45 0 0 0 0 0 0 0 100 40 40 40 40 40 40 40 40 40 100 10

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3.5.10 NCT7802Y Hardware Monitor

This screen monitors Fans status.

Advanced	Aptio Setup — AMI	
Pc Health Status		
Fan2 Speed Fan3 Speed	: N/A : N/A	<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>
Ve	ersion 2.22.1284 Copyright (C) 2	023 AMI

3.5.11 USB Configuration

This screen shows USB configuration.

Aptio Setup - AMI Advanced		
USB Configuration		
USB Module Version	28	
USB Devices: 1 Drive, 1 Keyboard		
		<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>
Versi	on 2.22.1284 Copyright (C) 202	3 AMI

3.5.12 PCI Subsystem Settings

This screen allows you to set PCI Subsystem mode.



PCI Latency Timer

Set the value to be programmed into PCI Latency Timer Register.

VGA Palette Snoop

Enables or Disables VGA Palette Registers Snooping.

3.6 Chipset Menu

The Chipset menu allows users to change the advanced chipset settings. You

can select any of the items in the left frame of the screen to go to the sub

menus:

- System Agent (SA) Configuration
- ► PCH-IO Configuration

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



3.6.1 System Agent (SA) Configuration

This screen shows System Agent information

Chipset	Aptio Setup – AMI	
System Agent (SA) Configuration		VT-d capability
VT-d	Supported	
VT-d Control Iommu Pre-boot Behavior Above 4GB MMIO BIOS assignment	[Enabled] [Disable IOMMU] [Disabled]	
 Graphics Configuration CPU PCI Express Root Port 		
		<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	2.22.1284 Copyright (C) 2023	AMI

VTd

VT d capability

Above 4GB MMIO BIOS assignment

Enable/Disable above 4GB Memory Mapped IO BIOS assignment. This is

enabled automatically when Aperture Size is set to 2048MB.

Graphics Configuration

Open the sub menu for parameter s related to graphics configuration

CPU PCI Express Root Port

Set the ASPM Level and PCI Express Speed.

Graphics Configuration



This screen shows graphics configuration.

Internal Graphics

Keep IGFX enabled based on the setup options.

3.6.2 PCH-IO Configuration

This screen shows system memory information.



PCI Express Configuration

Configure PCIe Speed.

HD Audio Configuration

Enable or disable HD Audio.

Wake on LAN Enable

Enable or disable integrated LAN to wake the system.

PCI Express Configuration

PCI Express Configuration

PCI Express Root Port 1
PCI Express Root Port 21
PCI Express Root Port 25

PCI Express Root Por

This screen shows PCI Express configuration.

Chipset	Aptio Setup – AMI	
PCIe Speed ASPM Detect Non-Compliance Device	[Auto] [Disabled] [Disabled]	Configure PCIe Speed ++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESD: Exit
Version	2.22.1284 Copyright (C) 20	23 AMI

PCIe Speed

Configure PCIe Speed.

ASPM

Set the ASPM Level:

L1 - Force all links to L1 State.

AUTO - BIOS auto configure.

DISABLE - Disables ASPM.

Detect Non-Compliance Device

Detect Non-Compliance PCI Express Device. If enabled, it will take more time at POST time.

3.7 Security Menu

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



Administrator Password

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

User Password

This item indicates whether a user password has been set (installed or

uninstalled).

Secure Boot

This item is available on the UEFI firmware to provide a secure environment.

3.8 Boot Menu

The Boot menu allows users to change boot options of the system.

Main Advanced Chipset	Aptio Setup – AMI Security <mark>Boot</mark> Save & Exit	
Boot Configuration Setup Prompt Timeout Bootup NumLock State Quiet Boot Network Stack	<mark>1</mark> [On] [Disabled] [Disabled]	Number of seconds to wait for setup activation key. 65535(0xFFFF) means indefinite waiting.
Boot Option Priorities Boot Option #1	[UEFI: Generic Flash Disk 8.07, Partition 1 (Generic Flash Disk 8.07)]	
		++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Source 2 Evit
	Version 2 22 1284 Conumight (C) 202	ESC: Exit

Setup Prompt Timeout

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

indefinite waiting.

Bootup NumLock State

Use this item to select the power-on state for the keyboard NumLock.

Quiet Boot

Select to display either POST output messages or a splash screen during boot-

up.

Network Stack

Use this item to run the BIOS of your device through the internet instead of Hard Drives.

Boot Option Priorities

These are settings for boot priority. Specify the boot device priority sequence from the available devices

3.9 Save & Exit Menu

Aptio Setup Utility – Copyright (C) 2019 American Main Advanced Chipset Security Boot <mark>Save & Exit</mark>	Megatrends, Inc.
Save Options Save Changes and Exit Discard Changes and Exit Save Changes and Reset Discard Changes Discard Changes Default Options Restore Defaults Save as User Defaults Restore User Defaults Boot Overnide Generic Flash Disk 8.07 UEFI: Generic Flash Disk 8.07, Partition 1	<pre>++: Select Screen tl: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
Version 2 20 1271 Convright (C) 2019 American M	adateande The

Save Changes and Exit

When you select this option, it will pop-out the following message, "Save configuration changes and exit setup?". Select OK to save the changes and exit the UEFI setup utility.

Discard Changes and Exit

When you select this option, it will pop-out the following message, "Discard changes and exit setup?". Select OK to exit the UEFI setup utility without saving any changes.

Save Changes and Reset

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

Discard Changes and Rest

Select this option to quit Setup without making any permanent changes to the system configuration and reboot the computer. Select Discard Changes and Reset from the Save & Exit menu and press <Enter>. Select Yes to discard changes and reset.

Save Changes

When you have complete the system configuration changes, select this option to save changes. Select Save Changes from the Save & Exit menu and press <Enter>. Select Yes to save changes.

Discard Changes

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

Restore Defaults

It automatically sets all Setup options to a complete set of default settings when you select this option. Select Restore Default from the Save & Exit menu and press <Enter>.

Save as User Defaults

Select this option to save system configuration changes done so far as User Defaults. Select Save as User Defaults from the Save & Exit menu and press <Enter>.

Restore User Defaults

It automatically sets all Setup options to a complete set of User Defaults when you select this option. Select Restore User Defaults from the Save & Exit menu and press <Enter>.

Boot Override

Select a drive to immediately boot that device regardless of the current boot order.

Chapter 4 System Configuration

4.1 Watchdog Timer

After the system stops working for a while, it can be auto-reset by the watchdog timer. #include "stdafx.h" #include <windows.h> #include <stdio.h> #include <tchar.h> #include <stdlib.h> #ifdef DEBUG #define new DEBUG NEW #endif #pragma comment (lib, "User32.lib") #define IDT TIMER WM USER + 200 #define _CRT_SECURE_NO_WARNINGS 1 #define setbit(value,x) (value |=(1 << x)) #define clrbit(value,x) (value &=~(1<<x))</pre> HINSTANCE hinstLibDLL = NULL; LONG WDTDATA = 0; typedef ULONG(*LPFNDLLGETIOSPACE)(ULONG); LPFNDLLGETIOSPACE lpFnDll_Get_IO; typedef void(*LPFNDLLSETIOSPACE)(ULONG, ULONG); LPFNDLLSETIOSPACE lpFnDll_Set_IO; int _tmain(int argc, _TCHAR* argv[]) { int unit = 0; int WDTtimer = 0; SHB160 LGA1700 Full-size CPU Card
```
58 Watchdog Timer
if (hinstLibDLL == NULL)
{
hinstLibDLL = LoadLibrary(TEXT("diodll.dll"));
if (hinstLibDLL == NULL)
{
//MessageBox("Load diodll dll error", "", MB_OK);
}
}
if (hinstLibDLL)
{
IpFnDII_Get_IO = (LPFNDLLGETIOSPACE)GetProcAddress(GetModuleHandle("diodll.dll"),
"GetloSpaceByte");
IpFnDII_Set_IO = (LPFNDLLSETIOSPACE)GetProcAddress(GetModuleHandle("diodll.dll"),
"SetIoSpaceByte");
}
printf("Input Watch Dog Timer type, 1:Second ; 2:Minute :");
scanf("%d",&unit);
printf("\nInput Timer to countdown:");
scanf("%d", &WDTtimer);
printf("Start to countdown...");
//==Enter MB Pnp Mode==
IpFnDII_Set_IO(0x2e, 0x87);
lpFnDll_Set_IO(0x2e, 0x87);
lpFnDll_Set_IO(0x2e, 0x07);
IpFnDII_Set_IO(0x2f, 0x07); //SET LDN 07
//set LDN07 FA 10 to 11
lpFnDll_Set_IO(0x2e, 0xFA);
```

```
WDTDATA = IpFnDII_Get_IO(0x2f);
WDTDATA = setbit(WDTDATA, 0);
lpFnDll_Set_IO(0x2f, WDTDATA);
if (unit == 1)
{
IpFnDII_Set_IO(0x2e, 0xF6);
lpFnDll_Set_IO(0x2f, WDTtimer);
//start watchdog counting
lpFnDll_Set_IO(0x2e, 0xF5);
WDTDATA = IpFnDII_Get_IO(0x2f);
WDTDATA = setbit(WDTDATA, 5);
lpFnDll_Set_IO(0x2f, WDTDATA);
}
else if (unit == 2)
{
SHB160 LGA1700 Full-size CPU Card
Watchdog Timer 59
//set WDT Timer
lpFnDll_Set_IO(0x2e, 0xF6);
lpFnDll_Set_IO(0x2f, WDTtimer);
//set watchdog time unit to min
lpFnDll_Set_IO(0x2e, 0xF5);
WDTDATA = IpFnDII_Get_IO(0x2f);
WDTDATA = setbit(WDTDATA, 3);
lpFnDll_Set_IO(0x2f, WDTDATA);
//start watchdog counting
lpFnDll_Set_IO(0x2e, 0xF5);
WDTDATA = IpFnDII_Get_IO(0x2f);
```

```
WDTDATA = setbit(WDTDATA, 5);
lpFnDll_Set_IO(0x2f, WDTDATA);
}
system("pause");
return 0;
}
```

Timeout Value Range

- 1 to 255
- Minute / Second

Note:

If N=00h, the time base is set to second. M = time value 00h: Time-out Disable 01h: Time-out occurs after 1 second 02h: Time-out occurs after 2 seconds 03h: Time-out occurs after 3 seconds . FFh: Time-out occurs after 255 seconds

FFIT. IIITIE-OUT OCCUIS UTIET 255 SECONDS

If N=08h, the time base is set to minute.

M = time value

..

00h: Time-out Disable

01h: Time-out occurs after 1 minute

02h: Time-out occurs after 2 minutes

03h: Time-out occurs after 3 minutes

FFh: Time-out occurs after 255 minutes

4.2 VMD (RAID) Configuration 4.2.1 Configuring SATA Hard Drive(s) for RAID (Controller: Intel® R680E)

Before you begin the SATA configuration, please prepare:

Two SATA hard drives (to ensure optimal performance, it is recommend that you use two hard drives with identical model and capacity). If you do not want to create RAID with the SATA controller, you may prepare only one hard drive.

Please follow up the steps below to configure SATA hard drives:

- 1. Install SATA hard drives in your system
- 2. Enter the BIOS setup to configure SATA controller mode and boot sequence.
- 3. Configure RAID by the RAID BIOS.

Installing SATA hard drives in your system

Connect one end of the SATA signal cable to the rear of the SATA hard drives, and the other end to available SATA ports on the board. Then connect the power connector of power supply to the hard drives.

Configuring SATA controller mode and boot sequence by the BIOS setup

Please make sure whether the SATA controller is configured correctly by the system BIOS setup and setup BIOS boot sequence for the SATA hard drives.

Advanced	Aptio Setup — AMI	
VMD Configuration		Enable/Disable to VMD
Enable VMD controller	[Enabled]	Controller
Enable VMD Global Mapping Map this Root Port under VMD Root Port BDF details RAID0 RAID1 RAID5 RAID10 Intel Rapid Recovery Technology RRT volumes can span Internal and eSATA drives Intel(R) Optane(TM) Memory	[Enabled] [Enabled] SATA Controller [Enabled] [Enabled] [Enabled] [Enabled] [Enabled] [Enabled] [Enabled]	++: 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	2.22.1284 Copyright (C) 2023	AMI

After Restart, enter to Bios Setup Menu. In Advanced Page, choose Intel(R) Rapid

Storage Technology.

Aptio Setup – AMI Main <mark>Advanced</mark> Chipset Security Boot Save & Exit	
<pre>ACPI Settings Trusted Computing Platform Misc Configuration CPU Configuration Storage Configuration AMT Configuration P615065 Super 10 Configuration Hardware Monitor USB Configuration PCI Subsystem Settings CSM Configuration PIntel(R) Rapid Storage Technology Intel(R) Letternet Controller (3) 1225-LM - 00:60:E0:6C:AE:A1 Intel(R) I211 Gigabit Network Connection - 00:60:E0:6C:AE:A2</pre>	System Super IO Chip Parameters. ++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.22.1284 Copyright (C) 2023	AMI

In Intel(R) Rapid Storage Technology page, choose RAID Volume

Aptio Setup - AMI Advanced	
Intel(R) RST 19.0.0.5428 RST VMD Driver ▶ Create RAID Volume	This page allows you to create a RAID volume
Non-RAID Physical Disks: ▶ SATA 0.0, 2.5" SATA SSD 3TE7 CA12202060270004, 55.8GB ▶ SATA 0.1, AXIOMTEK CorpFSA064GMW5T 0906AA0931116001, S9.6GB	
	++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.22.1284 Copyright (C) 2023	AMI

Select the disk to be merged.

Advanced	Aptio Setup — AMI	
Create RAID Volume		X – to Select Disk
Name: RAID Level:	Volume1 [RAIDO (Stripe)]	
Select Disks: SATA 0.0, 2.5" SATA SSD 3TE7 CA12202060270004, 55.868 SATA 0.1, AXIOMTEK CorpFSA064GMMST 0906AA093111600 SATA 0.0, 2	[] [] 2.5" SATA SSD 3TE7 CA12202060	127)004, 55.868 —
Strip Size: X Capacity (MB):		Enter: Select
Select at least two disks		+/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Vers	sion 2.22.1284 Copyright (C)	2023 AMI

Advanced	Aptio Setup — AMI	
Create RAID Volume		Create a volume with the
Name: RAID Level:	Volume1 [RAIDO (Stripe)]	Settings specified above
Select Disks: SATA 0.0, 2.5" SATA SSD 3TE7 CA12202060270004 55 868	[X]	
SATA 0.1, AXIONTEK CorpFSA064GMM5T 0906AA0931116001, 59.6GB	[X]	
Strip Size: Capacity (MB):	[64KB] 114479	++: Select Screen 11: Select Item
▶ Create Volume		Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Versi	on 2.22.1284 Copyright (C) 2	023 AMI

4.3 iAMT Settings

The Intel Active Management Technology (Intel iAMT) has decreased a major barrier to IT efficiency, that use built-in platform capabilities and popular thirdparty management and security applications to allow IT a better discovering, healing, and protection their networked computing assets.

In order to utilize Intel iAMT you must enter the ME BIOS (<Ctrl+P> during system startup), change the ME BIOS password, and then select "Intel iAMT" as the manageability feature.

4.3.1 Entering MEBx

1. Select Intel® AMT configuration, enable AMT BIOS features, then restart BIOS.

Advanced	Aptio Setup – AMI	
AMT Configuration		When disabled AMT BIOS
AMT BIOS Features		Features are no longer supported and user is no longer able to access MEBx Setup. Note: This option does not disable Manageability Features in FW. ++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
1	/ersion 2.22.1287 Copyright (C) 2023 AMI

4.3.2 Set and Change Password

Go to MEBx page, enter the default password "admin" for first time login, and

then enter new password (complex password) twice to access AMT page.



Select Network Setup to configure iAMT.



Go back to Intel® AMT Configuration, then select Activate Network Access and press <Enter>.

Aptio Setup - AMI MEBX		
 Redirection features User Consent Password Policy Network Setup Network Access State Remote Setup And Configuration Power Control 	[Anytime] [Network Inactive]	Changes network state of ME. When disabling, it will also clear some other settings.
	Network Access State Network Active Network Inactive Full Unprovision	<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>
	ion 2.22.1284 Copyright (C) 2022	2 AMI

Exit from MEBx after completing the iAMT settings.



4.3.3 iAMT Settings

On a web browser, type http://(IP ADDRESS):16992, which directs to iAMT Web. Example: http://10.1.40.214:16992



To log in, you will be required to type in your username and password for

access to the Web.

USER: admin (default)

PASS: (MEBx password)

Enter the iAMT Web.

(D) 編輯(E) 檢網(E)				
Gi. 6 1900	0 我的最爱心) 工具① 說 會座[2章	988 1 <mark>8 - (</mark> 💰 - 🖄 🖙 🖬 - 🚍 - 🏈 - 🏭 - 😭 - 🖗 - 📓	· 🗃 · 📑 👔 · 🍵 🚈 · 😝 ·	+ 0
版的最爱 🙀 🔒 DNT	TEL SOFTWARE LICEN	el Login (2) @ FICO822 Project @ TXC 台湾晶故	黄連仁歡語遊用 WebFlow 😁 Intel Embedded Atom Proces	-Intel Login
Intel® Studied Manageob	bility		🏠 ・ 🔂 🔹 📾 ・ 相互②・ 安全	10. IAO. 0.
tel [®] Standard	Manageability			(intel)
tem Status	System Status			
dware Information Sistem	Power	On		
Processor	IP address	10.1.40.214		
Disk	IPv6 address	Disabled		
nt Log	System ID	03000200-0400-0500-0006-000700080009		
ver Policies	Date	7/17/2013		
work Settings	Time	9.59 am		
tem Name Settings	Refresh			

Click Remote Control, and select commands on the right side.



When you have finished using the iAMT Web console, close the Web browser.

