USER MANUAL

SG-S172

Intel® Elkhart Lake Processor Fanless and All-around IP66 / IP69K Stainless 17" Panel PC

SG-S172　M1

SG-S172

Intel® Elkhart Lake Processor Fanless and All-around IP66 / IP69K Stainless 17" Panel PC

FCC NOTICE

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.

You are cautioned that any change or modifications to the equipment not expressly approve by the party responsible for compliance could void your authority to operate such equipment.

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

	WARNING: Some internal parts of the system may have high electrical voltage. We strongly recommend that only qualified engineers are allowed to service and disassemble the system. If any damages should occur on the system and are caused by unauthorized servicing, it will not be covered by the product warranty.

Contents

Revision History

The revision history of SG-S172 User Manual is described below:

Version No.	Revision History	Date
M1	Initial Release	2023/04/13

1 Introduction

This chapter provides the introduction for the SG-S172 system as well as the framework of the user manual.

The following topic is included:

- About This Manual

1.1   About This Manual

Thank you for purchasing our SG-S172 system. The SG-S172 provides faster processing speed, greater expandability and can handle more tasks than before. This manual is designed to assist you how to install and set up the whole system. It contains 5 chapters and 2 appendixes. Users can configure the system according to their own needs. This user manual is intended for service personnel with strong hardware background. It is not intended for general users.

The following section outlines the structure of this user manual.

Chapter 1 Introduction
This chapter provides the introduction for SG-S172 system as well as the framework of the user manual.

Chapter 2 Getting Started
This chapter describes the package contents and outlines SG-S172 specifications. Read the safety reminders carefully on how to take care of your system properly.

Chapter 3 System Configuration
This chapter outlines the locations of the motherboard components and their respective functions. You will learn how to set the jumpers and configure the system to meet your own needs.

Chapter 4 Software Utilities
This chapter contains helpful information for proper installations of the Intel Chipset Software Installation Utility, Graphics Driver Utility, LAN Driver Utility, Sound Driver Utility and Intel® Management Engine Components Driver Installer.

Chapter 5 BIOS Setup
This chapter indicates you how to change the BIOS configurations.

Appendix A System Diagrams
This appendix provides the exploded diagrams and part numbers of SG-S172.

Appendix B Technical Summary
This appendix provides the information about the allocation maps for main board block diagram, system resources, Watchdog Timer Configuration and Flash BIOS Update.

2 Getting Started

This chapter provides the information for SG-S172 system. It describes the package contents and outlines the SG-S172 specifications.

The following topics are included:

- Package List
- System Overview
- System Specifications
- Safety Precautions

Experienced users can go to Chapter 3 System Configuration on page 3-1 for a quick start.

2.1   Package List

If you discover any of the items listed below are damaged or lost, please contact your local distributor immediately.

Item	Q'ty
SG-S172	1
Quick Reference Guide	1
Manual / Driver DVD	1
M12 Power Supply Cable	1
U Stand (optional)	1

2.2 System Overview

Unit: mm

Front View

450

381

Rear View

C.L.357

66.50

C.L.100 (VESA)

C.L.100 (VESA)

Top View

Antenna Hole 1

Antenna Hole 2

ANT1 ANT2
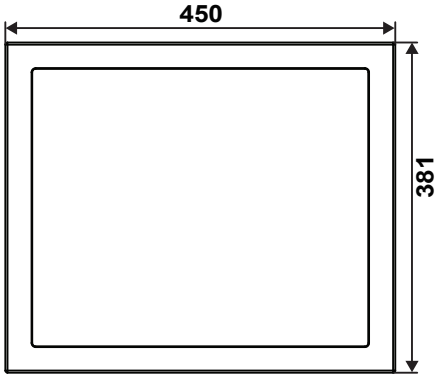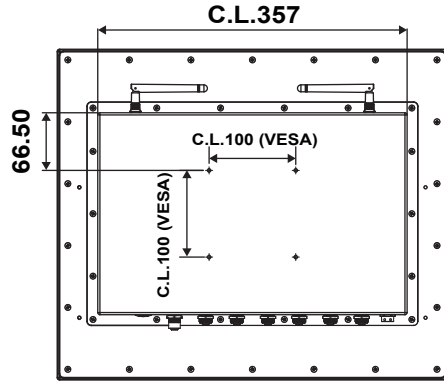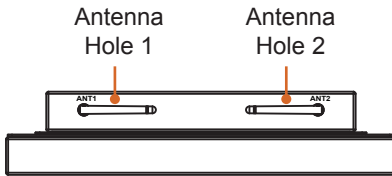
Bottom View
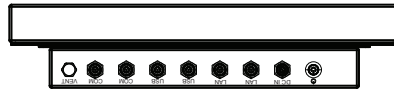
Side View
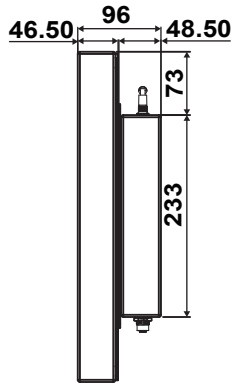
Quarter View (Front Side)
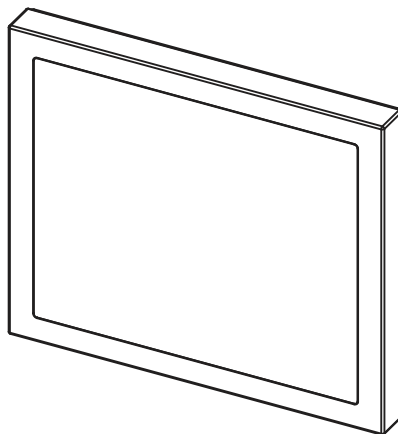
Quarter View (Rear Side)
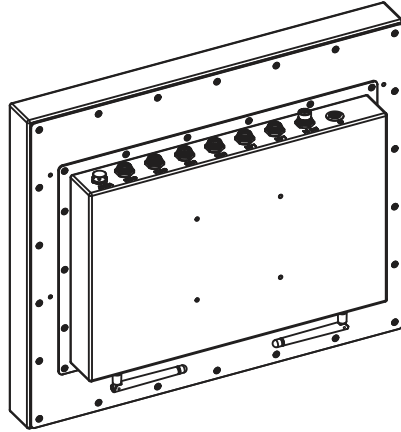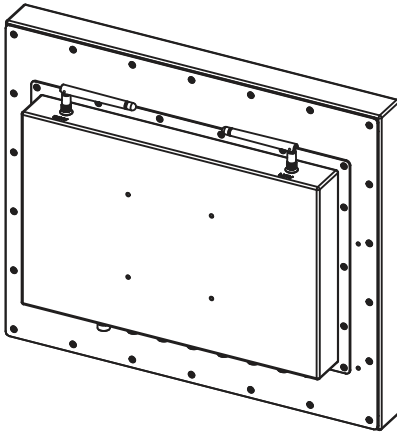
2.3 System Specifications

System	
CPU Support	➢ Intel® Celeron® J6412 processor ➢ Intel® Atom® x6425RE processor
Chipset	➢ Intel® SoC
Memory Support	➢ 1 x DDR4 3200MHz SO-DIMM socket (up to 32GB) (non-ECC)
Enclosure	➢ Stainless SUS304
IP Rating	➢ IP66 / IP69K
Power Input	➢ DC In 12V/24V
Watchdog	➢ 1~255 second watchdog timer selectable
Operating System	➢ Windows 11 ➢ Windows 10 IoT LTSC 64bit ➢ Ubuntu 20.04 (Kernel 5.4)
Dimensions (W x H x D)	➢ 450 x 381 x 96 mm (w/o Stand) ➢ 450 x 433.5 x 160 mm (with Stand)
System Weight	➢ 15 kg
Mounting Support	➢ Wall mount / VESA 100 / Stand
Certifications	➢ FCC / CE
I/O Ports	
Power Input	➢ 1 x M12 waterproof connector, supporting 12V/24V DC
USB	➢ 2 x USB 2.0 M12 waterproof connectors (4 x USB ports)
Serial Ports	➢ 2 x COM M12 waterproof connectors, with RS-232/422/485
LAN	➢ 2 x 1GbE LANs with M12 waterproof connectors ➢ Supports Wake-On-LAN
Storage	➢ 1 x 2.5" SATA III SSD
Expansion Bus	➢ 1 x full-sized Mini PCIe slot (Mini PCIe and USB signal)
Display	
LCD	➢ 17" TFT LCD (LED) resolution 1280 x 1024
Touchscreen	➢ 5-wire resistive touchscreen or projected capacitive touchscreen (USB interface)
Environment	
Operating Temp.	➢ 0°C~50°C (32°F~122°F)
Storage Temp.	➢ -20°C~80°C (-4°F~176°F)
Humidity	➢ 20%~ 90%

2.4 Safety Precautions

Before operating this system, read the following information carefully to protect your systems from damages, and extend the life cycle of the system.

1. Check the Line Voltage
   - The operating voltage for the power supply should cover the range of 12V / 24V DC; otherwise, the system may be damaged.

2. Environmental Conditions
   - Place your SG-S172 on a sturdy, level surface. Be sure to allow enough space around the system to have easy access needs.
   - Avoid installing your SG-S172 system in extremely hot or cold places.
   - Avoid direct sunlight exposure for a long period of time (for example, in a closed car in summer time. Also avoid the system from any heating device.). Or do not use SG-S172 when it has been left outdoors in a cold winter day.
   - Avoid moving the system rapidly from a hot place to a cold place, and vice versa, because condensation may occur inside the system.
   - Protect your SG-S172 from strong vibrations which may cause hard disk failure.
   - Do not place the system too close to any radio-active device. Radio-active device may cause signal interference.
   - Always shut down the operating system before turning off the power.
3. Handling
   - Avoid placing heavy objects on the top of the system.
   - Do not turn the system upside down. This may cause the hard drive to malfunction.
   - Do not allow any objects to fall into this device.
   - If water or other liquid spills into the device, unplug the power cord immediately.
4. Good Care
   - When the outside case gets stained, remove the stains using neutral washing agent with a dry cloth.
   - Never use strong agents such as benzene and thinner to clean the surface of the case.
   - If heavy stains are present, moisten a cloth with diluted neutral washing agent or alcohol and then wipe thoroughly with a dry cloth.
   - If dust is accumulated on the case surface, remove it by using a special vacuum cleaner for computers.

3 System Configuration

This chapter contains helpful information that describes the jumper and connector settings, component locations, and pin assignment.

The following topics are included:
- System External I/O Ports Diagram
- Function Buttons and I/O Ports
- Main Board Component Locations & Jumper Settings
- Setting Jumpers
- Setting Main Board Connectors and Jumpers

3.1 External System I/O Ports Diagrams

3.1.1 Rear I/O Ports Diagrams

Pressure Relief Vent

2 x GbE LAN

Power Switch w/ LED

COM1
(colay DIO)

COM2
(colay Audio)

2 x USB Connectors
(4 x USB 2.0 Ports)

Power-in
DC IN
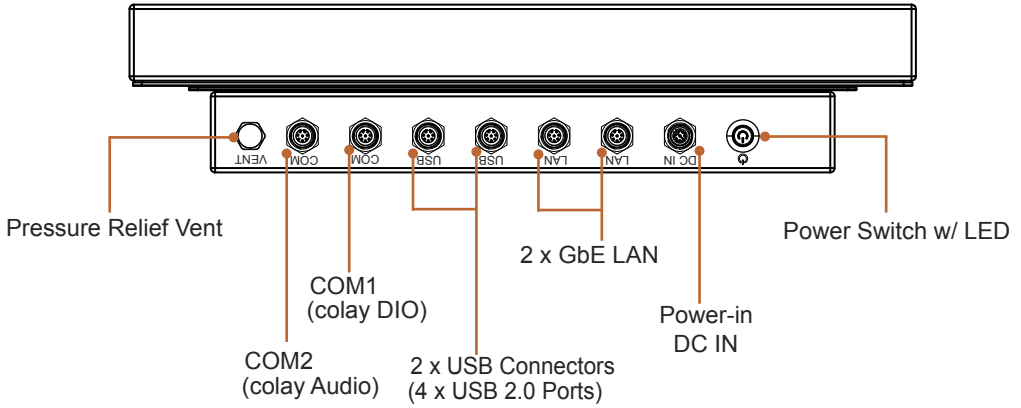
3.2 Jumper & Connector Quick Reference Table

JUMPER Description	NAME
Clear CMOS Data Selection	JCOMS1
COM1 Port Voltage Selection	JP_COM1
Low Pin Count Selection	JP_LPC1
USB1 Port Power Selection	JP_USB1
LVDS Voltage Selection	JP_VDD1
LVDS Sequence Selection	JP1
LVDS Backlight Control Selection	JP7

CONNECTOR Description	NAME
COM Connector (Rear I/O)	COM1, COM2
2 x LAN Ports (Rear I/O)	LAN1, LAN2
Dual USB 3.0 Ports (Internal)	USB1
3 x 1 USB 2.0 Ports (Internal)	USB2
Display Port (DP) Port Connector (rear I/O)	DP
HDMI Connector (rear I/O)	HDMI
Micro SIM Card Socket (bottom side of the main board)	SIM1
COM1 and COM2 Connectors	JCOM1, JCOM2
2 x Internal USB 2.0 Pin Headers	JUSB1
Internal USB 2.0 Wafer	JUSB2
Digital Input / Output Connectors	JDIO1, JDIO2
HD Audio Connector	JAUDIO1
Mini PCI Express Slot	M_PCIE1
LVDS Inverter Connector	JINV1
LVDS Connector	LVDS1
M.2 Wi-Fi Express Slot	M2_E1
M.2 SSD Express Slot	M2_M1
Serial ATA (SATA) 3.0 connector	SATA1
HDD Power Connector	JHD_PWR1
RTC Connector	JBAT1
Power LED Connector	JLED1
Power Button Connector	JBTN1

3.3 Component Locations of System Main Board

3.3.1 Top View of Main Board BE-U830

M/B: BE-U830

⚡ (warning triangle)	**WARNING:** Always disconnect the power cord when you are working with connectors and jumpers on BE-U830. Make sure both the system and peripheral devices are turned OFF as sudden surge of power could damage sensitive components. Make sure the board is properly grounded.
⚠ (caution triangle)	**CAUTION:** Observe precautions while handling electrostatic sensitive components. Make sure to ground yourself to prevent static charge while you are working on the connectors and jumpers. Use a grounding wrist strap and place all electronic components in any static-shielded devices.

3.3.2 Jumper Setting of Main Board BE-U830

COM1 Port Voltage Selection

1 ☐☐☐
NC (default)

1 ▦☐   1 ☐▦
5V   **12V**

Low Pin Count Selection

1 ▦   1 ▦
80 Port   **LPC Device**
(default)

Clear CMOS Data Selection

1 ☐☐   1 ▦
Normal   **Clear CMOS**
(default)

USB Power Selection

1 ▦☐   1 ☐▦
S5,USB Power=0V   **S5, USB Power=5V**
(default)

LVDS Voltage Selection

▦
5V
(default)
1

LVDS Backlight Control Selection

▦
5V
(default)
1

LVDS Sequence Control Selection

5 ▦☐ 1   5 ☐▦ 1
6 ☐▦ 2   6 ▦☐ 2
BKLTCTL   **BKLTEN**
from CPU   **from CPU**
(default)   (default)

Board labels: JLED1, JBAT1, JBTN1, LAN2, LAN1, JDP_HDMI1 (DP & HDMI), USB1, USB2, JCOMS1, JSPI, PWR2, JDIO2, JP_COM1, JDIO1, M_PCIE1, M2, M1, JP_USB1, SO-DIMM1, M.2 SSD, JP_LPC1, JLPC1, JCOM2, JCOM1, JUSB1, JAUDIO1, M.2 Wi-Fi, M2_E1, JP7, JP1, JP_VDD1, M2_M1, SATA1, JHD_PWR1, JINV1, LVDS1, JUSB2

3.3.3 Bottom View of Main Board BE-U830
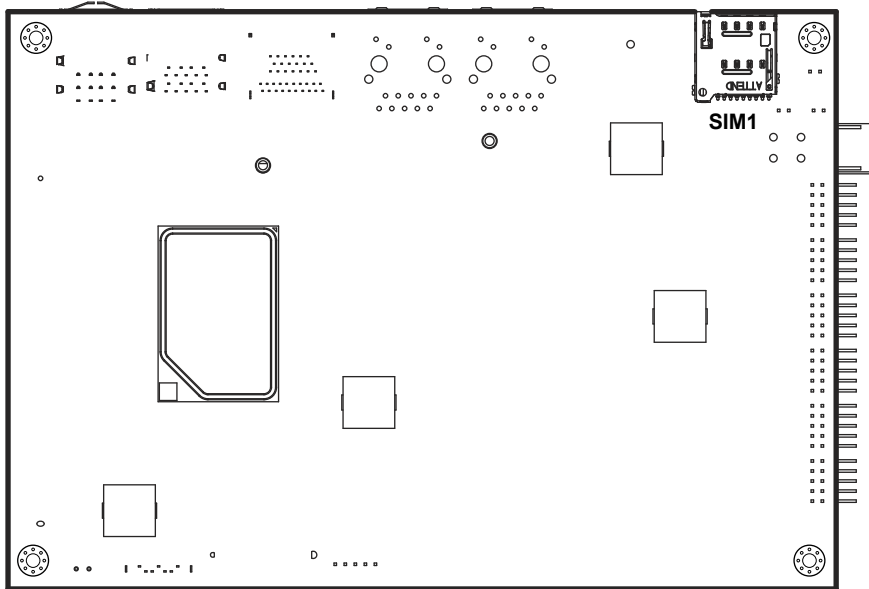
3.4   HOW to SET JUMPERS

You can configure your board by setting jumpers. A jumper is consists of two or three metal pins with a plastic base mounted on the board. By using a small plastic "cap", (also known as the jumper cap (with a metal contact inside)), you are able to connect the pins. So you can set up your hardware configuration by "opening" or "closing" pins.

The jumper can be combined into sets that are called jumper blocks. When the jumpers are all in the block, you have to put them together to set up the hardware configuration. The figure below shows how this looks like.

JUMPERS AND CAPS

| 2 Pin Jumper | 3 Pin Jumper | Jumper Block | Jumper Cap |
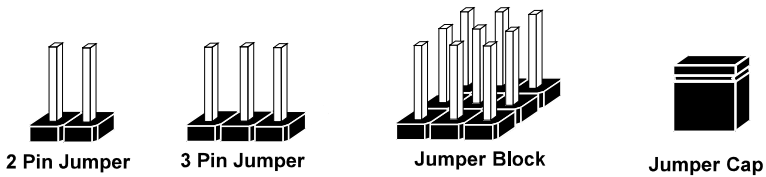
If a jumper has three pins (for examples, labeled PIN1, PIN2, and PIN3), you can connect PIN1 & PIN2 to create one setting by shorting. You can either connect PIN2 & PIN3 to create another setting. The same jumper diagrams are applied all through this manual. The figure below illustrates what the jumper diagrams look and what they represent.

Jumper Diagrams

**Jumper Cap
looks like this**
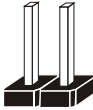
**2 pin Jumper
looks like this**
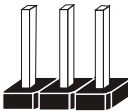
**3 pin Jumper
looks like this**

**Jumper Block
looks like this**
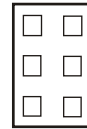
Jumper Settings

**2 pin Jumper close(enabled)
Looks like this**

1
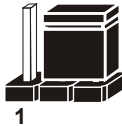
**3 pin Jumper
2-3 pin close(enabled)
Looks like this**

1

**Jumper Block
1-2 pin close(enabled)
Looks like this**
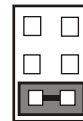
1 2

3.5   Setting Connectors and Jumpers

3.5.1   Dual LAN Ports (LAN1, LAN2)
Connector Location: LAN1, LAN2
Description: LAN Port, RJ45 (rear I/O)

PIN	ASSIGNMENT
1	LAN1/2_MDIP0
2	LAN1/2_MDIN0
3	LAN1/2_MDIP1
4	LAN1/2_MDIP2
5	LAN1/2_MDIN2
6	LAN1/2_MDIN1
7	LAN1/2_MDIP3
8	LAN1/2_MDIN3

Left: Orange
Right: Green
Yellow
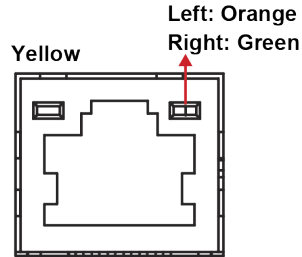
LAN1 / LAN2

LAN1/2 LED Indicator:
Right Side LED

Green Color On	2500 LAN Speed Indicator
Orange Color On	1000 LAN Speed Indicator
Off	10/100 or No LAN connected

Left Side LED

Yellow Color Blinking	LAN Message Active
Off	No LAN Message Active

3.5.2   3 x 1 USB 2.0 Ports (USB2)
Connector Location: USB2
Description: USB 2.0 Type A Ports x 3 (rear I/O)

USB 2.0 signals

PIN	ASSIGNMENT
1	VCC5_USB23
2	USB2_P2_DN
3	USB2_P2_DP
4	GND
5	VCC5_USB23
6	USB2_P3_DN
7	USB2_P3_DP
8	GND
9	VCC5_USB23
10	USB2_P4_DN
11	USB2_P4_PN
12	GND
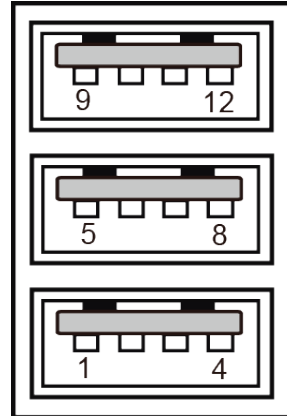
USB2

3.5.3   Dual USB 3.0 Ports (USB1)
Connector Location: USB1
Description: USB 3.0 Type A Ports (rear I/O)

USB 3.0

PIN	ASSIGNMENT	PIN	ASSIGNMENT
A1	VCC5_USB1	B1	VCC5_USB1
A2	USB2_P1_DN	B2	USB2_P0_DN
A3	USB2_P1_DP	B3	USB2_P0_DP
A4	GND	B4	GND
A5	USB3_RXN1	B5	USB3_RXN0
A6	USB3_RXP1	B6	USB3_RXP0
A7	GND	B7	GND
A8	USB3_TXN1	B8	USB3_TXN0
A9	USB3_TXP1	B9	USB3_TXP0
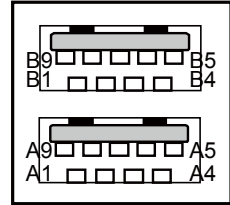
**USB1
(USB3.0)**

3.5.4 Display Port (DP) Port Connector (JDP_HDMI1)
Connector Location: JDP_HDMI1
Description: DisplayPort Connector (DP) (rear I/O)
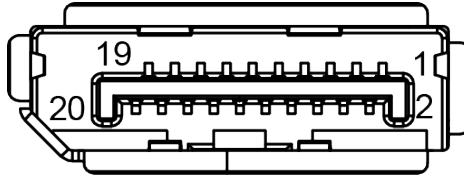
DP signals:

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	DP_TX0_DP	2	GND
3	DP_TX0_DN	4	DP_TX1_DP
5	GND	6	DP_TX1_DN
7	DP_TX2_DP	8	GND
9	DP_TX2_DN_C	10	DP_TX3_DP_C
11	GND	12	DP_TX3_DN
13	DP_AUX_ENJ	14	GND
15	DP_AUX_P	16	GND
17	DP_AUX_N	18	HPD_DP
19	GND	20	V3P3_DPPWR

3.5.5 HDMI Connector (JDP_HDMI1)
Connector Location: JDP_HDMI1
Description: HDMI Port Connector (HDMI) (rear I/O)
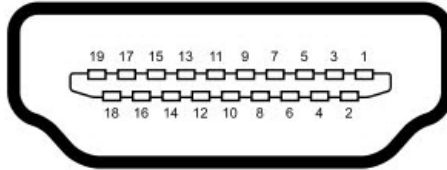
HDMI

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	HDMI_P2	2	GND
3	HDMI_N2	4	HDMI_P1
5	GND	6	HDMI_N1
7	HDMI_P0	8	GND
9	HDMI_N0	10	HDMI_CLKP
11	GND	12	HDMI_CLKN
13	NC	14	NC
15	HDMI_SCL	16	HDMI_SDA
17	GND	18	V5P0_HDMI
19	HDMI_HPD	20	-

3.5.6 COM1 and COM2 Connector (JCOM1, JCOM2)
Connector Location: JCOM1 and JCOM2
Description: COM1 and COM2 Connector

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	COM1/2_DCD	6	COM1/2_DSR
2	COM1/2_RX	7	COM1/2_RTS
3	COM1/2_TX	8	COM1/2_CTS
4	COM1/2_DTR	9	COM1/2_DCOUT
5	GND	10	NC
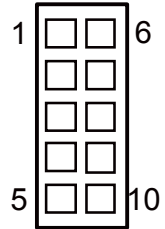
**JCOM1 /
JCOM2**

3.5.7   2 x Internal USB 2.0 Pin Headers (JUSB1)
Connector Location: JUSB1
Description: 2 x Internal USB 2.0 Pin Headers

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	VCC5_USB56	2	VCC5_USB56
3	USB2_P5_DN	4	USB2_P6_DN
5	USB2_P5_DP	6	USB2_P6_DP
7	GND	8	GND
9	GND	10	GND
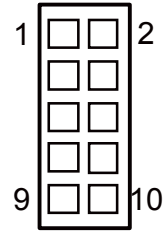
JUSB1

3.5.8   Internal USB 2.0 Wafer (JUSB2)
Connector Location: JUSB2
Description: Internal USB 2.0 Wafer

PIN	ASSIGNMENT
1	VCC5_USB7
2	USB2_P7_DN
3	USB2_P7_DP
4	GND
5	GND
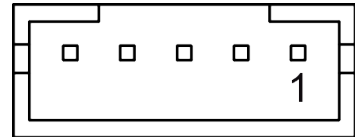
JUSB2

3.5.9 Digital Input / Output Connectors (JDIO1, JDIO2)

Connector Location: JDIO1

Description: Digital Input / Output Connector

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	V5P0_PWROUT	2	V5P0_PWROUT
3	GND	4	GND
5	DIN_0	6	DOUT_0
7	DIN_1	8	DOUT_1
9	DIN_2	10	DOUT_2
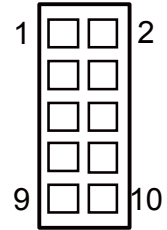
JDIO1

Connector Location: JDIO2

Description: Digital Input / Output Connector

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	DIN_3	2	DOUT_3
3	DIN_4	4	DOUT_4
5	DIN_5	6	DOUT_5
7	DIN_6	8	DOUT_6
9	DIN_7	10	DOUT_7
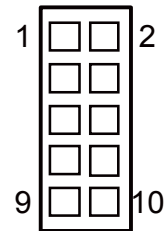
JDIO2

3.5.10 HD Audio Connector (JAUDIO1)
Connector Location: JAUDIO1
Description: HD Audio Connector

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	HD_MIC-L	2	HD_MIC1-R
3	HD_GND	4	HD_GND
5	HD_LINE-IN-L	6	HD_LINE-IN-R
7	HD_GND	8	HD_GND
9	LINE-OUT-L	10	LINE-OUT-R
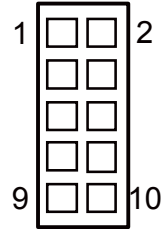
JAUDIO1

3.5.11 Mini PCI Express Slot (M_PCIE1)
Connector Location: M_PCIE1
Description: Mini PCI Express Slot

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	WAKE_N	2	V3P3A
3	NC	4	GND
5	NC	6	VCC1_5_M_PCIE
7	PCIE_CLKREQ2_N	8	NC
9	GND	10	NC
11	M_PCIE_CLKN	12	NC
13	M_PCIE_CLKP	14	NC
15	GND	16	NC
17	SIM1_C8	18	GND
19	SIM1_C4	20	NC
21	GND	22	BUF_PLT_RST_N
23	PCIE_P3_RXN	24	V3P3A
25	PCIE_P3_RXP	26	GND
27	GND	28	VCC1_5_M_PCIE
29	GND	30	SMB_CLK
31	PCIE_P3_TXN	32	SMB_DATA
33	PCIE_P3_TXP	34	GND
35	GND	36	USB2_P8_DN
37	GND	38	USB2_P8_DP
39	V3P3A	40	GND
41	V3P3A	42	NC
43	GND	44	NC
45	NC	46	NC
47	NC	48	VCC1_5_M_PCIE
49	NC	50	GND
51	NC	52	V3P3A
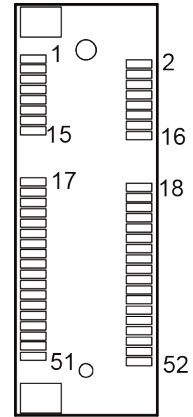
M_PCIE1

3.5.12 Micro SIM Card Socket (SIM1)

Connector Location: SIM1

Description: Micro SIM Push/Push type (located on the bottom side of the main board)

PIN	ASSIGNMENT
P1	SIM1_PWR
P5	GND
P2	SIM1_RESET
P6	SIM1_VPP
P3	SIM1_CLK
P7	SIM1_DATA
P4	SIM1_C4
P8	SIM1_C8
CD	-
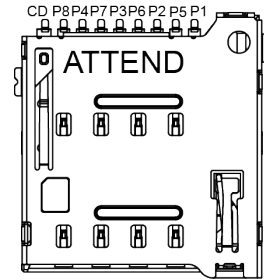
SIM1

3.5.13 LVDS Inverter Connector (JINV1)

Connector Location: JINV1
Description: LVDS Inverter Connector

PIN	ASSIGNMENT
1	VCC12
2	VCC12
3	GND
4	LVDS_BKLCTL
5	GND
6	LVDS_BKLTEN
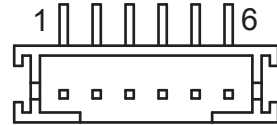
JINV1

3.5.14 LVDS Connector (LVDS1)

Connector Location: LVDS1
Description: LVDS Inverter Connector

LVDS1
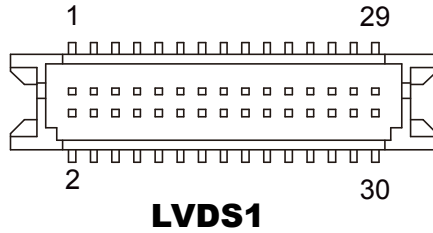
PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	LVDS_VCC	2	GND
3	LVDS_CLKB_DN	4	LVDS_CLKB_DP
5	GND	6	LVDS_B2_DN
7	LVDS_B2_DP	8	GND
9	LVDS_B1_DN	10	LVDS_B1_DP
11	LVDS_B3_DP	12	LVDS_B3_DN
13	LVDS_B0_DP	14	LVDS_B0_DN
15	GND	16	LVDS_CLKA_DP
17	LVDS_CLKA_DN	18	GND
19	LVDS_A2_DP	20	LVDS_A2_DN
21	GND	22	LVDS_A1_DP
23	LVDS_A1_DN	24	GND
25	LVDS_A0_DP	26	LVDS_A0_DN
27	LVDS_A3_DP	28	LVDS_A3_DN
29	LVDS_VCC	30	LVDS_VCC

3.5.15 M.2 Wi-Fi Express Slot (M2_E1)
Connector Location: M2_E1
Description: M.2 Wi-Fi Express Slot
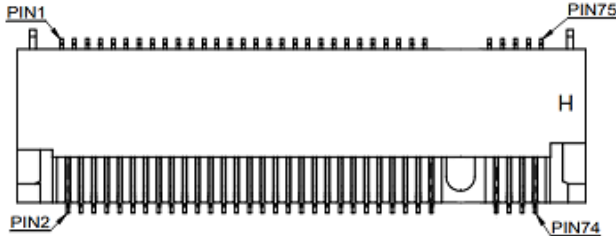
M2_E1

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	GND	2	V3P3
3	USB2_P9_DP	4	V3P3
5	USB2_P9_DN	6	NC
7	GND	8	NC
9	NC	10	NC
11	NC	12	NC
13	NC	14	NC
15	NC	16	NC
17	NC	18	GND
19	NC	20	NC
21	NC	22	NC
23	NC	24	NC
25	NC	26	NC
27	NC	28	NC
29	NC	30	NC
31	NC	32	NC
33	GND	34	NC
35	PCIE_P6_TXP	36	NC
37	PCIE_P6_TXN	38	NC
39	GND	40	NC
41	PCIE_P6_RXP	42	NC
43	PCIE_P6_RXN	44	NC
45	GND	46	NC
47	M2_E_CLKP	48	NC
49	M2_E_CLKN	50	NC
51	GND	52	BUF_PLT_RST_N
53	PCIE_CLKREQ1_N	54	M2_E_BT_WISABLE2

PIN	ASSIGNMENT	PIN	ASSIGNMENT
55	WAKE_N	56	M2_E_WLAN_WISABLE1
57	GND	58	NC
59	NC	60	NC
61	NC	62	NC
63	GND	64	NC
65	NC	66	NC
67	NC	68	NC
69	GND	70	NC
71	NC	72	V3P3
73	NC	74	V3P3
75	GND	-	-

3.5.16 M.2 SSD Express Slot (M2_M1)
Connector Location: M2_M1
Description: M.2 SSD KEY M Slot
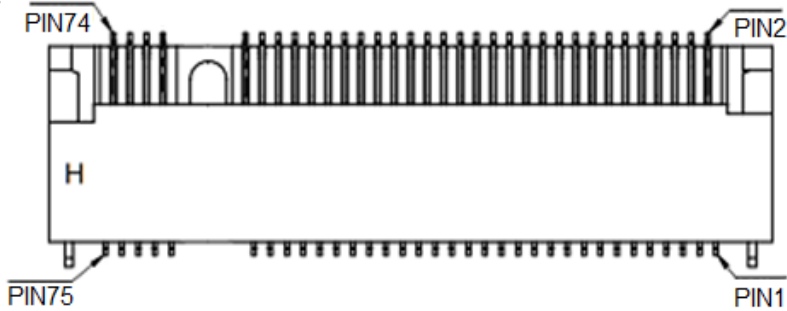
M2_M1

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	GND	2	V3P3
3	GND	4	V3P3
5	NC	6	NC
7	NC	8	NC
9	GND	10	NC
11	NC	12	V3P3
13	NC	14	V3P3
15	GND	16	V3P3
17	NC	18	V3P3
19	NC	20	NC
21	GND	22	NC
23	NC	24	NC
25	NC	26	NC
27	GND	28	NC
29	PCIE_P5_RXN	30	NC
31	PCIE_P5_RXP	32	NC
33	GND	34	NC
35	PCIE_P5_TXN	36	NC
37	PCIE_P5_TXP	38	NC
39	GND	40	NC
41	PCIE_P4_RXN	42	NC
43	PCIE_P4_RXP	44	NC
45	GND	46	NC

PIN	ASSIGNMENT	PIN	ASSIGNMENT
47	PCIE_P4_TXN	48	NC
49	PCIE_P4_TXP	50	BUF_PLT_RST_N
51	GND	52	PCIE_CLKREQ0_N
53	M2_M_CLKN	54	WAKE_N
55	M2_M_CLKP	56	NC
57	GND	58	NC
59	NC	60	NC
61	NC	62	NC
63	NC	64	NC
65	NC	66	NC
67	NC	68	NC
69	NC	70	V3P3
71	GND	72	V3P3
73	GND	74	V3P3
75	GND	-	-

3.5.17   SATA 3.0 & HDD Power Connectors (SATA1, JHD_PWR1)

Connector Location: SATA1
Description: Serial ATA 3.0 connector

PIN	ASSIGNMENT
1	GND
2	SATA_TXP0
3	SATA_TXN0
4	GND
5	SATA_RXN0
6	SATA_RXP0
7	GND
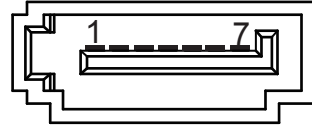
SATA1

Connector Location: JHD_PWR1
Description: HDD Power Connector

PIN	ASSIGNMENT
1	V5P0
2	GND
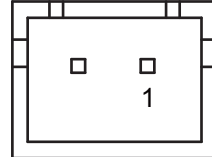
JHD_PWR1

3.5.18 RTC Connector (JBAT1)
Connector Location: JBAT1
Description: RTC Connector

PIN	ASSIGNMENT
1	BAT
2	GND
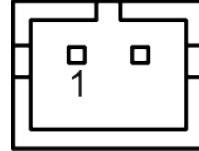
JBAT1

3.5.19 Power LED Connector (JLED1)

Connector Location: JLED1
Description: Power LED Connector

PIN	ASSIGNMENT
1	JLED_V5P0
2	GND
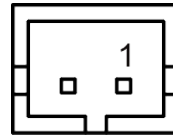
JLED1

3.5.20 Power Button Connector (JBTN1)

Connector Location: JBTN1
Description: Power Button Connector

PIN	ASSIGNMENT
1	PWRBTN_N
2	GND
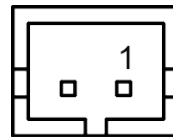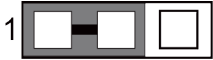
JBTN1

3.5.21   COM1 Port Voltage Selection (JP_COM1)
Jumper Location: JP_COM1
Description: COM1 Port Voltage Selection

Selection	Jumper Setting	Jumper Illustration
NC	*Open* *(Default Setting)*	1 ☐ ☐ ☐ **JP_COM1**
5V	1-2	1 ☐ ☐ ☐ **JP_COM1**
12V	2-3	1 ☐ ☐ ☐ **JP_COM1**

3.5.22　USB1 Port Power Selection (JP_USB1)
Jumper Location: JP_USB1
Description: USB1 Port Power Selection
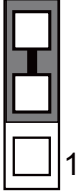
Selection	Jumper Setting	Jumper Illustration
S5 , **USB Power=0V**	**1-2** *(Default Setting)*	1 ▢▬▢ ▢ **JP_USB1**
S5, USB Power=5V	2-3	1 ▢ ▢▬▢ **JP_USB1**

3.5.23   LVDS Voltage Selection (JP_VDD1)
Jumper Location: JP_VDD1
Description: LVDS Voltage Selection
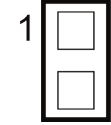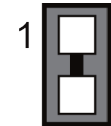
Selection	Jumper Setting	Jumper Illustration
5V	*2-3* *(Default Setting)*	JP_VDD1

3.5.24 Low Pin Count Selection (JP_LPC1)

Jumper Location: JP_LPC1
Description: Low Pin Count Selection
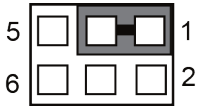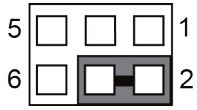
Selection	Jumper Setting	Jumper Illustration
80 Port	**Open** *(Default Setting)*	1 JP_LPC1
LPC Device	1-2	1 JP_LPC1

3.5.25 LVDS Sequence Control Selection (JP1)
Connector Location: JP1
Description: LVDS Sequence Control Selection
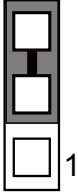
Selection	Jumper Setting	Jumper Illustration
BKLTCTL from CPU	*1-3* *(Default Setting)*	5 ☐ ▣—▣ 1 6 ☐ ☐ ☐ 2 **JP1**
BKLTEN from CPU	*2-4* *(Default Setting)*	5 ☐ ☐ ☐ 1 6 ☐ ▣—▣ 2 **JP1**

3.5.26 LVDS Backlight Control Selection (JP7)
Jumper Location: JP7
Description: LVDS Backlight Control Selection

Selection	Jumper Setting	Jumper Illustration
5V	*2-3* *(Default Setting)*	**JP7**

3.5.27   Clear CMOS Data Selection (JCOMS1)

Jumper Location: JCOMS1
Description: Clear CMOS Data Selection
Step 1. Remove the main power of the PC.
Step 2. Close JCOMS1 (pins 1-2) for 6 seconds by a cap.
Step 3. Remove the cap which is just used on JCOMS1 (1-2), so that JCOMS1 returns to "OPEN".
Step 4. Power on the PC and the PC will then auto-reboot for once in order to set SoC's register.
Step 5. Done!

Selection	Jumper Setting	Jumper Illustration
Normal	**Open** *(Default Setting)*	1 ☐ ☐ **JCOMS1**
Clear CMOS*	1-2	1 ☐ ☐ **JCOMS1**

Note: Please make sure the main power is off before you clear CMOS data.

3.6   External M12 Waterproof Connectors
3.6.1   USB 2.0 Connectors
Connector Location: USB 2.0
Description: External USB 2.0 connectors

Pin Assignment:

PIN	ASSIGNMENT
1	USB0_VCC5
2	USB0_P1_DN
3	USB0_P2_DP
4	USB0_GND
5	USB1_VCC5
6	USB1_P1_DN
7	USB1_P2_DP
8	USB1_GND
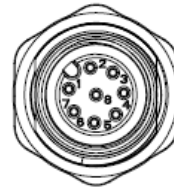
USB 2.0

3.6.2   Power Switch
Location: Power Switch
Description: Power Switch

PIN	ASSIGNMENT
1	Power BTN
2	Power LED +
3	GND
4	GND
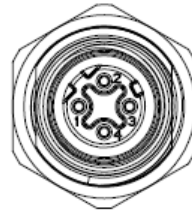
Power Switch

3.6.3   LAN1, LAN2 Ports
Port Location: LAN1, LAN2
Description: LAN1, LAN2 Port

LAN1 Pin Assignment:

PIN	ASSIGNMENT
1	LAN1_MDIP0
2	LAN1_MDIN0
3	LAN1_MDIP1
4	LAN1_MDIP2
5	LAN1_MDIN2
6	LAN1_MDIN1
7	LAN1_MDIP3
8	LAN1_MDIN3
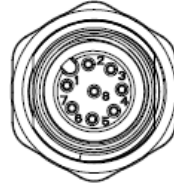
LAN1 / LAN2

LAN2 Pin Assignment:

PIN	ASSIGNMENT
1	LAN2_MDIP0
2	LAN2_MDIN0
3	LAN2_MDIP1
4	LAN2_MDIP2
5	LAN2_MDIN2
6	LAN2_MDIN1
7	LAN2_MDIP3
8	LAN2_MDIN3

3.6.4 COM Connector
Connector Location: COM1, COM2
Description: COM1, COM2 Connector

Pin Assignment:

PIN	ASSIGNMENT		
	RS-232 *(Default Setting)*	**RS-422**	**RS-485**
1	COM1/2_DCD#	TX-	D-
2	COM1/2_RX	TX+	D+
3	COM1/2_TX	RX-	NC
4	COM1/2_DTR	RX+	NC
5	COM1/2_DSR	NC	NC
6	COM1/2_RTS	NC	NC
7	COM1/2_CTS	NC	NC
8	COM1/2_RI	NC	NC
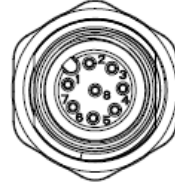
COM1 / COM2
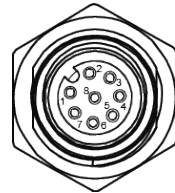
DC IN

3.6.5   DC Power Input Connector
Connector Location: DC IN
Description: DC Power Input Connector

PIN	ASSIGNMENT
1	PWR_VCC12
2	PWR_GND
3	GND
4	Power BTN
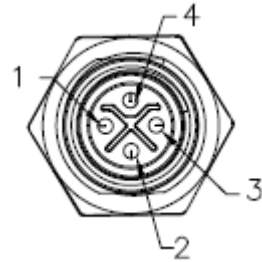
DC IN

4 Software Utilities

This chapter provides the detailed information that guides users to install driver utilities for the system. The following topics are included:

- Installing Intel$^®$ Chipset Software Installation Utility
- Installing Graphics Driver Utility
- Installing LAN Driver Utility
- Installing Sound Driver Utility
- Installing Intel$^®$ Management Engine Components Driver Installer

4.1   Introduction

Enclosed with the SG-S172 Series package is our driver utilities contained in a DVD-ROM disk. Refer to the following table for driver locations:

Filename (Assume that DVD- ROM drive is D :)	Purpose
D: \Driver\Platform\1_Main Chip\Win10(64Bit)	Intel® Chipset Device Software installer
D: \Driver\Platform\2_Graphics\ Win10(64Bit)	Intel® HD Graphics installer
D:\ Driver\Platform\ 3_Sound\ Win10(64Bit)	Realtek® ALC888S HD Audio Driver installer
D:\ Driver\Platform\4_ME\ Win10(64Bit)	Intel® Management Engine Components installer
D: \Driver\Platform\5_LAN Chip\ Win10(64Bit)	Intel® Network Connections Software

Note: Install the driver utilities immediately after the OS installation is completed.

For more details on the installation sequence, refer to the Readme.txt file.

4.2 Installing Intel® Chipset Software Installation Utility

Introduction

The Intel® Chipset Software Installation Utility installs the Windows *.INF files to the target system. These files outline to the operating system how to configure the Intel chipset components in order to ensure that the following functions work properly:

- Core PCI and ISAPNP Services
- PCI-e Support
- SATA Storage Support
- USB Support
- Identification of Intel® Chipset Components in the Device Manager

Intel® Chipset Software Installation Utility

The utility pack is to be installed only for Windows 10 (64-bit), and it should be installed immediately after the OS installation is finished. Please follow the steps below:

1 Connect the USB DVD-ROM device to SG-S172 and insert the driver disk.

2 Enter the **Main Chip** folder where the Chipset driver is located.

3 Click **SetupChipset.exe** file for driver installation.

4 Follow the on-screen instructions to install the driver.

5 Once the installation is completed, shut down the system and restart SG-S172 for the changes to take effect.

4.3 Installing Graphics Driver Utility

To install the Graphics driver utility, follow the steps below:

1 Connect the USB DVD-ROM device to SG-S172 and insert the driver disk.

2 Enter the **Graphics** folder where the driver is located.

3 Click the **Installer.exe** file for driver installation.

4 Follow the on-screen instructions to complete the installation.

5 Once the installation is completed, shut down the system and restart SG-S172 for the changes to take effect.

4.4 Installing LAN Driver Utility

Enhanced with LAN function, SG-S172 supports various network adapters. To install the LAN Driver, follow the steps below:

1 Connect the USB DVD-ROM device to SG-S172 and insert the driver disk.

2 Enter the **LAN Chip** folder where the driver is located.

3 Click **Wired_driver_27.0_x64.exe** file for driver installation.

4 Follow the on-screen instructions to complete the installation.

5 Once the installation is completed, shut down the system and restart SG-S172 for the changes to take effect.

4.5 Installing Sound Driver Utility

To install the Sound Driver, follow the steps below:

1 Connect the USB DVD-ROM device to SG-S172 and insert the driver disk.

2 Open the **Sound** folder where the driver is located.

3 Click the **Setup.exe** file for driver installation.

4 Follow the on-screen instructions to complete the installation.

5 Once the installation is completed, shut down the system and restart SG-S172 for the changes to take effect.

4.6 Installing Intel® Management Engine Components Driver Installer

Installation Instructions for Intel® Management Engine Components Driver Installer

1 Connect the USB DVD-ROM device to SG-S172 and insert the driver disk.

2 Enter the **ME** folder where the driver is located.

3 Click **SetupME.exe** file for ME driver installation.

4 Follow the on-screen instructions to complete the installation.

5 Once the installation is completed, shut down the system and restart SG-S172 for the changes to take effect.

5 BIOS SETUP

This chapter guides users how to configure the basic system configurations via the BIOS Setup Utilities. The information of the system configuration is saved in BIOS NVRAM so that the Setup information is retained when the system is powered off. The BIOS Setup Utilities consist of the following menu items:

- Main Menu
- Advanced Menu
- Chipset Menu
- Security Menu
- Boot Menu
- Save & Exit Menu

5.1   Introduction

The system board uses an AMI (American Megatrends Incorporated) Aptio BIOS that is stored in the Serial Peripheral Interface Flash Memory (SPI Flash) and can be updated. The SPI Flash contains the built-in BIOS setup program, Power-On Self-Test (POST), PCI auto-configuration utility, LAN EEPROM information, and Plug and Play support.

Aptio is AMI's BIOS firmware based on the UEFI (Unified Extensible Firmware Interface) specifications and the Intel Platform Innovation Framework for EFI. The UEFI specification defines an interface between the operating system and platform firmware. The interface consists of data tables that contain platform-related information, boot service calls, and runtime service calls that are available to the operating system and its loader. These elements have combined to provide a standard environment for booting the operating system and running pre-boot applications.

The diagram below shows the Extensible Firmware Interface's location in the software stack.
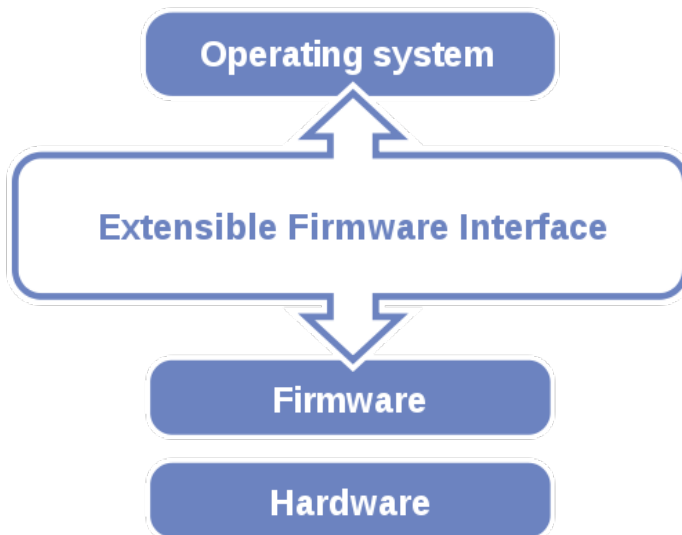
Figure 5-1. Extensible Firmware Interface Diagram

EFI BIOS provides an user interface that allows you to modify hardware configuration, e.g. change the system date and time, enable/disable a system component, determine bootable device priority, set up personal password, etc., which is convenient for engineers to perform modifications and customize the computer system and allows technicians to troubleshoot the occurred errors when the hardware is faulty.

The BIOS setup menu allows users to view and modify the BIOS settings for the computer. After the system is powered on, users can access the BIOS setup menu by pressing <Del> or <Esc> immediately while the POST message is running before the operating system is loading.

All the menu settings are described in details in this chapter.

5.2   Accessing Setup Utility

After the system is powered on, BIOS will enter the Power-On Self-Test (POST) routines and the POST message will be displayed:


```
Version 2.22.1282. Copyright (C) 2023 AMI.
BIOS Date: 03/16/2023 15:34:18 Ver: S1720PX1
Press <DEL> or <ESC> to enter setup.
```
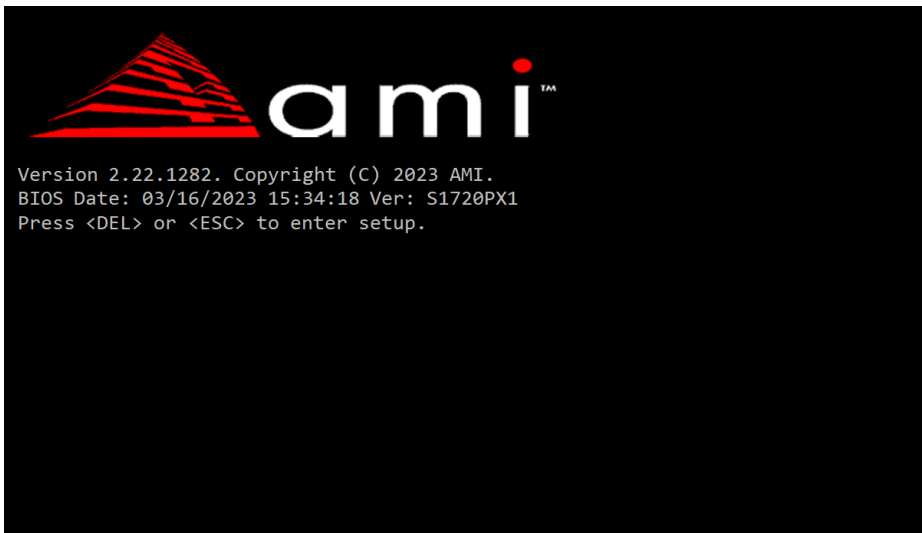
Figure 5-2. POST Screen with AMI Logo

Press **<Del>** or **<Esc>** to access the Setup Utility program and the **Main** menu of the Aptio Setup Utility will appear on the screen as below:

```
                              Aptio Setup – AMI
   Main  Advanced  Chipset  Security  Boot  Save & Exit

 BIOS Information                                         Set the Date. Use Tab to
 BIOS Vendor                   American Megatrends        switch between Date elements.
 Core Version                  5.19                       Default Ranges:
 Compliancy                    UEFI 2.7; PI 1.6           Year: 1998-9999
 Project Version               S1720PX1 x64               Months: 1-12
 Build Date and Time           03/16/2023 15:34:18        Days: Dependent on month
                                                          Range of Years may vary.
 PCH Information
 Name                          EHL PCH
 PCH SKU                       MCC SKU 0
 Stepping                      B1

 System Date                   [Mon 04/24/2023]
 System Time                   [19:54:07]                 ↔: Select Screen
                                                          ↑↓: Select Item
                                                          Enter: Select
                                                          +/-: Change Opt.
                                                          F1: General Help
                                                          F2: Previous Values
                                                          F3: Optimized Defaults
                                                          F4: Save & Exit
                                                          ESC: Exit



                        Version 2.22.1282 Copyright (C) 2023 AMI
```

BIOS Setup Menu Initialization Screen

You may move the cursor by <↑> and <↓> keys to highlight the individual menu items. As you highlight each item, a brief description of the highlighted selection will appear on the right side of the screen.

The language of the BIOS setup menu interface and help messages are shown in US English. You may use <↑> or <↓> key to select among the items and press <Enter> to confirm and enter the sub-menu. The following table provides the list of the navigation keys that you can use while operating the BIOS setup menu.

BIOS Setup Navigation Key	Description
<←> and <→>	Select a different menu screen (move the cursor from the selected menu to the left or right).
<↑> and <↓>	Select a different item (move the cursor from the selected item upwards or downwards)
<Enter>	Execute the command or select the sub-menu.
<F2>	Load the previous configuration values.
<F3>	Load the default configuration values.
<F4>	Save the current values and exit the BIOS setup menu.
<Esc>	Close the sub-menu. Trigger the confirmation to exit BIOS setup menu.

5.3 Main

Menu Path	*Main*

The **Main** menu allows you to view the BIOS Information and change the system date and time. Use tab to switch between date elements. Use <↑> or <↓> arrow keys to highlight the item and enter the value you want in each item. This screen also displays the BIOS version (project) and BIOS Build Date and Time.

```
                              Aptio Setup – AMI
   Main  Advanced  Chipset  Security  Boot  Save & Exit

   BIOS Information                                       Set the Date. Use Tab to
   BIOS Vendor                 American Megatrends        switch between Date elements.
   Core Version                5.19                       Default Ranges:
   Compliancy                  UEFI 2.7; PI 1.6           Year: 1998-9999
   Project Version             S1720PX1 x64               Months: 1-12
   Build Date and Time         03/16/2023 15:34:18        Days: Dependent on month
                                                          Range of Years may vary.
   PCH Information
   Name                        EHL PCH
   PCH SKU                     MCC SKU 0
   Stepping                    B1

   System Date                 [Mon 04/24/2023]
   System Time                 [19:54:07]                 ++: Select Screen
                                                          ↑↓: Select Item
                                                          Enter: Select
                                                          +/-: Change Opt.
                                                          F1: General Help
                                                          F2: Previous Values
                                                          F3: Optimized Defaults
                                                          F4: Save & Exit
                                                          ESC: Exit




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```

Main Screen

BIOS Setting	Options	Description/Purpose
BIOS Vendor	No changeable options	Displays the BIOS vendor.
Core Version	No changeable options	Displays the current BIOS core version.
Compliancy	No changeable options	Displays the current UEFI version.
Project Version	No changeable options	Displays the version of the BIOS currently installed on the platform.
Build Date and Time	No changeable options	Displays the date of current BIOS version is built.
Name	No changeable options	Displays the name of the PCH.
PCH SKU	No changeable options	Displays the SKU for the PCH.
Stepping	No changeable options	Displays the stepping of the PCH

BIOS Setting	Options	Description/Purpose
System Date	Month, day, year	Sets the system date. The format is [Day Month/ Date/ Year]. Users can directly enter values or use <+> or <-> arrow keys to increase/decrease it. The "Day" is automatically changed.
System Time	Hour, minute, second	Sets the system time. The format is [Hour: Minute: Second]. Users can directly enter values or use <+> or <-> arrow keys to increase/decrease it.

5.4 Advanced

Menu Path   *Advanced*

This menu provides advanced the sub-menu items such as CPU Configuration, PCH-FW Configuration, ACPI Settings, F81967 Super IO Configuration, Hardware Monitor, F81967 Watchdog, S5 RTC Wake Settings, PTN3460 EDID Configuration, USB Configuration, Network Stack Configuration and NVMe Configuration.

```
                          Aptio Setup – AMI
        Main    Advanced   Chipset   Security   Boot   Save & Exit

    ▶ CPU Configuration                              CPU Configuration Parameters
    ▶ PCH-FW Configuration
    ▶ ACPI Settings
    ▶ F81967 Super IO Configuration
    ▶ Hardware Monitor
    ▶ F81967 Watchdog
    ▶ S5 RTC Wake Settings
    ▶ PTN3460 EDID Configuration
    ▶ USB Configuration
    ▶ Network Stack Configuration
    ▶ NVMe Configuration

                                                     ➜←: Select Screen
                                                     ↑↓: Select Item
                                                     Enter: Select
                                                     +/−: Change Opt.
                                                     F1: General Help
                                                     F2: Previous Values
                                                     F3: Optimized Defaults
                                                     F4: Save & Exit
                                                     ESC: Exit



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```

Advanced Menu Screen

BIOS Setting	Options	Description/Purpose
CPU Configuration	Sub-Menu	CPU Configuration Parameters.
PCH-FW Configuration	Sub-Menu	Management Engine Technology Parameters.
ACPI Settings	Sub-Menu	System ACPI Parameters.
F81967 Super IO Configuration	Sub-Menu	System Super I/O Chip Parameters.
Hardware Monitor	Sub-Menu	Monitors hardware status.
F81967 Watchdog	Sub-Menu	Super I/O Watchdog Parameters.
S5 RTC Wake Settings	Sub-Menu	S5 RTC Wake Parameters.
PTN3460 EDID Configuration	Sub-Menu	PTN3460 EDID Settings.
USB Configuration	Sub-Menu	USB Configuration Parameters.
Network Stack Configuration	Sub-Menu	Network Stack Settings.
NVMe Configuration	Sub-Menu	NVMe Device Options Settings.

5.4.1 Advanced – CPU Configuration

Menu Path   *Advanced > CPU Configuration*

```
                              Aptio Setup – AMI
      Advanced

   CPU Configuration                                      When enabled, a VMM can
                                                          utilize the additional
   Type                         Intel Atom(R) x6212RE     hardware capabilities provided
                                Processor @ 1.20GHz       by Vanderpool Technology.
   ID                           0x90661
   Speed                        1200 MHz
   L1 Data Cache                32 KB x 2
   L1 Instruction Cache         32 KB x 2
   L2 Cache                     1536 KB x 2
   L3 Cache                     4 MB
   L4 Cache                     N/A
   VMX                          Supported
   SMX/TXT                      Not Supported
                                                          →←: Select Screen
   Intel (VMX) Virtualization   [Enabled]                 ↑↓: Select Item
   Technology                                             Enter: Select
                                                          +/-: Change Opt.
                                                          F1: General Help
                                                          F2: Previous Values
                                                          F3: Optimized Defaults
                                                          F4: Save & Exit
                                                          ESC: Exit



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```

CPU Configuration Screen

BIOS Setting	Options	Description/Purpose
Type	No changeable options	Displays the CPU Type.
ID	No changeable options	Displays the CPU ID.
Speed	No changeable options	Displays the CPU Speed.
L1 Data Cache	No changeable options	L1 Data Cache Size.
L1 Instruction Cache	No changeable options	L1 Instruction Cache Size.
L2 Cache	No changeable options	L2 Cache Size.
L3 Cache	No changeable options	L3 Cache Size.
L4 Cache	No changeable options	L4 Cache Size.
VMX	No changeable options	CPU VMX hardware support for virtual machines.
SMX (Secure Mode Extensions) / TXT	No changeable options	Secure Mode extensions support.
Intel (VMX) Virtualization Technology	- Disabled - Enabled (Default)	When enabled, VMM can utilize the additional hardware capabilities provided by Vanderpool Technology.

5.4.2 Advanced – PCH-FW Configuration

Menu Path	*Advanced > PCH-FW Configuration*

The **PCH-FW** allows users to view the information about ME (Management Engine) firmware information, such as ME firmware version, firmware mode and firmware SKU.

```
                              Aptio Setup - AMI
        Advanced

    ME Firmware Version              15.40.26.2619
    ME Firmware Mode                 Normal Mode
    ME Firmware SKU                  Consumer SKU




                                                     →←: Select Screen
                                                     ↑↓: Select Item
                                                     Enter: Select
                                                     +/-: Change Opt.
                                                     F1: General Help
                                                     F2: Previous Values
                                                     F3: Optimized Defaults
                                                     F4: Save & Exit
                                                     ESC: Exit




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```
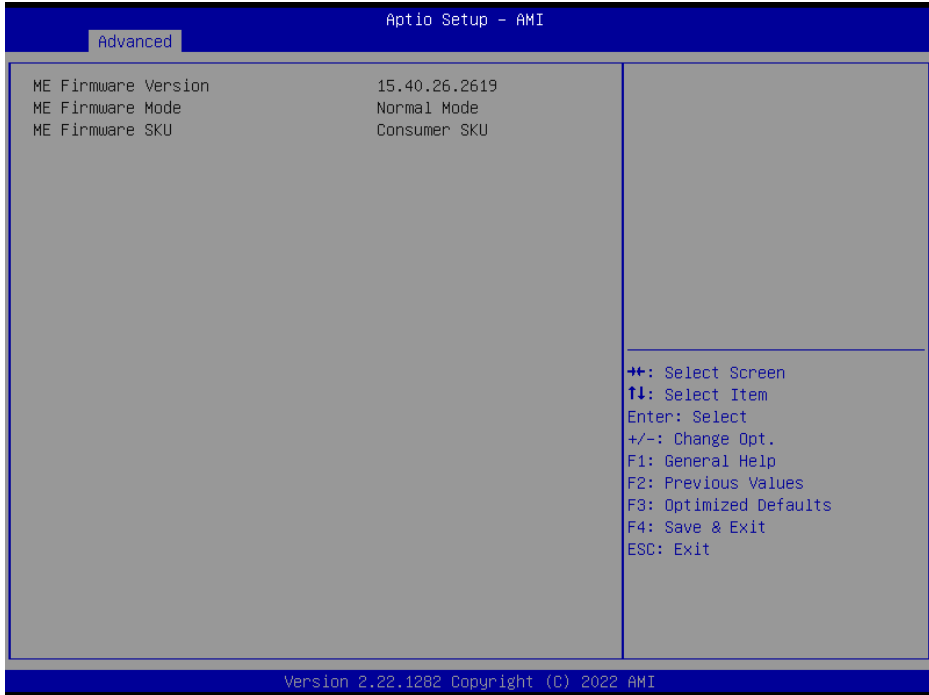
PCH-FW Configuration Screen

BIOS Setting	Options	Description/Purpose
ME Firmware Version	No changeable options	Displays the ME Firmware Version.
ME Firmware Mode	No changeable options	Displays the ME Firmware Mode.
ME Firmware SKU	No changeable options	Displays the ME Firmware SKU.

5.4.3   Advanced – ACPI Settings

Menu Path   *Advanced > ACPI Settings*

The **ACPI Settings** allows users to configure relevant ACPI (Advanced Configuration and Power Management Interface) settings, such as enable/disable Hibernation and configure ACPI Sleep State.

```
                            Aptio Setup – AMI
     Advanced

   ACPI Settings                                      Enables or Disables System
                                                      ability to Hibernate (OS/S4
   Enable Hibernation          [Enabled]              Sleep State). This option may
   ACPI Sleep State            [S3 (Suspend to RAM)]  not be effective with some
                                                      operating systems.




                                                      →←: Select Screen
                                                      ↑↓: Select Item
                                                      Enter: Select
                                                      +/-: Change Opt.
                                                      F1: General Help
                                                      F2: Previous Values
                                                      F3: Optimized Defaults
                                                      F4: Save & Exit
                                                      ESC: Exit



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```

ACPI Settings Screen

BIOS Setting	Options	Description/Purpose
Enable Hibernation	- Disabled - Enabled (Default)	Enables or Disables System ability to Hibernate (OS/S4 Sleep State). This option may be not effective with some OS.
ACPI Sleep State	- Suspend Disabled - S3 (Suspend to RAM) (Default)	Selects the highest ACPI sleep state the system will enter when the SUSPEND button is pressed.

5.4.4   Advanced – F81967 Super IO Configuration

Menu Path   *Advanced > F81967 Super IO Configuration*

```
                          Aptio Setup – AMI
      Advanced

   F81967 Super IO Configuration                    Set Parameters of Serial Port
                                                     1 (COMA)
   Super IO Chip                    F81967
 ▶ Serial Port 1 Configuration
 ▶ Serial Port 2 Configuration




                                                    ──────────────────────────────
                                                    ↔: Select Screen
                                                    ↑↓: Select Item
                                                    Enter: Select
                                                    +/-: Change Opt.
                                                    F1: General Help
                                                    F2: Previous Values
                                                    F3: Optimized Defaults
                                                    F4: Save & Exit
                                                    ESC: Exit



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```

F81967 Super IO Configuration Screen

BIOS Setting	Options	Description/Purpose
Serial Port 1 Configuration	Sub-Menu	Sets Parameters of Serial Port 1 (COM1).
Serial Port 2 Configuration	Sub-Menu	Sets Parameters of Serial Port 2 (COM2).

F81967 Super IO Configuration – Serial Port 1 Configuration

Menu Path   *Advanced > F81967 Super IO Configuration >*
                   Serial Port 1 Configuration

```
                              Aptio Setup — AMI
     Advanced

    Serial Port 1 Configuration                          Enable or Disable Serial Port
                                                         (COM)
    Serial Port                       [Enabled]
    Device Settings                   IO=3F8h; IRQ=4;

    Change Settings                   [Auto]
    Mode                              [RS-232]




                                                         ++: Select Screen
                                                         ↑↓: Select Item
                                                         Enter: Select
                                                         +/-: Change Opt.
                                                         F1: General Help
                                                         F2: Previous Values
                                                         F3: Optimized Defaults
                                                         F4: Save & Exit
                                                         ESC: Exit




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```

Serial Port 1 Configuration Screen

BIOS Setting	Options	Description/Purpose
Serial Port	- Disabled - Enabled (Default)	Enables or Disables Serial Port 1.
Device Settings	No changeable options	Displays current settings of Serial Port 1.
Change Settings	- Auto (Default) - IO=3F8h; IRQ=4; - IO=3F8h; IRQ=3,4,5,6,7,9,10,11.12; - IO=2F8h; IRQ=3,4,5,6,7,9,10,11,12; - IO=3E8h; IRQ=3,4,5,6,7,9,10,11,12; - IO=2E8h; IRQ=3,4,5,6,7,9,10,11,12;	Selects IRQ and I/O resource for Serial Port 1.
Mode	- RS-232 (Default) - RS-422 - RS-485	Selects COM mode.

F81967 Super IO Configuration – Serial Port 2 Configuration

Menu Path   *Advanced > F81967 Super IO Configuration >*
                   Serial Port 2 Configuration

```
                              Aptio Setup – AMI
        Advanced

    Serial Port 2 Configuration                      Enable or Disable Serial Port
                                                     (COM)
    Serial Port                    [Enabled]
    Device Settings                IO=2F8h; IRQ=3;

    Change Settings                [Auto]
    Mode                           [RS-232]




                                                     ↔: Select Screen
                                                     ↑↓: Select Item
                                                     Enter: Select
                                                     +/-: Change Opt.
                                                     F1: General Help
                                                     F2: Previous Values
                                                     F3: Optimized Defaults
                                                     F4: Save & Exit
                                                     ESC: Exit




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```

Serial Port 2 Configuration Screen

BIOS Setting	Options	Description/Purpose
Serial Port	- Disabled - Enabled (Default)	Enables or Disables Serial Port 2.
Device Settings	No changeable options	Displays current settings of Serial Port 2.
Change Settings	- Auto (default) - IO=2F8h; IRQ=3; - IO=3F8h; IRQ=3,4,5,6,7,9,10,11.12; - IO=2F8h; IRQ=3,4,5,6,7,9,10,11,12; - IO=3E8h; IRQ=3,4,5,6,7,9,10,11,12; - IO=2E8h; IRQ=3,4,5,6,7,9,10,11,12;	Selects IRQ and I/O resource for Serial Port 2.
Mode	- RS-232 (Default) - RS-422 - RS-485	Selects COM mode.

5.4.5 Advanced – Hardware Monitor

Menu Path   *Advanced > Hardware Monitor*

The **Hardware Monitor** allows users to monitor the health and status of the system such as CPU temperature, system temperature, system and voltage levels in supply.

```
                              Aptio Setup - AMI
        Advanced

    Pc Health Status

    CPU    Temperature          : +37 ℃
    System Temperature          : +30 ℃
    VCORE                       : +1.608 V
    VDDQ                        : +1.208 V
    VCC3V                       : +3.312 V
    VSB3V                       : +3.312 V
    VCC5V                       : +5.003 V
    VSB5V                       : +4.920 V
    VCC12V                      : +12.408 V
    VBAT                        : +3.152 V

                                                    ↔: Select Screen
                                                    ↑↓: Select Item
                                                    Enter: Select
                                                    +/-: Change Opt.
                                                    F1: General Help
                                                    F2: Previous Values
                                                    F3: Optimized Defaults
                                                    F4: Save & Exit
                                                    ESC: Exit



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```
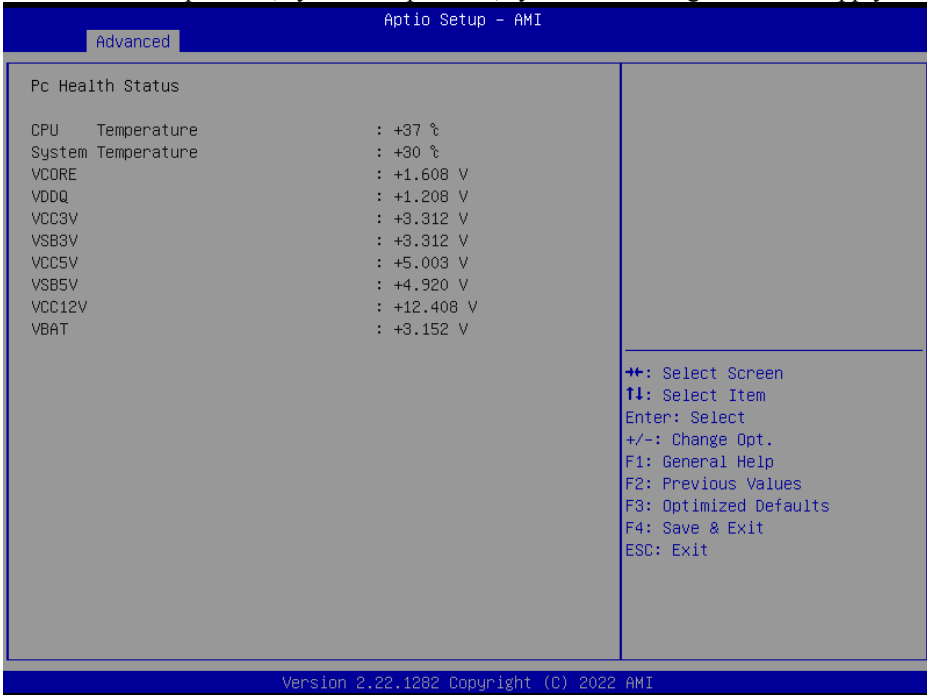
Hardware Monitor Screen

BIOS Setting	Options	Description/Purpose
CPU Temperature	No changeable options	Displays processor's temperature.
System Temperature	No changeable options	Displays system's temperature.
VCORE	No changeable options	Displays the voltage level of VCORE in supply.
VDDQ	No changeable options	Displays the voltage level of VDDQ in supply.
VCC3V	No changeable options	Displays the voltage level of VCC3V in supply.
VSB3V	No changeable options	Displays the voltage level of VSB3V in supply.
VCC5V	No changeable options	Displays the voltage level of VCC5V in supply.

BIOS Setting	Options	Description/Purpose
VSB5V	No changeable options	Displays the voltage level of VSB5V in supply.
VCC12V	No changeable options	Displays the voltage level of VCC12V in supply.
VBAT	No changeable options	Displays the voltage level of VBAT in supply.

5.4.6 Advanced – F81967 Watchdog

Menu Path   *Advanced > F81967 Watchdog*
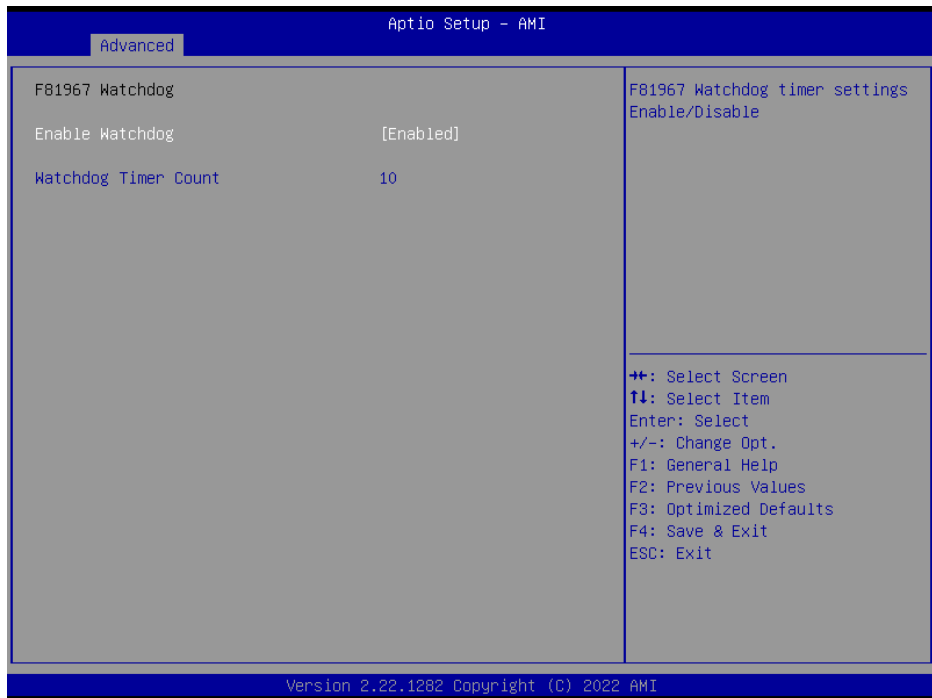
F81967 Watchdog Screen

BIOS Setting	Options	Description/Purpose
Enable Watchdog	- Enabled - Disabled (Default)	Super I/O Watchdog timer settings enabled/disabled.
Watchdog Timer Count	Numeric (from 10 to 255)	The number of count for Timer.

5.4.7 Advanced – S5 RTC Wake Settings

Menu Path   *Advanced > S5 RTC Wake Settings*

The **S5 RTC Wake Settings** enables/disables the system to wake up at a preset time of a day from S5 State using RTC alarm.
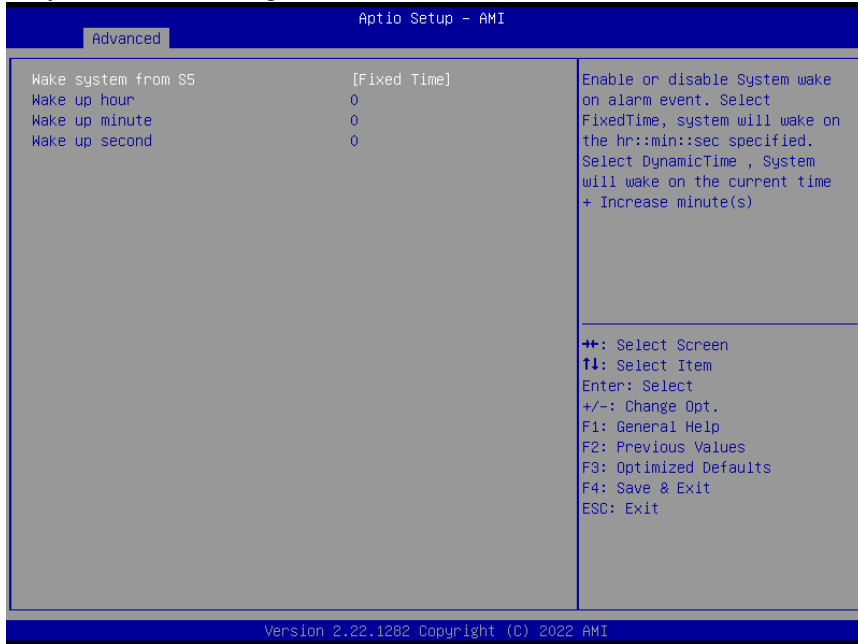
S5 RTC Wake Settings Screen

BIOS Setting	Options	Description/Purpose
Wake system from S5	- Disabled (Default) - Fixed Time - Dynamic Time	Enables or disables System to wake on alarm events. • **Fixed Time:** The system will wake on the time (hr::min::sec) specified. • **Dynamic Time:** The system will wake on the current time + Increase minute(s).
Wake up hour	Numeric (from 0 to 23)	Enters **0-23** to set the wake-up hour, e.g.: enters 3 for 3 a.m. and 15 for 3 pm
Wake up minute	Numeric (from 0 to 59)	Enters **0-59** to set the wake-up minute.
Wake up second	Numeric (from 0 to 59)	Enters **0-59** to set the wake-up second.
Wake up minute increase	Numeric (from 1 to 5)	Enters **1-5** to set the increased minute(s) for dynamic wake-up time.

5.4.8 Advanced – PTN3460 EDID Configuration

Menu Path   *Advanced > PTN3460 EDID Configuration*

```
                              Aptio Setup - AMI
        Advanced

    PTN3460 EDID Configuration                          PTN3460 stores 7 EDID in
                                                        configuration table in SRAM,
    EDID Selection                 [4-G170EG01 V1 (17"  select the EDID for attached
                                    1280x1024 Dual)]    LVDS panel.




                                                        →←: Select Screen
                                                        ↑↓: Select Item
                                                        Enter: Select
                                                        +/-: Change Opt.
                                                        F1: General Help
                                                        F2: Previous Values
                                                        F3: Optimized Defaults
                                                        F4: Save & Exit
                                                        ESC: Exit




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```

PTN3460 EDID Configuration Screen

BIOS Setting	Options	Description/Purpose
EDID Selection	- 0-G156XW01V3 (15.6" 1366x768) - 1-G190ETN01.2 (19" 1280x1024 Dual) - 2-G238HAN01.1 (23.8" 1920x71080 Dual) - 3-G150XTN06.8 (15" 1024x768 Dual) (Default) - 4-G170EG01 V1 (17" 1280x1024) - 5- GG215HAN01.2 (21.5" 1920x1080 Dual)	PTN3460 stores 6 EDID in configuration table in SRAM, select the EDID for attached LVDS panel.

5.4.9 Advanced – USB Configuration

Menu Path   *Advanced > USB Configuration*

The **USB Configuration** allows users to configure advanced USB settings such as USB mass storage driver support.

```
                              Aptio Setup — AMI
    Advanced

    USB Configuration                            Enable/Disable USB Mass
                                                 Storage Driver Support.
    USB Module Version            25

    USB Controllers:
        1 XHCI
    USB Devices:
        1 Drive, 1 Keyboard

    USB Mass Storage Driver Support     [Enabled]

    Mass Storage Devices:
    SanDisk                       [Auto]
                                                 ↔: Select Screen
                                                 ↑↓: Select Item
                                                 Enter: Select
                                                 +/-: Change Opt.
                                                 F1: General Help
                                                 F2: Previous Values
                                                 F3: Optimized Defaults
                                                 F4: Save & Exit
                                                 ESC: Exit



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```

USB Configuration Screen

BIOS Setting	Options	Description/Purpose
USB Module Version	No changeable options	Displays USB module version.
USB Controllers	No changeable options	Displays number and type of USB controllers (if any).
USB Devices	No changeable options	Displays number and type of connected USB devices (if any).
USB Mass Storage Driver Support	- Disabled - Enabled (Default)	Enables/Disables USB Mass Storage Driver Support.
Mass Storage Devices: [drive(s)]	- Auto (Default) - Floppy - Forced FDD - Hard Disk - CD-ROM	**Auto** enumerates devices according to their media format. Optical drives are emulated as 'CD-ROM'. Drives with no media will be emulated according to a drive type.

5.4.10 Advanced – Network Stack Configuration

Menu Path   *Advanced > Network Stack Configuration*

The **Network Stack Configuration** allows users to enable/disable UEFI Network Stack, IPv4/IPv6 PXE (Pre-Boot Execution) support and configure PXE boot wait time and detects the media presence.

PXE allows a workstation to boot from a server on a network prior to booting the operating system on the local hard drive. A PXE-enabled workstation connects its NIC to the LAN via a jumper, which keeps the workstation connected to the network even when the power is turned off.

Network Stack Configuration Screen

BIOS Setting	Options	Description/Purpose
Network Stack	- Disabled (Default) - Enabled	Enables / Disables UEFI Network Stack.
Ipv4 PXE Support	- Disabled (Default) - Enabled	Enables / Disables Ipv4 PXE boot support. If disabled, Ipv4 PXE boot support will not be available.
Ipv6 PXE Support	- Disabled (Default) - Enabled	Enable s/ Disables Ipv6 PXE boot support. If disabled, Ipv6 PXE boot support will not be available.

BIOS Setting	Options	Description/Purpose
PXE boot wait time	Numeric (from 0 to 5)	Wait time to press ESC key to abort the PXE boot.
Media detect count	Numeric (from 1 to 50)	Numbers of times presence of media will be checked.

5.4.11 Advanced – NVMe Configuration

Menu Path   *Advanced > NVMe Configuration*
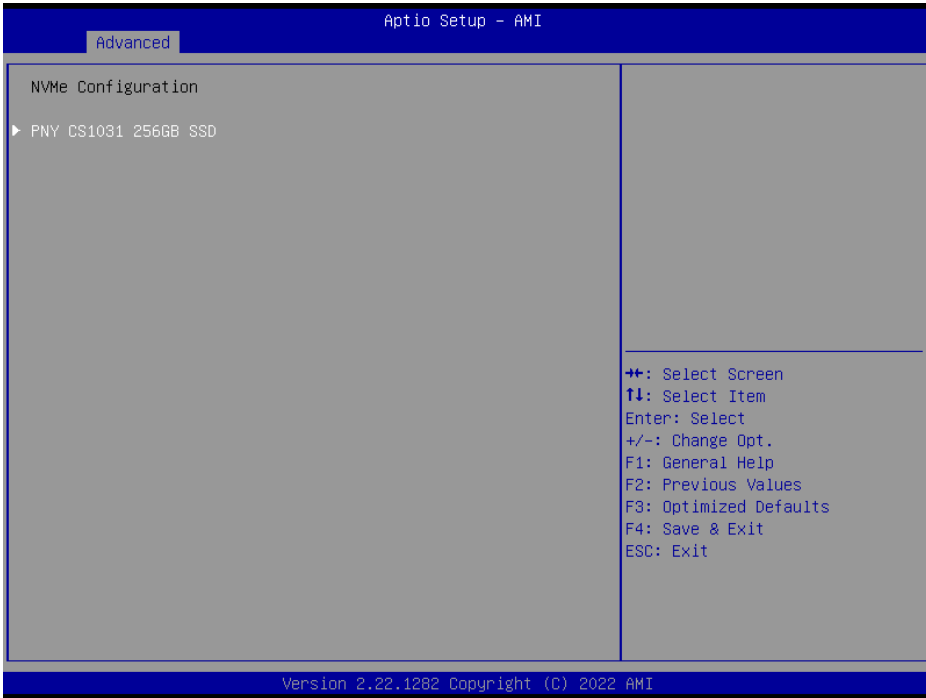
NVMe Configuration Screen

BIOS Setting	Options	Description/Purpose
NVMe Configuration	No changeable options	Displays NVMe device

5.5 Chipset

Menu Path   *Chipset*

This menu allows users to configure advanced Chipset settings such as System Agent (SA) and PCH-IO configuration parameters.

```
                              Aptio Setup - AMI
     Main   Advanced   Chipset  Security   Boot   Save & Exit

 ▶ System Agent (SA) Configuration                    System Agent (SA) Parameters
 ▶ PCH-IO Configuration







                                                     ++: Select Screen
                                                     ↑↓: Select Item
                                                     Enter: Select
                                                     +/-: Change Opt.
                                                     F1: General Help
                                                     F2: Previous Values
                                                     F3: Optimized Defaults
                                                     F4: Save & Exit
                                                     ESC: Exit




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```

Chipset Screen

BIOS Setting	Options	Description/Purpose
System Agent (SA) Configuration	Sub-Menu	System Agent (SA) Parameters.
PCH-IO Configuration	Sub-Menu	PCH Parameters.

5.5.1   Chipset – System Agent (SA) Configuration

Menu Path   *Chipset > System Agent (SA) Configuration*
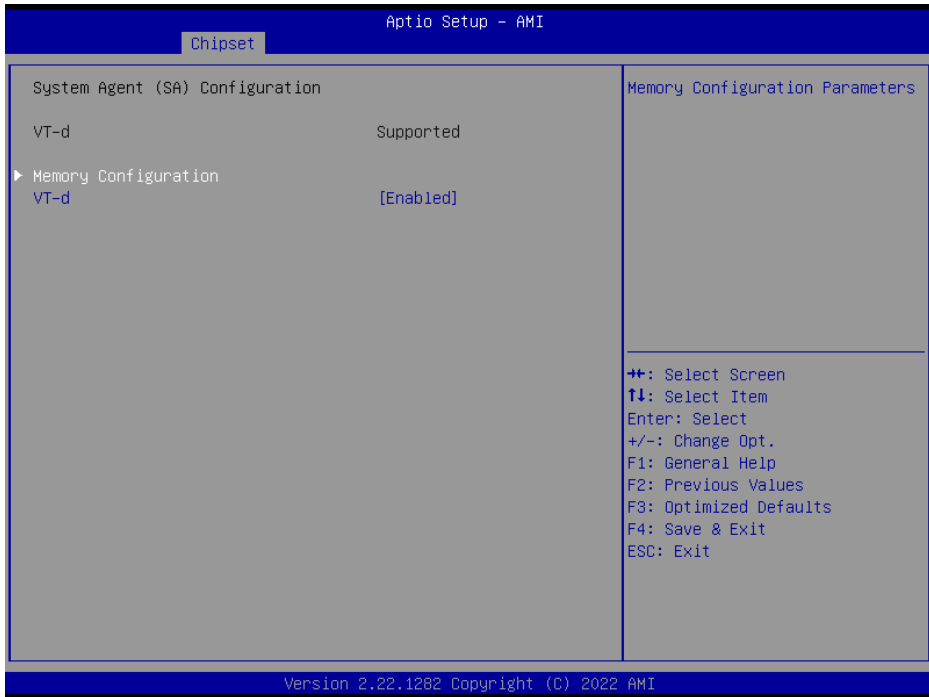
System Agent (SA) Configuration Screen

BIOS Setting	Options	Description/Purpose
Memory Configuration	Sub-Menu	Memory Configuration.
VT-d	- Disabled - Enabled (Default)	Enables or Disables VT-d function.

System Agent (SA) Configuration – Memory Configuration

Menu Path   *Chipset > System Agent (SA) Configuration >*
                                 Memory Configuration

```
                              Aptio Setup - AMI
         Chipset

   Memory Configuration                              Enable/Disable In-Band ECC

   Memory RC Version              0.0.4.104
   Memory Data Rate               3200 MTPS
   Memory Timings (tCL-tRCD-tRP-tRAS)  22-22-22-52

   Channel 0 Slot 0              Populated & Enabled
      Size                       32768 MB (DDR4)
      Number of Ranks            2
      Manufacturer               Transcend
   In-Band ECC                   [Enabled]
   In-Band ECC Operation Mode    [2]
   In-Band ECC Error Injection   [Disabled]
                                                    →←: Select Screen
                                                    ↑↓: Select Item
                                                    Enter: Select
                                                    +/-: Change Opt.
                                                    F1: General Help
                                                    F2: Previous Values
                                                    F3: Optimized Defaults
                                                    F4: Save & Exit
                                                    ESC: Exit

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```

Memory Configuration Screen

BIOS Setting	Options	Description/Purpose
Memory RC Version	No changeable options	Displays the Memory RC Version.
Memory Data Rate	No changeable options	Displays the Frequency of Memory.
Memory Timings (tCL-tRCD-tRP-tRAS)	No changeable options	Displays the Timings of Memory.
Channel 0 Slot 0	No changeable options	Displays the Channel Slot Subtitle.
Size	No changeable options	Displays the Memory size in the slot.
Number of Ranks	No changeable options	Displays the Number of Ranks in the slot.
Manufacturer	No changeable options	Displays the DIMM Manufacturer name.
In-Band ECC	- Enabled (Default) - Disabled	Enables / Disables In-Band ECC. (For Embedded/Industrial Processor SKU only)

BIOS Setting	Options	Description/Purpose
In-Band ECC Operation Mode	- 0 - 1 - 2 (Default)	0: Function Mode protects requests based on the address range, 1: Makes all requests non protected and ignore range checks, 2: Makes all requests protected and ignore range checks
In-Band ECC Error Injection	- Enabled - Disabled (Default)	Enables / Disables Error Injection. (For test purpose)

5.5.2   Chipset – PCH-IO Configuratioin

Menu Path   *Chipset > PCH-IO Configuration*

The **PCH-IO Configuration** allows users to configure PCI Express and SATA configuration parameters and determine the power on/off state that the system will go to following a power failure (G3 state), and enable / disable LPC Debug 80 Port.

```
                            Aptio Setup - AMI
            Chipset

    PCH-IO Configuration                         PCI Express Configuration
                                                 settings
  ▶ PCI Express Configuration
  ▶ SATA Configuration

    Restore AC Power Loss          [Power Off]
    LPC Debug 80 Port              [Disabled]




                                                 ─────────────────────────

                                                 →←: Select Screen
                                                 ↑↓: Select Item
                                                 Enter: Select
                                                 +/-: Change Opt.
                                                 F1: General Help
                                                 F2: Previous Values
                                                 F3: Optimized Defaults
                                                 F4: Save & Exit
                                                 ESC: Exit




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```
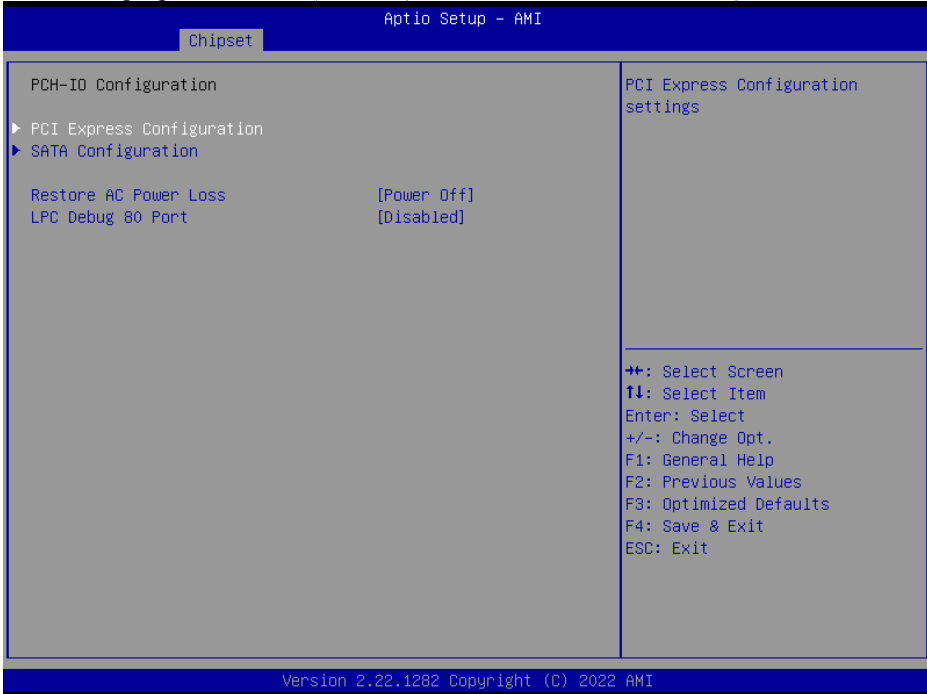
PCH-IO Configuration Screen

BIOS Setting	Options	Description/Purpose
PCI Express Configuration	Sub-Menu	PCI Express Configuration settings.
SATA Configuration	Sub-Menu	SATA Configuration settings.
Restore AC Power Loss	- Power On - Power Off (Default)	Specifies what state to go to when power is re-applied following a power failure (G3 state).
LPC Debug 80 Port	- Disabled (Default) - Enabled	Enables or Disables LPC Debug 80 Port.

PCH-IO Configuration – PCI Express Configuration

Menu Path   *Chipset > PCH-IO Configuration >*
                    PCI Express Configuration

```
                        Aptio Setup – AMI
         Chipset

  PCI Express Configuration                       PCI Express Root Port Settings.

 ▶ PCI Express Root Port 2 (I225 LAN)
 ▶ PCI Express Root Port 3 (I225 LAN)
 ▶ PCI Express Root Port 4 (Mini-PCIe)
 ▶ PCI Express Root Port 5 (M.2 M_KEY)
 ▶ PCI Express Root Port 7 (M.2 E_KEY)


                                                 →←: Select Screen
                                                 ↑↓: Select Item
                                                 Enter: Select
                                                 +/-: Change Opt.
                                                 F1: General Help
                                                 F2: Previous Values
                                                 F3: Optimized Defaults
                                                 F4: Save & Exit
                                                 ESC: Exit



                  Version 2.22.1282 Copyright (C) 2022 AMI
```
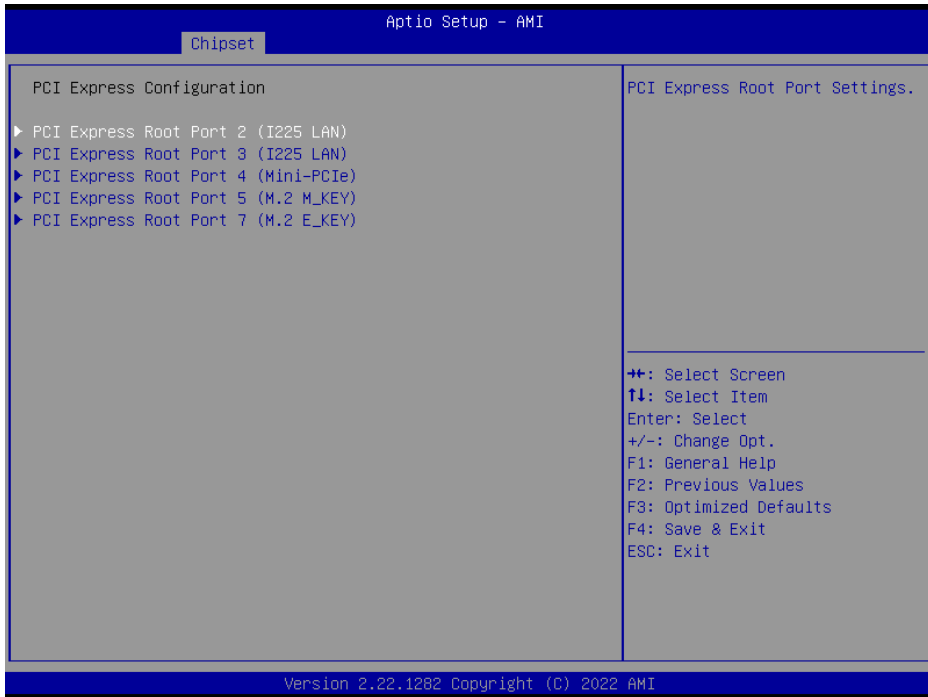
PCI Express Configuration Screen

BIOS Setting	Options	Description/Purpose
PCI Express Root Port 2 (I225 LAN)	Sub-Menu	PCI Express I225 LAN settings.
PCI Express Root Port 3 (I225 LAN)	Sub-Menu	PCI Express I225 LAN settings.
PCI Express Root Port 4 (Mini-PCIe)	Sub-Menu	PCI Express Mini-PCIe settings.
PCI Express Root Port 5 (M.2 M_KEY)	Sub-Menu	PCI Express M.2 M_KEY settings.
PCI Express Root Port 7 (M.2 E_KEY)	Sub-Menu	PCI Express M.2 E_KEY settings.

PCH-IO Configuration – PCI Express Configuration – PCI Express Root Port 2 (I225 LAN)

Menu Path   *Chipset > PCH-IO Configuration > PCI Express Configuration > PCI Express Root Port 2 (I225 LAN)*

```
                          Aptio Setup – AMI
       Chipset

  PCI Express Root Port 2          [Enabled]          Control the PCI Express Root
  PCIe Speed                       [Auto]             Port.












                                                     ➜←: Select Screen
                                                     ↑↓: Select Item
                                                     Enter: Select
                                                     +/-: Change Opt.
                                                     F1: General Help
                                                     F2: Previous Values
                                                     F3: Optimized Defaults
                                                     F4: Save & Exit
                                                     ESC: Exit




                    Version 2.22.1282 Copyright (C) 2022 AMI
```
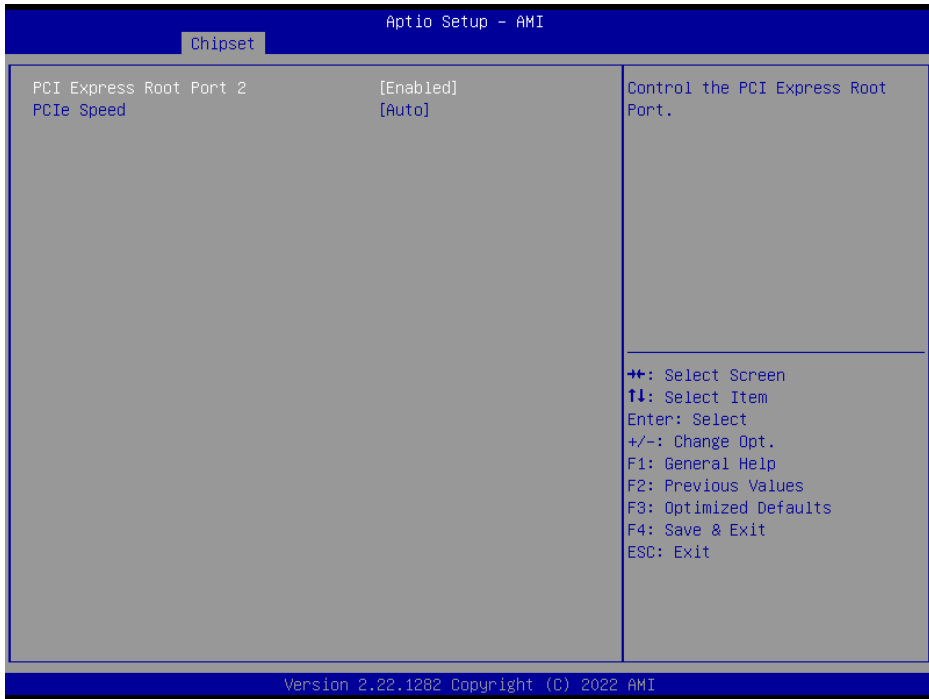
PCI Express Root Port 2 (I225 LAN) Screen

BIOS Setting	Options	Description/Purpose
PCI Express Root Port 2	- Disabled - Enabled (Default)	Enables or Disables the PCI Express Root Port.
PCIe Speed	- Auto (Default) - Gen1 - Gen2 - Gen3	Configures PCIe Speed.

PCH-IO Configuration – PCI Express Configuration – PCI Express Root Port 3 (I225 LAN)

Menu Path   *Chipset > PCH-IO Configuration > PCI Express Configuration > PCI Express Root Port 3 (I225 LAN)*

```
                              Aptio Setup – AMI
           Chipset

  PCI Express Root Port 3              [Enabled]          Control the PCI Express Root
  PCIe Speed                          [Auto]             Port.

                                                         ↔: Select Screen
                                                         ↑↓: Select Item
                                                         Enter: Select
                                                         +/-: Change Opt.
                                                         F1: General Help
                                                         F2: Previous Values
                                                         F3: Optimized Defaults
                                                         F4: Save & Exit
                                                         ESC: Exit

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```

PCI Express Root Port 3 (I225 LAN) Screen

BIOS Setting	Options	Description/Purpose
PCI Express Root Port 3	- Disabled - Enabled (Default)	Enables or Disables the PCI Express Root Port.
PCIe Speed	- Auto (Default) - Gen1 - Gen2 - Gen3	Configures PCIe Speed.

PCH-IO Configuration – PCI Express Configuration – PCI Express Root Port 4 (Mini-PCIe)

Menu Path   *Chipset > PCH-IO Configuration > PCI Express Configuration > PCI Express Root Port 4 (Mini-PCIe)*

```
                              Aptio Setup – AMI
          Chipset

 PCI Express Root Port 4            [Enabled]          Control the PCI Express Root
 PCIe Speed                        [Auto]              Port.




                                                       ↔: Select Screen
                                                       ↑↓: Select Item
                                                       Enter: Select
                                                       +/-: Change Opt.
                                                       F1: General Help
                                                       F2: Previous Values
                                                       F3: Optimized Defaults
                                                       F4: Save & Exit
                                                       ESC: Exit




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```

PCI Express Root Port 4 (Mini-PCIe) Screen

BIOS Setting	Options	Description/Purpose
PCI Express Root Port 4	- Disabled - Enabled (Default)	Enables or Disables the PCI Express Root Port.
PCIe Speed	- Auto (Default) - Gen1 - Gen2 - Gen3	Configures PCIe Speed.

PCH-IO Configuration – PCI Express Configuration – PCI Express Root Port 5 (M.2 M_KEY)

Menu Path   *Chipset > PCH-IO Configuration > PCI Express Configuration > PCI Express Root Port 5 (M.2 M_KEY)*

```
                              Aptio Setup – AMI
          Chipset

 PCI Express Root Port 5          [Enabled]          Control the PCI Express Root
 PCIe Speed                       [Auto]             Port.


















                                                    ➜←: Select Screen
                                                    ↑↓: Select Item
                                                    Enter: Select
                                                    +/-: Change Opt.
                                                    F1: General Help
                                                    F2: Previous Values
                                                    F3: Optimized Defaults
                                                    F4: Save & Exit
                                                    ESC: Exit





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```
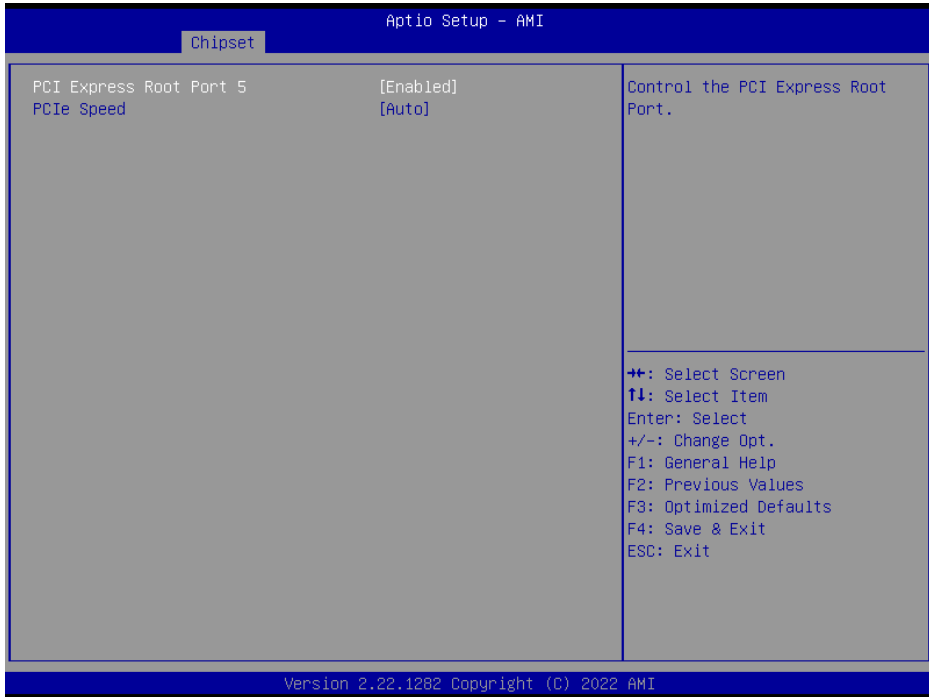
PCI Express Root Port 5 (M.2 M_KEY) Screen

BIOS Setting	Options	Description/Purpose
PCI Express Root Port 5	- Disabled - Enabled (Default)	Enables or Disables the PCI Express Root Port.
PCIe Speed	- Auto (Default) - Gen1 - Gen2 - Gen3	Configures PCIe Speed.

PCH-IO Configuration – PCI Express Configuration – PCI Express Root Port 7 (M.2 E_KEY)

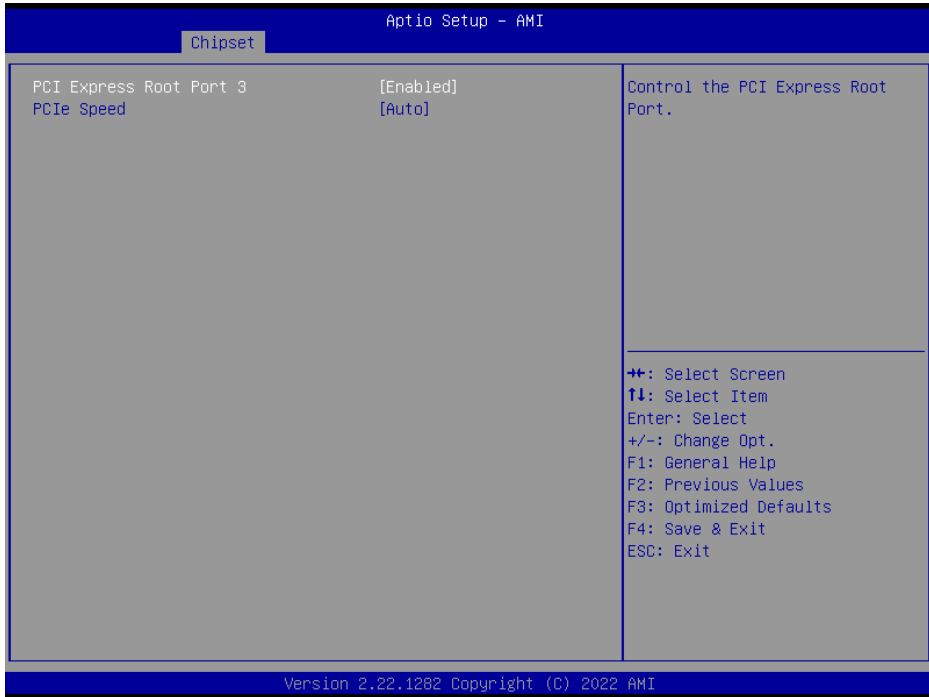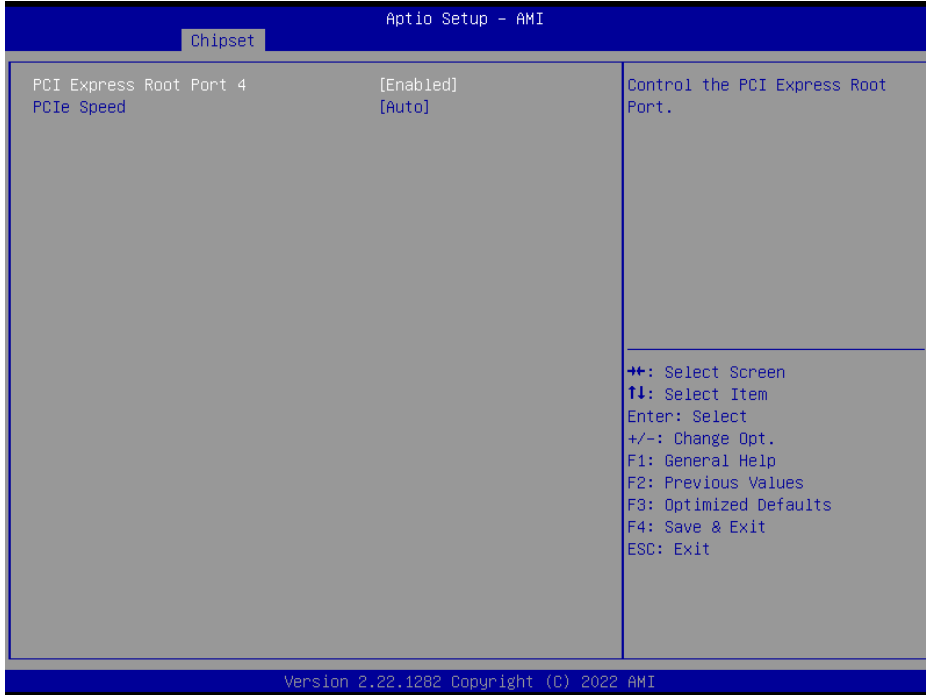Menu Path   *Chipset > PCH-IO Configuration > PCI Express Configuration > PCI Express Root Port 7 (M.2 E_KEY)*

```
                                Aptio Setup – AMI
         Chipset

  PCI Express Root Port 7              [Enabled]              Control the PCI Express Root
  PCIe Speed                           [Auto]                 Port.













                                                             →←: Select Screen
                                                             ↑↓: Select Item
                                                             Enter: Select
                                                             +/-: Change Opt.
                                                             F1: General Help
                                                             F2: Previous Values
                                                             F3: Optimized Defaults
                                                             F4: Save & Exit
                                                             ESC: Exit





                          Version 2.22.1282 Copyright (C) 2022 AMI
```
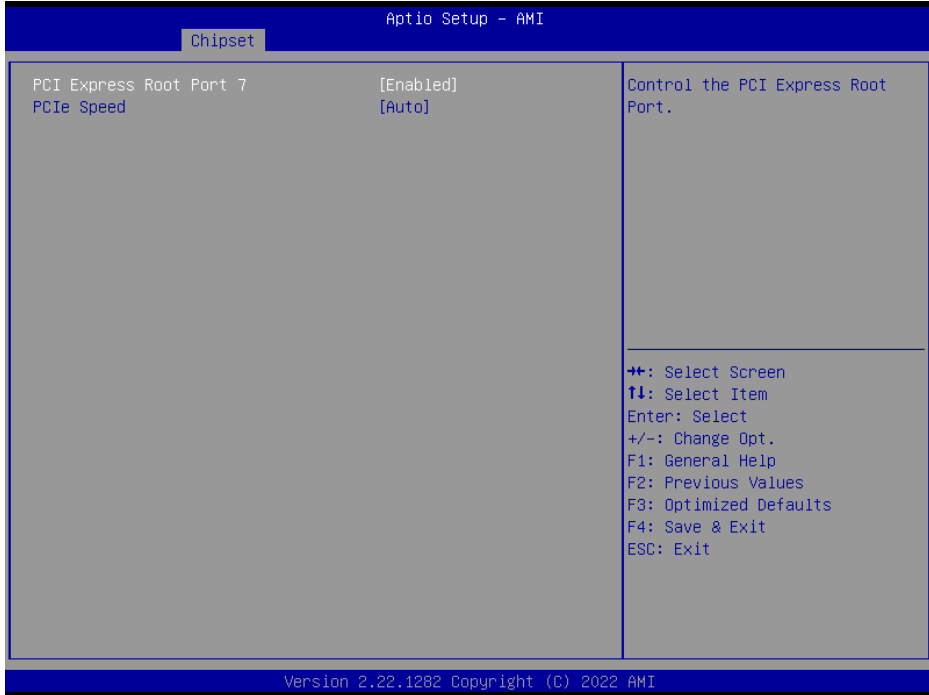
PCI Express Root Port 7 (M.2 E_KEY) Screen

BIOS Setting	Options	Description/Purpose
PCI Express Root Port 7	- Disabled - Enabled (Default)	Enables or Disables the PCI Express Root Port.
PCIe Speed	- Auto (Default) - Gen1 - Gen2 - Gen3	Configures PCIe Speed.

PCH-IO Configuration – SATA Configuration

Menu Path   *Chipset > PCH-IO Configuration > SATA Configuration*

```
                              Aptio Setup – AMI
          Chipset

 SATA Configuration                                    Enable/Disable SATA Device.

 SATA Controller(s)              [Enabled]
 SATA Mode Selection             [AHCI]

 Serial ATA Port 0              TS512GSSD230S  (512.1GB)




                                                       →←: Select Screen
                                                       ↑↓: Select Item
                                                       Enter: Select
                                                       +/-: Change Opt.
                                                       F1: General Help
                                                       F2: Previous Values
                                                       F3: Optimized Defaults
                                                       F4: Save & Exit
                                                       ESC: Exit



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```
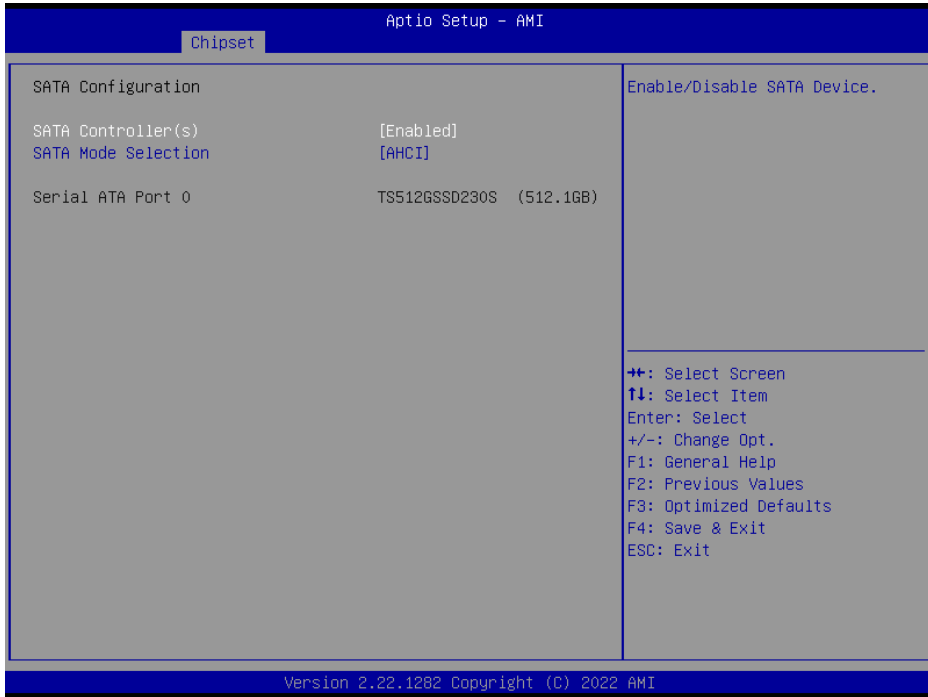
SATA Configuration Screen

BIOS Setting	Options	Description/Purpose
SATA Controller(s)	- Enabled (Default) - Disabled	Enables or Disables SATA Device.
SATA Mode Selection	- AHCI (Default)	Determines how SATA controller(s) operate.
Serial ATA Port 0	No changeable options	Displays the SATA device's name.

5.6   Security

Menu Path   *Security*

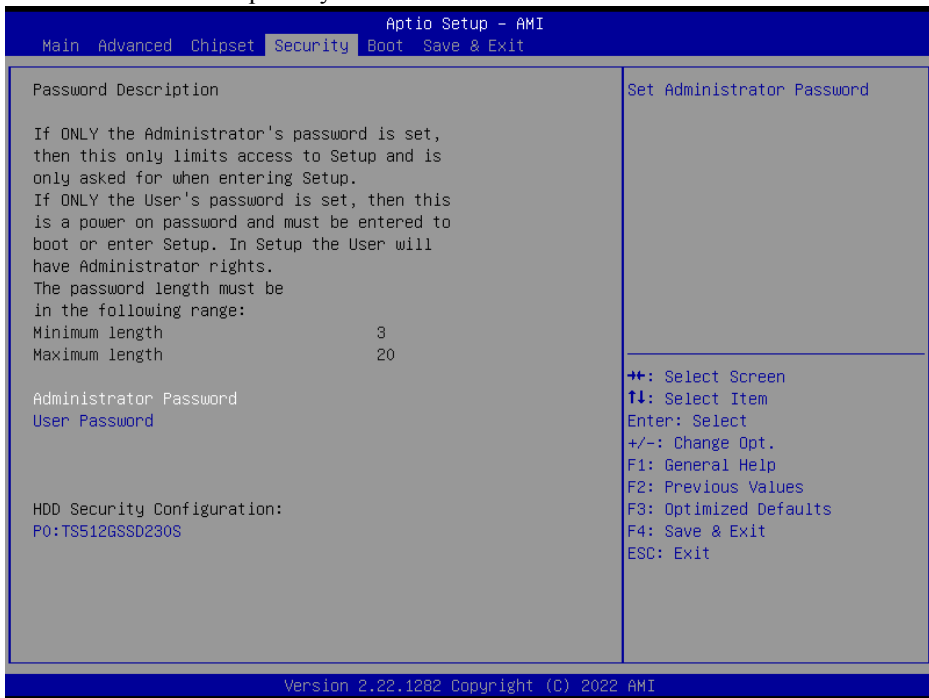From the **Security** menu, you are allowed to create, change or clear the administrator password. You will be asked to enter the configured administrator password before you can access the Setup Utility.

By setting an administrator password, you will prevent other users from changing your BIOS settings. You can configure an Administrator password and then configure a user password. An administrator has much more privileges over the settings in the Setup utility than a user. Heed that a user password does not provide access to most of the features in the Setup utility.

```
                          Aptio Setup - AMI
     Main  Advanced  Chipset  Security  Boot  Save & Exit

    Password Description                      Set Administrator Password

    If ONLY the Administrator's password is set,
    then this only limits access to Setup and is
    only asked for when entering Setup.
    If ONLY the User's password is set, then this
    is a power on password and must be entered to
    boot or enter Setup. In Setup the User will
    have Administrator rights.
    The password length must be
    in the following range:
    Minimum length              3
    Maximum length              20
                                              →←: Select Screen
                                              ↑↓: Select Item
    Administrator Password                    Enter: Select
    User Password                             +/-: Change Opt.
                                              F1: General Help
                                              F2: Previous Values
    HDD Security Configuration:               F3: Optimized Defaults
    P0:TS512GSSD230S                          F4: Save & Exit
                                              ESC: Exit



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```

Security Screen

BIOS Setting	Options	Description/Purpose
Administrator Password	Password can be 3-20 alphanumeric characters.	Specifies the administrator password.
User Password	Password can be 3-20 alphanumeric characters.	Specifies the user password.

BIOS Setting	Options	Description/Purpose
HDD Security Configuration	Sub-Menu	Enters sub-menu with option to enabled password protected HDD/SSD (if supported by SATA device).

Create an Administrator or User Password
1. Select the **Administrator Password** / **User Password** option from the Security menu and press <Enter>, and the password dialog entry box appears.
2. Enter the password you want to create. A password can be 3-20 alphanumeric characters. After you have configured the password, press <Enter> to confirm.
3. Type the new password again and press <Enter>.

Change an Administrator or User Password
1. Select the **Administrator Password** / **User Password** option from the Security menu and press <Enter>, and the password dialog entry box appears.
2. Select the Administrator Password or User Password that you want to change. A password can be 3-20 alphanumeric characters. After you have changed the password, press <Enter> to confirm.
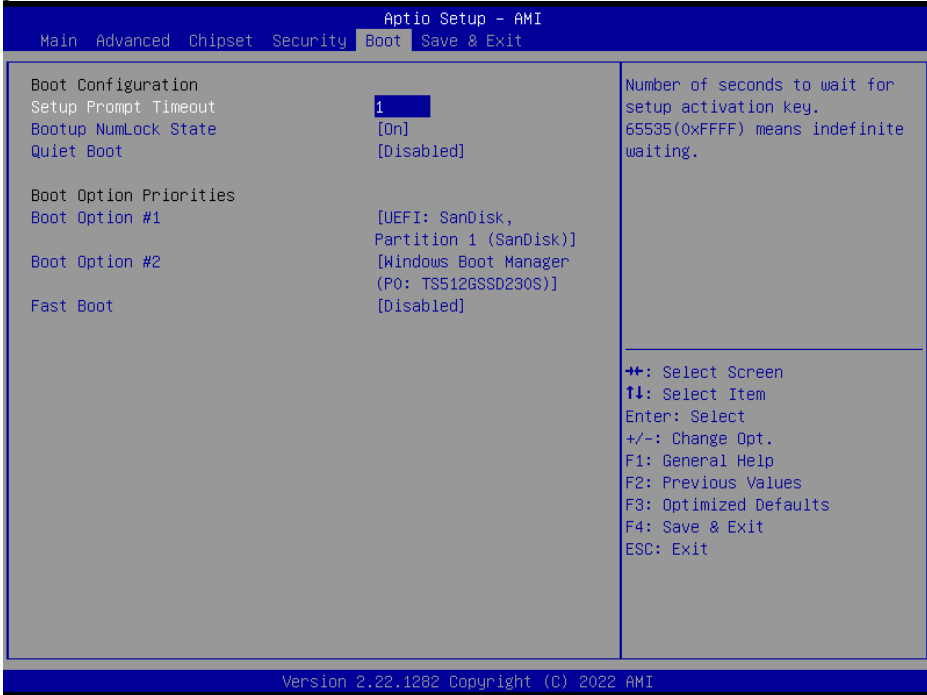3. Type the changed password again and press <Enter>.

Remove an Administrator or User Password
1. Select the **Administrator Password** / **User Password** option from the Security menu and press <Enter>, and the password dialog entry box appears.
2. Select the configured Administrator Password or User Password that you want to delete. Leave the dialog box blank and press <Enter>.
3. Press <Enter> again when the password confirmation box appears.

5.7 Boot

Menu Path   *Boot*

This menu provides control items for setting system boot configuration and boot priorities.

```
                        Aptio Setup - AMI
      Main  Advanced  Chipset  Security  Boot  Save & Exit

   Boot Configuration                                  Number of seconds to wait for
   Setup Prompt Timeout            1                   setup activation key.
   Bootup NumLock State            [On]                65535(0xFFFF) means indefinite
   Quiet Boot                      [Disabled]          waiting.

   Boot Option Priorities
   Boot Option #1                  [UEFI: SanDisk,
                                   Partition 1 (SanDisk)]
   Boot Option #2                  [Windows Boot Manager
                                   (P0: TS512GSSD230S)]

   Fast Boot                       [Disabled]

                                                       →←: Select Screen
                                                       ↑↓: Select Item
                                                       Enter: Select
                                                       +/-: Change Opt.
                                                       F1: General Help
                                                       F2: Previous Values
                                                       F3: Optimized Defaults
                                                       F4: Save & Exit
                                                       ESC: Exit

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```

Boot Screen

BIOS Setting	Options	Description/Purpose
Setup Prompt Timeout	Numeric (from 1 to 65535)	Number of seconds to wait for setup activation key.
Bootup NumLock State	- On (Default) - Off	Specifies the power-on state of the NumLock Key.
Quiet Boot	- Disabled (Default) - Enabled	Enables or Disables Quiet Boot options.
Boot Option #1~#n	- [Drive(s)] - Disabled	Sets the system boot order.
Fast Boot	- Disabled (Default) - Enabled	Enables or Disables Fast Boot options.

5.8 Save & Exit

Menu Path	*Save & Exit*

The **Save & Exit** allows users to save or discard changed BIOS settings as well as load factory default settings.
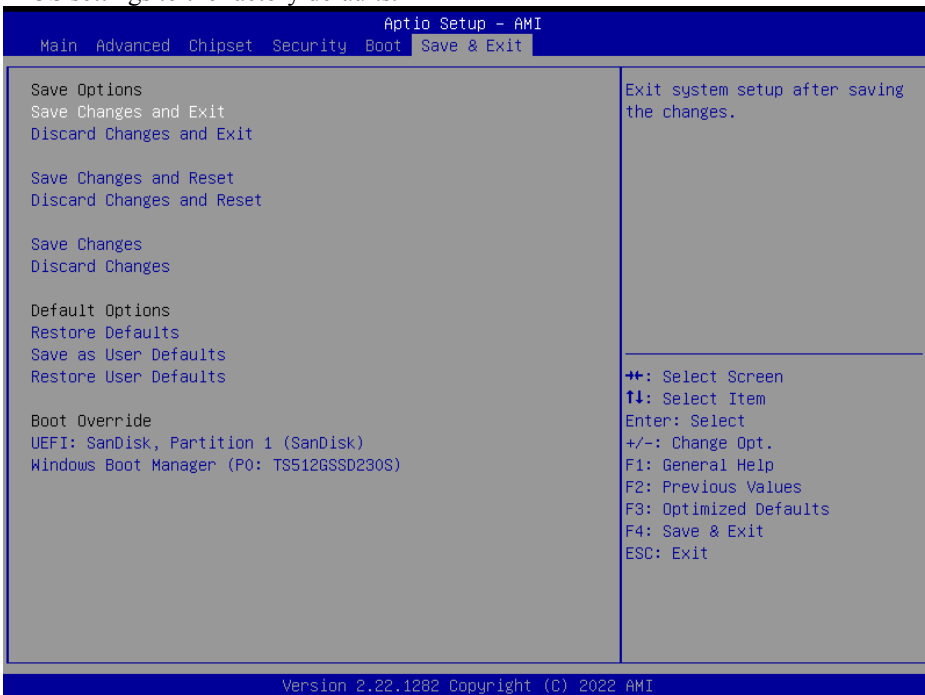
Save Changed BIOS Settings
To save and validate the changed BIOS settings, select **Save Changes** from the **Save & Exit** menu, or you can select **Save Changes and Exit** (or press **F4**) to validate the changes and then exit the system. Select **Save Changes and Reset** to validate the changed BIOS settings and then restart the system.

Discard Changed BIOS Settings
To cancel the BIOS settings you have previously configured, select **Discard Changes and Exit** from this menu, or simply press **Esc** to exit the BIOS setup. You can also select **Discard Changes and Reset** to discard any changes you have made and restore the factory BIOS defaults.

Load User Defaults
You may simply press **F3** at any time to load the **Optimized Values** which resets all BIOS settings to the factory defaults.

```
                          Aptio Setup – AMI
        Main  Advanced  Chipset  Security  Boot  Save & Exit

     Save Options                              Exit system setup after saving
     Save Changes and Exit                     the changes.
     Discard Changes and Exit

     Save Changes and Reset
     Discard Changes and Reset

     Save Changes
     Discard Changes

     Default Options
     Restore Defaults
     Save as User Defaults                     ──────────────────────────────
     Restore User Defaults                     ←→: Select Screen
                                               ↑↓: Select Item
     Boot Override                             Enter: Select
     UEFI: SanDisk, Partition 1 (SanDisk)      +/-: Change Opt.
     Windows Boot Manager (P0: TS512GSSD230S)  F1: General Help
                                               F2: Previous Values
                                               F3: Optimized Defaults
                                               F4: Save & Exit
                                               ESC: Exit



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```

Save & Exit Screen

BIOS Setting	Options	Description/Purpose
Save Changes and Exit	No changeable options	Exits and saves the changes in NVRAM.
Discard Changes and Exit	No changeable options	Exits without saving any changes made in BIOS settings.
Save Changes and Reset	No changeable options	Saves the changes in NVRAM and resets.
Discard Changes and Reset	No changeable options	Resets without saving any changes made in BIOS settings.
Save Changes	No changeable options	Saves Changes done so far to any of the setup options.
Discard Changes	No changeable options	Discards Changes done so far to any of the setup options.
Restore Defaults	No changeable options	Loads the optimized defaults for BIOS settings.
Save as User Defaults	No changeable options	Saves the changes done so far as User Defaults.
Restore User Defaults	No changeable options	Restores the User Defaults to all the setup options.
Boot Override	- [Drive(s)]	Forces to boot from selected [drive(s)].

Appendix A   System Diagrams

This appendix presents the exploded diagrams of the system as well as the part numbers of SG-S172 system.

- SG-S172 System Exploded Diagram
- SG-S172 Front Panel Module Assembly Exploded Diagram
- SG-S172 Chassis Assembly Exploded Diagram
- SG-S172 HDD Module Assembly Exploded Diagram
- SG-S172 VESA Mount Installation Exploded Diagram
- SG-S172 Stand Kit Installation Exploded Diagram
- SG-S172 U Stand Assembly Exploded Diagram

SG-S172 System Exploded Diagram
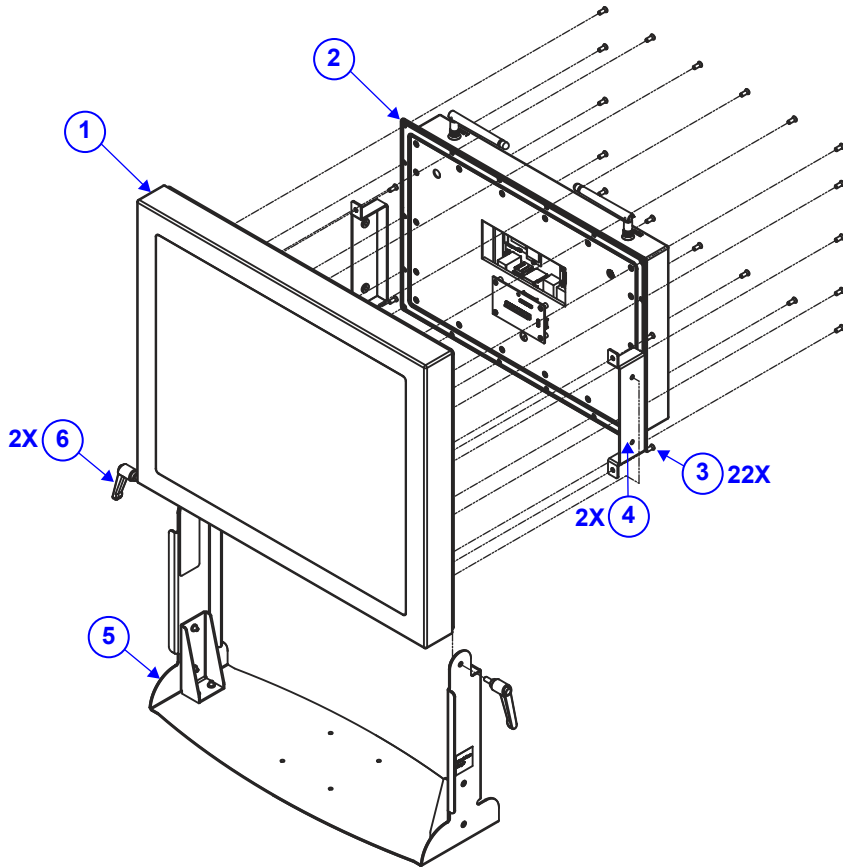
ITEM	Description	Part No.	Q'ty
1	FRONT_ASSY_ASM_EXP	See Page A-3 and A-4	1
2	CHASSIS_FOR_BE-U830_ASSY_EXP	See Page A-5 and A-6	1
3	Flat Head Screw(SUS304) ϕ 6 / #2 / M4x0.7Px10mm	22-210-40010011	22
4	SG-S100 Hand Screw Bracket	20-206-07001527	2
5	U_STAND_RIBBES_PLATE_ASM_EXP	See Page A-10	1
6	Adjustable Hand Levers	20-035-35001000	2

SG-S172 Front Panel Module Assembly Exploded Diagram
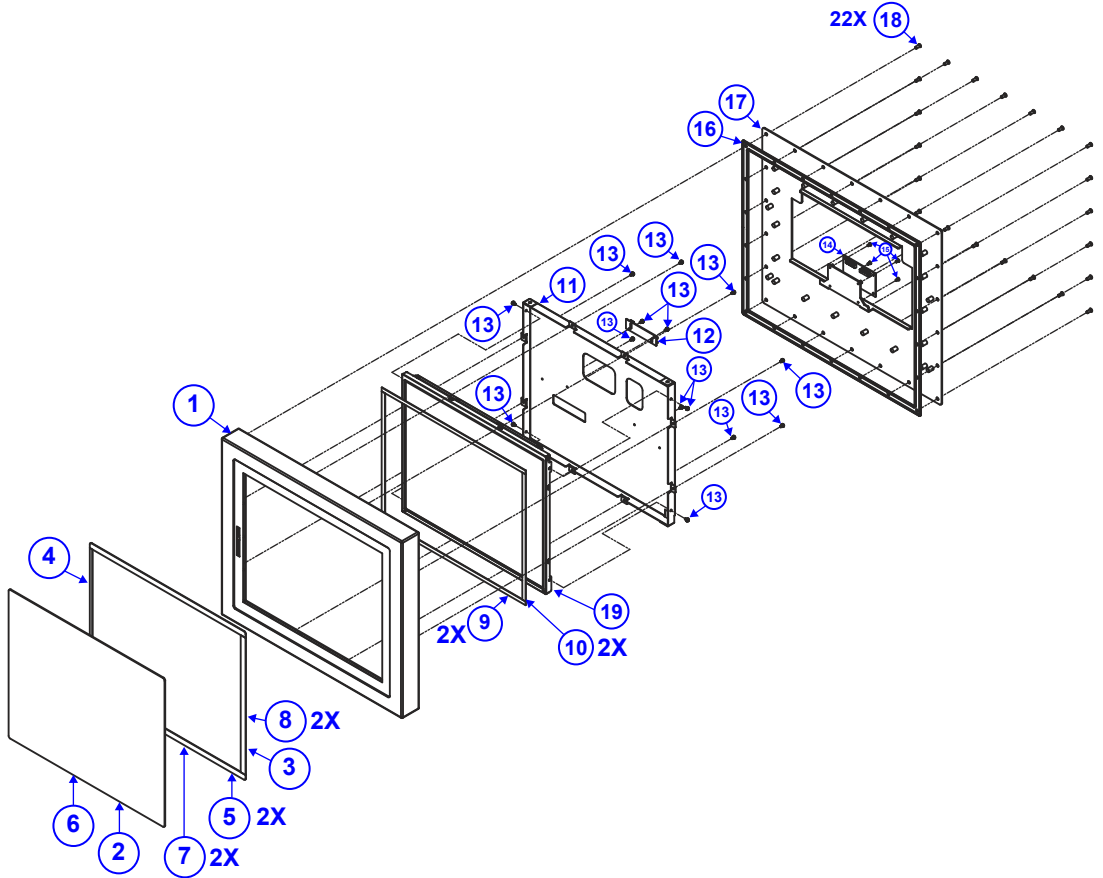
ITEM	Description	Part No.	Q'ty
1	SG-S104 Front Cover Bracket ASM	20-204-07001525	1
2	17" P-CAP Touch Panel (COF)	52-380-04581714	1
3	SG-S171 17 Touch ABON EPDM V 1_1-A (295.5x15x1.1mm)	30-013-01600486	1
4	SG-S171 17 Touch ABON EPDM V 1_1-B (295.5x6x1.1mm)	30-013-01400486	1
5	SG-S171 17 Touch ABON EPDM H 1_1 (387x12x1.1mm)	30-013-01500486	2
6	17" 5-wire Resistive Touch Panel	52-380-04211114	1
7	SP-7147 ABON A-15170-1452 EPDM-H (386.92x30x0.8mm)	34-026-06201412	2
8	SP-7147 ABON A-15170-1452 EPDM-V (271.24x18x0.8mm)	34-026-06202412	2

ITEM	Description	Part No.	Q'ty
9	ST-2017 Thin Gap LCD PORON-H (358x8x1mm)	30-013-24100366	2
10	ST-2017 Thin Gap LCD PORON-V (274x8x1mm)	30-013-24200366	2
11	SG-S171 LCD Bracket	80-106-03001486	1
12	Touch Control Board, USB Interface	52-370-01405104	1
13	Round Head With Spring Washer Screw M3x0.5Px6mm	22-232-30060211	14
14	SR-S100-2xN_s61083-081x0xx_ASM	N/A	1
15	Fillister Head Screw #2 / M3x0.5Px5mm	22-272-30049015	4
16	SG-S104 Rear Waterproof Silcon Rubber (Transparent)	90-013-01100525	1
17	SG-S104 Rear Cover Bracket	20-206-07001525	1
18	Flat Head Screw (SUS304) ϕ 6 / #2 / M4x0.7Px10mm	22-210-40010011	22
19	17" TFT LCD Panel (LED Backlight), 350nits, SXGA (1280x1024)	52-351-04017002	1

SG-S172 Chassis Assembly Exploded Diagram
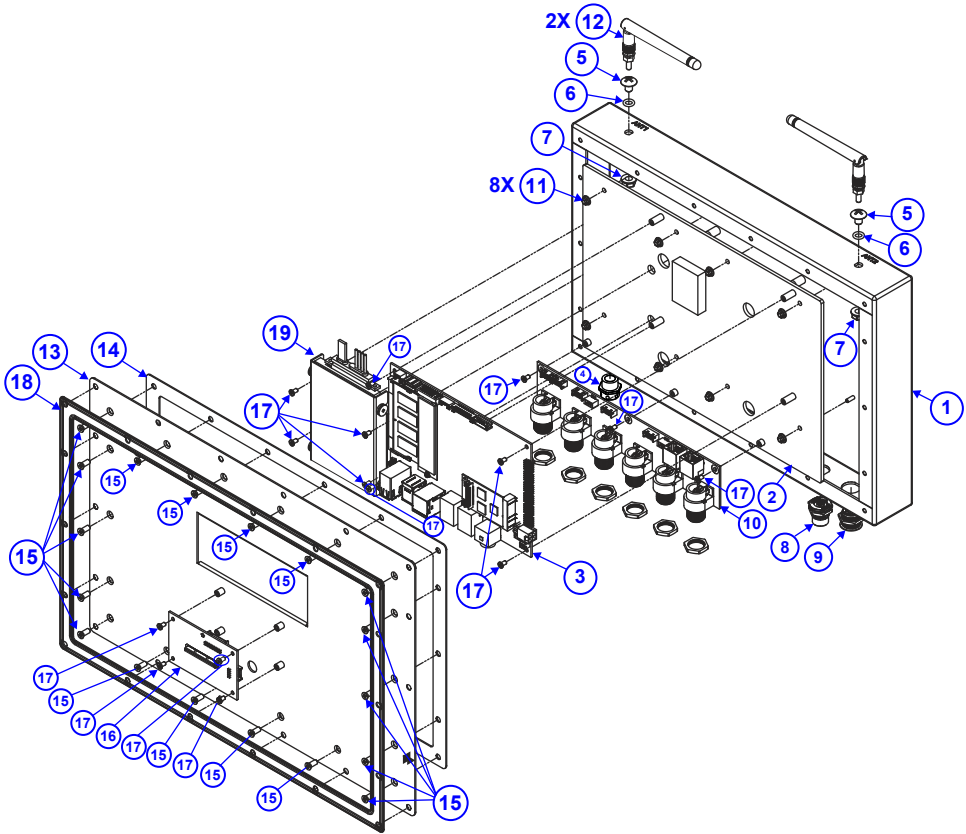
ITEM	Description	Part No.	Q'ty
1	SG-S100 Chassis For BE-U830	20-215-07001527	1
2	SG-S100 AL Heatsink U830 (280x185x3mm)	21-002-18085001	1
3	BE-U830_PCB_ASSY	N/A	1
4	SG-S10x M12 Pressure Relief Vent	27-000-46700003	1
5	Truss Head Screw(SUS304) #3/M6x1.0Px8mm	22-240-60008011	2
6	O-RING (Black)	30-013-06500000	2
7	Slip Nuts (M6x1.0P, H=6mm)	23-142-60601271	2
8	M12A-08PFFS-SF8001_ANY	N/A	1
9	M12-BUTTON-H-CUT	N/A	1
10	SG-S100_M12A-08PFFS-SF8001_ASM	N/A	1

| ITEM	Description	Part No.	Q'ty
11	Slip Nuts (M3x0.5P, H=4mm)	23-142-30400801	8
12	WIRE_LAN_ASM	N/A	2
13	SG-S100 Chassis Link Bracket	20-206-07002527	1
14	SG-S100 Chassis Waterproof Silcon Rubber (Transparent)	90-013-01100527	1
15	Flat Head Screw (SUS304) ϕ 6 / #2 / M4x0.7Px10mm	22-210-40010011	18
16	SR-S100-2Xn_61082_081x0xxxLFc_ASM	N/A	1
17	Fillister Head Screw #2 / M3x0.5Px5mm	22-272-30049015	15
18	SG-S100 Link Waterproof Silcon Rubber (Transparent)	90-013-01200527	1
19	HDD_ASSY_EXP	See Page A-7	1

SG-S172 HDD Module Assembly Exploded Diagram
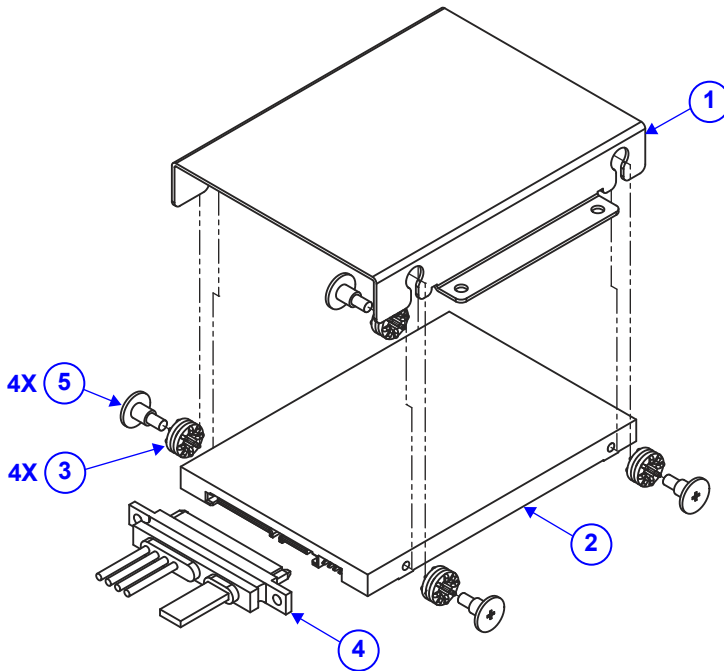
ITEM	Description	Part No.	Q'ty
1	SG-S151 HDD Bracket	20-106-03002467	1
2	2INCH_HDD_SATA	N/A	1
3	Rubber Washer (OD=φ 9.62mm, ID=φ 3.9mmx5.8T) (Blue)	23-680-39580963	4
4	SATA_DATA_CABLE	N/A	1
5	Fillister Head Screw M3x0.5Px4.8mm	82-272-30005013	4

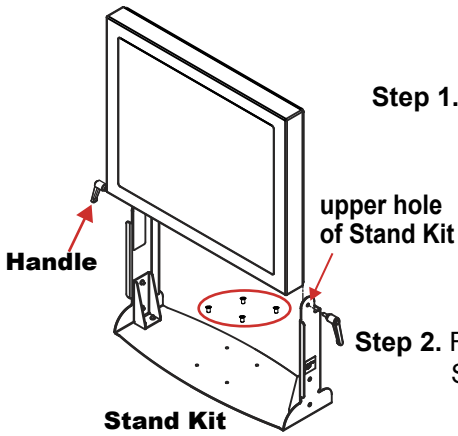## SG-S172 VESA Mount Installation Exploded Diagram

Wall
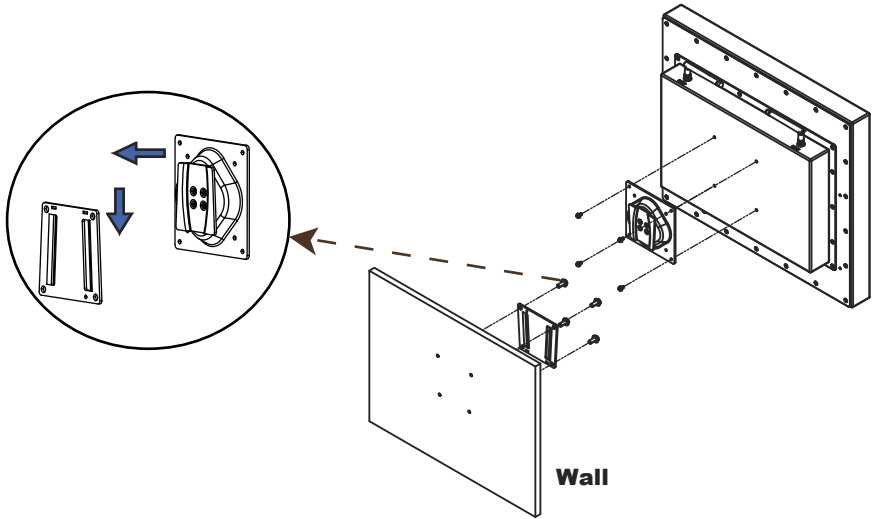
# VESA Mount Accessories

VESA Mount
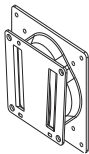
VESA Mount Kit x 1

SG-S172 Stand Kit Installation Exploded Diagram

Step 1. Attach Panel PC onto Stand Kit and align the side holes on the rear of Panel PC with the upper holes of the Stand Kit.
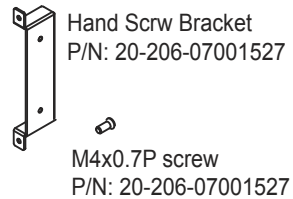
Step 2. Fasten the two handles into the side holes of the Stand Kit to secure the system and complete.

Stand Installation Accessories
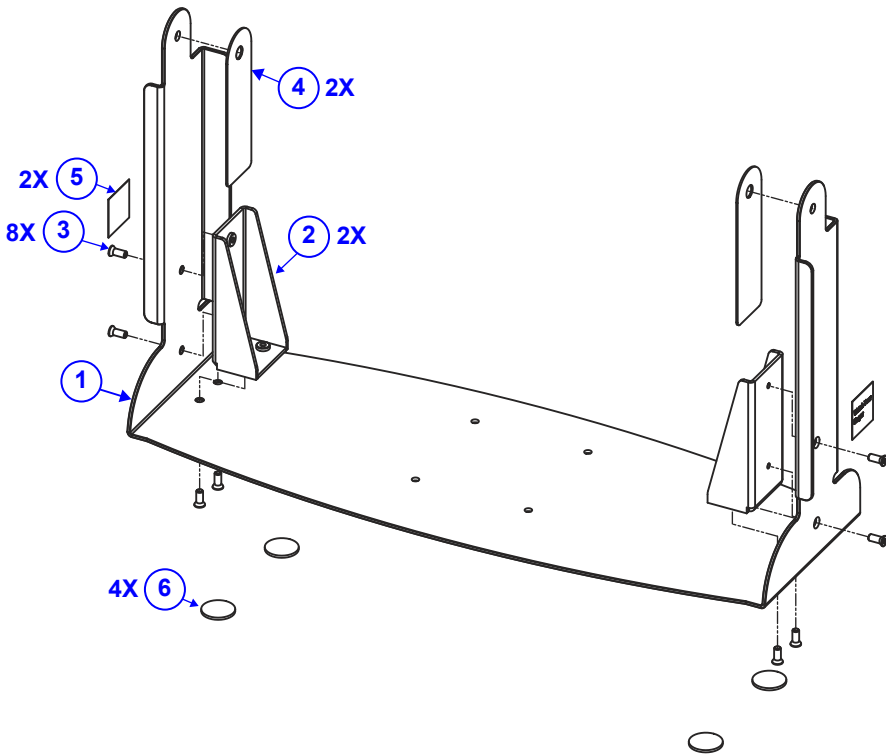

Handle x 2
P/N: 20-035-35001000
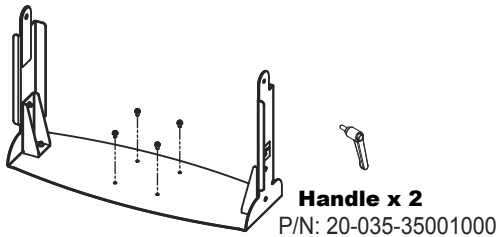
Stand Kit x 1 + Screw x 4
M4 x 0.7P screw
P/N: 22-240-40020011

Hand Scrw Bracket
P/N: 20-206-07001527

M4x0.7P screw
P/N: 20-206-07001527

Hand Screw Bracket x 2 + Screw x 4

SG-S172 U Stand Assembly Exploded Diagram

| ITEM	Description	Part No.	Q'ty
1	SG-S104 U Stand	20-217-07001525	1
2	SG-S100 U Stand Fix Plate	20-205-07001527	2
3	Flat Head Screw (SUS304) ϕ 6 / #2 / M4x0.7Px10mm	22-210-40010011	8
4	SG-S151 Stand Mylar	90-056-39100467	2
5	POS-3520 Watch Your Finger Label (26x26mm)	94-017-01601210	2
6	Rubber Foot (Φ20x1.5mm) (Black)	90-004-06102000	4

Appendix B   Technical Summary

This appendix will give you a brief introduction of the allocation maps for SG-S172 resources.

The following topics are included:
- Block Diagram
- Interrupt Map
- I/O Map
- Memory Map
- Configuring WatchDog Timer
- Flash BIOS Update

Block Diagram
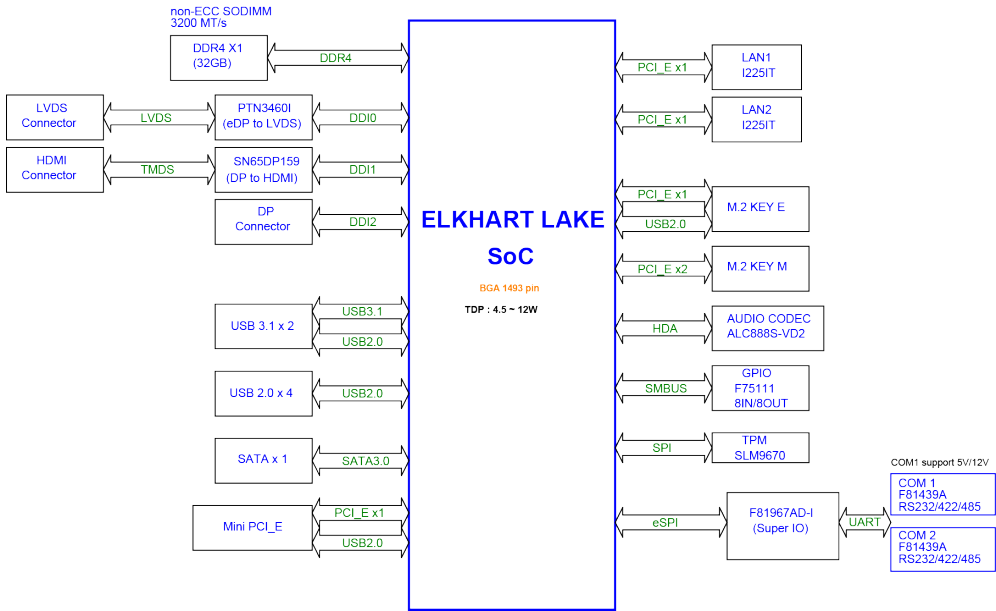
Interrupt Map

IRQ	ASSIGNMENT
IRQ 0	System timer
IRQ 3	Communications Port (COM2)
IRQ 4	Communications Port (COM1)
IRQ 8	System CMOS/real time clock
IRQ 14	Motherboard resources
IRQ 16	High Definition Audio Controller
IRQ 54	Microsoft ACPI-Compliant System
IRQ 55	Microsoft ACPI-Compliant System
IRQ 56	Microsoft ACPI-Compliant System
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IRQ	ASSIGNMENT
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IRQ	ASSIGNMENT
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IRQ	ASSIGNMENT
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IRQ	ASSIGNMENT
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IRQ	ASSIGNMENT
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IRQ	ASSIGNMENT
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IRQ	ASSIGNMENT
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IRQ	ASSIGNMENT
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IRQ 511	Microsoft ACPI-Compliant System
IRQ 4294967285	Intel(R) Management Engine Interface #1
IRQ 4294967286	Intel(R) Ethernet Controller (3) I225-IT
IRQ 4294967287	Intel(R) Ethernet Controller (3) I225-IT
IRQ 4294967288	Intel(R) Ethernet Controller (3) I225-IT
IRQ 4294967289	Intel(R) Ethernet Controller (3) I225-IT #2
IRQ 4294967290	Intel(R) Ethernet Controller (3) I225-IT #2
IRQ 4294967291	Intel(R) Ethernet Controller (3) I225-IT #2
IRQ 4294967292	Intel(R) UHD Graphics
IRQ 4294967293	Intel(R) USB 3.10 eXtensible Host Controller - 1.20 (Microsoft)
IRQ 4294967294	Standard SATA AHCI Controller

Note: These resource information were gathered using Windows 10 (the IRQ could be assigned differently depending on OS).

I/O MAP

I/O	ASSIGNMENT
0x00000000-0x00000CF7	PCI Express Root Complex
0x00000020-0x00000021	Programmable interrupt controller
0x00000024-0x00000025	Programmable interrupt controller
0x00000028-0x00000029	Programmable interrupt controller
0x0000002C-0x0000002D	Programmable interrupt controller
0x0000002E-0x0000002F	Motherboard resources
0x00000030-0x00000031	Programmable interrupt controller
0x00000034-0x00000035	Programmable interrupt controller
0x00000038-0x00000039	Programmable interrupt controller
0x0000003C-0x0000003D	Programmable interrupt controller
0x00000040-0x00000043	System timer
0x0000004E-0x0000004F	Motherboard resources
0x00000050-0x00000053	System timer

I/O	ASSIGNMENT
0x00000061-0x00000061	Motherboard resources
0x00000063-0x00000063	Motherboard resources
0x00000065-0x00000065	Motherboard resources
0x00000067-0x00000067	Motherboard resources
0x00000070-0x00000070	Motherboard resources
0x00000070-0x00000070	System CMOS/real time clock
0x00000080-0x00000080	Motherboard resources
0x00000092-0x00000092	Motherboard resources
0x000000A0-0x000000A1	Programmable interrupt controller
0x000000A4-0x000000A5	Programmable interrupt controller
0x000000A8-0x000000A9	Programmable interrupt controller
0x000000AC-0x000000AD	Programmable interrupt controller
0x000000B0-0x000000B1	Programmable interrupt controller
0x000000B2-0x000000B3	Motherboard resources
0x000000B4-0x000000B5	Programmable interrupt controller
0x000000B8-0x000000B9	Programmable interrupt controller
0x000000BC-0x000000BD	Programmable interrupt controller
0x000002F8-0x000002FF	Communications Port (COM2)
0x000003F8-0x000003FF	Communications Port (COM1)
0x000004D0-0x000004D1	Programmable interrupt controller
0x00000680-0x0000069F	Motherboard resources
0x00000A00-0x00000A0F	Motherboard resources
0x00000A10-0x00000A1F	Motherboard resources
0x00000A20-0x00000A2F	Motherboard resources
0x00000D00-0x0000FFFF	PCI Express Root Complex
0x0000164E-0x0000164F	Motherboard resources
0x00001800-0x000018FE	Motherboard resources
0x00001854-0x00001857	Motherboard resources
0x00002000-0x000020FE	Motherboard resources
0x00003000-0x00003FFF	Intel(R) PCI Express Root Port #0 - 4B38
0x00004000-0x0000403F	Intel(R) UHD Graphics
0x00004060-0x0000407F	Standard SATA AHCI Controller
0x00004080-0x00004083	Standard SATA AHCI Controller

I/O	ASSIGNMENT
0x00004090-0x00004097	Standard SATA AHCI Controller
0x0000EFA0-0x0000EFBF	Intel(R) SMBus Controller - 4B23

Memory Map

MEMORY MAP	ASSIGNMENT
0xFEC80000-0xFECFFFFF	Motherboard resources
0xFEDA0000-0xFEDA0FFF	Motherboard resources
0xFEDA1000-0xFEDA1FFF	Motherboard resources
0xC0000000-0xCFFFFFFF	Motherboard resources
0xFED20000-0xFED7FFFF	Motherboard resources
0xFED90000-0xFED93FFF	Motherboard resources
0xFED45000-0xFED8FFFF	Motherboard resources
0xFEE00000-0xFEEFFFFF	Motherboard resources
0x80900000-0x809FFFFF	Intel(R) Ethernet Controller (3) I225-IT
0x808FC000-0x808FFFFF	Intel(R) Ethernet Controller (3) I225-IT
0xFFEFC000-0xFFEFFFFF	High Definition Audio Controller
0xFFF00000-0xFFFFFFFF	High Definition Audio Controller
0xFED00000-0xFED003FF	High precision event timer
0x0000-0x9FFFFF	Intel(R) PCI Express Root Port #0 - 4B38
0xFE010000-0xFE010FFF	Intel(R) SPI (flash) Controller - 4B24
0xFD000000-0xFD68FFFF	Motherboard resources
0xFD6F0000-0xFDFFFFFF	Motherboard resources
0xFE000000-0xFE01FFFF	Motherboard resources
0xFE200000-0xFE7FFFFF	Motherboard resources
0xFF000000-0xFFFFFFFF	Motherboard resources
0xFD6B0000-0xFD6CFFFF	Motherboard resources
0xFD6B0000-0xFD6CFFFF	Motherboard resources
0x80A00000-0x80A01FFF	Standard SATA AHCI Controller
0x80A03000-0x80A030FF	Standard SATA AHCI Controller
0x80A02000-0x80A027FF	Standard SATA AHCI Controller
0x2100000-0x210FFFF	Intel(R) USB 3.10 eXtensible Host Controller - 1.20 (Microsoft)
0x80700000-0x807FFFFF	Intel(R) Ethernet Controller (3) I225-IT #2
0x806FC000-0x806FFFFF	Intel(R) Ethernet Controller (3) I225-IT #2
0x2118000-0x21180FF	Intel(R) SMBus Controller - 4B23

MEMORY MAP	ASSIGNMENT
0xFFEFB000-0xFFEFBFFF	Intel(R) Management Engine Interface #1
0x80800000-0x809FFFFF	Intel(R) PCI Express Root Port #1 - 4B39
0x80600000-0x807FFFFF	Intel(R) PCI Express Root Port #2 - 4B3A
0x1000000-0x1FFFFFF	Intel(R) UHD Graphics
0x0000-0xFFFFFFFF	Intel(R) UHD Graphics
0xFD6E0000-0xFD6EFFFF	Motherboard resources
0xFD6D0000-0xFD6DFFFF	Motherboard resources
0xFD6A0000-0xFD6AFFFF	Motherboard resources
0xFD690000-0xFD69FFFF	Motherboard resources
0xA0000-0xBFFFF	PCI Express Root Complex
0xE0000-0xE3FFF	PCI Express Root Complex
0xE4000-0xE7FFF	PCI Express Root Complex
0xE8000-0xEBFFF	PCI Express Root Complex
0xEC000-0xEFFFF	PCI Express Root Complex
0xF0000-0xFFFFF	PCI Express Root Complex
0x7FC00000-0x805FFFFF	Intel(R) PCI Express Root Port #0 - 4B38
0x7FC00000-0x805FFFFF	PCI Express Root Complex

Configuring WatchDog Timer

The I/O port address of the watchdog timer is 2E (hex) and 2F (hex). 2E (hex) is the address port. 2F (hex) is the data port. Users must first assign the address of register by writing address value into address port 2E (hex), then write/read data to/from the assigned register through data port 2F (hex).

Configuration Sequence

To program F81967 configuration registers, the following configuration sequence must be followed:

(1) Enter the extended function mode

To place the chip into the Extended Function Mode, two successive writes of 0x87 must be applied to Extended Function Enable Registers (EFERs, i.e. 2Eh or 4Eh).

(2) Configure the configuration registers

The chip selects the Logical Device and activates the desired Logical Devices through Extended Function Index Register (EFIR) and Extended Function Data Register (EFDR). The EFIR is located at the same address as the EFER, and the EFDR is located at address (EFIR+1). First, write the Logical Device Number (i.e. 0x07) to the EFIR and then write the number of the desired Logical Device to the EFDR. If accessing the Chip (Global) Control Registers, this step is not required. Secondly, write the address of the desired configuration register within the Logical Device to the EFIR and then write (or read) the desired configuration register through the EFDR.

(3) Exit the extended function mode

To exit the Extended Function Mode, writing 0xAA to the EFER is required. Once the chip exits the Extended Function Mode, it is in the normal running mode and is ready to enter the configuration mode.

Code example for watch dog timer

Enable watchdog timer and set timeout interval to 30 seconds.

```
; ------------------------ Enter to extended function mode -----------------------------
mov    dx,   2Eh
mov    al,   87h
out    dx,   al
out    dx,   al
; ---------------------- Select Logical Device 7 of watchdog timer --------------------
mov    al,   07h
out    dx,   al
inc    dx
mov    al,   07h
out    dx,   al
;--------------------------------Enable Watch dog feature ----------------------------
dec    dx
mov    al,   30h
out    dx,   al
inc    dx
mov    al,   01h
out    dx,   al
; --------------- Set timeout interval as 30seconds and start counting -------------
dec    dx
mov    al,   F6h
out    dx,   al
inc    dx
mov    al,   1Eh
out    dx,   al
;----------------------------- Enable Watch PME------------------------------------------
dec    dx
mov    al,   FAh
out    dx,   al
inc    dx
in     al,   dx
or     al,   51h
out    dx,   al
;------------------------- Set second as counting unit ------------------------------------
dec    dx
mov    al,   F5h
out    dx,   al
inc    dx
in     al,   dx
and    al,   DEh
out    dx,   al
;------------------------ Start the watchdog timer ------------------------------------
or     al,   20h
out    dx,   al
;------------------------------Exit the extended function mode ------------------------
dec    dx
mov    al,   AAh
out    dx,   al
```

Flash BIOS Update

I. Prerequisites

1 Prepare a bootable media (e.g. USB storage device) which can boot system to EFI Shell.

 Note: Note: Copy UEFI Shell into the storage device under specific directory path. (/efi/boot/bootx64.efi)

2 Download and save the BIOS file (e.g. S1720PX1.bin) to the bootable device.

3 Copy AMI flash utility – AfuEfix64.efi (v5.14.01.0015) into bootable device.

4 Make sure the target system can first boot to the bootable device.

  (1) Connect the bootable USB device.

  (2) Turn on the computer and press **<ESC>** or **<DEL>** during boot to enter BIOS Setup.

  (3) Select [**Boot**] menu and set the USB bootable device as the 1st boot device.

  (4) Press **<F4>** to save the configuration and exit the BIOS setup menu.

```
                          Aptio Setup – AMI
      Main  Advanced  Chipset  Security  Boot  Save & Exit

   Boot Configuration                             Sets the system boot order
   Setup Prompt Timeout          1
   Bootup NumLock State          [On]
   Quiet Boot                    [Disabled]

   Boot Option Priorities
   Boot Option #1                [UEFI: SanDisk,
                                 Partition 1 (SanDisk)]

   Boot Option #2                [Windows Boot Manager
                                 (P1: Team Ind
            ┌───────────────── Boot Option #1 ─────────────────┐
   Fast Boot│ Windows Boot Manager (P1: Team Ind S745-M80)     │
            │ UEFI: SanDisk, Partition 1 (SanDisk)             │
            │ Disabled                                         │ t Screen
            └──────────────────────────────────────────────────┘ t Item
                                                           lect
                                                 +/-: Change Opt.
                                                 F1: General Help
                                                 F2: Previous Values
                                                 F3: Optimized Defaults
                                                 F4: Save & Exit
                                                 ESC: Exit



              Version 2.22.1282 Copyright (C) 2022 AMI
```

II. AFUEFI Command For System BIOS Update

AfuEfix64.efi is the AMI firmware update utility. The command line is shown as below:

AfuEfix64 <ROM File Name> [option1] [option2]….

Users can type "AfuEfix64/ ?" to view the definition of each control option. The recommended options for BIOS ROM update include the following parameters:

/P: Program main BIOS image.

/B: Program Boot Block.

/N: Program NVRAM.

/X: Don't check ROM ID.

III. BIOS Update Procedure

1 Use the bootable USB storage to boot up the system into the EFI Shell.

2 Type "**AfuEfix64 S172xxxx.bin /p /b /n /x /r1**" and press "Enter" to start the flash procedure. (xxxx means the BIOS revision part, e.g. 0PM1…)

3 During the update procedure, you will see the BIOS update process status and its percentage. Beware! **DO NOT** turn off the system power or reset your computer if the whole procedure is not completed yet, or it may crash the BIOS ROM and make the system unable to boot up next time.

4 After BIOS update procedure is completed, the messages below will display:

```
fs0:\> AFUEFIx64 S1720PX1.bin /p /b /n /x /r1

+----------------------------------------------------------------------+
|                    AMI Firmware Update Utility v5.14.01.0015          |
|      Copyright (C) 1985-2020, American Megatrends International LLC.  |
|          All Rights Reserved. Subject to AMI licensing agreement.     |
+----------------------------------------------------------------------+
  Reading flash .............. done
  - ME Data Size Checking. ok
  - FFS checksums ........ ok
  - Check RomLayout ...... ok
  Erasing Boot Block ......... done
  Updating Boot Block ........ done
  Verifying Boot Block ....... done
  Erasing Main Block ......... done
  Updating Main Block ........ done
  Verifying Main Block ....... done
  Erasing NVRAM Block ........ done
  Updating NVRAM Block ....... done
  Verifying NVRAM Block ...... done

fs0:\afuefix64>
```

5 Restart the system and boot up with the new BIOS configurations.

6 The BIOS Update is completed after the system is restarted.

7 Reboot the system and verify if the BIOS version shown on the initialization screen has been updated.

```
Version 2.22.1282. Copyright (C) 2023 AMI.
BIOS Date: 03/16/2023 15:34:18 Ver: S1720PX1
Press <DEL> or <ESC> to enter setup.
```