NC8J Series

User's Manual

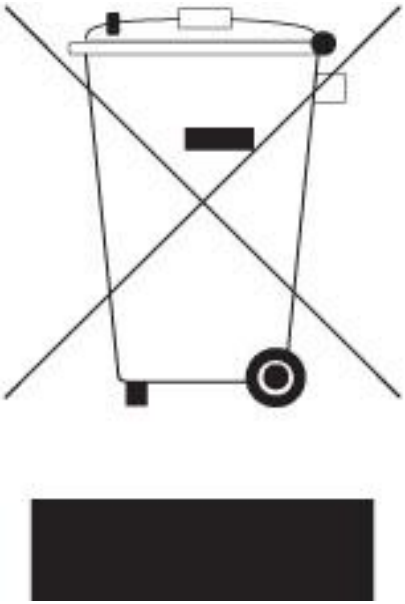
NO. G03-NC8J-F

Revision: 2.0

Release date: October 30, 2020

Environmental Protection Announcement

Do not dispose this electronic device into the trash while discarding. To minimize pollution and ensure environment protection of mother earth, please recycle.



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Environmental Safety Instruction

- Avoid the dusty, humidity and temperature extremes. Do not place the product in any area where it may become wet.

- 0 to 40 centigrade is the suitable temperature. (The temperature comes from the request of the chassis and thermal solution)

- Generally speaking, dramatic changes in temperature may lead to contact malfunction and crackles due to constant thermal expansion and contraction from the welding spots' that connect components and PCB. Computer should go through an adaptive phase before it boots when it is moved from a cold environment to a warmer one to avoid condensation phenomenon. These water drops attached on PCB or the surface of the components can bring about phenomena as minor as computer instability resulted from corrosion and oxidation from components and PCB or as major as short circuit that can burn the components. Suggest starting the computer until the temperature goes up.

- The increasing temperature of the capacitor may decrease the life of computer. Using the close case may decrease the life of other device because the higher temperature in the inner of the case.

- Attention to the heat sink when you over-clocking. The higher temperature may decrease the life of the device and burned the capacitor.

USER'S NOTICE

Manual Revision Information

Reversion	Revision History	Date
2.0	Second Edition	October 30, 2020

Item Checklist

- ☑ Motherboard
- ☑ Cable(s)
- ☑ I/O Back panel shield

Chapter 1
Introduction of the Motherboard

1-1 Feature of Motherboard

- Onboard Intel® Apollo Lake Series Processor, with low power consumption and high performance
- Support 1* DDR3L 1866MHz SO-DIMM, maximum capacity up to 8GB
- Integrated with Realtek Gigabit Ethernet LAN chip
- Integrated with Realtek 6-channel HD Audio Codec
- Support USB 3.0 data transport demand
- Support 1* HDMI & 1*LVDS & 1*EDP display
- Support 1* PCIE 2.0 x1slot
- 1* M.2 E-key slot,type-2230 PCIex1/USB2.0 interface, support WIFI/BT
- 1* M.2 M-key slot,type-2242 SATA interface, support SATA SSD
- Support 1 * SATAIII (6Gb) device
- Supports ACPI S3 Function
- Compliance with ErP Standard
- Support Watchdog Timer Technology

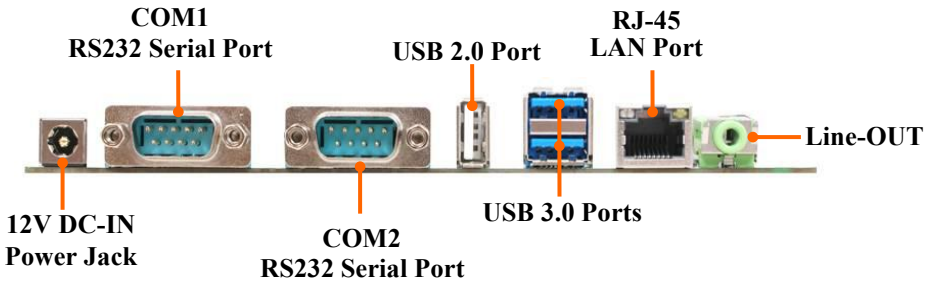
1-2 Specification

Spec	Description
Design	● Mini-ITX form factor 6 layers; ● PCB size: 17.0x17.0cm
CPU	● Intel® Apollo Lake series CPU**(Default J3455, CO-LAY N3350)** ** for detailed CPU support information please visit our website*
Memory Slot	● 1*DDR3L SO-DIMM slot support DDR3L 1866 MHz SO-DIMM up to 8GB ** **Note:** Memory clock supporting range is decided by specific CPU of the model. For more memory compatibility information please consults your local dealer.*
Expansion Slot	● 1* PCIe x1 slot *(**PCI-E**)* ● 1* M.2 E-Key,type-2230 slot*(**M2E**)*
Storage	● 1* SATAIII 6G/s connector (**SATA**) ● 1* M.2 M-key slot, type-2242 SATA interface (***M2***) ● 1* eMMC 32GB (Optional for **NC8J-I3455D** Series)
Gigabit LAN Chip	● 1* Realtek RTL8111G Gigabit PCI-E LAN chip ● Support Fast Ethernet LAN function of providing 10/100/1000Mbps Ethernet data transfer rate
Audio Chip	● Realtek ALC662-VD0-GR 6-channel Audio Codec ● Audio driver and utility included
BIOS	● AMI Flash ROM
Multi I/O	***Rear Panel I/O:*** ● 1*12V DC-in Power Jack ● 2* RS232 Serial port connector*(**COM1/COM2**)* ● 1* USB 2.0 port ● 2* USB 3.0 port ● 1* RJ-45 LAN port ● 1* Line-out port

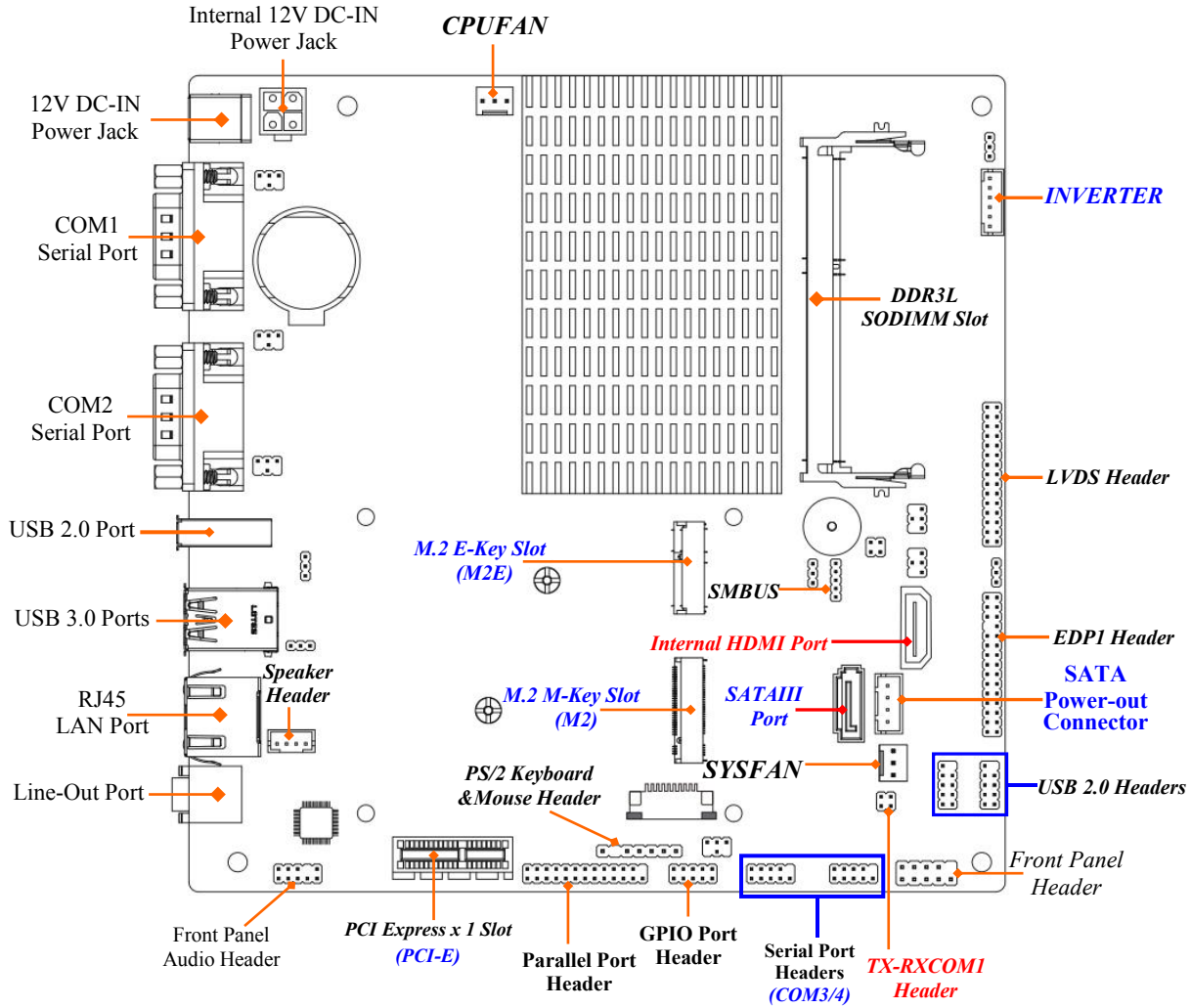
	Internal I/O Connectors & Headers: ● 1* 4-pin internal 12V power connector ● 1* SATA Power-out connector ● 1* CPUFAN connector & 1* SYSFAN connector ● 1* Internal vertical HDMI port ● 1* Front panel header ● 2* 9-Pin USB 2.0 header for 4* USB 2.0/1.1 ports ● 2* Serial port header *(**COM3**:RS232/422/485;**COM4:**RS232)* ● 1* TX-RXCOM header (**TX-RXCOM1**) ● 1* Parallel port header ● 1* GPIO header ● 1* SMBUS header ● 1* Front panel audio header ● 1* 3W amplifier header (SPEAK_CON) ● 1* PS2 Keyboard & Mouse header ● 1* LVDS Inverter header ● 1* LVDS header ● 1* EDP header

1-3 Layout Diagram

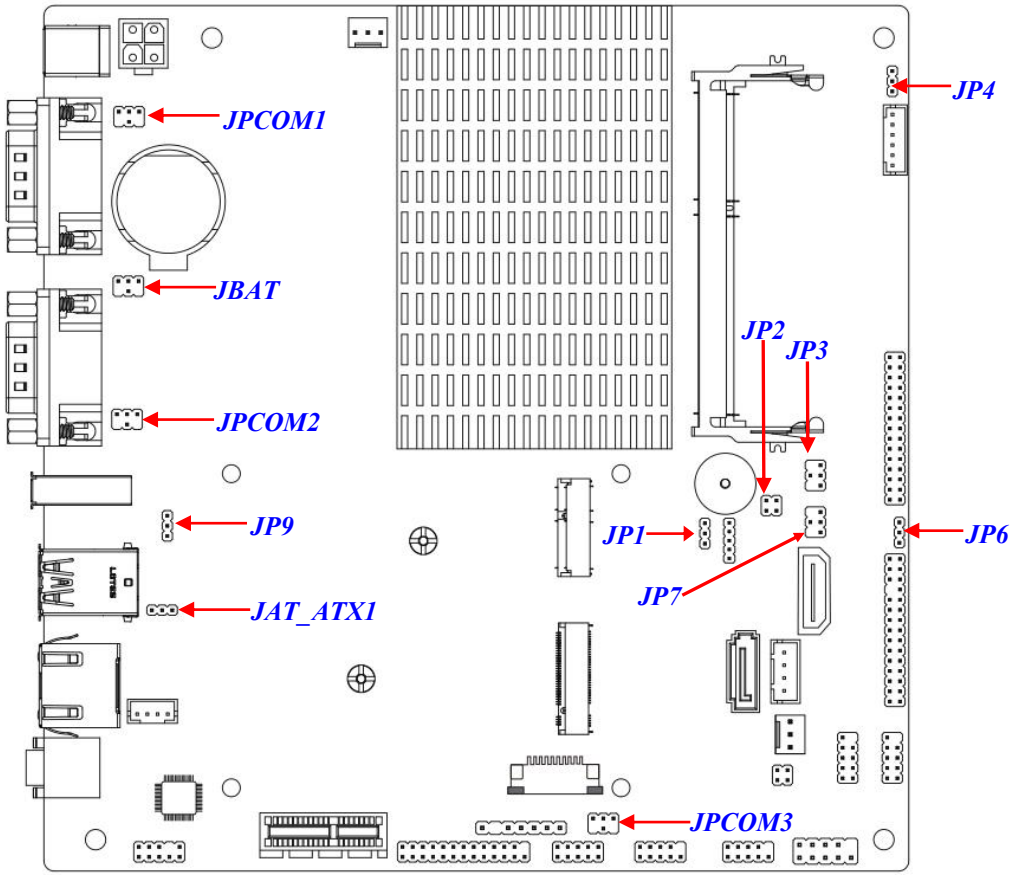
Rear IO Diagram



Motherboard Internal Diagram:



Motherboard Jumper Position:



Connectors

Connector	Name
DCIN1	12V DC-In Power Jack
COM1/COM2	RS232 Serial Port Connector
USB	USB 2.0 Port Connector
USB31	USB 3.0 Port Connector x2
LAN1	RJ-45 LAN Connector
LINE-OUT	Line-out Connector
DCIN3	4-Pin Internal 12V Power Connector
SATA	SATAIII Connector
SATAPWR	SATA Power Out Connector
SYSFAN	System FAN Connector
CPUFAN	CPU FAN Connector

Headers

Header	Name	Description	Pitch
JW_FP	Front Panel Header(PWR LED/ HD LED/Power Button /Reset)	9-pin Block	2.54mm
FP_USB1/2	USB 2.0 Header	9-pin Block	2.0mm
COM3	RS232/422/485 Serial Port Header	9-pin Block	2.0mm
COM4	RS232 Serial Port Header	9-pin Block	2.0mm
TX-RXCOM1	TX-RXCOM Header	4-pin Block	2.0mm
LPT	Parallel Port Header	25-pin Block	2.0mm
GPIO	GPIO Port Header	10-pin Block	2.0mm
SMBUS	SMBUS Header	5-pin Block	2.0mm
FP_AUDIO1	Front Panel Audio Header	9-pin Block	2.0mm
SPEAK_OUT	3W Amplifier Header	4-pin Block	2.0mm
PS2_CON	PS2 Keyboard & Mouse Port Header	6-pin Block	2.54mm
INVERTER1	LVDS Inverter Header	6-pin Block	2.0mm
LVDS	LVDS Header	30-pin Block	2.0mm

EDP1	EDP Header	29-pin Block	2.0mm

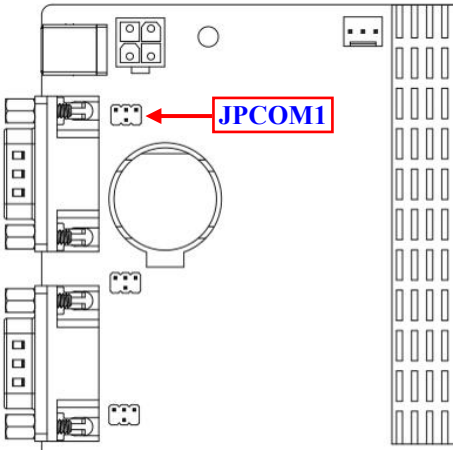
Jumper

Jumper	Name	Description	Pitch
JPCOM1	COM1 Port Pin9 Function Select	4-pin Block	2.0mm
JPCOM2	COM2 Port Pin9 Function Select	4-pin Block	2.0mm
JPCOM3	COM3 Header Pin9 Function Select	4-pin Block	2.0mm
JBAT	Clear CMOS RAM & Clear ME_RTC	4-pin Block	2.0mm
JP9	USB31 Port VCC Select	3-pin Block	2.0mm
JAT_ATX1	ATX/AT Mode Select	3-pin Block	2.0mm
JP1	M2E Slot VCC Select	3-pin Block	2.0mm
JP2	***Pin(1-2):*** Case Open Message Display Function ***Pin(3-4):*** TXE Override	4-pin Block	2.0mm
JP3	LVDS LCD Panel VCC Select	4-pin Block	2.0mm
JP4	LVDS Inverter Backlight VCC Select	3-pin Block	2.0mm
JP6	EDP1 Backlight Power VCC Select	3-pin Block	2.0mm
JP7	EDP LCD Power VCC Select	4-pin Block	2.0mm

Chapter 2
Hardware Installation

2-1 Jumper Setting

JPCOM1 (4-pin): COM1 Port Pin9 Function Select



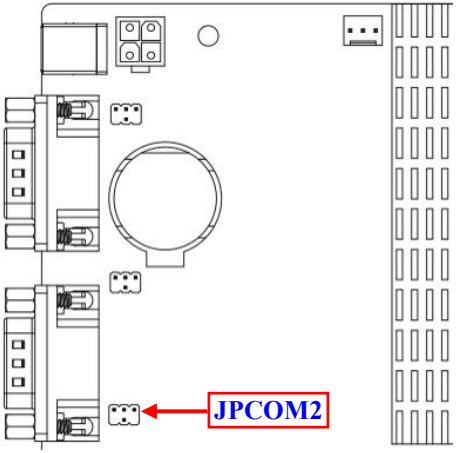
JPCOM1→COM1 Port Pin-9

2-4 Closed:
RI=RS232
(Default);

3-4 Closed:
RI= 5V;

4-6 Closed:
RI= 12V.

JPCOM2 (4-pin): COM2 Port Pin9 Function Select



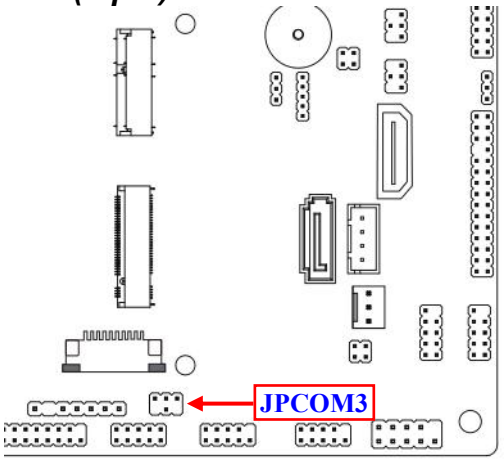
JPCOM2→COM2 Port Pin-9

2-4 Closed:
RI=RS232
(Default);

3-4 Closed:
RI= 5V;

4-6 Closed:
RI= 12V.

JPCOM3 (4-pin): COM3 Header Pin-9 Function Select



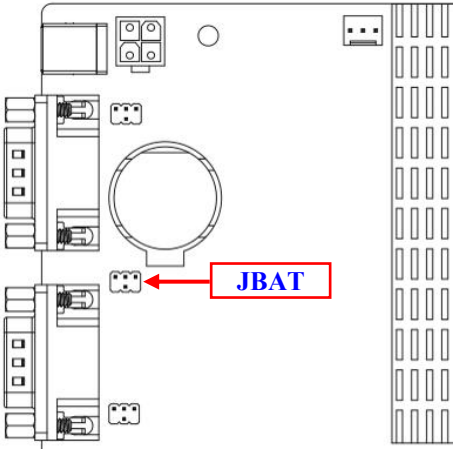
JPCOM3→COM3 Header Pin-9

2-4 Closed:
RI=RS232
(Default);

3-4 Closed:
RI= 5V;

4-6 Closed:
RI= 12V.

JBAT (4-pin): Clear CMOS RAM Settings & Clear ME_RTC



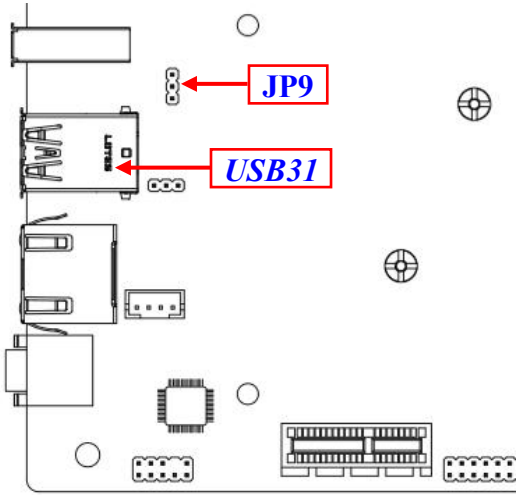
JBAT→Clear CMOS & Clear ME_RTC

2-4 Closed:
Clear CMOS.

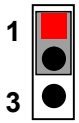
3-4 Closed:
Default.

4-6 Closed:
Clear ME_RTC.

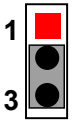
JP9 (3-pin): USB31 Port VCC Select



JP9→USB31 Port VCC Select

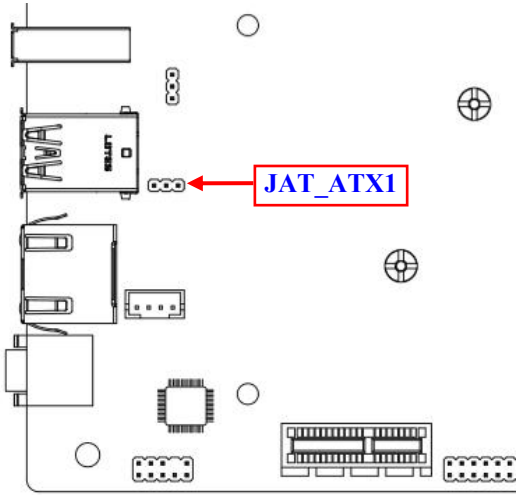


1-2 Closed: USB31 Ports= 5VSB;

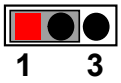


2-3 Closed: USB31 Ports= VCC.

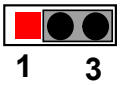
JAT_ATX1 (3-pin): ATX Mode/ AT Mode Select



JAT_ATX1→ATX/AT Mode Select



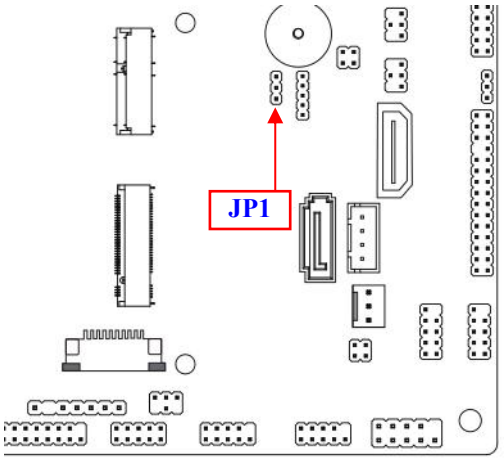
1-2 Closed: ATX Mode Selected;



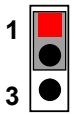
2-3 Closed: AT Mode Selected.

ATX Mode Selected: Press power button to power on after power input ready;
AT Mode Selected: Directly power on as power input ready.

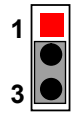
JP1 (3-pin): M2E Slot VCC Select



JP1→M2E Slot Power VCC Select

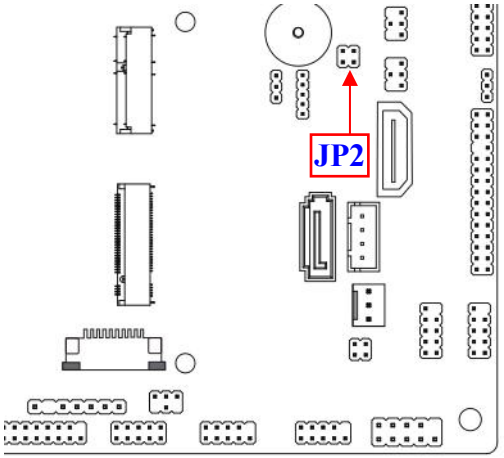


1-2 Closed: M2E Slot Power = VCC3;

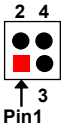


2-3 Closed: M2E Slot Power = 3VSB.

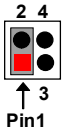
Pin (1-2) of JP2 (4-pin): Case Open Message Display Function Select



Pin(1-2) of JP2→Case Open Detect



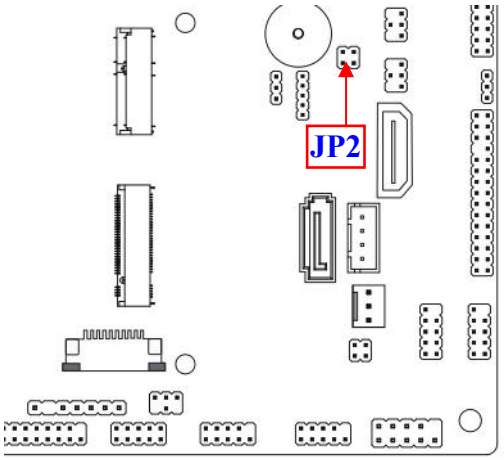
1-2 Open: Normal (Default);



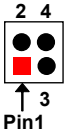
1-2 Close: Case Open Detect Function Selected (One Touch).

Pin (1-2) Close: *When Case open function pin short to GND, the Case open function was detected. When Used, needs to enter BIOS and enable 'Case Open Detect' function. In this case if your case is removed, next time when you restart your computer, a message will be displayed on screen to inform you of this.*

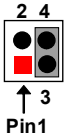
Pin (3-4) of JP2 (4-pin):TXE Override



Pin(3-4) of JP2→TXE Override

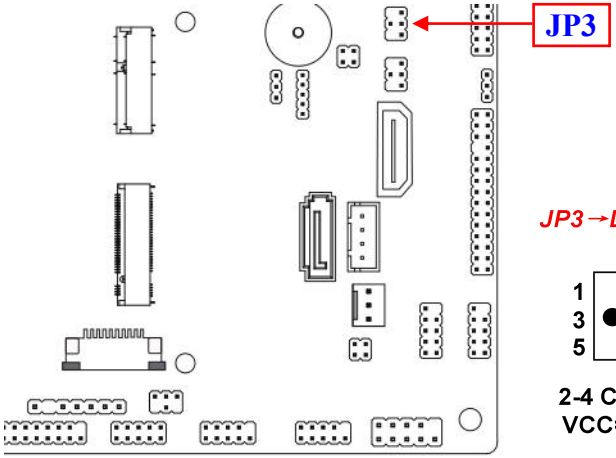


3-4 Open: Normal;

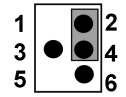


3-4 Close: TXE Override.

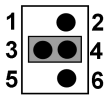
JP3 (4-pin): LVDS LCD Panel VCC Select



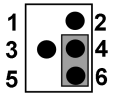
JP3→LVDS Panel VCC Select



2-4 Closed: VCC=3.3V;

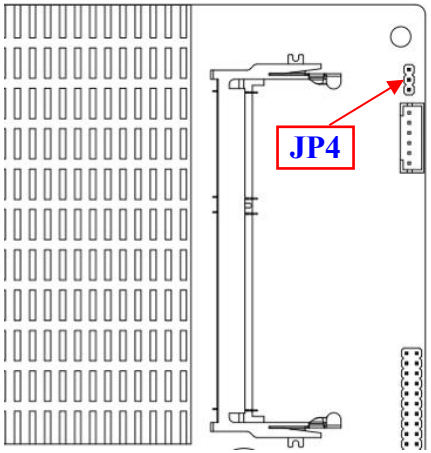


3-4 Closed: VCC= 5V;

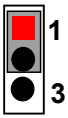


4-6 Closed: VCC= 12V.

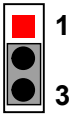
JP4 (3-pin): LVDS Inverter Backlight VCC Select



JP4→LVDS Inverter VCC Select

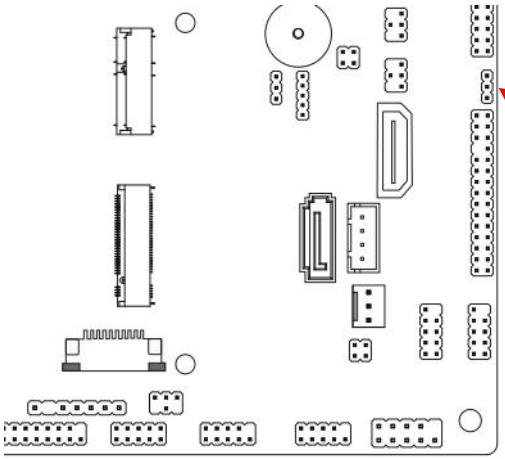


1-2 Closed: Inverter Baklight= 5V;

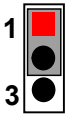


2-3 Closed: Inverter Baklight= 12V.

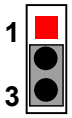
JP6 (3-pin): EDP1 Backlight Power VCC Select



JP6→EDP1 Backlight VCC Select

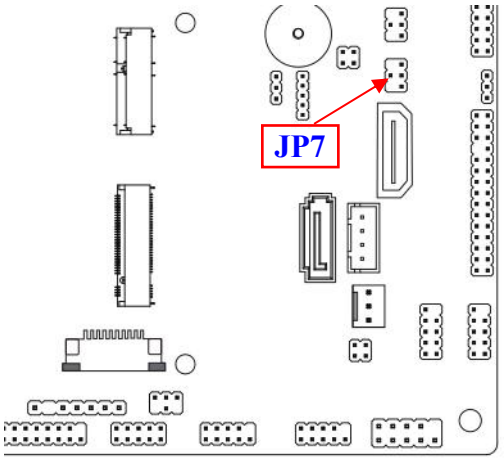


1-2 Closed: EDP1 Backlight VCC=5V；

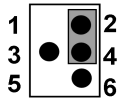


2-3 Closed: EDP1 Backlight VCC=12V.

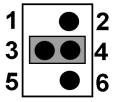
JP7 (4-pin): EDP LCD Power VCC Select



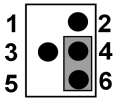
JP7→EDP LCD Power VCC Select



2-4 Closed:
VCC=3.3V;



3-4 Closed:
VCC= 5V;



4-6 Closed:
VCC= 12V.

2-2 Connectors and Headers

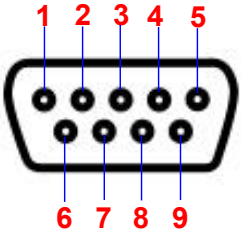
2-2-1 Connectors

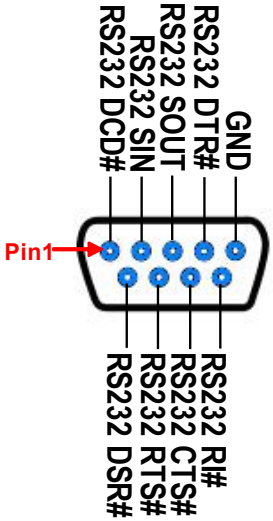
(1) Rear Panel Connectors

***refer to Page-3.**

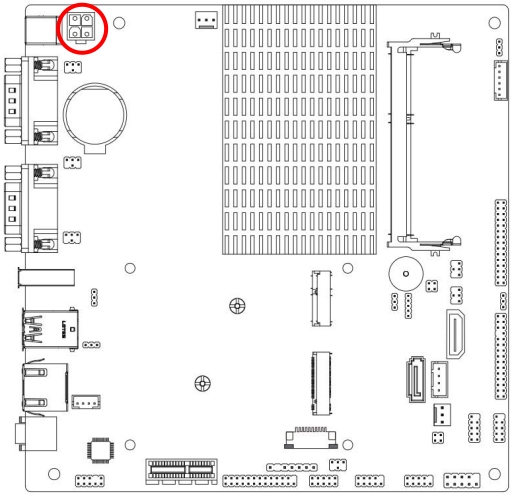
Icon	*Name*	*Function*
	**12V DCIN Power Connector**	12V DC-In system power connector. For user to connect compatible power adapter to provide power supply for the system.
	**Serial Port**	Mainly for user to connect external MODEM or other devices that supports Serial Communications Interface.
	**USB 2.0 Port**	To connect USB keyboard, mouse or other devices compatible with USB 2.0 specification.
	**USB 3.0 Port**	To connect USB keyboard, mouse or other devices compatible with USB specification. USB 3.0 ports supports up to 5Gbps data transfer rate.
	**RJ-45 LAN Port**	This connector is standard RJ-45 LAN jack for Network connection.
	**Line Out Port**	For user to connect external speaker, earphones, etc to transfer system audio output.

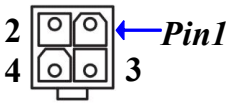
(2) COM1/COM2(9-pin): RS232 Serial Port Connector





(3) DCIN3 (4-pin): Internal 12V Power Connector

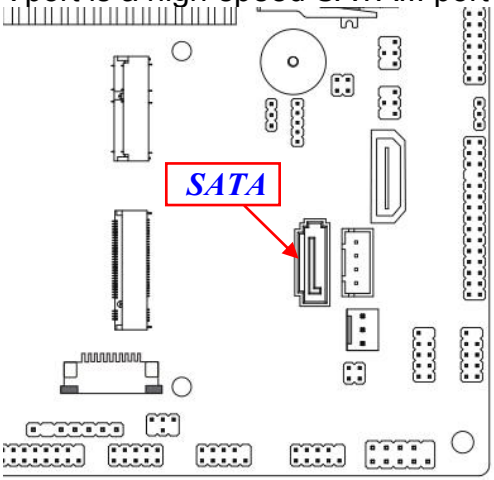




Pin No.	Definition
1	GND
2	GND
3	+12V
4	+12V

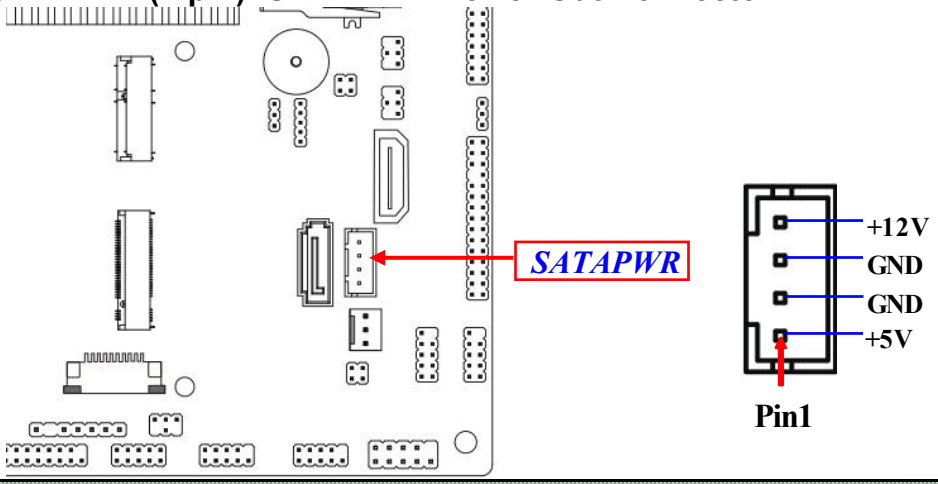
(4) SATA (7-pin): SATAIII Port connector

SATA port is a high-speed SATAIII port that supports 6GB/s transfer rate.



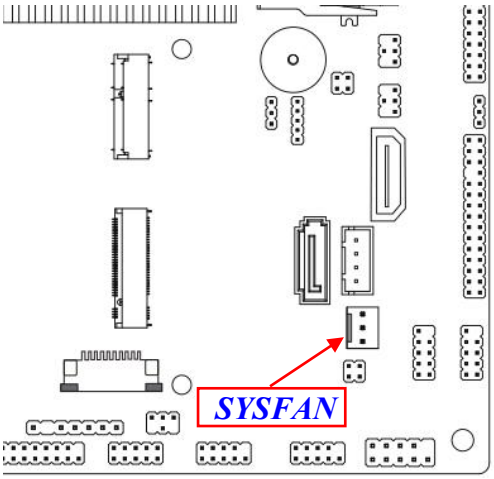
Pin No.	Definition
1	GND
2	TXP
3	TXN
4	GND
5	RXN
6	RXP
7	GND

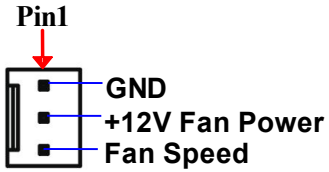
(5) SATAPWR(4-pin): SATA HDD Power-Out Connector



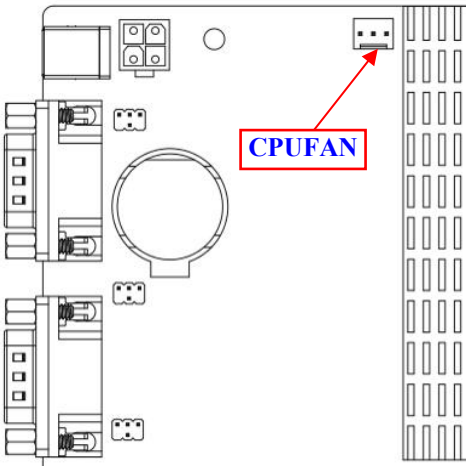
Warning: *Make sure that Pin-1 of compatible SATA Power out connector is inserted into corresponding Pin-1 of* ***SATAPWR*** *connector to avoid possible damage to the board and hard disk driver!*

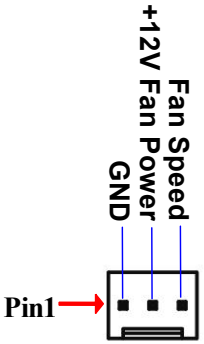
(6) SYSFAN (3-pin):System Fan Connector





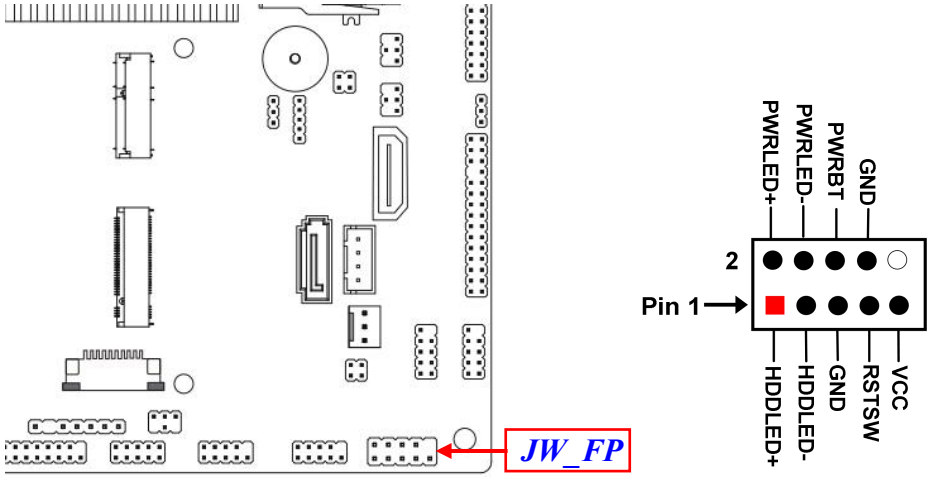
(7) CPUFAN (3-pin): CPU Fan Connector



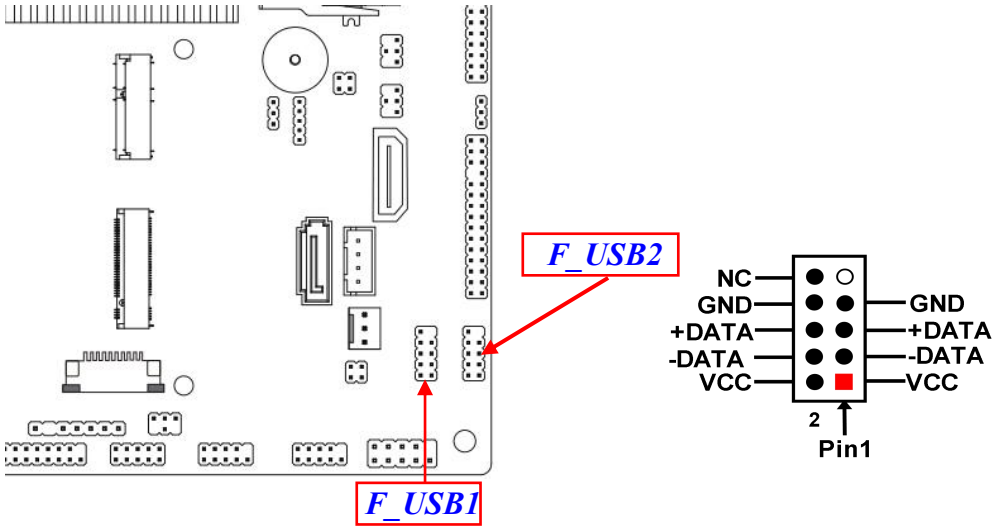


2-2-2 Headers

(1) JW_FP (9-pin,Pitch=2.54mm): Front Panel Header

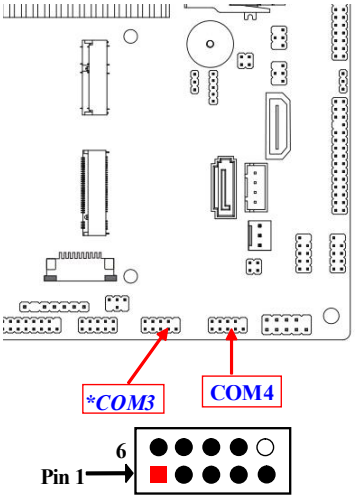


(2) FP_USB1/FP_USB2(9-pin,Pitch=2.0mm): USB 2.0 Port Header



(3) COM3/COM4 (9-pin,Pitch=2.0mm): Serial Port Header

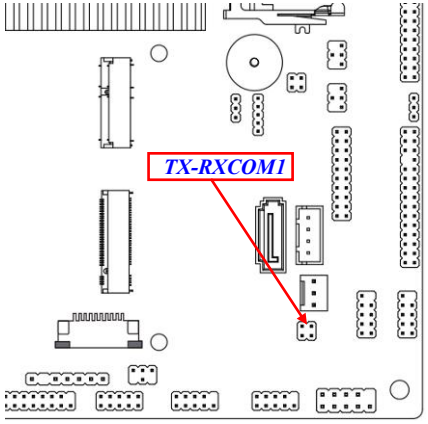
COM3:*RS232/422/485 Serial Port Header;****COM4:****RS232 Serial Port Header*

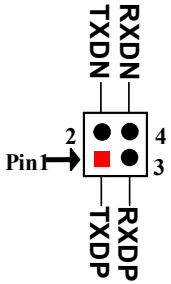


Pin NO.	RS232	*RS422 (optional)	*RS485 (optional)
Pin 1	DCD	TX-	DATA-
Pin 2	RXD	TX+	DATA+
Pin 3	TXD	RX+	NC
Pin 4	DTR	RX-	NC
Pin 5	GND	GND	GND
Pin 6	DSR	NC	NC
Pin 7	RTS	NC	NC
Pin 8	CTS	NC	NC
Pin 9	RI	NC	NC

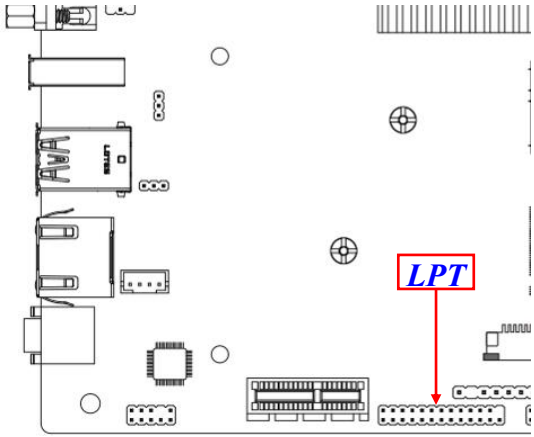
***Note: COM3 header can function as RS232/422/485 port header.** In normal settings COM3 functions as RS232 header. With compatible COM cable COM3 can function as RS422 or RS 485 header. User also needs to go to BIOS to set '**Transmission Mode Select'** for COM3 (**refer to Page-34**) at first, before using specialized cable to connect different pins of this port.*

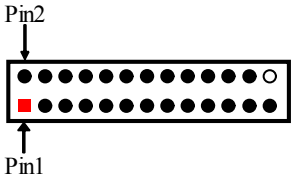
(4) TX-RXCOM1(4-Pin,Pitch=2.0mm): RS422/485 Header





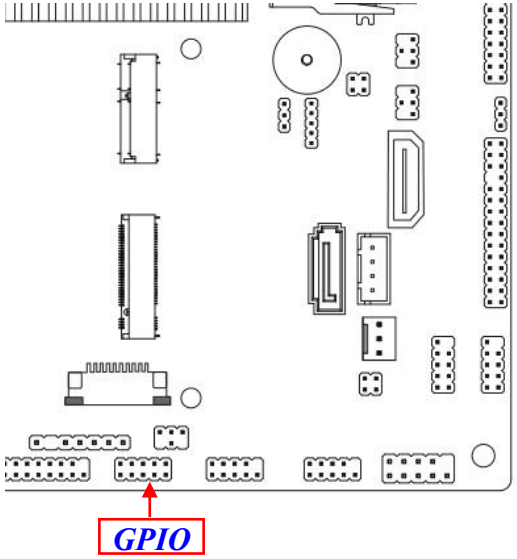
(5) LPT (25-pin,Pitch=2.0mm): Parallel Port Header

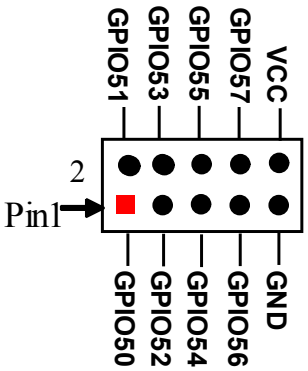




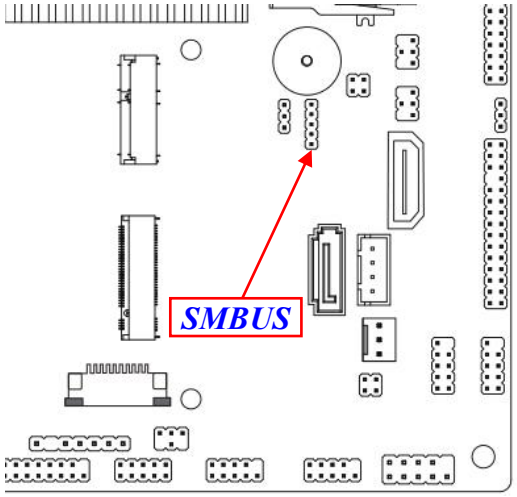
Pin NO.	Pin Definition	Pin NO.	Pin Definition
Pin 1	STB-	Pin 2	AFD-
Pin 3	PD0	Pin 4	ERR-
Pin 5	PD1	Pin 6	INIT-
Pin 7	PD2	Pin 8	SLIN-
Pin 9	PD3	Pin 10	GND
Pin 11	PD4	Pin 12	GND
Pin 13	PD5	Pin 14	GND
Pin 15	PD6	Pin 16	GND
Pin 17	PD7	Pin 18	GND
Pin 19	ACK-	Pin 20	GND
Pin 21	BUSY	Pin 22	GND
Pin 23	PE	Pin 24	GND
Pin 25	SLCT	Pin 26	No Key

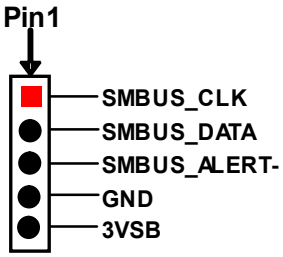
(6) GPIO(10-Pin,Pitch=2.0mm): GPIO Port Header





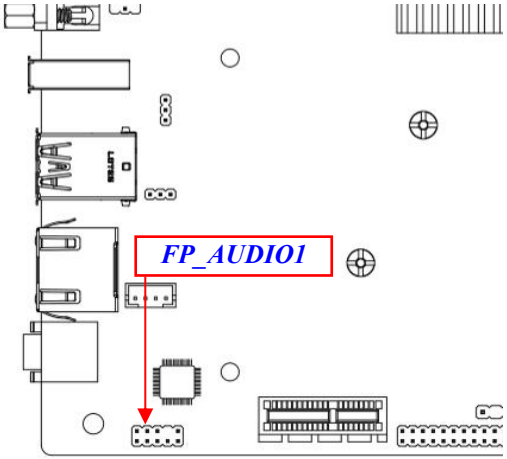
(7) SMBUS (5-Pin,Pitch=2.0mm): SMBUS Header

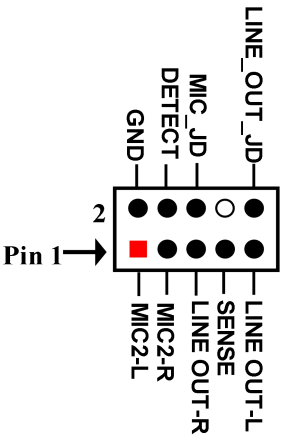




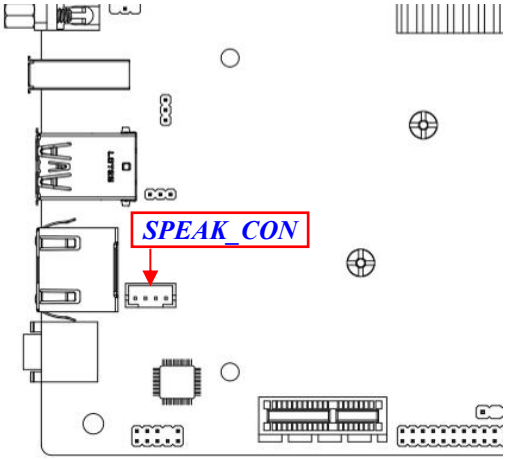
(8) FP_AUDIO1 (9-pin,Pitch=2.0mm): Line-Out, MIC-In Header

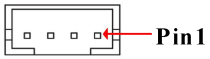
This header connects to Front Panel Line-out, MIC-In connector with cable.





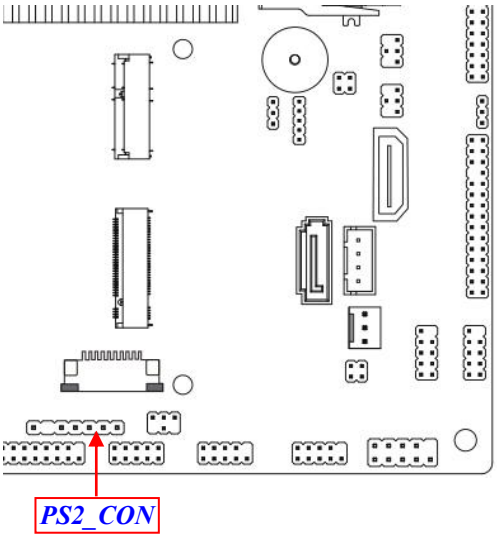
(9) SPEAK_CON (4-pin block, Pitch=2.0mm): 3W Amplifier Wafer

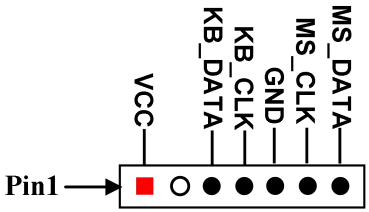




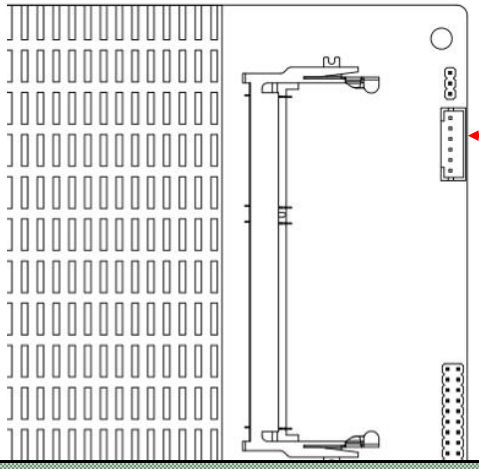
Pin No.	Definition
1	L-
2	L+
3	R+
4	R-

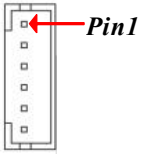
(10) PS2_CON(6-pin Pitch=2.54mm): PS/2 Keyboard & Mouse Port Header





(11) INVERTER1 (6-pin,Pitch=2.0mm): LVDS Inverter

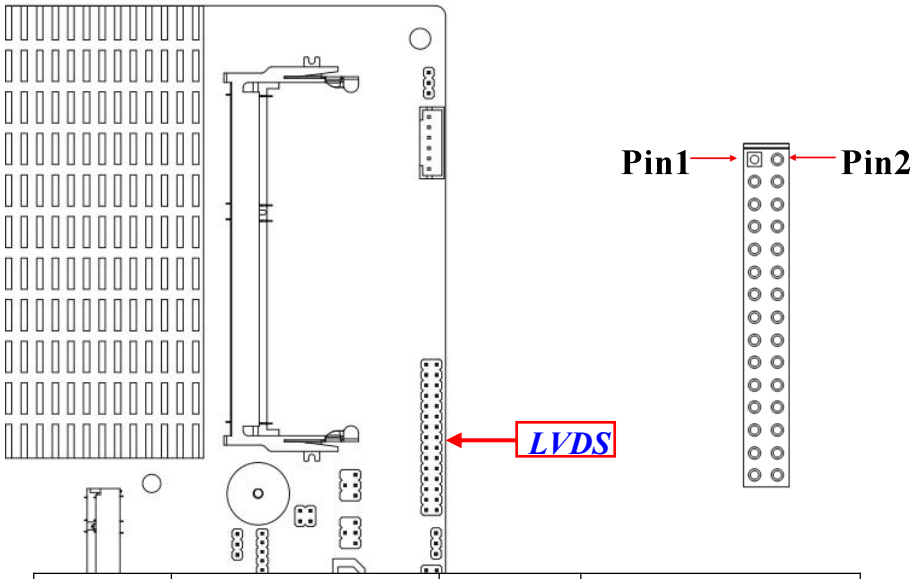




Pin No.	Definition
1	BKLT_PWR1
2	BKLT_PWR2
3	BKLT_EN
4	BKLT_PWM
5	BKLT_GND1
6	BKLT_GND2

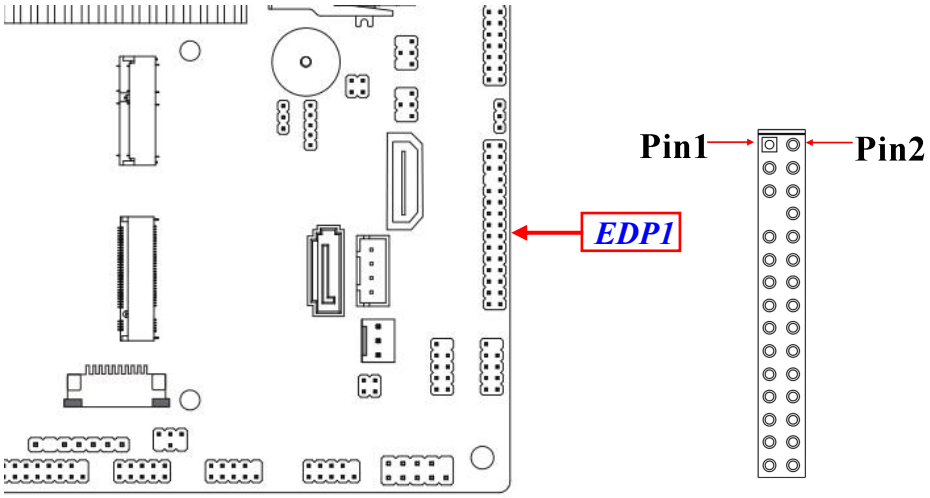
Warning! *Find* ***Pin-1*** *location of the inverter and make sure that the installation direction is correct! Otherwise serious harm will occur to the board/display panel!!*

(12) LVDS (30-pin,Pitch=2.0mm): 24-bit Dual Channel LVDS Header



Pin NO.	Pin Define	Pin NO.	Pin Define
Pin 1	LCD_VCC	Pin 2	LCD_VCC
Pin 3	LCD_VCC	Pin 4	GND
Pin 5	GND	Pin 6	GND
Pin 7	LVDSA_DATAN0	Pin 8	LVDSA_DATAP0
Pin 9	LVDSA_DATAN1	Pin 10	LVDSA_DATAP1
Pin 11	LVDSA_DATAN2	Pin 12	LVDSA_DATAP2
Pin 13	GND	Pin 14	GND
Pin 15	LVDS_CLKAN	Pin 16	LVDS_CLKAP
Pin 17	LVDSA_DATAN3	Pin 18	LVDSA_DATAP3
Pin 19	LVDSB_DATAN0	Pin 20	LVDSB_CLKAP0
Pin 21	LVDSB_DATAN1	Pin 22	LVDSB_DATAP1
Pin 23	LVDSB_DATAN2	Pin 24	LVDSB_DATAP2
Pin 25	GND	Pin 26	GND
Pin 27	LVDS_CLKBN	Pin 28	LVDS_CLKBP
Pin 29	LVDSB_DATAN3	Pin 30	LVDSB_DATAP3

(13) EDP1 (29-pin,Pitch=2.0mm): EDP Header



Pin NO.	Pin Define	Pin NO.	Pin Define
Pin 1	BKLT_PW	Pin 2	BKLT_PW
Pin 3	BKLT_PW	Pin 4	GND
Pin 5	EDP1_DEC	Pin 6	GND
Pin 7	No Key	Pin 8	NC
Pin 9	EDP_VCC	Pin 10	NC
Pin 11	EDP_VCC	Pin 12	EDP_BKLT_CTL
Pin 13	GND	Pin 14	GND
Pin 15	EDP_BKLT_EN	Pin 16	EDP_AUXP_C
Pin 17	EDP_HPD	Pin 18	EDP_AUXN_C
Pin 19	GND	Pin 20	GND
Pin 21	NC	Pin 22	NC
Pin 23	NC	Pin 24	NC
Pin 25	GND	Pin 26	GND
Pin 27	EDP_TXP1_C	Pin 28	EDP_TXN1_C
Pin 29	EDP_TXP0_C	Pin 30	EDP_TXN0_C

Chapter 3
Introducing BIOS

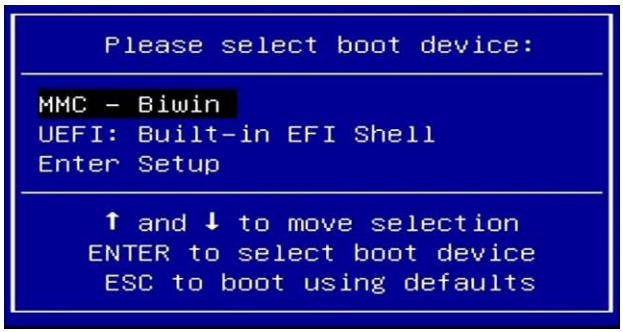
Notice!	The BIOS options in this manual are for reference only. Different configurations may lead to difference in BIOS screen and BIOS screens in manuals are usually the first BIOS version when the board is released and may be different from your purchased motherboard. Users are welcome to download the latest BIOS version form our official website.

The BIOS is a program located on a Flash Memory on the motherboard. This program is a bridge between motherboard and operating system. When you start the computer, the BIOS program will gain control. The BIOS first operates an auto-diagnostic test called POST (power on self test) for all the necessary hardware, it detects the entire hardware device and configures the parameters of the hardware synchronization. Only when these tasks are completed done it gives up control of the computer to operating system (OS). Since the BIOS is the only channel for hardware and software to communicate, it is the key factor for system stability, and in ensuring that your system performance as its best.

3-1 Entering Setup

Power on the computer and by pressing <Del> immediately allows you to enter Setup. If the message disappears before your respond and you still wish to enter Setup, restart the system to try again by turning it OFF then ON or pressing the "**RESET**" button on the system case. You may also restart by simultaneously pressing **<Ctrl>**, **<Alt>** and **<Delete>** keys. If you do not press the keys at the correct time and the system does not boot, an error message will be displayed and you will again be asked to

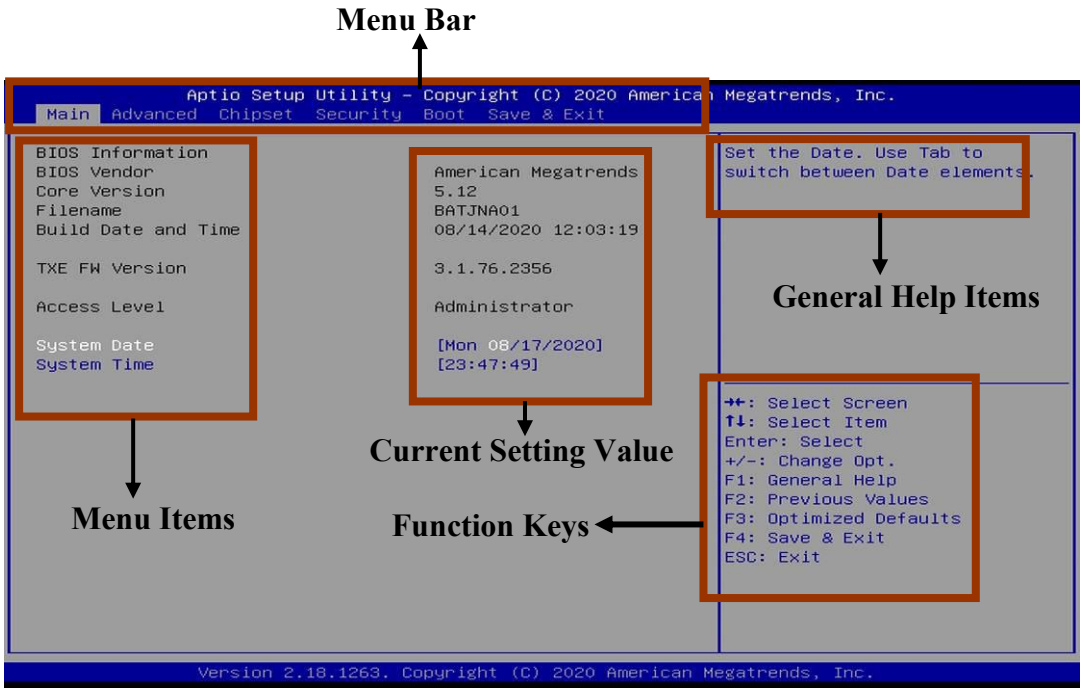
Press **<Del>** to enter Setup; press < **F7**> to enter pop-up Boot menu.



BIOS Boot Menu Screen (boot device options please refer to actual configuration)

3-2 BIOS Menu Screen

The following diagram show a general BIOS menu screen:



3-3 Function Keys

In the above BIOS Setup main menu of, you can see several options. We will explain these options step by step in the following pages of this chapter, but let us first see a short description of the function keys you may use here:

- Press←→ (left, right) to select screen;
- Press ↑↓ (up, down) to choose, in the main menu, the option you want to confirm or to modify.
- Press <Enter> to select.
- Press <+>/<–> keys when you want to modify the BIOS parameters for the active option.
- [F1]: General help.
- [F2]: Previous value.
- [F3]: Optimized defaults.
- [F4]: Save & Exit.
- Press <ESC> to quit the BIOS Setup.

3-4 Getting Help

Main Menu

The on-line description of the highlighted setup function is displayed at the top right corner the screen.

Status Page Setup Menu/Option Page Setup Menu

Press **[F1**] to pop up a small help window that describes the appropriate keys to use and the possible selections for the highlighted item. To exit the Help Window, press <**Esc**>.

3-5 Menu Bars

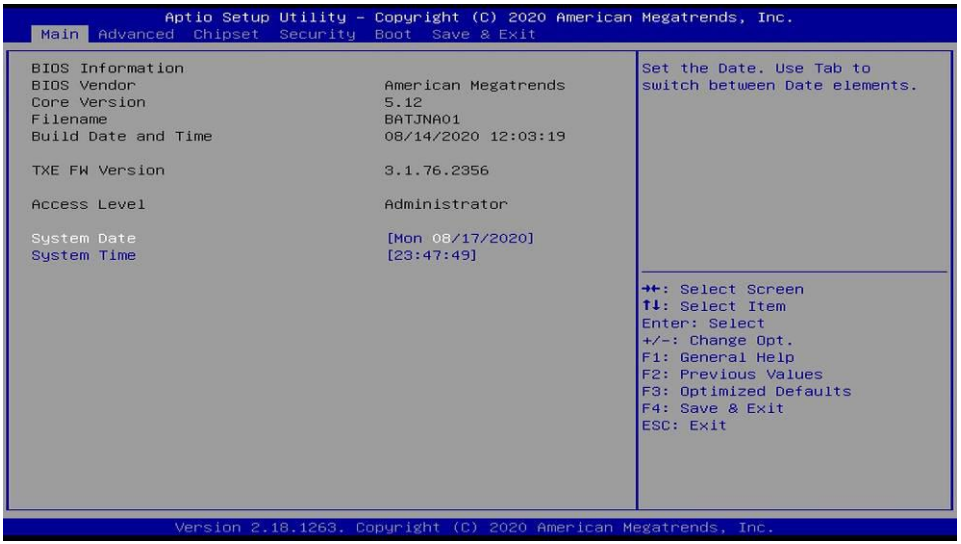
There are six menu bars on top of BIOS screen:

Main	To change system basic configuration
Advanced	To change system advanced configuration
Chipset	To change chipset configuration
Security	Password settings
Boot	To change boot settings
Save & Exit	Save setting, loading and exit options.

User can press the right or left arrow key on the keyboard to switch from menu bar. The selected one is highlighted.

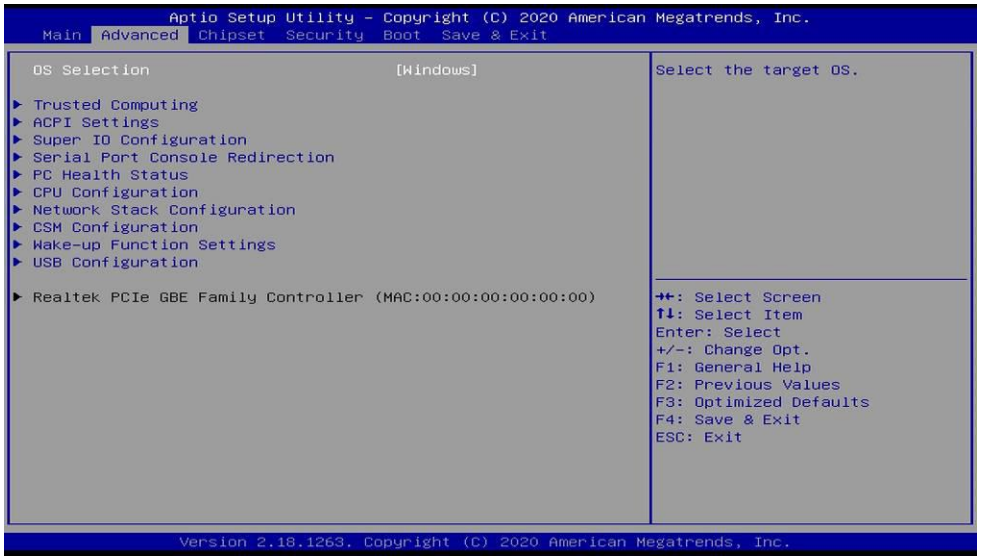
3-6 Main Menu

Main menu screen includes some basic system information. Highlight the item and then use the <+> or <-> and numerical keyboard keys to select the value you want in each item.



System Date
Set the date. Please use [Tab] to switch between date elements.
System Time
Set the time. Please use [Tab] to switch between time elements.

3-7 Advanced Menu



OS Selection
The optional settings: [Windows]; [Intel Linux]; [MSDOS].

** **Note:** User need to go to this item to select the OS mode before installing corresponding OS driver, otherwise problems will occur when installing the driver.*

► **Trusted Computing**
Press [Enter] to enable or disable '**Security Device Support**'.

TPM20 Device Found

Security Device Support
Use this item to enable or disable BIOS support for security device. O.S. will not show Security Device. TCG EFI protocol and INT1A interface will not be available.

The optional settings: [Disabled]; [Enabled].
*When set as **[Enabled]**, user can make further settings in the following items:*
SHA-1 PCR Bank
Use this item to enable or disable SHA-1 PCR Bank.
The optional settings: [Disabled]; [Enabled].
SHA256 PCR Bank
Use this item to enable or disable SHA256 PCR Bank.
The optional settings: [Disabled]; [Enabled].

► **ACPI Settings**
Press [Enter] to make settings for the following sub-items:
ACPI Settings

ACPI Sleep State
Use this item to select the highest ACPI sleep state the system will enter when the SUSPEND button is pressed.
The optional settings: [Suspend Disabled]; [S3 (Suspend to RAM)].

► **Super I/O Configuration**
Press [Enter] to make settings for the following sub-items:
Super IO Configuration

► **Serial Port 1 Configuration**
Use this item to set parameters of Serial Port 1 (COMA).
Press [Enter] to make settings for the following items:
Serial Port
The optional settings: [Disabled]; [Enabled].
When set as [Enabled], user can make further settings in the following items:
Device Settings

Change Settings
Use this item to select an optimal setting for Super IO Device.
The optional settings: [Auto]; [IO=3F8h; IRQ=4;]; [IO=2F8h; IRQ=3;]; [IO=3E8h; IRQ=4;]; [IO=2E8h; IRQ=3;].

► **Serial Port 2 Configuration**

Press [Enter] to make settings for the following sub-items:
When set as [Enabled], user can make further settings in the following items:
Device Settings

Serial Port
Use this item to enable or disable Serial Port 2 (COMB).
The optional settings: [Disabled]; [Enabled].
When set as [Enabled], user can make further settings in the following items:
Change Settings
Use this item to select an optimal setting for Super IO Device.
The optional settings: [Auto]; [IO=3F8h; IRQ=4;]; [IO=2F8h; IRQ=3;]; [IO=3E8h; IRQ=4;]; [IO=2E8h; IRQ=3;].

► **Serial Port 3 Configuration**
Press [Enter] to make settings for the following sub-items:

Serial Port
Use this item to enable or disable Serial Port 3 (COMC).
The optional settings: [Disabled]; [Enabled].
When set as [Enabled], user can make further settings in the following items:
Device Settings

Change Settings
Use this item to select an optimal setting for Super IO Device.
The optional settings: [Auto]; [IO=3F8h; IRQ=10;]; [IO=2F8h; IRQ=10;]; [IO=3E8h; IRQ=10;]; [IO=2E8h; IRQ=10;]; [IO=2F0h; IRQ=10;]; [IO=2E0h; IRQ=10;].
Transmission Mode Select
The optional settings: [RS422]; [RS232]; [RS485].

► **Serial Port 4 Configuration**
Press [Enter] to make settings for the following sub-items:
When set as [Enabled], user can make further settings in the following items:
Device Settings

Serial Port

Use this item to enable or disable Serial Port 4 (COMD).
The optional settings: [Disabled]; [Enabled].
When set as [Enabled], user can make further settings in the following items:
Device Settings

Change Settings
Use this item to select an optimal setting for Super IO Device.
The optional settings: [Auto]; [IO=3F8h; IRQ=10;]; [IO=2F8h; IRQ=10;]; [IO=3E8h; IRQ=10;]; [IO=2E8h; IRQ=10;]; [IO=2F0h; IRQ=10;]; [IO=2E0h; IRQ=10;].

- **Parallel Port Configuration**

Press [Enter] to make settings for the following items:
Parallel Port Configuration

Parallel Port
Use this item to enable or disable Parallel Port (LPT/LPTE).
The optional settings: [Disabled]; [Enabled].
When set as [Enabled], user can make further settings in the following items:
Device Settings

Change Settings
Use this item to select an optimal setting for Super IO Device.
The optional settings: [Auto]; [IO=378h; IRQ=5;]; [IO=378h; IRQ=5,6,7,9,10,11,12;]; [IO=278h; IRQ=5,6,7,9,10,11,12;]; [IO=3BCh; IRQ=5,6,7,9,10,11,12;].

Device Mode
Use this item to change the Printer Port mode.
The optional settings: [STD Printer Mode]; [SPP Mode]; [EPP-1.9 and SPP Mode]; [EPP-1.7 and SPP Mode]; [ECP Mode]; [ECP and EPP 1.9 Mode]; [ECP and EPP 1.7 Mode].

ERP Support
This item is Energy-Related Products function.

The optional settings: [Disabled]; [Enabled].
This item should be set as [**Disabled**] if you wish to have all active wake-up functions.

Case Open Detect
Use this item to detect if case have ever been opened. Show message in POST.
The optional settings: [Disabled]; [Enabled].
When set as [Enabled], system will detect if COPEN has been short or not (*refer to **JP2** jumper setting for Case Open Detection*); if Pin 1&2 of JP2 is short, system will show Case Open Message during POST.

WatchDog Reset Timer
Use this item to enable or disable WDT reset function.
The optional settings: [Disabled]; [Enabled].
When set as [Enabled], the following sub-items shall appear:
WatchDog Reset Timer Value
User can select a value in the range of [4] to [255] seconds when 'WatchDog Reset Timer Unit' set as [Sec]; or in the range of [1] to [255] minutes when 'WatchDog Reset Timer Unit' set as [Min].
WatchDog Reset Timer Unit
The optional settings: [Sec.]; [Min.].
WatchDog Wake-up Timer
This item support WDT wake-up.
The optional settings: [Disabled]; [Enabled].
When set as [Enabled], the following sub-items shall appear:

WatchDog Wake-up Timer Value
User can select a value in the range of [10] to [4095] seconds when 'WatchDog Wake-up Timer Unit' set as **[Sec]**; or in the range of [1] to [4095] minutes when 'WatchDog Wake-up Timer Unit' set as **[Min]**.

WatchDog Wake-up Timer Unit
The optional settings: [Sec.]; [Min.].

ATX Power Emulate AT Power

This item support Emulate AT power function, MB power On/Off control by power supply. Use needs to select 'AT or ATX Mode' on MB jumper at first *(refer to **JAT_ATX1 jumper** setting for ATX Mode & AT Mode Select).*

- **Serial Port Console Redirection**

COM1

Console Redirection

Use this item to enable or disable Console Redirection.

The optional settings: [Disabled]; [Enabled].

When set as [Enabled], user can make further settings in the following items:

- **Console Redirection Settings**

The settings specify how the host computer and the remote computer (which the user is using) will exchange data. Both computers should have the same or compatible settings.

Press [Enter] to make settings for the following sub-items.

COM1

Console Redirection Settings

Terminal Type

The optional settings: [VT100]; [VT100+]; [VT-UTF8]; [ANSI].

Emulation: **[ANSI]:** Extended ASCII char set; **[VT100]:** ASCII char set; **[VT100+]:** Extends VT100 to support color, function keys, etc.; **[VT-UTF8]:** Uses UTF8 encoding to map Unicode chars onto 1 or more bytes.

Bits per second

Use this item to select serial port transmission speed. The speed must be matched on the other side. Long or noisy lines may require lower speeds.

The optional settings: [9600]; [19200]; [38400]; [57600]; [115200].

Data Bits

The optional settings: [7]; [8].

Parity

A parity bit can be sent with the data bits to detect some transmission errors.

The optional settings: [None]; [Even]; [Odd]; [Mark]; [Space].

[Even]: parity bit is 0 if the num of 1's in the data bits is even;
[Odd]: parity bit is 0 if num of 1's in the data bits is odd;
[Mark]: parity bit is always 1;
[Space]: parity bit is always 0;
[Mark] and **[Space]**: parity do not allow for error detection.

Stop Bits

Stop bits indicate the end of a serial data packet. (A start bit indicates the beginning). The standard setting is 1 stop bit. Communication with slow devices may require more than 1 stop bit.
The optional settings: [1]; [2].

Flow Control

Flow control can prevent data loss from buffer overflow. When sending data, if the receiving buffers are full, a "stop" signal can be sent to stop the data flow. Once the buffers are empty, a "start" signal can be sent to re-start the flow. Hardware flow control uses two wires to send start/stop signals.
The optional settings: [None]; [Hardware RTS/CTS].

VT-UTF8 Combo Key Support

Use this item to enable VT-UTF8 Combination Key Support for ANSI/VT100 terminals.
The optional settings: [Disabled]; [Enabled].

Recorder Mode

With this mode enable only text will be sent. This is to capture Terminal data.
The optional settings: [Disabled]; [Enabled].

Resolution 100x31

Use this item to enable or disable extended terminal resolution.
The optional settings: [Disabled]; [Enabled].

Legacy OS Redirection Resolution

On Legacy OS, the Number of Rows and Columns supported redirection.
The optional settings: [80x24]; [80x25].

Putty Keypad

Use this item to select FunctionKey and KeyPad on Putty.
The optional settings: [VT100]; [Intel Linux]; [XTERMR6]; [SCO]; [ESCN]; [VT400].

Redirect After BIOS POST
The optional settings: [Always Enable]; [BootLoader].
When [**Bootloader**] is selected, then Legacy Console Redirection is disabled before booting to legacy OS. When [**Always Enabled**] is selected, then Legacy Console Redirection is enabled for legacy OS. Default setting for this option is set to [**Always Enabled**].

Serial Port for Out-of-Band Management/ Windows Emergency Management Services (EMS)

Console Redirection
The optional settings: [Disabled]; [Enabled].
When set as [Enabled], the following sub-items shall appear:

- **Console Redirection Settings**

The settings specify how the host computer and the remote computer (which the user is using) will exchange data. Both computers should have the same or compatible settings.
Press [Enter] to make settings for the following items:
Out-of-Band Mgmt Port
The default setting is: [COM1].
Terminal Type
The optional settings: [VT100]; [VT100+]; [VT-UTF8]; [ANSI].
[VT-UTF8] is the preferred terminal type for out-of-band management. The next best choice is [VT100+] and them [VT100]. See above, in Console Redirection Settings page, for more help with Terminal Type/Emulation.
Bits per second
Use this item to select serial port transmission speed. The speed must be matched on the other side. Long or noisy lines may require lower speeds.
The optional settings: [9600]; [19200]; [57600]; [115200].
Flow Control
Flow control can prevent data loss from buffer overflow. When sending data, if the receiving buffers are full, a “stop” signal can be sent to stop the data flow. Once the buffers are empty, a “start” signal can be sent to re-start the flow.

Hardware flow control uses two wires to send start/stop signals.
The optional settings: [None]; [Hardware RTS/CTS]; [Software Xon/Xoff].

Data Bits

The default setting is: [8].

**This item may or may not show up, depending on different configuration.*

Parity

The default setting is: [None].

**This item may or may not show up, depending on different configuration.*

Stop Bits

The default setting is: [1].

**This item may or may not show up, depending on different configuration.*

- **PC Health Status**

Press [Enter] to view current hardware health status.

- **CPU Configuration**

Press [Enter] to view current CPU configuration and make settings for the following sub-items:

EIST

Use this item to enable or disable Intel SpeedStep.
The optional settings: [Disabled]; [Enabled].
When set as [Enabled], the following sub-items shall appear:

Turbo Mode

Use this item to enable or disable Turbo Mode (requires Intel Speed Step or Intel Speed Shift to be available and enabled.)
The optional settings: [Disabled]; [Enabled].
**Note: This item might not be available depending on configuration.*

C-States

Use this item to enable or disable C-State.
The optional settings: [Disabled]; [Enabled].
When set as [Enabled], user can make further settings in the following sub-items:

Enhanced C-states

The optional settings: [Disabled]; [Enabled].
This option is for user to enable or disable C1E. When set as [Enabled], CPU

will switch to minimum speed when all cores enter C-State.

Max Package C State

This item is for user to control the Max Package C State that the processor will support.

The optional items are: [PC2]; [PC1]; [C0].

Max Core C States

This option controls the Max Core C State that cores will support.

The optional items are: [Fused Value];[Core C10] ;[Core C9] ;[Core C8] ;[Core C7]; [Core C6];[Core C1];[Unlimited].

- **Network Stack Configuration**

Press [Enter] to go to '**Network Stack**' screen to make further settings.

Network Stack

The optional settings are: [Disabled]; [Enabled].

When set as [Enabled], the following sub-items shall appear:

Ipv4 PXE Support

Use this item to enable Ipv4 PXE Boot Support. When set as [Disabled], Ipv4 boot optional will not be created.

The optional settings: [Disabled]; [Enabled].

Ipv6 PXE Support

Use this item to enable Ipv6 PXE Boot Support. When set as [Disabled], Ipv6 boot optional will not be created.

The optional settings: [Disabled]; [Enabled].

PXE Boot Wait Time

Use this item to set wait time to press [ESC] key to abort the PXE boot.

Media Detect Count

Use this item to set number of times presence of media will be checked.

The optional settings range from [1] to [50].

- **CSM Configuration**

Press [Enter] to make settings for the following sub-items:

Compatibility Support Module Configuraton

Boot option filter

This item controls Legacy/UEFI ROMs priority.
The optional settings: [UEFI and Legacy]; [Legacy Only]; [UEFI Only].

Network
This item controls the execution of UEFI and Legacy PXE OpROM.
The optional settings: [Do not Launch]; [UEFI]; [Legacy].

Storage
This item controls the execution of UEFI and Legacy Storage OpROM.
The optional settings: [Do not Launch]; [UEFI]; [Legacy].

Video
This item controls the execution of UEFI and Legacy Video OpROM.
The optional settings: [UEFI]; [Legacy].

Other PCI devices
This item determines OpROM execution policy for devices other than Network, Storage or Video.
The optional settings: [Do not Launch]; [UEFI]; [Legacy].

► **Wake-up Function Settings**
Press [Enter] to make settings for the following sub-items:

Wake-up System with Fixed Time
Use this item to enable or disable system wake-up by RTC alarm.
The optional settings: [Disabled]; [Enabled].
When set as [Enabled], the following items shall appear:

Wake-up Hour
Use this item to select 0-23. For example enter 3 for 3am and 15 for 3pm.

Wake-up Minute
Use this item to select 0-59.

Wake-up Second
Use this item to select 0-59.

Wake-up System with Dynamic Time
Use this item to enable or disable System wake on alarm event.
System will wake on the current time + Increase minute(s).
The optional settings: [Disabled]; [Enabled].
When set as [Enabled], system will wake on the current time + increased

minute(s).

USB Wake-up from S4
Use this item to enable or disable USB S4 Wake-up.
The optional settings: [Enabled]; [Disabled].
**Note: This function is supported when 'ERP Support' is set as [Disabled].*

- **USB Configuration**

Press [Enter] to make settings for the following sub-items:
USB Configuration
USB Devices

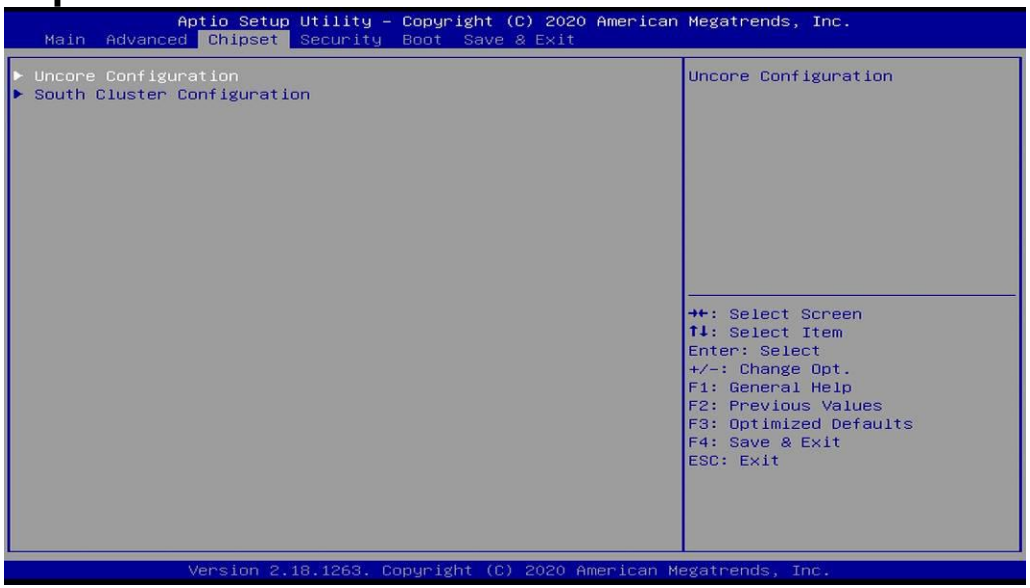
Legacy USB Support
The optional settings: [Enabled]; [Disabled]; [Auto].
[Enabled]: To enable legacy USB support.
[Disabled]: To keep USB devices available only for EFI specification,
[Auto]: To disable legacy support if no USB devices are connected.
XHCI Hand-off
This is a workaround for OSes without XHCI hand-off support. The XHCI ownership change should be claimed by XHCI driver.
The optional settings: [Enabled]; [Disabled].
USB Mass Storage Driver Support
Use this item to enable or disable USB mass storage driver support.
The optional settings: [Disabled]; [Enabled].

USB Hardware Delays and Time-outs:
USB Transfer Time-out
Use this item to set the time-out value for control, bulk, and interrupt transfers.
The optional settings: [1 sec]; [5 sec]; [10 sec]; [20 sec].
Device Reset Time-out
Use this item to set USB mass storage device start unit command time-out.
The optional settings: [10 sec]; [20 sec]; [30 sec]; [40 sec].
Device Power-up Delay
Use this item to set maximum time the device will take before it properly reports

itself to the Host Controller. 'Auto' uses default value: for a root port it is 100 ms, for a Hub port the delay is taken from Hub descriptor.
The optional settings: [Auto]; [Manual].
Select **[Manual]** you can set value for the following sub-item: '**Device power-up Delay in Seconds**', the delay range in from 1 to 40 seconds, in one second increments.

- ***Realtek PCIe GBE Family Controller (MAC: XX:XX:XX:XX:XX:XX)***

3-8 Chipset Menu



- **Uncore Configuration**

Press [Enter] to make settings for the following sub-items:
GTT Size
The optional settings: [2MB]; [4MB]; [8MB].
DVMT Pre-Allocated
Use this item to select DVMT 5.0 Pre-Allocated (Fixed) Graphics Memory size

used by the Internal Graphics Device.
The optional settings: [64M]; [96M]; [128M]; [160M]; [192M]; [224M]; [256M]; [288M]; [320M]; [352M]; [384M]; [416M]; [448M]; [480M]; [512M].

DVMT Total Gfx Mem

Use this item to select DVMT 5.0 Total Graphics Memory size used by the Internal Graphics Device.
The optional settings: [128M]; [256M]; [MAX].

Active LFP

Use this item to select the active configuration.
The optional settings: [Disabled]; [Enabled].

***Note:** When set as **[Enabled]**, user can make further settings in '**LCD Panel Type**', '**LVDS FW Protect**', and '**GMCH BLC Control**':*

LCD Panel Type

Use this item to select LCD panel used by Internal Graphics Device by selecting the appropriate setup item.
The optional settings: [800x600 1ch 24-bit]; [800x600 1ch 18-bit]; [1024x600 1ch 18-bit]; [1024x768 1ch 24-bit]; [1024x768 1ch 18-bit]; [800x480 1ch 18-bit]; [1366x768 1ch 18-bit]; [1440x900 2ch 18-bit]; [1366x768 1ch 24-bit]; [1440x900 2ch 24-bit]; [1280x1024 2ch 24-bit]; [1280x800 1ch 18-bit] [1280x800 1ch 24-bit] [1680x1050 2ch 24-bit]; [1920x768 1ch 24-bit]; [1920x1080 2ch 24-bit].

LVDS FW Protect

Use this item to set LVDS FW Protect function.
The optional settings: [Enabled]; [Disabled].

GMCH BLC Control

Use this item for Back Light Control Settings.
The optional settings: [PWM-Inverted]; [PWM-Normal].

Primary IGFX Boot Display

Use this item to select the Video Device which will be activated during POST. This has no effect if external graphics present. Secondary boot display selection will appear based on your selection. VGA mode will be supported only on primary display.
The optional settings: [Auto]; [HDMI]; [eDP]; [LVDS].

Secondary IGFX Boot Display
Use this item to select Secondary Display Device.
The optional settings: [Disabled]; [HDMI]; [eDP]; [LVDS].

Memory Information
The working memory information will be on display.

► **South Cluster Configuration**

▸ **PCI Express Configuration**
Press [Enter] to make settings for the following sub-items:
PCI Express Configuration

Peer Memory Write Enable
The optional settings: [Disabled]; [Enabled].
Compliance Mode
The optional settings: [Disabled]; [Enabled].

▸ **SATA Configuration**
Press [Enter] to make settings for the following sub-items:
SATA Controller
Use this item to enable or disable the Chipset SATA Controller. The Chipset SATA controller supports the 2 black internal SATA ports (up to 3Gb/s supported per port).
The optional settings: [Enabled]; [Disabled].
When set as [Enabled], the following items shall appear:
SATA Mode Selection
Use this item to determine how SATA controller(s) operate.
The default setting is: [AHCI].

SATA Port
SATA Port
Use this item to enable or disable each SATA port.
The optional settings: [Disabled]; [Enabled].

M.2

M.2

Use this item to enable or disable SATA port.
The optional settings: [Disabled]; [Enabled].

HD-Audio Support

Use this item to enable or disable HD-Audio Support.
The optional settings: [Disabled]; [Enabled].

SCC eMMC Support

Use this item to enable or disable SCC eMMC Support.
The optional settings: [Disabled]; [Enabled].
Note: **JNC8J-I3455D supports onboard eMMC.*

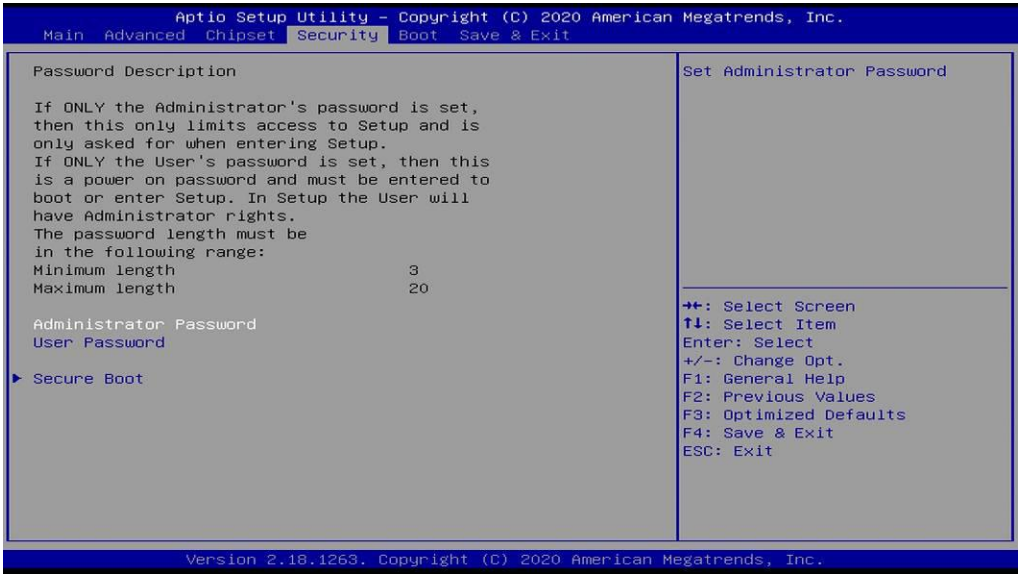
eMMC Max Speed

Use this item to select the eMMC max speed allowed.
The optional settings: [HS400]; [HS200]; [DDR50].
Note: **JNC8J-I3455D supports onboard eMMC.*

System State after Power Failure

Use this item to specify what state to go to when power re-applied after a power failure.
The optional settings: [Always On]; [Always Off]; [Former State].

3-9 Security Menu



Security menu allow users to change administrator password and user password settings.

Administrator Password

If there is no password present on system, please press [Enter] to create new administrator password. If password is present on system, please press [Enter] to verify old password then to clear/change password. Press again to confirm the new administrator password.

User Password

If there is no password present on system, please press [Enter] to create new user password. If password is present on system, please press [Enter] to verify old password then to clear/change password. Press again to confirm the new administrator password.

- **Secure Boot**

  Press [Enter] to make customized secure settings:

  Secure Boot Control

The optional settings: [Disabled]; [Enabled].
Secure Boot can be enabled if 1. System running in user mode with enrolled Platform Key (PK); 2. CSM function is disabled.

Secure Boot Mode

The optional settings: [Standard]; [Custom].
Set UEFI Secure Boot Mode to Standard mode or Custom mode. This change is effective after save. After reset, this mode will return to Standard mode.
*When set as [**Custom**], user can make further settings in the following items that show up:*

- **Key Management**

This item enables experienced users to modify Secure Boot variables.
Press [Enter] to make customized secure settings:

Provision Factory Default Keys

This item is for user to install factory default secure boot keys when system is in Setup Mode.
The optional settings: [Disabled]; [Enabled].

- **Enroll All Factory Default Keys**

This item forces system to User Mode-install all Factory Default keys.

- ***Save all Secure Boot Variables***

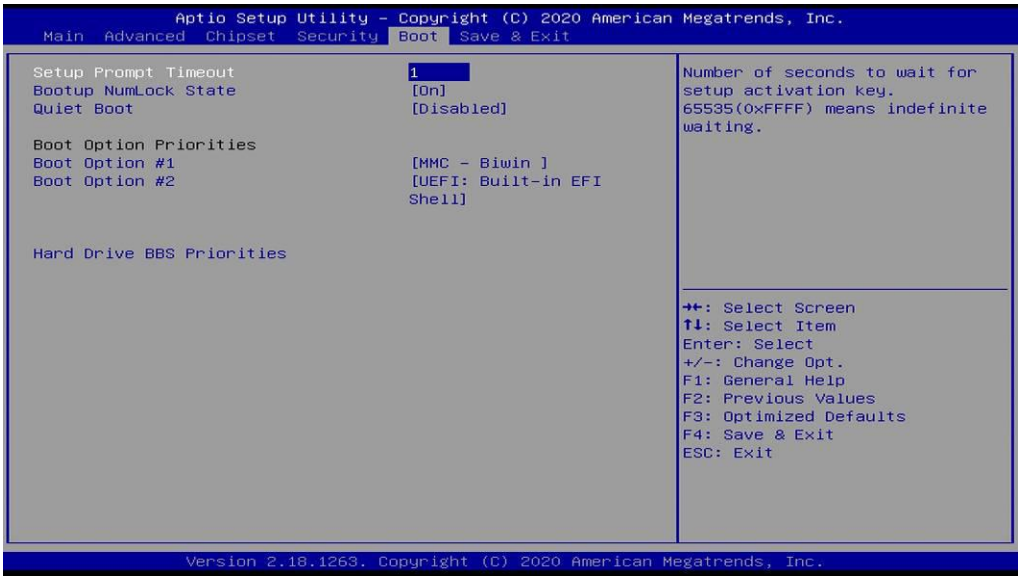
Secure Boot Variable/Size/Key#/Key Source

- **Platform Key (PK)/Key Exchange Keys/Authorized Signatures/Forbidden Signatures/ Authorized TimeStamps/OSRecovery Signatures**

Use this item to enroll Factory Defaults or load the keys from a file with:
1. Public Key Certificate in:
   a) EFI_SIGNATURE_LIST
   b) EFI_ CERT_X509 (DER encoded)
   c) EFI_ CERT_RSA2048 (bin)
   d) EFI_ CERT_SHA256 (bin)
2. Authenticated UEFI Variable

Key: Vendor, Custom, Mixed, Test (*) modified from Setup menu

3-10 Boot Menu



Setup Prompt Timeout
Use this item to set number of seconds to wait for setup activation key. 65535(0xFFFF) means indefinite waiting.
Bootup NumLock State
Use this item to select the keyboard NumLock state.
The optional settings: [On]; [Off].
Quiet Boot
The optional settings: [Disabled]; [Enabled].

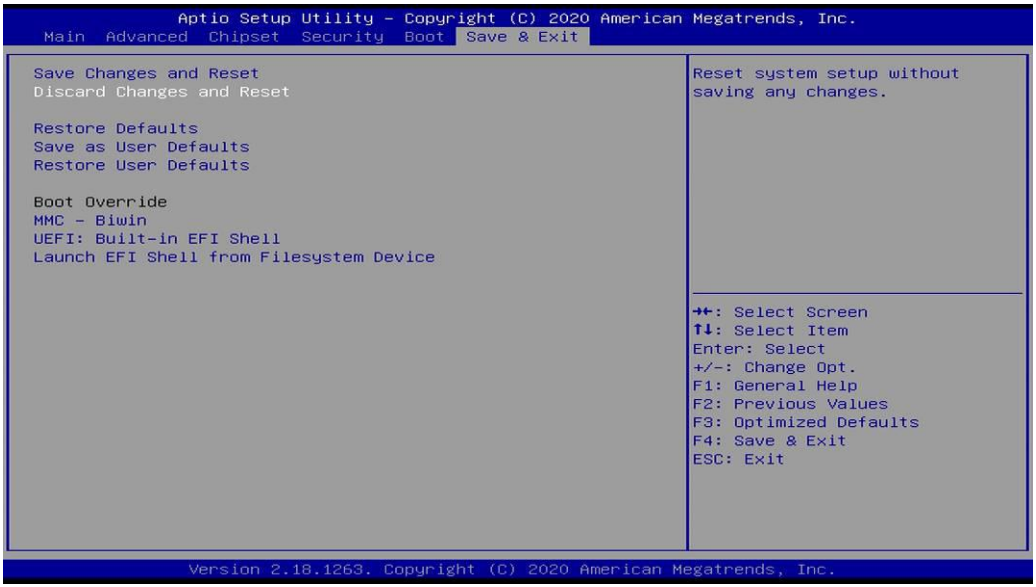
Boot Option Priorities

Boot Option #1
Use this item to set the system boot order.
The optional settings: [MMC - Biwin]; [UEI: Built-in EFI Shell]; [Disabled].

Boot Option #2
Use this item to set the system boot order.
The optional settings: [MMC - Biwin]; [UEI: Built-in EFI Shell]; [Disabled].

Hard Drive BBS Priorities
Use this item to set the order of the legacy devices in this group.
Press [Enter] to make customized secure settings:
Boot Option#1
The optional settings: [MMC - Biwin]; [Disabled].

3-11 Save & Exit Menu



Save Changes and Reset
This item allows user to reset the system after saving the changes.
Discard Changes and Reset
This item allows user to reset the system without saving any changes.

Restore Defaults
Use this item to restore /load default values for all the setup options.
Save as User Defaults
Use this item to save the changes done so far as user defaults.
Restore User Defaults
Use this item to restore defaults to all the setup options.

Boot Override

The available options here are dynamically updated and make system boot to any boot option selected.
MMC - Biwin
Use this item to save or reset configuration of MMC – Biwin.
UEFI: Built-in EFI Shell
Use this item to save or reset configuration of UEFI.
Lauch EFI Shell from Filesystem Device
Use this item to launch EFI shell application (shell.efi) from one of the available filesystem device.