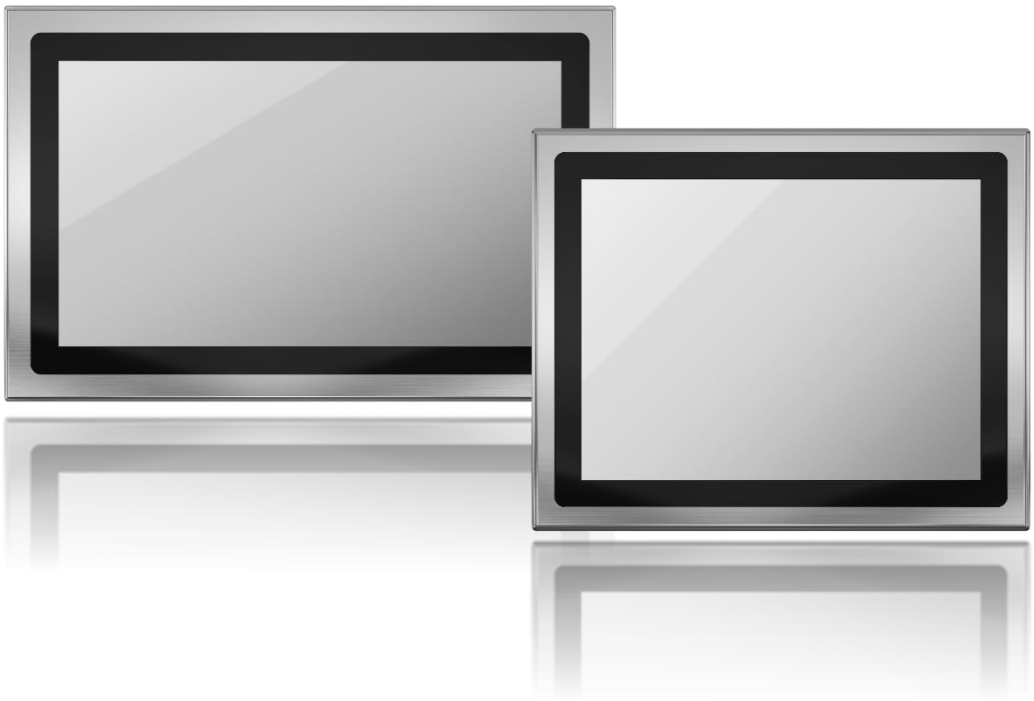
USER'S MANUAL

SIO-300-ASL Series

INDUSTRIAL STAINLESS STEEL SUS316 TOUCH SCREEN COMPUTER



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Prefaces

Revision	Description	Date
1.0	Manual Released	2026/01/13
2.0	DDR5 4800/5600 MT/s SO-DIMM. Max. 32GB	2026/02/13

Revision

Disclaimer

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Environmental Protection Announcement

Do not dispose this electronic device into the trash while discarding. Please recycle to minimize pollution and ensure environment protection.

Safety Precautions

Before installing and using the equipment, please read the following precautions:

- Put this equipment on a reliable surface during installation. Dropping it or letting it fall could cause damage.
- The power outlet shall be installed near the equipment and shall be easily accessible.
- Turn off the system power and disconnect the power cord from its source before making any installation. Be sure both the system and the external devices are turned OFF. Sudden surge
- of power could ruin sensitive components. Make sure the equipment is properly grounded.
- When the power is connected, never open the equipment. The equipment should be opened only by qualified service personnel.
- Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.
- Disconnect this equipment from the power before cleaning. Use a damp cloth. Do not use liquid or spray detergents for cleaning.
- Avoid the dusty, humidity and temperature extremes.
- Do not place heavy objects on the equipment.
- If the equipment is not used for long time, disconnect it from the power to avoid being damaged by transient over-voltage.
- The storage temperature shall be above -20°C and below 70°C.
- The computer is provided with a battery-powered real-time clock circuit. There is a danger of explosion if incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer.
- If one of the following situation arises, get the equipment checked be service personnel:
    - The power cord or plug is damaged.
    - Liquid has penetrated into the equipment.
    - The equipment has been exposed to moisture.
    - The equipment does not work well or it cannot work according the user's manual.
    - The equipment has been dropped and damaged.
    - The equipment has obvious signs of breakage.

Technical Support and Assistance

1. Visit the Premio Inc website at premioinc.com where you can find the latest information about the product.
2. Contact your distributor, our technical support team or sales representative for technical support if you need additional assistance. Please have following information ready before you call:
   - Model name and serial number
   - Description of your peripheral attachments
   - Description of your software (operating system, version, application software, etc.)
   - A complete description of the problem
   - The exact wording of any error messages

Conventions Used in this Manual

WARNING This indication alerts operators to an operation that, if not strictly observed, may result in severe injury.

CAUTION This indication alerts operators to an operation that, if not strictly observed, may result in safety hazards to personnel or damage to equipment.

NOTE This indication provides additional information to complete a task easily.

Package Contents

Before installation, please ensure all the items listed in the following table are included in the package.

Item	Description	Q'ty
1	SIO-300-ASL Series Stainless Steel Panel PC	1
2	Waterproof Connector Cover Set	1
3	Waterproof AC Power Input M12 S-CODE 4P PWR Cable	1

Ordering Information

Model No.	Description
1-TCOM00032	Waterproof COM Cable 1.5M
1-TLAN00024	Waterproof LAN Cable 1.5M
1-TUSB00057	Waterproof USB 2.0 Cable 1.6M
1-TPWR00106	Waterproof M12 S-CODE 4P PWR Cable(SUS316L) Type_EU L=3M
1-TPWR00092	Waterproof M12 S-CODE 4P PWR Cable(SUS316L) Type US L=3M
1-TGND00001	Grounding extension cable 3M

Available Models

Model No.	Description
SIO-315C-N97	15" XGA Capacitive Touch Stainless Steel Panel PC with Intel® N97 Processor, 2x LAN, 2x COM, 2x USB
SIO-315R-N97	15" XGA Resistive Touch Stainless Steel Panel PC with Intel® N97 Processor, 2x LAN, 2x COM, 2x USB
SIO-315C-X7835RE	15" XGA Capacitive Touch Stainless Steel Panel PC with Intel Atom® x7835RE Processor, 2x LAN, 2x COM, 2x USB
SIO-315R-X7835RE	15" XGA Resistive Touch Stainless Steel Panel PC with Intel Atom® x7835RE Processor, 2x LAN, 2x COM, 2x USB
SIO-W315C-N97	15.6" FHD Capacitive Touch Stainless Steel Panel PC with Intel® N97 Processor, 2x LAN, 2x COM, 2x USB
SIO-W315R-N97	15.6" FHD Resistive Touch Stainless Steel Panel PC with Intel® N97 Processor, 2x LAN, 2x COM, 2x USB
SIO-W315C-X7835RE	15.6" FHD Capacitive Touch Stainless Steel Panel PC with Intel Atom® x7835RE Processor, 2x LAN, 2x COM, 2x USB
SIO-W315R-X7835RE	15.6" FHD Resistive Touch Stainless Steel Panel PC with Intel Atom® x7835RE Processor, 2x LAN, 2x COM, 2x USB
SIO-W321C-N97	21.5" FHD Capacitive Touch Stainless Steel Panel PC with Intel® N97 Processor, 2x LAN, 2x COM, 2x USB
SIO-W321R-N97	21.5" FHD Resistive Touch Stainless Steel Panel PC with Intel® N97 Processor, 2x LAN, 2x COM, 2x USB
SIO-W321C-X7835RE	21.5" FHD Capacitive Touch Stainless Steel Panel PC with Intel Atom® x7835RE Processor, 2x LAN, 2x COM, 2x USB
SIO-W321R-X7835RE	21.5" FHD Resistive Touch Stainless Steel Panel PC with Intel Atom® x7835RE Processor, 2x LAN, 2x COM, 2x USB
SIO-W324C-N97	23.8" FHD Capacitive Touch Stainless Steel Panel PC with Intel® N97 Processor, 2x LAN, 2x COM, 2x USB
SIO-W324R-N97	23.8" FHD Resistive Touch Stainless Steel Panel PC with Intel® N97 Processor, 2x LAN, 2x COM, 2x USB
SIO-W324C-X7835RE	23.8" FHD Capacitive Touch Stainless Steel Panel PC with Intel Atom® x7835RE Processor, 2x LAN, 2x COM, 2x USB
SIO-W324R-X7835RE	23.8" FHD Resistive Touch Stainless Steel Panel PC with Intel Atom® x7835RE Processor, 2x LAN, 2x COM, 2x USB

Chapter 1

Product Introductions

1.1 Overview

The SIO-300-ASL Series is a full IP66/IP69K-rated waterproof touchscreen computer, designed for operation in high-pressure and high-temperature washdown environments.It provides reliable, sealed connectivity with excellent resistance to humidity, water, dust, dirt, and corrosion.

Featuring a rugged stainless steel display, the SIO-300-ASL Series is specifically engineered for hygienic and sanitary applications, such as food processing and pharmaceutical environments.

This system is available as a Full HD (FHD) stainless steel panel PC with resistive or capacitive touch options and is powered by an Intel® Processor N97 with 6 MB cache, up to 3.60 GHz, quad-core, and 12 W TDP.

1.1.1 Key Features

- 1x DDR5 4800/5600 MT/s SO-DIMM. Max. 32GB
- 1x M.2 B Key, 1x M.2 E Key
- 2x 2.5GbE LAN, 2x USB, 2x COM
- Support 110V to 240V AC power input
- Fanless Operation from -10°C to 50°C
- Full system IP66/IP69K with Stainless Steel SUS316 construction
- Scratch Resistant 7H Glass Hardness
- Optical Bonding for ultimate clarity
- Pressure Valve SUS316L VENT
- CE, FCC Class A

1.2 Hardware Specification

Display	SIO-315-ASL	SIO-W315-ASL	SIO-W321-ASL	SIO-W324-ASL
LCD Size	15" (4:3)	15.6" (16:9)	21.5" (16:9)	23.8" (16:9)
Max. Resolution	1024 x 768 (XGA)	1920 x 1080 (FHD)	1920 x 1080 (FHD)	1920 x 1080 (FHD)
Brightness (cd/m2)	450 nits	450 nits	400 nits	450 nits
Contrast Ratio	2500:1	800:1	1,000:1	1,000:1
LCD Color	16.2M	16.2M	16.7M	16.7M
Pixel Pitch (mm)	0.297(H) x 0.297 (V)	0.17925 (H) x 0.17925 (V)	0.248 (H) x 0.248 (V)	0.248 (H) x 0.248 (V)
Viewing Angle (H-V)	88/88/88/88 (Typ.) (CR>=10)	85 /85 /85 /85 (Typ.) (CR>=10)	89/89/89/89 (Typ.) (CR>=10)	89/89/89/89 (Typ.) (CR>=10)
Backlight Lifetime	70,000 Hours	50,000 Hours	50,000 Hours	50,000 Hours

Touch	
Projected Capacitive Touch	Surface Hardness: 7H / IK07 Multi-touch: Default 2 point (Support Glove Mode) Anti-noise: CS 10V rms
Resistive Touch (Option)	Surface Hardness: 3H Touch Point: single Touch IP Rating: IP65

System	
Processor	• Standard - Intel® Processor N97 6M Cache, up to 3.60 GHz 4 core 12W • Project Based - Intel® Atom® x7835RE Processor 6M Cache, up to 3.60 GHz, 8 core 12W
System Chipset	SoC integrated
LAN Chipset	GbE1: Intel i226V 2.5GbE LAN PXE Support GbE2: Intel i226V 2.5GbE LAN PXE Support
Audio Codec	Realtek ALC897
System Memory	1x DDR5 4800/5600 MT/s SO-DIMM. Max. 32GB
BIOS	AMI uEFI 256MB SPI flash
Watchdog	Software Programmable Supports 1~255 sec. System Reset

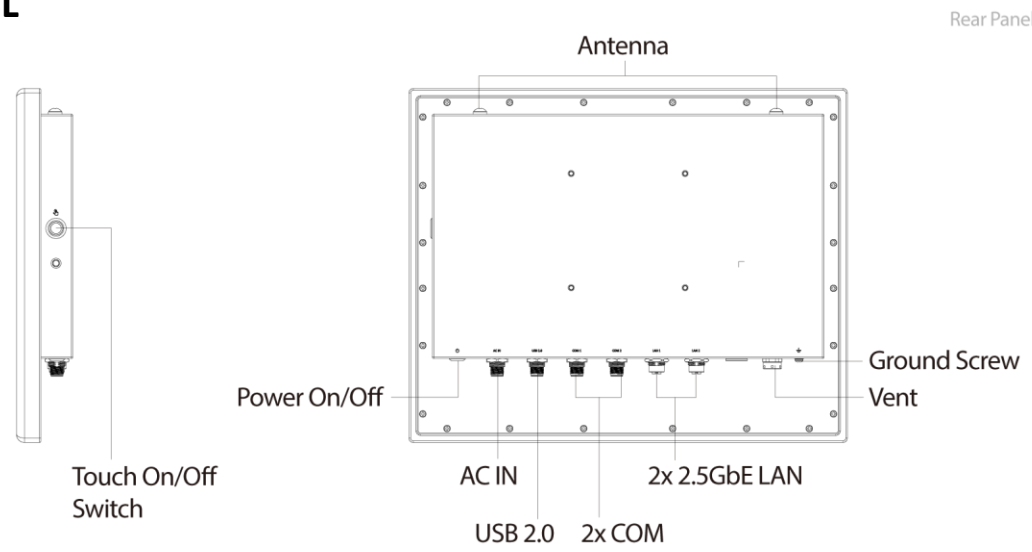
Storage	
SSD/HDD	1x M.2 B key 2242/3042 NVMe/SATA SSD (21.5" 23.8" optional 4G/5G)
SATA	• SIO-W321-ASL, SIO-W324-ASL only : 1x 2.5" SATA SSD (Optional)
Expansion	
Network Modules	M.2 E Key for Wi-Fi 6E (Optional)
I/O	
COM	COM1: 1x RS232/422/485 by M12 A-Code 8-pin (Default RS232) COM2: 1x RS232 by M12 A-Code 8-pin
LAN	2x LAN by M12 X-Code 8-pin
USB	1x M12 A-code by 2x USB 2.0 (8-pin)
Others	• SIO-315-ASL, SIO-W315-ASL : 2x Antenna (Optional) Power On/Off SUS 316 Vent • SIO-W321-ASL, SIO-W324-ASL : 4x Antenna (Optional) Power On/Off SUS 316 Vent
Operating System	
Windows	Windows 10/11
Linux	Ubuntu 22.04 / 24.04 LTS
Power	
Power Adapter	AT / ATX (default)
Power Supply Voltage	110 ~ 240V AC Input
Power Connector	M12 S-code 4-pin

Environment	
Operating Temp	-10˚C to 50˚C
Storage Temp	-20˚C to 70˚C
Relative Humidity	10% to 80% (non-condensing)
IP Level	Full System IP66/IP69K
Certification	CE,FCC Class A
Vibration	With SSD: 3 Grms (5 - 500 Hz, 0.5 hr/axis)
Shock	With SSD: 20G half-sin 11ms

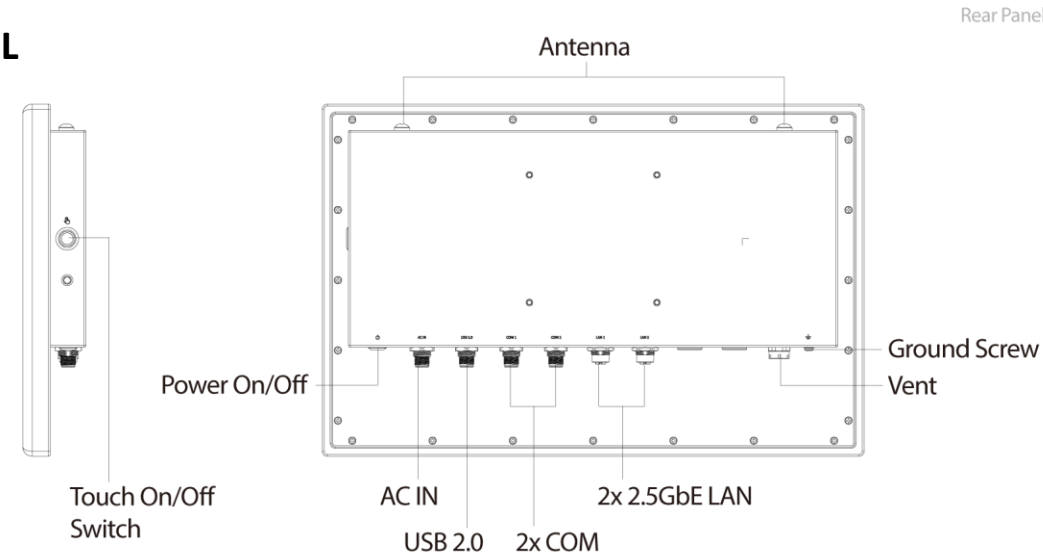
Physical	
Dimensions	• SIO-315-ASL：385 (W) x 310 (H) x 49.5 (D) mm • SIO-W315-ASL：425 (W) x 276(H) x 49.5 (D) mm • SIO-W321-ASL：588.5 (W) x 380 (H) x 52.8 (D) mm • SIO-W324-ASL：623 (W) x 417 (H) x 54 (D) mm
Weights	• SIO-315-ASL：5.96 kg • SIO-W315-ASL：7.39 kg • SIO-W321-ASL：10 kg • SIO-W324-ASL：12 kg
Construction	Stainless Steel SUS316 with Optical bonding
Mounting Options	• SIO-315-ASL & SIO-W315-ASL： VESA Mounting Holes 100 x 100 mm Optional Yoke Mount • SIO-W321-ASL & SIO-W324-ASL： VESA Mounting Holes 100 x 100 mm or 200 x 100 mm Optional Yoke Mount

1.3 System I/O

SIO-315-ASL



SIO-W315-ASL



Power
Power Supply Voltage 110 ~ 240V AC Input by M12 S-Code 4pin

USB
1x M12 A-code by 2x USB 2.0 (8-pin)

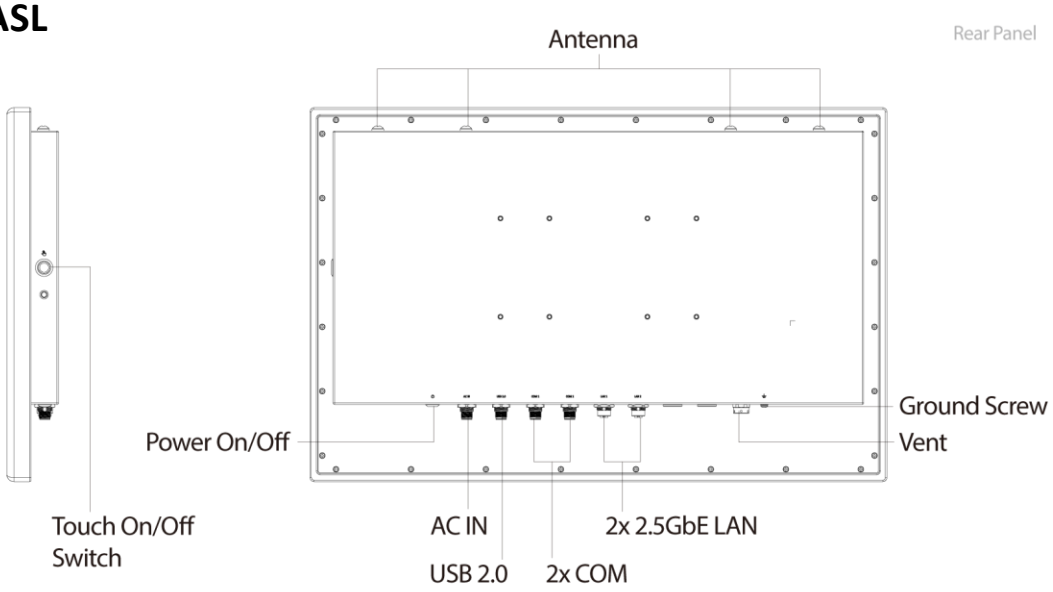
LAN
2x LAN by M12 X-Code 8-pin

COM
- COM1: 1x RS232/422/485 by M12 A-Code 8-pin (Default RS232)
- COM2: 1x RS232 by M12 A-Code 8-pin

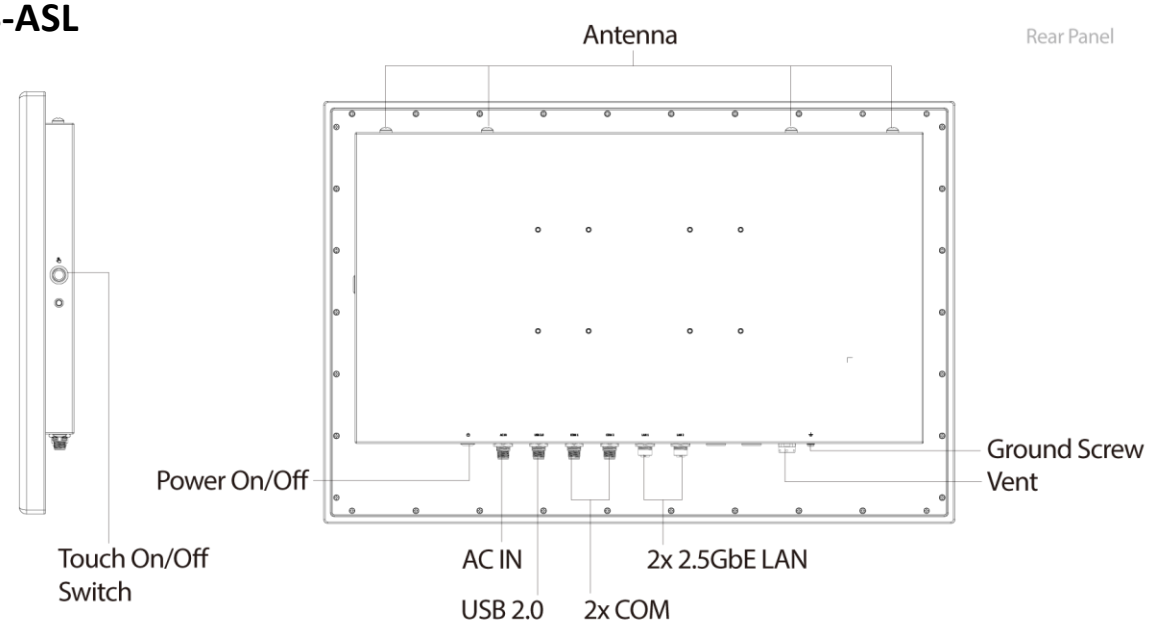
Touch
Touch ON/OFF Switch

Ground Screw Vent
Combines protective grounding and pressure equalization to enhance safety and enclosure reliability.

SIO-W321-ASL



SIO-W324-ASL



Power
Power Supply Voltage 110 ~ 240V AC Input by M12 S-Code 4pin

USB
1x M12 A-code by 2x USB 2.0 (8-pin)

LAN
2x LAN by M12 X-Code 8-pin

COM
- COM1: 1x RS232/422/485 by M12 A-Code 8-pin (Default RS232)
- COM2: 1x RS232 by M12 A-Code 8-pin

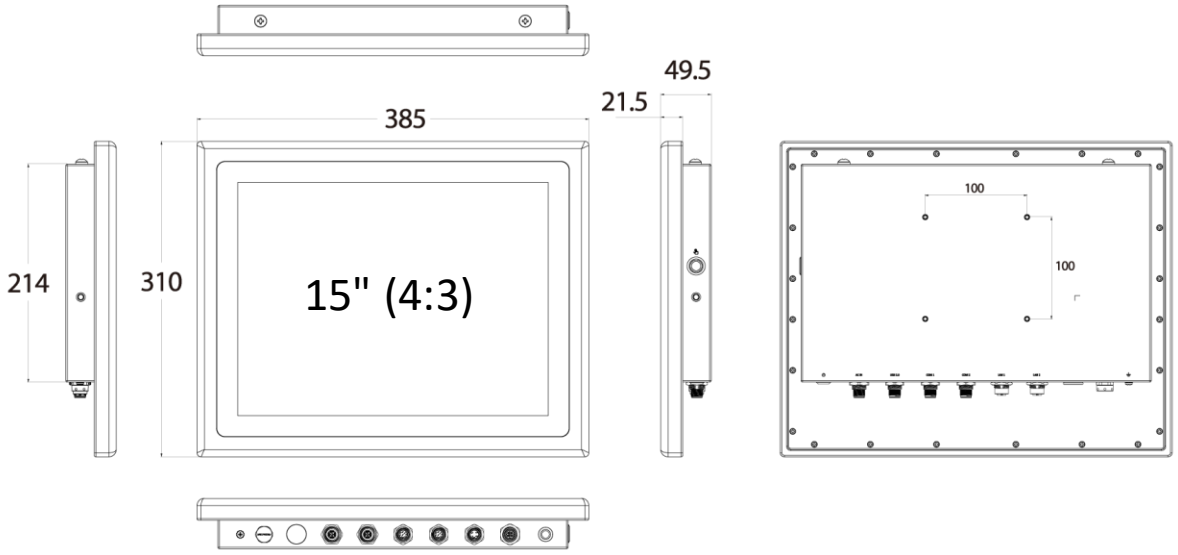
Touch
Touch ON/OFF Switch

Ground Screw Vent
Combines protective grounding and pressure equalization to enhance safety and enclosure reliability.

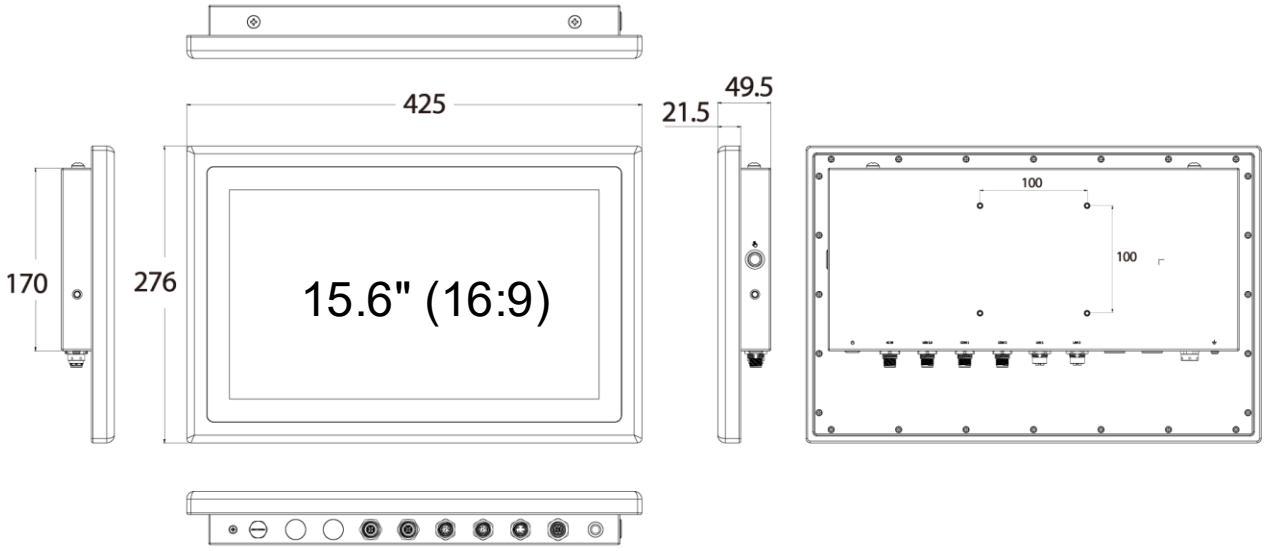
1.4 Mechanical Dimensions

SIO-315-ASL

Unit: mm

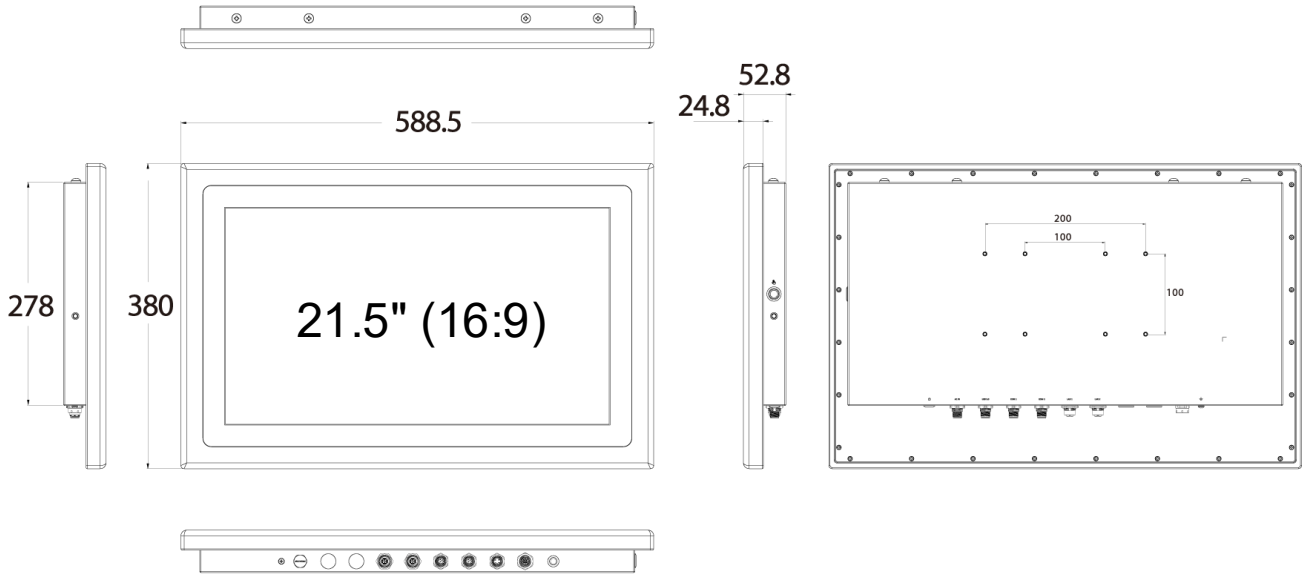


SIO-W315-ASL

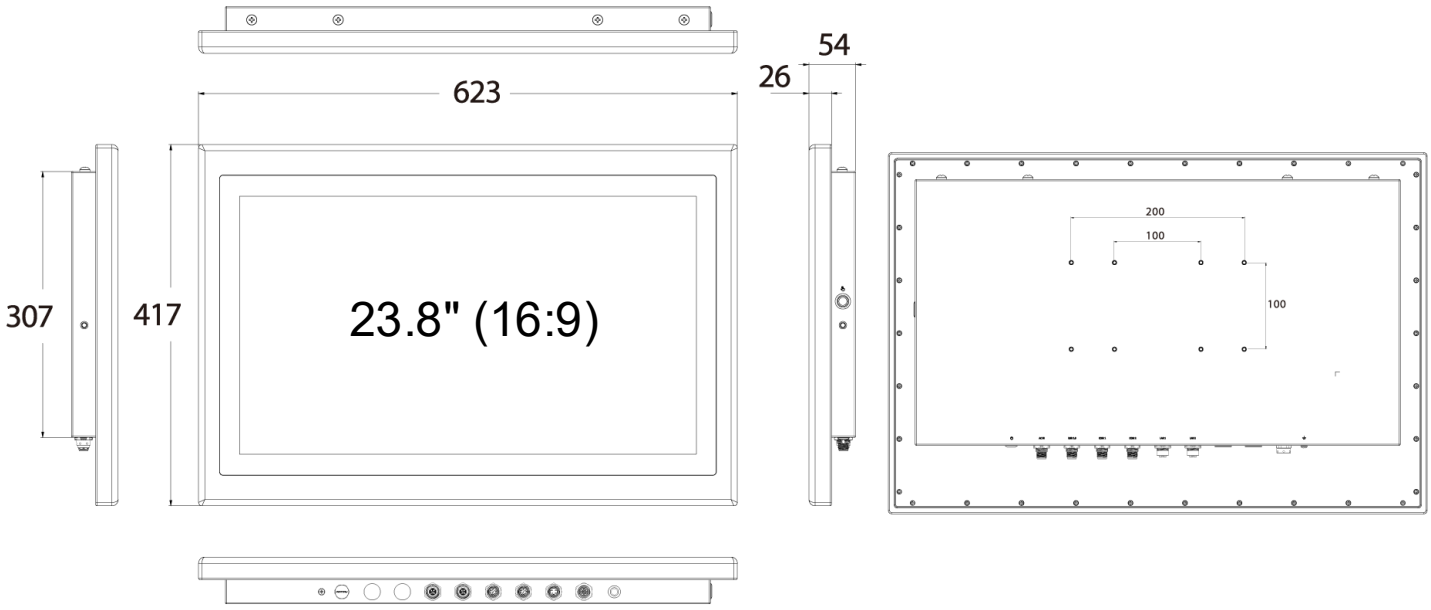


SIO-W321-ASL

Unit: mm



SIO-W324-ASL

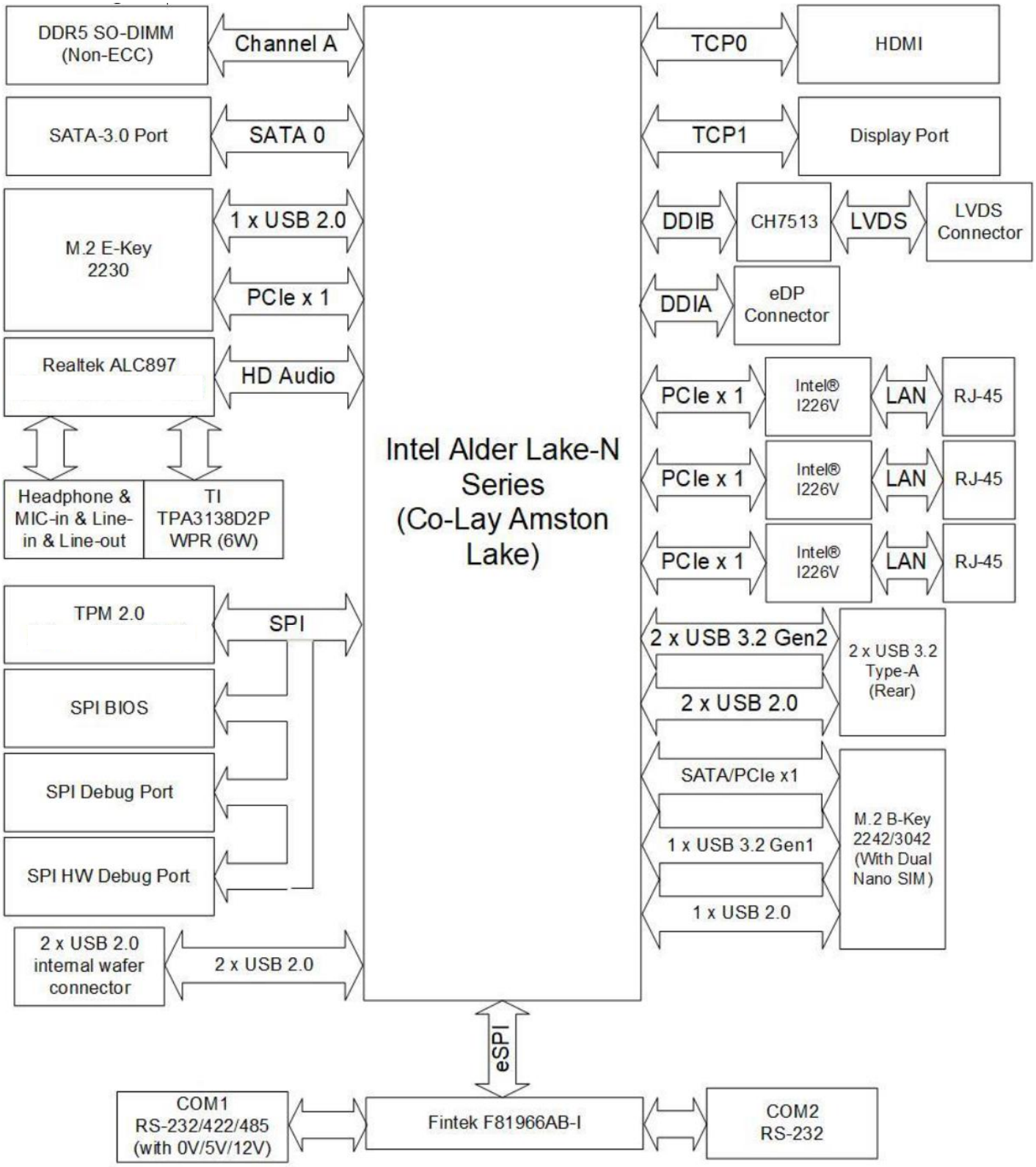


Chapter 2

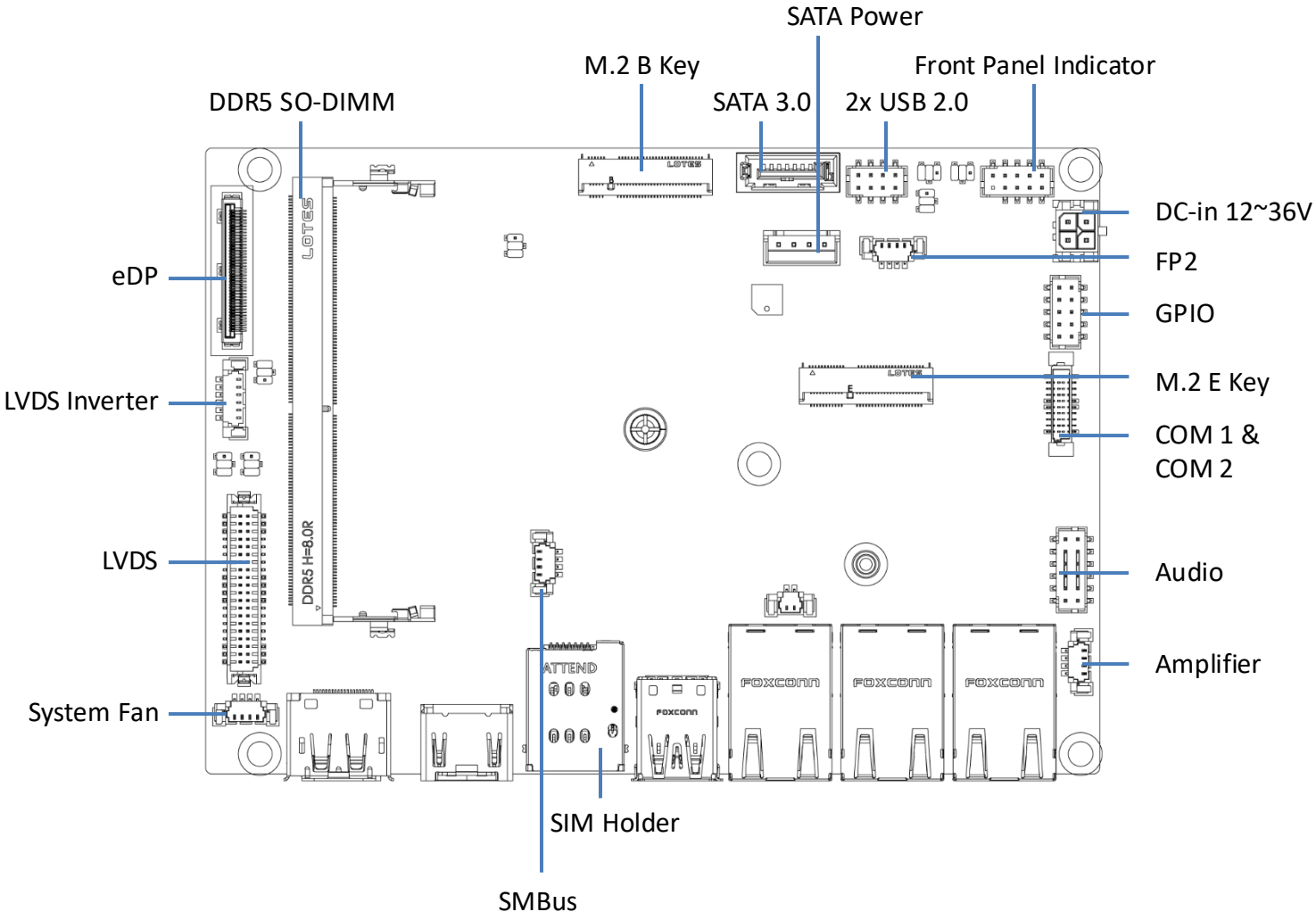
Switches and Connectors

2.1 Motherboard Overview

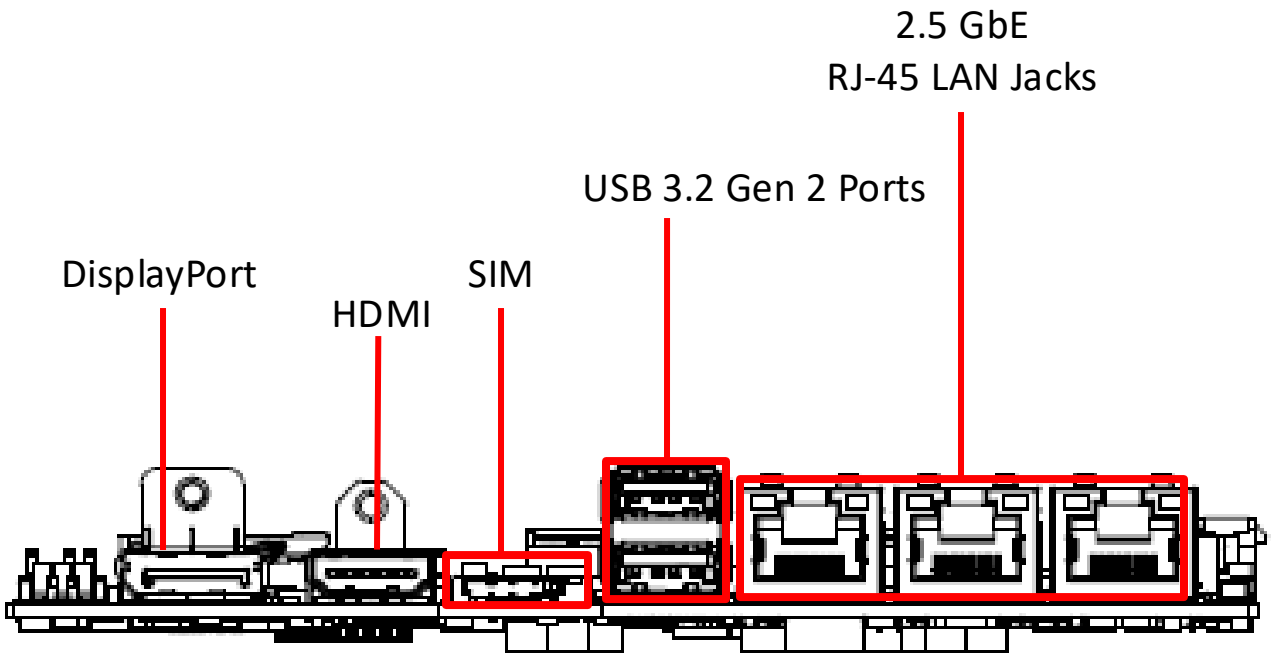
2.1.1 Block Diagram



2.1.2 Top View


SATA Power
M.2 B Key
Front Panel Indicator
DDR5 SO-DIMM
SATA 3.0
2x USB 2.0
DC-in 12~36V
eDP
FP2
GPIO
LVDS Inverter
M.2 E Key
COM 1 &
COM 2
LVDS
Audio
Amplifier
System Fan
SIM Holder
SMBus

2.1.3 Rear I/O Panel



DisplayPor

DisplayPort is a digital display interface standard. This connector is used to connect a monitor with DisplayPort inputs.

USB 3.2 Gen 2 Port

USB 3.2 Gen 2, the SuperSpeed USB 10Gbps, delivers high-speed data transfer for various devices, such as storage devices, hard drives, video cameras, etc.

LAN port

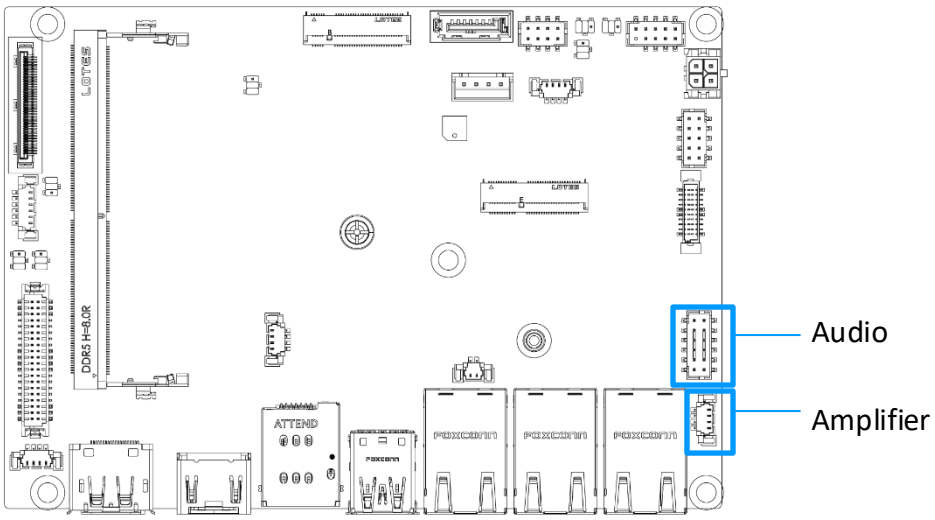
Used to connect the system to a local area network

SIM

Used to insert SIM card

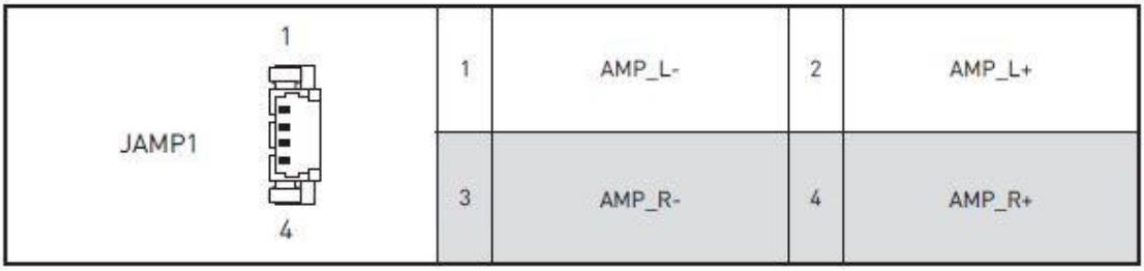
2.2 Pin Define

2.2.1 Amplifier



JAMP1: Audio Amplifier Header

The connector is used to connect audio amplifiers to enhance audio performance.

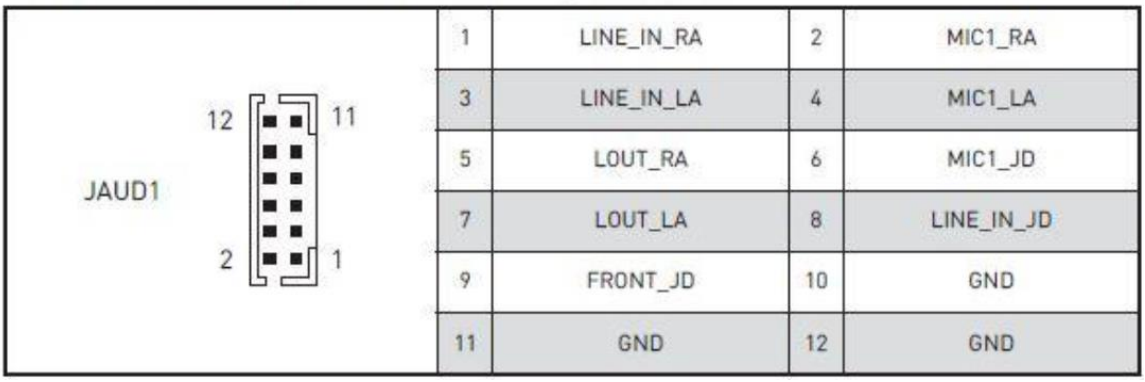


1	AMP_L-	2	AMP_L+
3	AMP_R-	4	AMP_R+

2.2.2 Front Audio

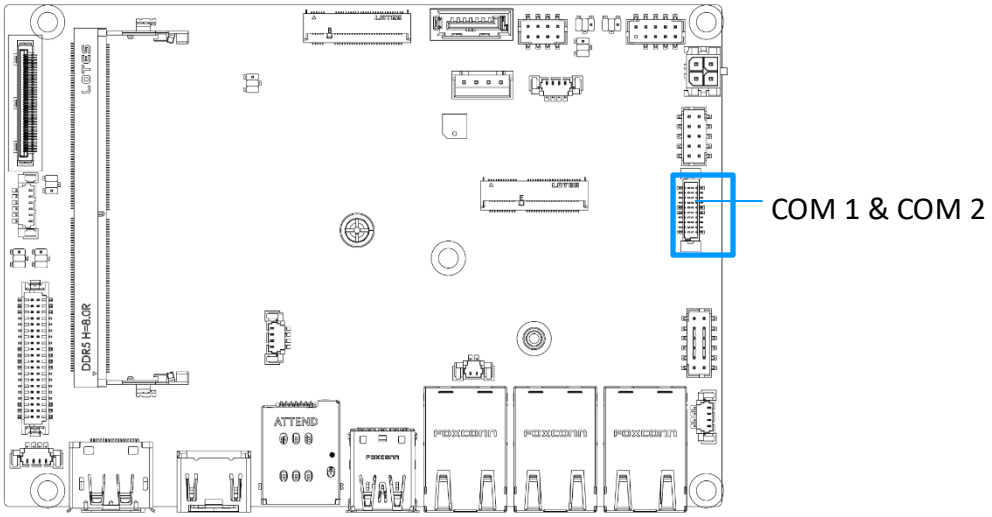
JAUD1: Front Audio Header

This connector allows you to connect front panel audio.



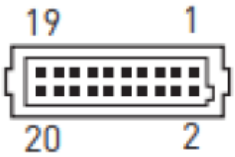
1	LINE_IN_RA	2	MIC1_RA
3	LINE_IN_LA	4	MIC1_LA
5	LOUT_RA	6	MIC1_JD
7	LOUT_LA	8	LINE_IN_JD
9	FRONT_JD	10	GND
11	GND	12	GND

2.2.3 COM Ports (COM 1~2)



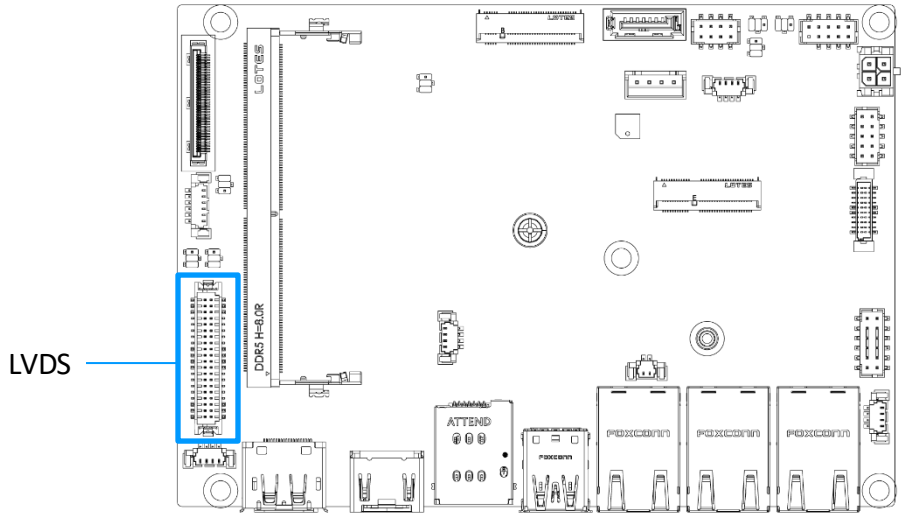
COM 1 and COM 2

JCOM1_2



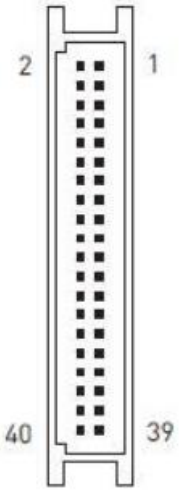
RS232			RS422			RS485		
1	2	DCD	1	2	TXD-	1	2	TXD-
3	4	RXD	3	4	TXD+	3	4	TXD+
5	6	TXD	5	6	RXD+	5	6	NC
7	8	DTR	7	8	RXD-	7	8	NC
9	10	GND	9	10	GND	9	10	GND
11	12	DSR	11	12	NC	11	12	NC
13	14	RTS	13	14	NC	13	14	NC
15	16	CTS	15	16	NC	15	16	NC
17	18	POWER	17	18	NC	17	18	NC
19	20	NC	19	20	NC	19	20	NC

2.2.4 LVDS



JLVDS1: LVDS Wafer Connector

This connector is designed for use with LVDS interface flat panels. When connecting your flat panel to this connector, be sure to check the panel datasheet to ensure that you set the **LVDS power select jumper (JVDD1)** to the appropriate power voltage.

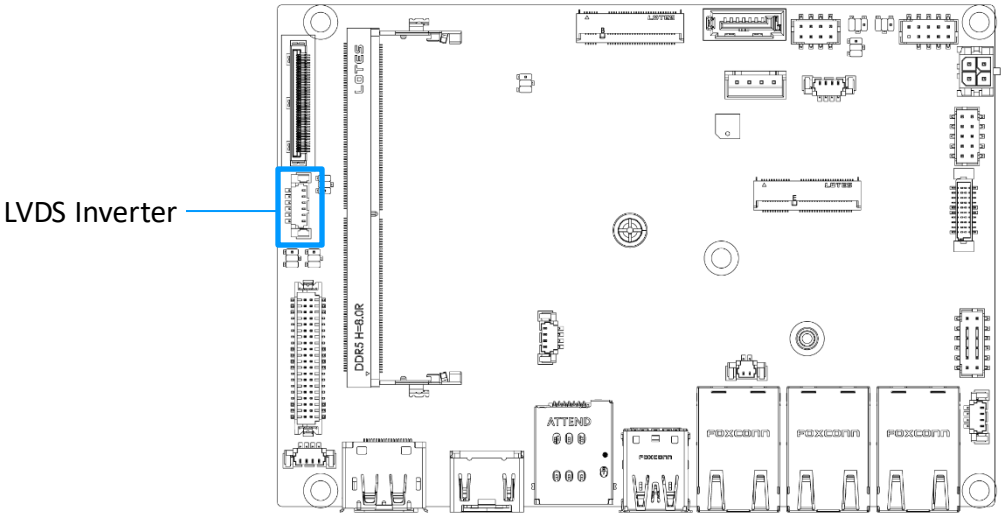


1	12V	2	12V
3	LCD_VDD	4	12V
5	LCD_VDD	6	LCD_VDD
7	DDC_CLK	8	DDC_DATA
9	L_BKLT_CTRL#	10	LCDEN
11	INV_ON	12	LVDS_DETECT#_C
13	LVDSA_DATA1	14	LVDSA_DATA0
15	LVDSA_DATA#1	16	LVDSA_DATA#0
17	GND	18	GND
19	LVDSA_DATA3	20	LVDSA_DATA2
21	LVDSA_DATA#3	22	LVDSA_DATA#2
23	GND	24	GND
25	LVDSB_DATA1	26	LVDSB_DATA0
27	LVDSB_DATA#1	28	LVDSB_DATA#0
29	GND	30	GND
31	LVDSB_DATA3	32	LVDSB_DATA2
33	LVDSB_DATA#3	34	LVDSB_DATA#2
35	GND	36	GND
37	LVDSB_CLK	38	LVDSA_CLK
39	LVDSB_CLK#	40	LVDSA_CLK#

Important

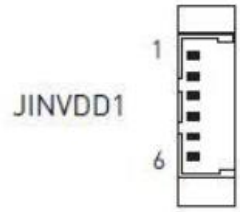
Pin 12 is a detect pin. When using a customized LVDS cable, pin 12 should be a signal ground with a low impedance. Otherwise, LVDS will not function.

2.2.5 LVDS Inverter



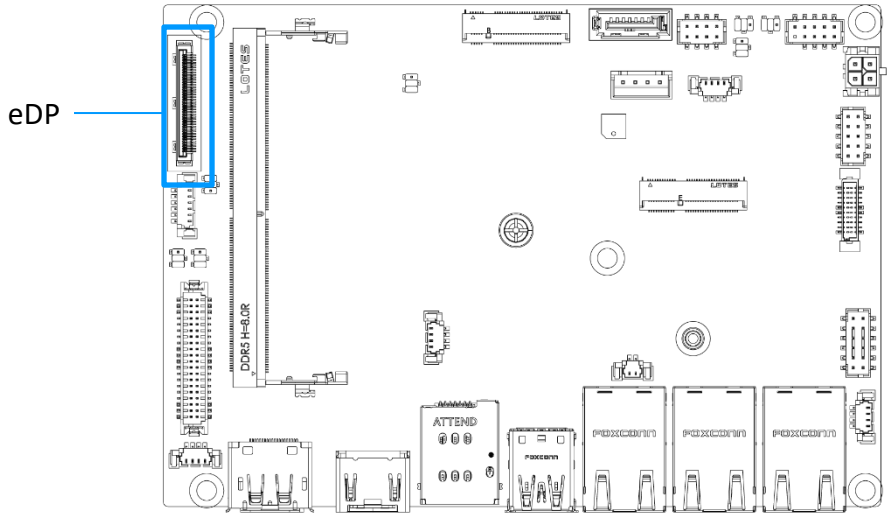
JINVDD1: LVDS Inverter Box Header

The connector is provided for LCD backlight options, be sure to check the panel datasheet to ensure that you set the **LVDS Inverter Power Select Jumper (JINV1)** to the appropriate power voltage (5V/12V).



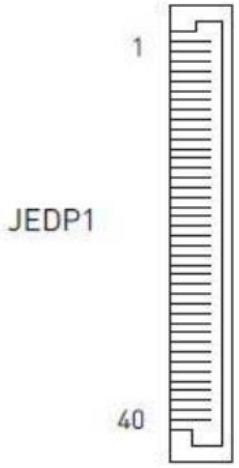
1	5V/12V	2	5V/12V
3	BKLT_EN	4	BKLT_CTRL
5	GND	6	GND

2.2.6 eDP



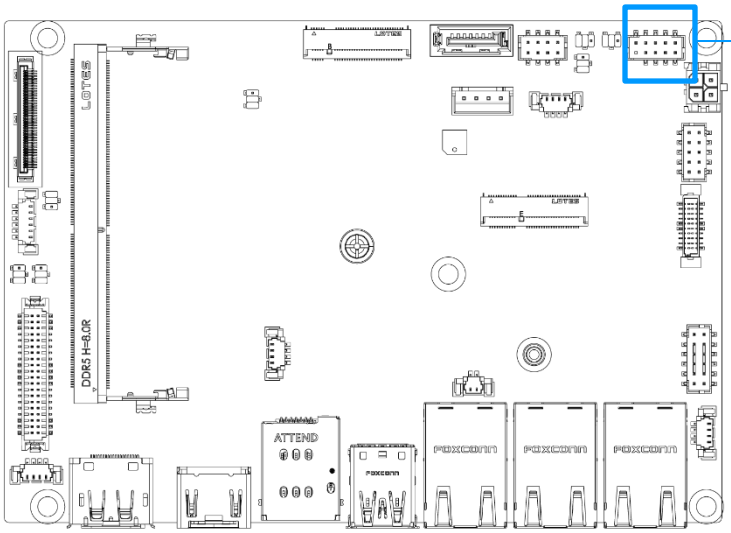
JEDP1: eDP Connector

This connector is designed for use with eDP interface flat panels. When connecting your flat panel to this connector, be sure to check the panel datasheet to ensure that you set the **eDP power select jumper (JEDP_VDD1)** to the appropriate power voltage.



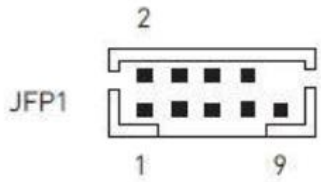
1	LCD_VDD1	2	LCD_VDD1
3	LCD_VDD1	4	LCD_VDD1
5	LCD_VDD1	6	VCC3
7	SMB_CLK	8	SMB_DATA
9	GND	10	HPD
11	N/C	12	N/C
13	GND	14	DPC_LINE3_DN
15	DPC_LINE3_DP	16	GND
17	DPC_LINE2_DN	18	DPC_LINE2_DP
19	GND	20	DPC_LINE1_DN
21	DPC_LINE1_DP	22	GND
23	DPC_LINE0_DN	24	DPC_LINE0_DP
25	GND	26	DSP_DDPC_AUXP
27	DSP_DDPC_AUXN	28	GND
29	VCC3	30	GND
31	+12V	32	GND
33	GND	34	VCC5
35	GND	36	BKLTCTL
37	BKLT_EN	38	+12V
39	VCC3	40	GND

2.2.7 Front Panel



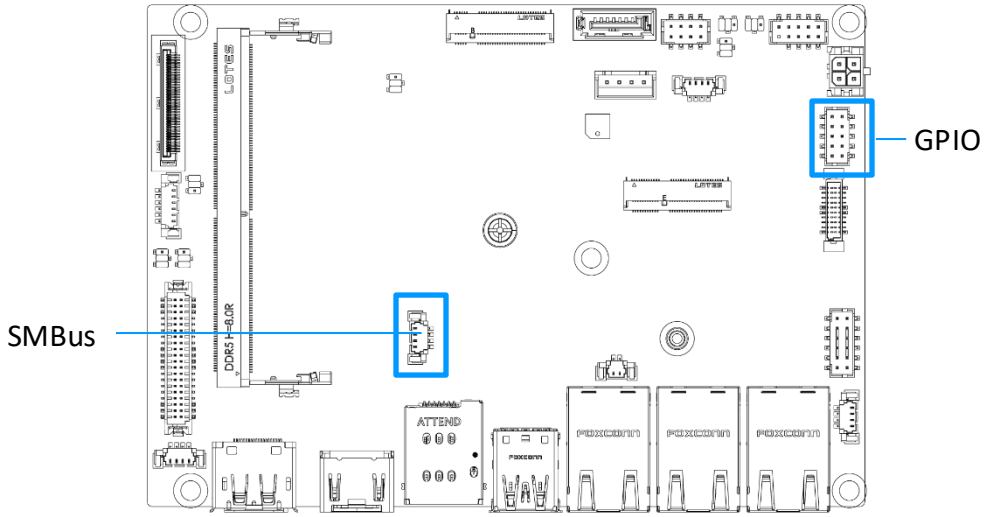
JFP1: Front Panel Connector

This front-panel connector is provided for electrical connection to the front panel switches & LEDs and is compliant with Intel Front Panel I/O Connectivity Design Guide.



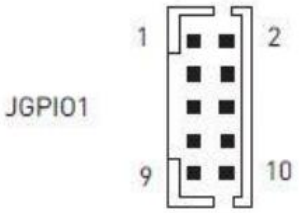
1	HDD LED+	2	POWER LED
3	HDD LED-	4	SUS LED
5	GND	6	POWER SWITCH+
7	RESET SWITCH+	8	POWER SWITCH-
9	NC	10	No pin

2.2.8 GPIO



JGPIO1: GPIO (DIO) Box Header

This connector is provided for the General-Purpose Input/Output (GPIO) peripheral module.

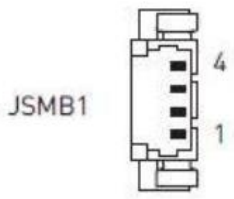


1	GND	2	VCC5
3	GPO0	4	GPI0
5	GPO1	6	GPI1
7	GPO2	8	GPI2
9	GPO3	10	GPI3

2.2.9 SMBus

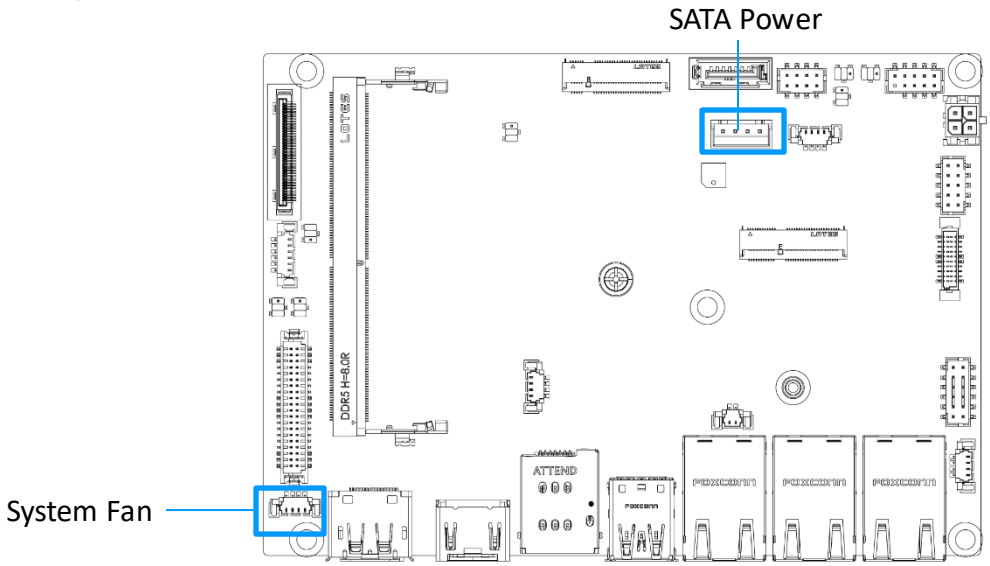
JSMB1: SMBus Box Header

This connector, known as I2C, is for users to connect System Management Bus (SMBus) interface.



1	5VSB	2	SMBCLK
3	SMBDATA	4	GND

2.2.10 System Fan



SYSFAN1: PWM System Fan Box Header

The fan power connector supports system cooling fans with +12V. When connecting the wire to the connectors, always note that the red wire is the positive and should be connected to the +12V; the black wire is Ground and should be connected to GND.

SYSFAN1 (4 1)	1	GND	2	FAN POWER
	3	FAN SENSE	4	FAN_PWM

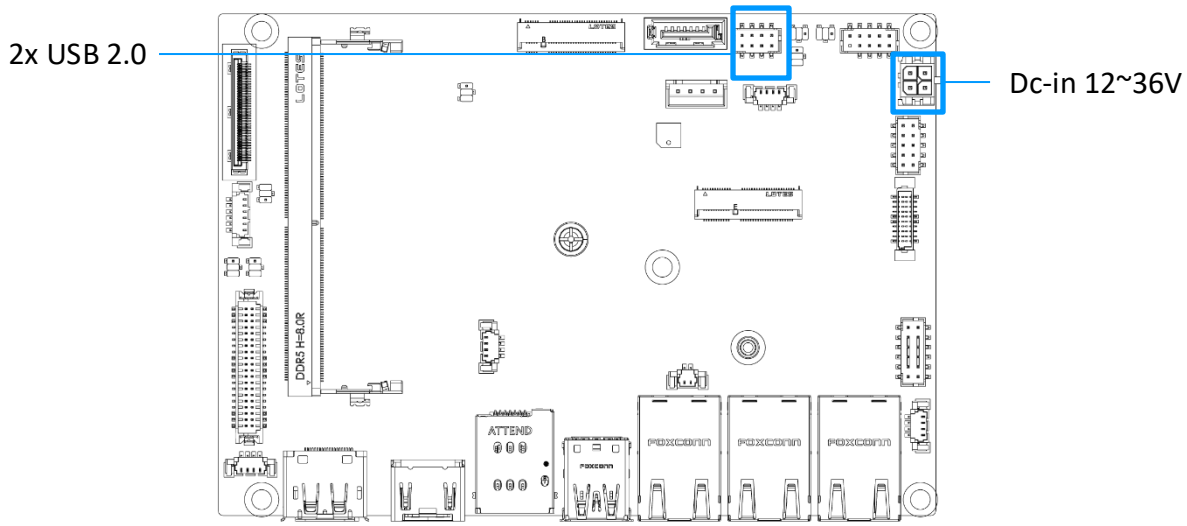
2.2.11 SATA Power

JPW1: 4-Pin SATA Power Connector

This connector is used to provide power to SATA devices.

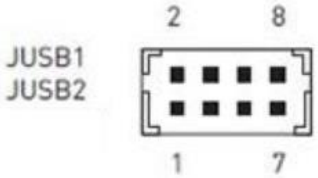
JPW1 (4 1)	1	5V	2	GND
	3	GND	4	12V

2.2.12 USB 2.0



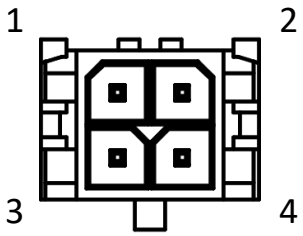
USB 2.0 Box Headers

These connectors are ideal for connecting USB devices such as keyboard, mouse, or other USB-compatible devices.



1	5V	2	GND
3	USB_0-	4	USB_1+
5	USB_0+	6	USB_1-
7	GND	8	5V

2.2.13 DC in 12~36V



Pin	Signal
1	GND
2	GND
3	DC_IN
4	DC_IN

Chapter 3

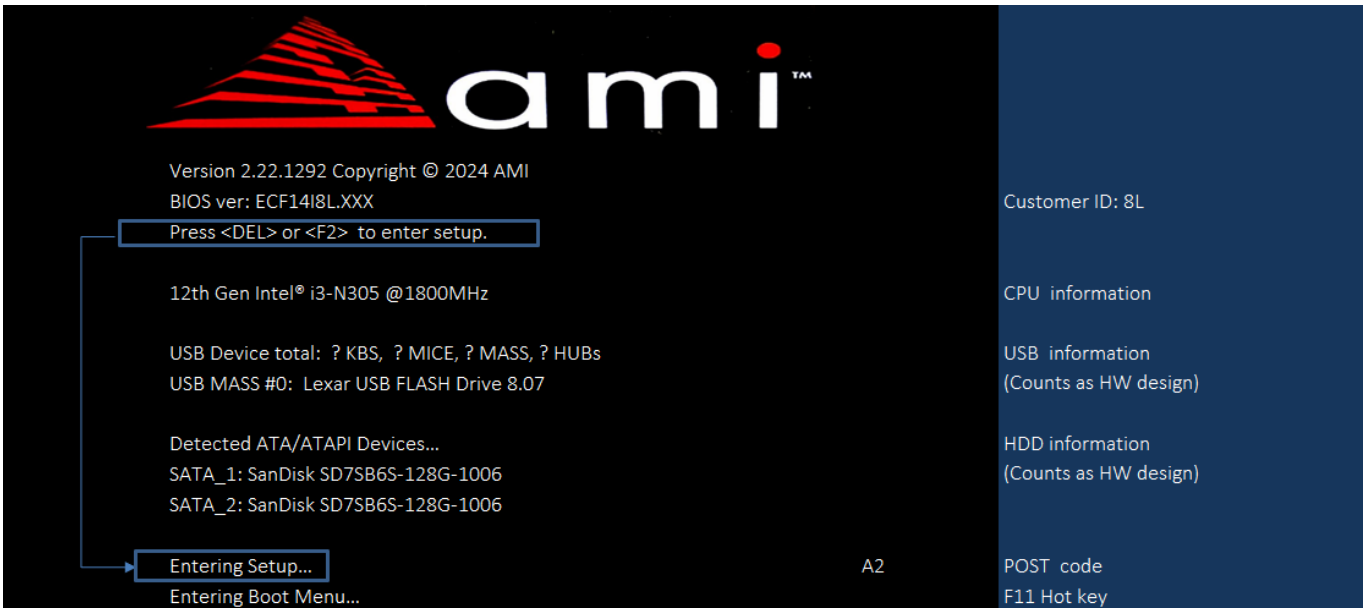
BIOS Setup

3.1 BIOS Setup

Versions

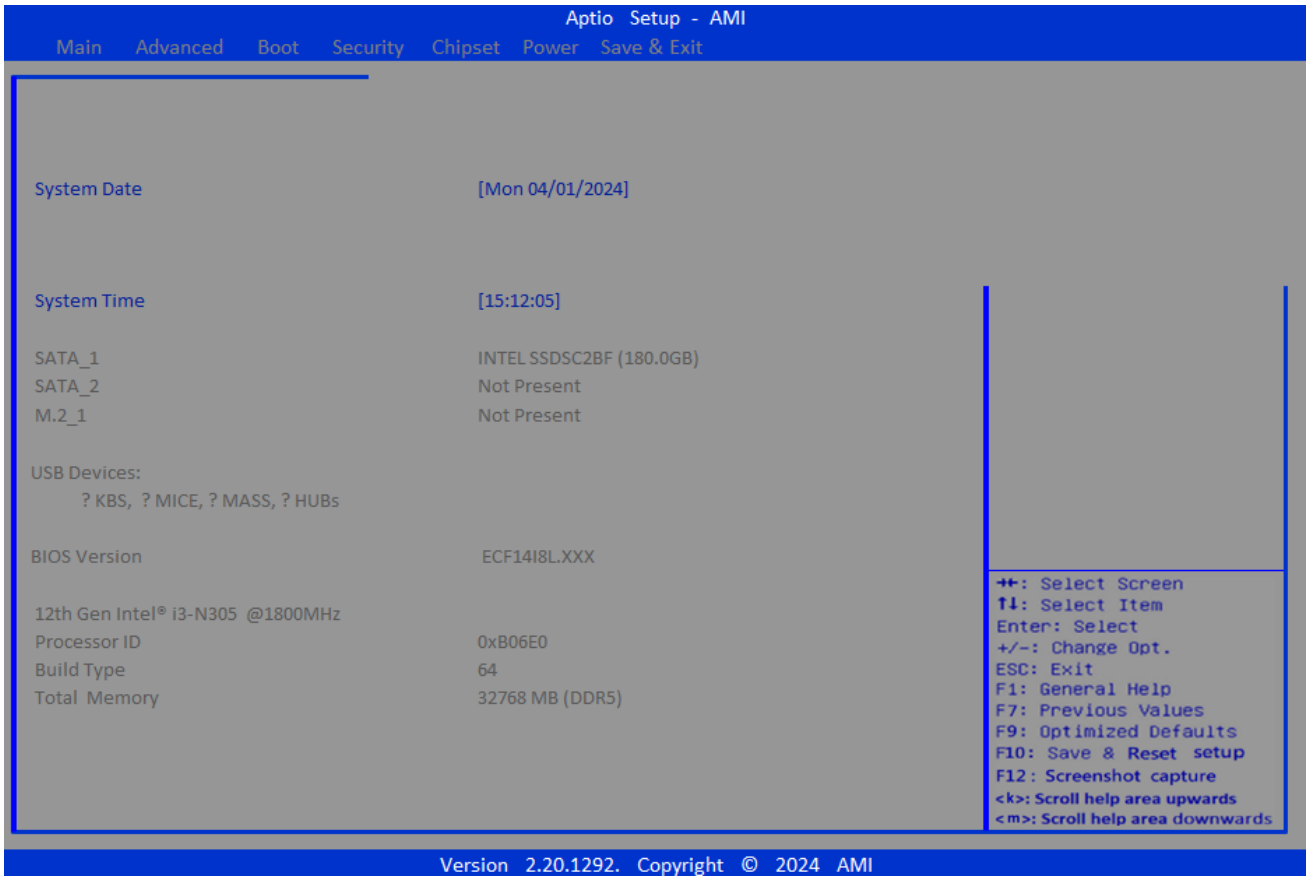
Date	Ver.	Note	Phase
2024/5/10	0.1	Initial release	MVT
2024/5/15	0.2	1. Modify some typo words for all sheet 2. Modify ASPM M2_M1 to M2_B1 3. add Data bit and Stop bit option	MVT
2024/5/27	0.3	1. Modify AC power loss default from power off to Last State. 2. Remove LVDS(via cable auto detect)	MVT
2024/6/4	0.4	1. Add item "M.2 B key Peripheral" for B key de specific B key device with USB. 2. Clean DMI DATA type 1/2 Manufacturer	MVT
2024/7/4	0.5	1. Remove item "M.2 B key Peripheral" for B key de specific B key device with USB. (default: enabled) 2. Add Backlight ctrl item in chipset page	MVT
2024/8/28	0.6	1. Add Key B USB3 interface 2. Add Intel VT-d in setup if CPU /PCH/platform support 3. Gray out panel related function when no panel detected. 4. Gray out Restore AC power loss when in AT mode. 5. Add Buzzer Beeps rule when ME disabled in BIOS Design rule sheet	MVT

POST



POST Hotkey	
Special Feature	Hot Key
Into BSU	"DEL", "F2"
boot oder menu	F11
PXE boot	F12

3.2 System Status

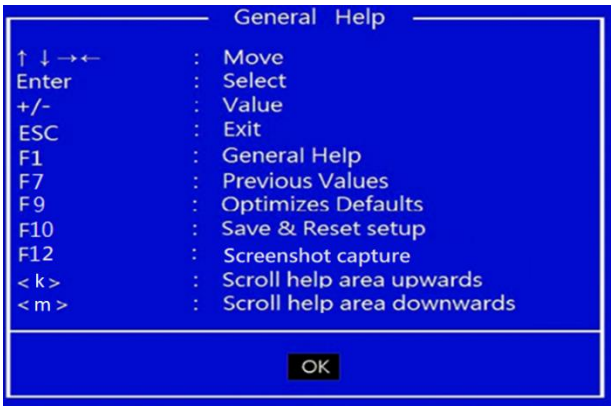


Fn Hotkey			
Special Feature	Location		Note
General Help	Hot Key"F1"		
Load Previous Values	Hot Key"F7"		
Load Optimizes Defaults	Hot Key"F9"		
Save & Reset setup	Hot Key"F10"		
Screenshot	Hot Key"F12"		

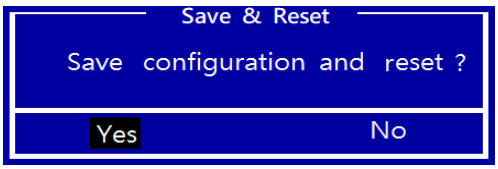
- Set the Date. Use Tab to switch beteeen Date elements
- Default Ranges:
- Year:2000-2099
- Month: 1-12
- Days: Dependent on month Range of Years may vary.

- SATA_2 for M.2 SATA
- M2_1 for PCIE x1

F1 screen



F10 screen



3.3 Advanced

Item String	Optimized Default	Option Name
Full Screen Logo Display	[Disabled]	Disabled/Enabled
Bootup NumLock State	[On]	On/Off
Key B USB3 interface	[Disabled]	Disabled/Enabled
>CPU Configuration		sub-menu
>Super IO Configuration		sub-menu
>H/W Monitor		sub-menu
>Smart Fan Configuration		sub-menu
>PCI/PCIE Device Configuration		sub-menu
>Network Stack Configuration		sub-menu
>GPIO Group Configuration		sub-menu
>PCIE ASPM Settings		sub-menu
>Engineer Mode		sub-menu

- Please be informed rule as below:
- 1. DO NOT adjust any items from this entry on executing formal test
- 2. Item should be hidden after MP candidate BIOS.

CPU Configuration

Item String	Optimized Default	Option Name
CPU Configuration		
12th Gen Intel ® i3-N305		
Porcessor ID	0xB06E0h	
Porcessor Speed	1800MHz	
E-Core Information		
L1 Data Cache	32 KB X 8	
L1 Instruction Cache	64 KB X 8	
L2 Cache	2048 KB X 2	
L3 Cache	6 MB	
VT-d	[Enabled]	Disabled/Enabled
Intel Virtualization Technology	[Enabled]	Disabled/Enabled
Active Efficient-cores	[All]	All/1/2/3 (Base on counts of E-core)
Intel ® SpeedStep(tm)	[Enabled]	Disabled/Enabled
Intel ® Speed Shift Technology	[Enabled]	Disabled/Enabled
C states	[Enabled]	

Displayed base on supported CPU
There is mechanism to display item for support CPU

Super IO Configuration

Item String	Optimized Default	Option Name
Super IO Configuration		
Serial Port 1	[Enabled]	Disabled/Enabled
Device Settings	IO=3F8h; IRQ=4;	
Change Settings	[Auto]	Auto 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;
Mode Select	[RS232]	RS232 RS422 RS485 RS422 with TR RS485 with TR
Serial Port 2	[Enabled]	Disabled/Enabled
Device Settings	IO=2F8h; IRQ=3;	
Change Settings	[Auto]	Auto 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;

Device Settings	
Serial Port 1	Display STD IO port (3F8h,2F8h,3E8h,2E8h)
Serial Port 2	Display STD IO port (3F8h,2F8h,3E8h,2E8h)

Item String	Optimized Default	Option Name
Mode Select	[RS232]	RS232 RS422 RS485 RS422 with TR RS485 with TR
FIFO Mode	[128-byte]	16/32/64/128
Watch Dog Timer	[Disabled]	Disabled/Enabled
Set Watch Dog Timer (Sec)	30	1-255(sec)

Mode Select	Item for MVT only. Hidden and default RS232 before MP candidate BIOS
Watch Dog Timer	Displayed when Watch Dog Timer enable

H/W Monitor

Item String	Optimized Default	Option Name
PC Health Status		
Thermal Shutdown	[Disabled]	Disabled/Enabled
CPU Temperature	: +36°C	
System Temperature	: +24°C	
SYSFAN	: N/A	
VCC_CORE	: +0.736 V	
VCC3	: +3.279 V	
VCC5	: +5.003 V	
+12V	: +12.144 V	
VSB3V	: +3.280 V	
VSB5V	: +4.992 V	
VBAT	: +3.040 V	

As Project type after MP candidate BIOS release

Motherboard (MS-98XX, MS-CFXX): Hidden
System (MS-C9XX): Display

Smart Fan Configuration

Item String	Optimized Default	Option Name
Configuration Smart Fan		
SYSFAN	[Disabled]	Disabled/40-70℃ (per class 5 ℃)
Min. Speed (%)	[50.0%]	0~87.5% (per class 12.5%)

PCI/PCIE Device Configuration

Item String	Optimized Default	Option Name
Audio Controller	[Enabled]	Disabled/Enabled

Nerwork Stack Configuration

Item String	Optimized Default	Option Name
Network Stack	[Disabled]	Disabled/Enabled
Ipv4 PXE Support	[Disabled]	Disabled/Enabled
Ipv4 HTTP Support	[Disabled]	Disabled/Enabled
Ipv6 PXE Support	[Disabled]	Disabled/Enabled
Ipv6 HTTP Support	[Disabled]	Disabled/Enabled
PXE boot wait time	0	
Media detect count	1	

GPIO Group Configuration

Item String	Optimized Default	Option Name
GPIO Group Configuration		
GPO0	[Low]	Low/High
GPO1	[Low]	Low/High
GPO2	[Low]	Low/High
GPO3	[Low]	Low/High
GPO Status		
GPO0	: 1	
GPO1	: 1	
GPO2	: 1	
GPO3	: 1	
GPI Status		
GPI0	: 1	
GPI1	: 1	
GPI2	: 1	
GPI3	: 1	

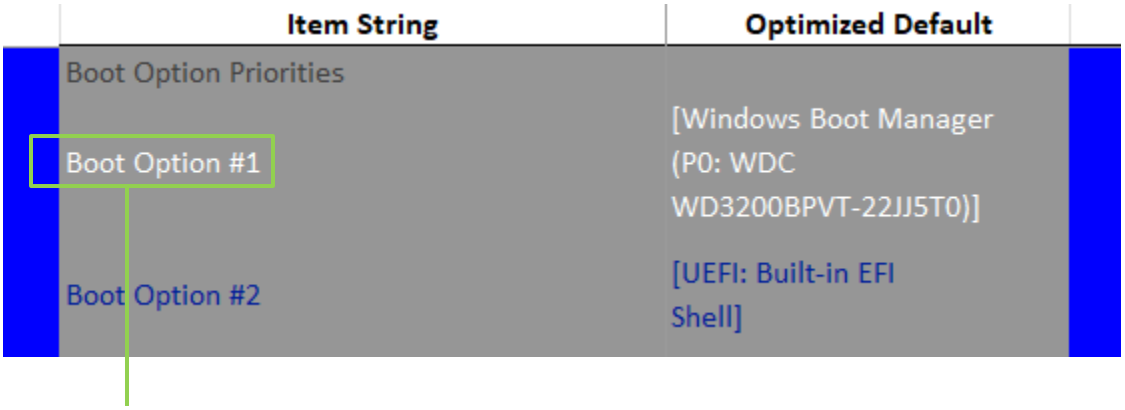
1. Status as setting
2. item must be hidden after MP candidate BIOS.

PCIE ASPM settings

Item String	Optimized Default	Option Name
M2_B1	[Disabled]	Option Defined:
M2_E1	[Disabled]	PCH : Disabled/ L1/ Auto

Displayed as HW design when config as PCIE

3.4 Boot



SUT will return BIOS Setup when no disabled all boot option

3.5 Security

Item String	Optimized Default	Option Name
Administrator Password		
User Password		
Disabled Block Sid	[Disabled]	Disabled/Enabled
>PCH-FW Configuration		sub-menu
>Trusted Computing		sub-menu
>Serial Port Console Redirection		sub-menu
>Secure boot		sub-menu

Item only support for NVMe Device (TCG support)

PCH-FW Configuration

Item String	Optimized Default	Option Name
ME Firmware Version	16.X.XX.XXXX	
ME Firmware Mode	Normal Mode	
ME Firmware SKU	Consumer SKU	
ME State	[Enabled]	Disabled/Enabled
Comms Hub Support	[Disabled]	Disabled/Enabled
JHI Support	[Disabled]	Disabled/Enabled
Core BIOS Done Message	[Enabled]	Disabled/Enabled
>Firmware Update Configuration		sub-menu
>PTT Configuration		sub-menu
>ME Debug Configuration		sub-menu
>Anti-Rollback SVN Configuration		sub-menu

Displayed when ME state enabled

Trust Computing

Item String	Optimized Default	Option Name
TPM2.0 Device Found		
Firmware Version:	7.85	
Vendor	IFX	
Security Device Support	[Enabled]	Disabled/Enabled
Active PCR Banks	SHA256	
Available PCR Banks	SHA256,SHA384,SM3	
SHA256 PCR Bank	[Enabled]	Disabled/Enabled
SHA384 PCR Bank	[Disabled]	Disabled/Enabled
Pending opertaion	[None]	None/TPM Clear
Platform Hierarchy	[Enabled]	Disabled/Enabled
Storage Hierarchy	[Enabled]	Disabled/Enabled
Endorsement Hierarchy	[Enabled]	Disabled/Enabled
Physical Presence Spec Version	[1.3]	1.2/1.3
TPM 2.0 Interfacetype	[TIS]	
PH Randomization	[Enabled]	Disabled/Enabled
		TPM 1.2/
Device Select	[TPM 2.0]	TPM 2.0/
		Auto

Information as your choseen TPM displayed(dTPM/fTPM)

Serial Port Console Redirection

Item String	Optimized Default	Option Name
COM1		
Console Redirection	[Disabled]	Disabled/Enabled
>Console Redirection Settings		sub-menu

Unlock when Console Redirection enabled

Secure boot

Item String	Optimized Default	Option Name
System Mode	Setup	
Secure boot	[Disabled]	Disabled/Enabled
	Not Active	
Secure boot Mode	[Custom]	Custom/Standard
>Restore Factory Keys		
>Reset To setup Mode		
>Key Management		

All secure boot function is by AMI Default, but keep customer request.
No OEM Key roll in default.(reserve once customizing chance)
Default Key need to roll in via clicking "Restore Factory keys"
Default
Secure boot: Disabled
Secure boot Mode: Custom

Firmware Update Configuration

Item String	Optimized Default	Option Name
Me FW Image Re-Flash	[Disabled]	Disabled/Enabled
Local FW Update	[Enabled]	Disabled/Enabled

PTT Configuration

Item String	Optimized Default	Option Name
PTT Capability / State	1 / 0	
TPM Device Selection	[dTPM]	dTPM/PTT

ME Debug Configuration

Item String	Optimized Default	Option Name
HECI Timeouts	[Enabled]	Disabled/Enabled
Force ME DID Init Sratus	[Disabled]	Disabled 0 - Success 1 - No memery in Channels 2 - Memory Init Error
CPU Replaced Polling Disable	[Disabled]	Disabled/Enabled
HECI Message Check Disable	[Disabled]	Disabled/Enabled
MBP H0B Skip	[Disabled]	Disabled/Enabled
HECI2 Interface Communication	[Disabled]	Disabled/Enabled
KT Device	[Enabled]	Disabled/Enabled
End of Post Message	[Send in DXE]	Disabled/Send in DXE
D0I3 Settig for HECI Disable	[Disabled]	Disabled/Enabled
MCTP Broadcast Cycle	[Disabled]	Disabled/Enabled

Anti-Rollback SVN Configuration

Item String	Optimized Default	Option Name
Minimal Allowed Anti-Rollback SVN	0	
Executing Anti-Rollback SVN	1	
Automatic HW-Enforced Anti-Rollback SVN	[Disabled]	Disabled/Enabled
Set HW-Enforced Anti-Rollback for current SVN	[Disabled]	Disabled/Enabled

Displayed when Automatic HW-Enforced Anti-Rollback SVN Disabled

As CRB define and Mechanism

Console Redirection Settings (COM1)

Item String	Optimized Default	Option Name
COM1		
Console Redirection Settings		
Terminal Type	[ANSI]	VT100 VT100+ VT-UTF8 ANSI
Bits per second	[115200]	9600 19200 38400 57600 115200
Data Bits	[8]	7,8
Parity	[None]	None Even odd Mark Space
Stop Bits	[1]	1,2
Flow Control	[None]	None Hardware RTS/CTS
VT-UTF8 Combo Key Support	[Enabled]	Disabled/Enabled
Recorder Mode	[Disabled]	Disabled/Enabled
Resolution 100X31	[Disabled]	Disabled/Enabled
Putty KeyPad	[VT100]	VT100 Intel Linux XTERMR6 SCO ESCN VT400

3.6 Chipset

Item String	Optimized Default	Option Name
DVMT Total Gfx Mem	[256M]	128M/256M/MAX
DVMT Pre-allocated	[64M]	64M/128M/256M/512M/1024M
LVDS Panel Type	1024 X 768 & 24bit	640 x 480 & 18bit 640 x 480 & 24bit 800 x 480 & 18bit 800 x 480 & 24bit 800 x 600 & 18bit 800 x 600 & 24bit 1024 x 600 & 18bit 1024 x 600 & 24bit 1024 x 768 & 18bit 1024 x 768 & 24bit 1280 x 768 & 18bit 1280 x 768 & 24bit 1280 x 800 & 18bit 1280 x 800 & 24bit 1280 x 960 & 18bit 1280 x 960 & 24bit 1280 x 1024 & 18bit 1280 x 1024 & 24bit 1366 x 768 & 18bit 1366 x 768 & 24bit 1440 x 900 & 18bit 1440 x 900 & 24bit 1400 x 1050 & 18bit 1400 x 1050 & 24bit 1600 x 900 & 18bit 1600 x 900 & 24bit 1680 x 1050 & 24bit 1600 x 1200 & 24bit
Backlight Control	[Level 3]	Level 1-5

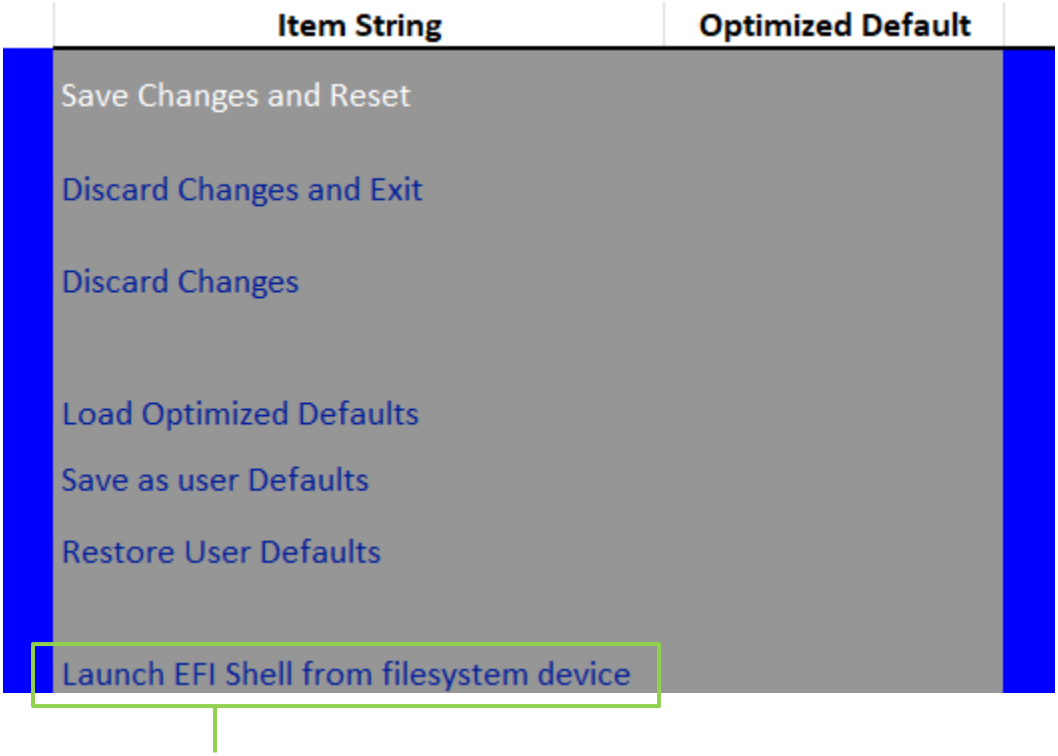
- DVMT Pre-allocated
  2048 as platform supporting

- LVDS Panel Type
  Gray out when no panel connected

3.7 Power

Item String	Optimized Default	Option Name	Remark
Restore AC power Loss	[Last State]	Power on Power off Last State	Function will work on ATX mode only Gray out in AT mode
Deep Sleep Mode	[S4+S5]	Disabled S4+S5	
Advanced Resume Events Control			
OnChip USB	[Enabled]	Disabled/Enabled	
LAN/PCIE PME	[Disabled]	Disabled/Enabled	
RTC	[Disabled]	Disabled Daily Dynamic Weekly	
wake up hour	0	0-23	When RTC set to Daily
wake up minute	0	0-59	
wake up second	0	0-59	
wake up minute icrease	1	1-- 5	When RTC set to Dynamic
Monday	[Disabled]	Disabled/Enabled	When RTC set to Weekly
Tuesday	[Disabled]	Disabled/Enabled	
Wednesday	[Disabled]	Disabled/Enabled	
Thursday	[Disabled]	Disabled/Enabled	
Friday	[Disabled]	Disabled/Enabled	
Saturday	[Disabled]	Disabled/Enabled	
Sunday	[Disabled]	Disabled/Enabled	
Wake up hour	0	0-23	EX: When weekly's sub items set to Enabled
Wake up minute	0	0-59	
Wake up second	0	0-59	

3.8 Save&Exit



Build-in SHELL is necessary

3.9 DMI Data

	Data	Related SW
BIOS Information (Type 0)		
BIOS Vendor	American Megatrends International Inc.	
BIOS Version	ECF14I8L.XXX	
Release Date	4/1/2024	
ROM Size	As plarform	
System Information (Type 1)		
Manufacturer		
Product Name	MS-CF14	SW Utility
Version	As M/B version	
Serial Number		
UUID	Generated at factory	
SKU Number		
Family		
Base Board Information (Type 2)		
Manufacturer		
Product Name	MS-CF14	SW Utility
Version	As M/B version	
Serial Number	Default String	
Asset Tag Number	Default String	

3.10 BIOS Design Rule

Admin/User PW

	OEM request		CRB Default			
	Admin	User	Admin	User		
Entry	Follow CRB default		BSU	POST	Into BSU/Before POST	
Length			20		<=20 characters	
A–Z			Yes		Case Sensitive or Not	
0–9			Yes		Yes or No	
PW state after clean CMOS	Follow CRB default		Clean		Keep or Clean	
Retry limited	Follow CRB default		3		Request by ODM	
	Restrict Page (Items)					
System Status	Follow CRB default		No restrict		Request by ODM and MSI estimate	
Advanced						
Boot						
Security						
Chipset						
Power						
Save&exit						

Buzzer

Event	Sounds
POST detect	1 short beep
No Con in/out Device detect	No beeps
Disabled ME	No beeps
Others	As AMI Default

ASPM

	Add-on	onBoard
Default Vaule	Disabled	Enabled
Items	Display	Hidden

DMI Data Preserve

	Preserve
FPT tool flash (F32M.NSH)	NO
AFU tool flash (FLASH.NSH)	Yes
Clear CMOS	Yes

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