



# **MX6210N/MX6412J**

Intel® Celeron N6210/J6412 SoC  
Mini-ITX Motherboard

## **User's Manual**

Edition 1.02 – December, 2021

## FCC Statement



THIS DEVICE SUPPORTS PART 15 FCC RULES. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS:

(1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE.

(2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRE OPERATION.

THIS EQUIPMENT HAS BEEN TESTED AND FOUND TO COMPLY WITH THE LIMITS FOR A CLASS "A" DIGITAL DEVICE, PURSUANT TO PART 15 OF THE FCC RULES.

THESE LIMITS ARE DESIGNED TO PROVIDE REASONABLE PROTECTION AGAINST HARMFUL INTERFERENCE WHEN THE EQUIPMENT IS OPERATED IN A COMMERCIAL ENVIRONMENT. THIS EQUIPMENT GENERATES, USES, AND CAN RADIATE RADIO FREQUENCY ENERGY AND, IF NOT INSTALLED AND USED IN ACCORDANCE WITH THE INSTRUCTION MANUAL, MAY CAUSE HARMFUL INTERFERENCE TO RADIO COMMUNICATIONS.

OPERATION OF THIS EQUIPMENT IN A RESIDENTIAL AREA IS LIKELY TO CAUSE HARMFUL INTERFERENCE IN WHICH CASE THE USER WILL BE REQUIRED TO CORRECT THE INTERFERENCE AT HIS OWN EXPENSE.

## Notice

This guide is designed for experienced users to setup the system within the shortest time. For detailed information, please always refer to the electronic user's manual.

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2. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

## Manual Objectives

This manual describes in detail the BCM MX6210N and MX6412J Main board.

We strongly recommend that you study this manual carefully before attempting to interface with this mainboard or change the standard configurations. Whilst all the necessary information is available in this manual we would recommend that unless you are confident, you contact your supplier for guidance.

Please be aware that it is possible to create configurations within the CMOS RAM that make booting impossible. If this should happen, clear the CMOS settings, (see the description of the Jumper Settings for details).

If you have any suggestions or find any errors concerning this manual and want to inform us of these, please contact our Customer Service department with the relevant details.

## Safety Precautions

### **Warning!**



Always completely disconnect the power cord from your chassis whenever you work with the hardware. Do not make connections while the power is on. Sensitive electronic components can be damaged by sudden power surges. Only experienced electronics personnel should open the PC chassis.

### **Caution!**



Always ground yourself to remove any static charge before touching the mainboard. Modern electronic devices are very sensitive to static electric charges. As a safety precaution, use a grounding wrist strap at all times. Place all electronic components in a static-dissipative surface or static-shielded bag when they are not in the chassis.

## Document Amendment History

| Revision                  | Date         | Comment         |
|---------------------------|--------------|-----------------|
| 1 <sup>st</sup><br>(1.00) | Nov,<br>2021 | Initial Release |
|                           |              |                 |
|                           |              |                 |
|                           |              |                 |
|                           |              |                 |

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# Thin Mini-ITX Board Features

This chapter briefly describes the features of Thin Mini-ITX Board MX6210N and MX6412J.

Below to summarize the major features of the Desktop Board.

## Feature Summary

**TABLE: MX6210N and MX6412J FEATURES**

| General SPEC        |   |
|---------------------|---|
| Processor           | Intel® Elkhart Lake N6210 Dual Core SoC<br>MX6210N: PN# 71822                 |
|                     | Intel® Elkhart Lake J6412 Quad Core SoC<br>MX6412J: PN# 71821                 |
| Memory              | Two Horizontal 260-pin SoDIMM DDR4 Memory Slots; Supports up to 32GB          |
|                     |   |
| Integrated Graphics | Intel® Gen11LP Graphic  |
| Display Interface   | 2 x HDMI Display Output supporting up to 4K@30Hz                              |
|                     | 18/24 bits Dual Channel LVDS Through Parade PS8625 or Equivalent (Co-Lay eDP) |
|                     |   |
| Storage             | Onboard eMMC (Optional)   |
|                     |   |
| Super I/O           | Nuvoton® NCT6126D or Equivalent   |
| Type                | eSPI Super I/O  |
| COM Ports           | 2 x RS232/422/485 Port (with 5V/12V/RI)                                       |
|                     | 2 x RS232 Port (with 5V/12V/RI)   |
| WatchDog Timer      | 1 Sec ~ 255 Sec   |
| H/W Monitor         | Yes   |
|                     |   |
| TPM                 | Infineon® SLB 9670VQ2.0 TPM 2.0/FW 7.85 or Equivalent                         |
| Type                | TPM 2.0   |
|                     |   |
| USB 3.0 Hub         | Genesys® GL3523 or Equivalent   |
| Type                | 4 Ports USB 3.0 Hub   |
|                     |   |
|                     |   |
| Ethernet 1          | Intel® i225-LM (HSIO LANE #2)   |



|                                |   |
|--------------------------------|---|
| Type                           | PCI Express Gigabit Ethernet  |
| <b>Ethernet 2</b>              | <b>Intel® i225-LM (HSIO LANE #3)</b>  |
| Type                           | PCI Express Gigabit Ethernet  |
| <b>Ethernet 3</b>              | <b>Intel® i211-AT (HSIO LANE #4)</b>  |
| Type                           | PCI Express Gigabit Ethernet  |
| <b>Ethernet 4</b>              | <b>Intel® i211-AT (HSIO LANE #5)</b>  |
| Type                           | PCI Express Gigabit Ethernet  |
| <b>Audio</b>                   | <b>Realtek® ALC888S or ALC897 or Equivalent</b>   |
| Type                           | HD Audio Codec  |
| Amplifier                      | 2W Per Channel Stereo Amplifier   |
| <b>BIOS</b>                    | <b>*AMI® 256Mb SPI BIOS</b>   |
| <b>Expansion Slots</b>         |   |
| PCI-E                          | 1 x 2230 M.2 E Key (with PCIe x1 & USB 2.0 Signal)  |
|                                | 1 x 2280 & 2242 M.2 M Key (with PCIe x2 & SATA III Signal)  |
| <b>Internal I/O Connectors</b> |   |
| COM                            | 2 x RS-232/422/485 Header (2x5 2.0mm Header)  |
|                                | 2 x RS-232 Header (2x5 2.0mm Header)  |
| I <sup>2</sup> C               | 1 x I <sup>2</sup> C Header (2x4 2.0mm Header)<br>Signal level: 1.8V x1, 3.3V x1<br>DC output: 3.3V |
| I <sup>2</sup> S               | 1 x I <sup>2</sup> S Header (1x6 2.0mm Header)<br>Signal level: 1.8V<br>DC output: 3.3V             |
| USB                            | 2 x USB 2.0 header (4 x USB 2.0 Ports)  |
|                                | 1 x Dual Mode USB 3.0 Vertical Type A Connector (Host & Device)                                     |
| LVDS/eDP                       | 1 x LVDS/eDP Header<br>LVDS: HIROSE #DF13-40DP-1.25V<br>eDP: ACES 50203-4001-001 (optional)         |
| Backlight                      | 1 x Backlight Header (1x5 2.0mm Header)   |
| Fan                            | 1 x 4 Pin CPU Fan Header  |
|                                | 1 x 4 Pin System Fan Header   |
| GPIO                           | 1 x 8 bits GPIO Headers (4 In/4 Out) (2x5 2.0mm Header)<br>Signal level: 3.3V                       |

|                              |  |
|------------------------------|--|
|                              | DC output: 5V  |
| SPI                          | 1 x SPI Header (2x4 2.0mm Header)  |
| eSPI                         | 1 x eSPI Header (2x5 2.0mm Header)   |
| SATA                         | 1 x SATA III Connectors (Red)  |
| SATA Power                   | 1 x 15 pin SATA Power Connector  |
| Front Audio                  | 1 x Front Audio Header (2x5 2.54mm Pitch)  |
| Front Panel                  | 1 x Front Panel Header (2x5 2.54mm Pitch)  |
| Amp                          | 1 x Amplifier Locking Type Header (1x4 2.00mm Pitch)                             |
| Buzzer                       | 1 x Onboard Buzzer   |
| CMOS Battery                 | 1 x Horizontal Socket Type Battery   |
| DC-In                        | 1 x Mini-Fit Jr 4 Pin DC-In Connector  |
|                              |  |
| <b>Back I/O Panel</b>        |  |
| HDMI                         | 2 x HDMI Connectors  |
| LAN                          | 2 x RJ45 Connectors  |
|                              | 2 x RJ45 Connectors  |
| USB                          | 4 x USB 3.0 Connectors   |
| Audio                        | 1 x MIC/Line-Out combo Jack  |
| DC-In                        | 1 x Barrel Type DC-In Connector (ID 2.5mm/OD 5.5mm)                              |
|                              |  |
| <b>Power &amp; Connector</b> | 12V – 24V Wide Range DC-In   |
|                              |  |
| <b>Form Factor</b>           | Mini-ITX 6.7 x 6.7 inches  |
| <b>Cooling</b>               | Passive Heatsink   |
| <b>Layer</b>                 | 8 Layer Board  |
| <b>Color</b>                 | BCM Standard Blue  |
|                              |  |
| <b>Regulatory Compliance</b> | FCC Class B/CE/UL/CB   |
|                              | RoHS and REACH Compliant   |
|                              | Conflict Minerals Survey   |
|                              |  |
| <b>Support OS</b>            | Microsoft Windows 10 64-bit (Win10 IoT Enterprise 2019 LTSC and Win 10 Pro 20H2) |
|                              | *Linux Ubuntu 20.04  |
|                              |  |
| <b>Operation Environment</b> |  |
| Temperature                  | 0 C to 60 C  |
| Humidity                     | 5% to 85% non-condensing   |
|                              |  |
| <b>Storage Environment</b>   |  |

|                    |                          |
|--------------------|--------------------------|
| Temperature        | -10 C to 60 C            |
| Humidity           | 5% to 85% non-condensing |
|                    |                          |
| <b>Accessories</b> |                          |
| SATA Signal        | 1 x SATA Signal Cable    |
| SATA Power         | 1 x SATA Power Cable     |
| I/O Shield         | 1 x Full Size I/O Shield |
|                    | 1 x Half Size I/O Shield |
|                    |                          |
| <b>Packaging</b>   | Mini-ITX Bulk Pack       |

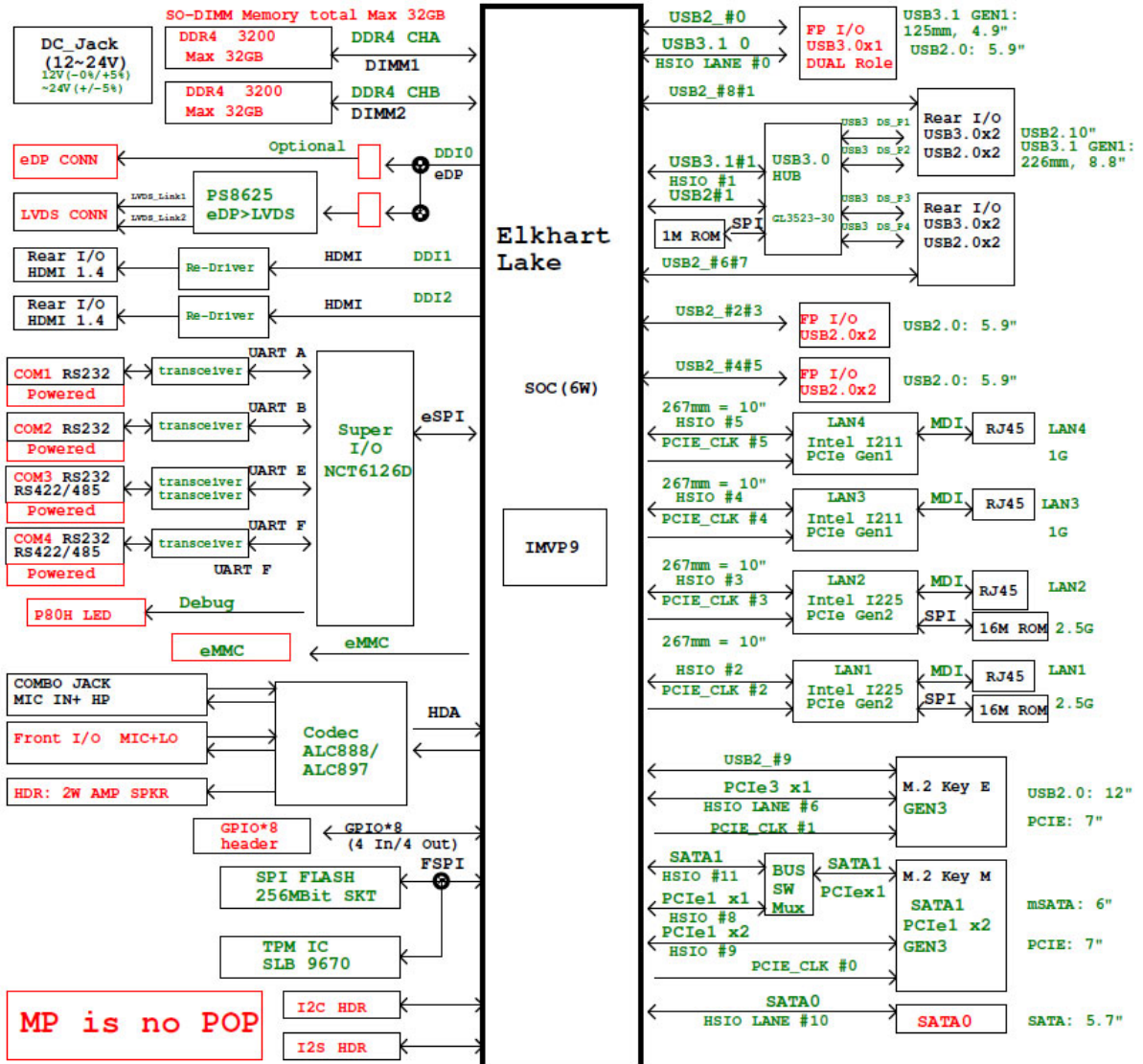
*\*Notes 1: It's a normal behavior that POST will be stayed at "A2" for about 50s.*

*\*Notes 2: Linux kernel 5.11 has hang code issue during reboot and power off.*

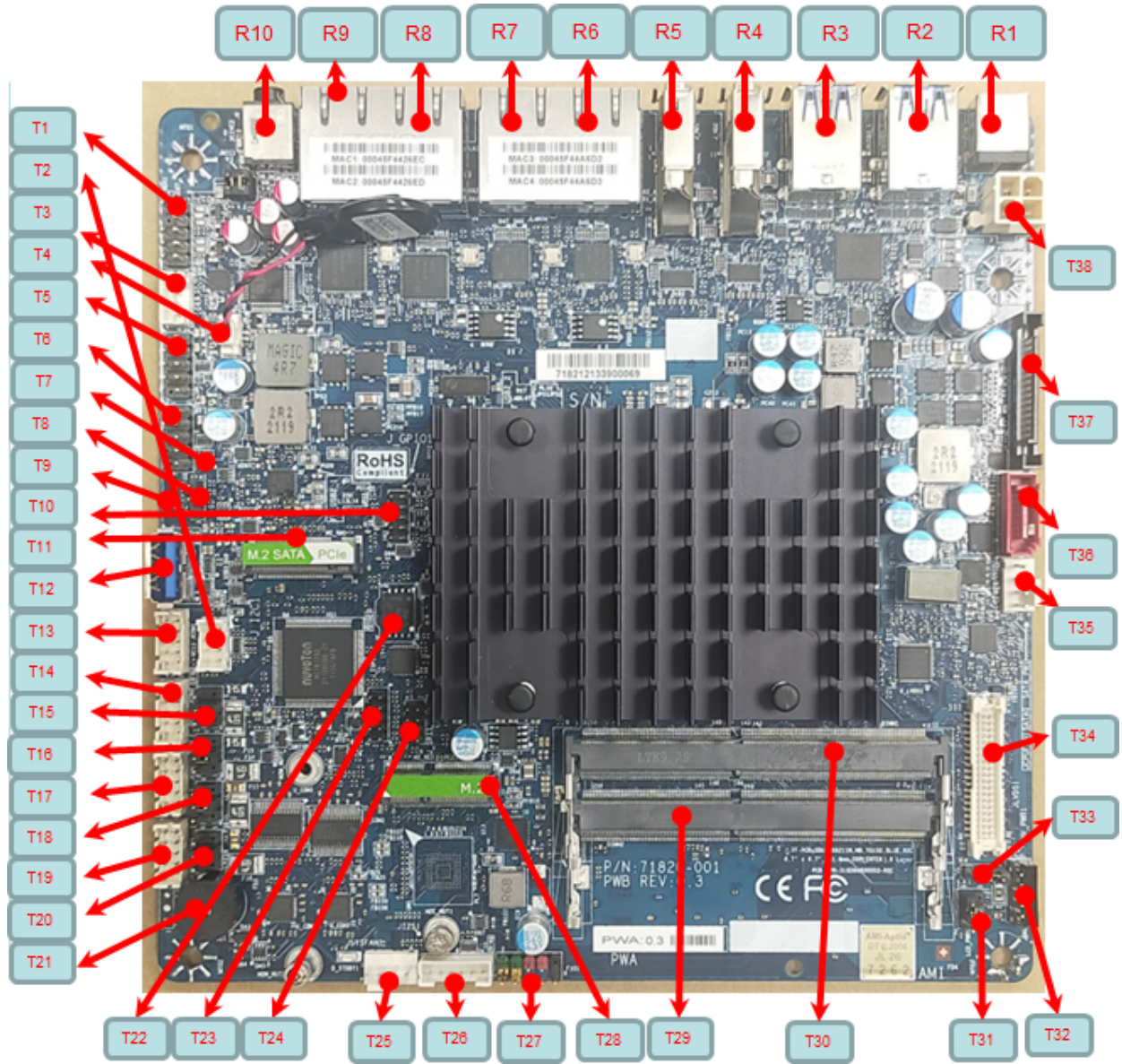
# 1. Hardware Specification

## 1.1 HW Design

### 1.1.1 Block Diagram



### 1.1.2 Placement - Top



|     |                   |     |                                     |
|-----|-------------------|-----|-------------------------------------|
| T1  | HDR: Front Audio  | T20 | JUMP: COM4 PWR SET                  |
| T2  | HDR: I2C          | T21 | Buzzer                              |
| T3  | HDR: INT_SPK1     | T22 | Socket / IC: BIOS (MP is no socket) |
| T4  | HDR: Battery      | T23 | HDR: eSPI                           |
| T5  | HDR: Front USB2x2 | T24 | HDR: SPI                            |
| T6  | HDR: Front USB2x2 | T25 | HDR: SYS FAN                        |
| T7  | HDR: Clear CMOS   | T26 | HDR: I2S                            |
| T8  | HDR: P80 SET      | T27 | HDR: Front I/O                      |
| T9  | HDR: Board ID     | T28 | Socket: M2 Key E                    |
| T10 | HDR: GPIO         | T29 | Socket: DIMM2                       |

|     |                    |     |                     |
|-----|--------------------|-----|---------------------|
| T11 | Socket: M2 Key-M   | T30 | Socket: DIMM1       |
| T12 | CONN: USB3.0       | T31 | Jumper: LCD_PWR     |
| T13 | HDR: COM1          | T32 | Jumper: PNL PWR     |
| T14 | HDR: COM2          | T33 | HDR: BACK Light PWR |
| T15 | JUMP: COM1 PWR SET | T34 | CONN: LVDS          |
| T16 | JUMP: COM2 PWR SET | T35 | HDR: CPU FAN        |
| T17 | HDR: COM3          | T36 | CONN: SATA0         |
| T18 | JUMP: COM3 PWR SET | T37 | CONN: SATA 15P PWR  |
| T19 | HDR: COM4          | T38 | CONN: 4P PWR IN     |

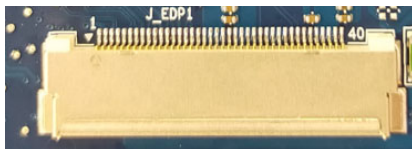
|     |                    |
|-----|--------------------|
| R1  | DC PWR JACK        |
| R2  | USB3.0 x2          |
| R3  | USB3.0 x2          |
| R4  | HDMI               |
| R5  | HDMI               |
| R6  | LAN4 2.5G I225     |
| R7  | LAN3 2.5G I225     |
| R8  | LAN2 1G I211       |
| R9  | LAN1 1G I211       |
| R10 | Combo Jack: MIC/HP |

### 1.1.3 Placement - Bottom

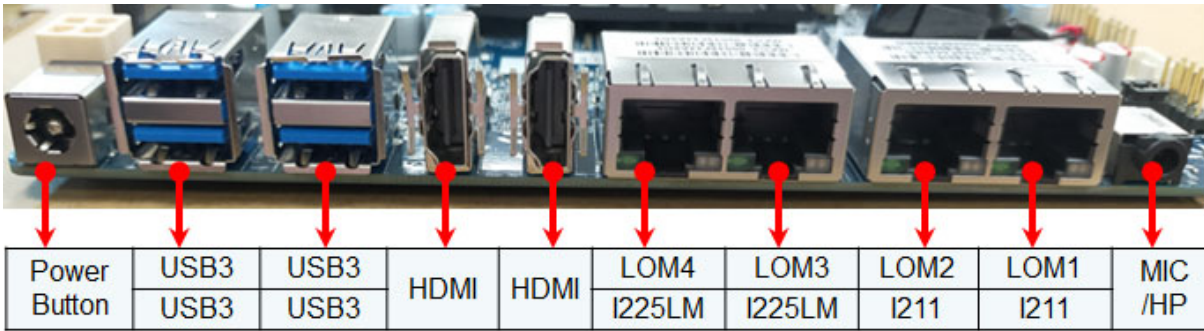
*eDP connector for eDP cable: This is optional SKU w/o LVDS connector*

|    |                              |
|----|------------------------------|
| B1 | eDP connector (MP is no POP) |
|----|------------------------------|

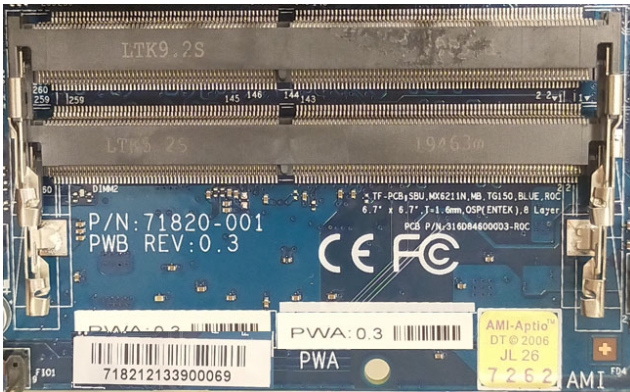
*Location: JEDP1*



### 1.1.4 Placement – Rear IO



### 1.1.5 Silkscreen and Label Definition



■ PWA# Table

| PWA# | Stage | SCH | Note                       |
|------|-------|-----|----------------------------|
| 0.1  | NPI   | ROA | EVT                        |
| 0.2  | NPI   | ROB | DVT                        |
| 0.3  | NPI   | ROC | PVT/MVT                    |
| 1.0  | MP    | R01 | Production Release         |
| 1.1  | MP    | R01 | 1 <sup>st</sup> ECR/Rework |
| 1.2  | MP    | R01 | 2 <sup>nd</sup> ECR/Rework |
| 2.0  | MP    | R02 | ECR with PCB change        |

■ CE, FCC, and RoHS Logo



■ PWB# Table

| PWB# | Stage | SCH | Note |
|------|-------|-----|------|
| 0.1  | NPI   | ROA | EVT  |
| 0.2  | NPI   | ROB | DVT  |
| 0.3  | NPI   | ROC | PVT  |

|     |     |     |                        |
|-----|-----|-----|------------------------|
| ... | NPI | ... | PVT#                   |
| 1.0 | MP  | R01 | Production Release     |
| 2.0 | MP  | R02 | Production PCB re-spin |
| ... | MP  | ... | Production PCB #       |

■ S/N# Label

Rule for Serial number:

BCM SN# 705010646100001

SN# is in 15 alphanumeric barcode format on a label. Defined as:

First 5 digits = Part Number (70501),

6th and 7th digits = Year (06),

8th and 9th digits = Week (46 = 46th week of that year),

10th = BCM internal control code, contact Wing for details.

11th - 15th digits = Serial Number (start with 00001).

|  |
|--|
| <p>Intel® Elkhart Lake N6210 Dual Core SoC<br/>                 MX6210N: PN# 71822</p> |
| <p>Intel® Elkhart Lake J6412 Quad Core SoC<br/>                 MX6412J: PN# 71821</p> |



■ M.2 M Key & E Key Label

M2 Key E

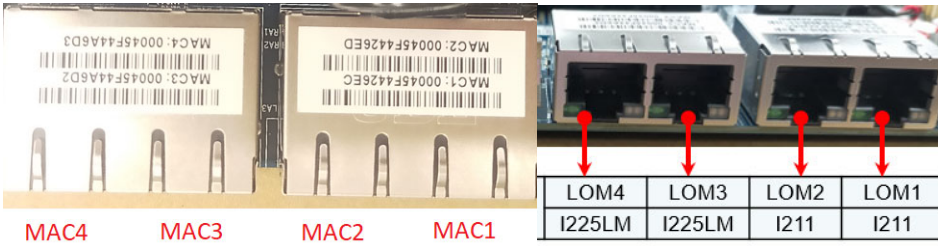


M2 Key M





■ LOM MAC Address Label



## 2. Product Specification

### 2.1 Elkhart Lake Processor Spec

CPU/SOC parts spec

[Intel® Celeron® Processor N6210 spec](#)

[Intel® Pentium® Processor J6412 spec](#)

### 2.2 System Memory- 2ea DDR4 SO-DIMM

EHL memory controller can support DDR4 technologies. The system supports memory configuration 1x64 DDR4 and 2x64 DDR4.

Notes: J6412, N6210, EHL: Don't support In-Band ECC and ECC spec

**Supported DDR4 SODIMM Module Configurations**

**Supported DDR4 SODIMM Module Configurations**

| Raw Card Version | Speed (Mt/s) | DIMM Capacity | DRAM Device Technology | DRAM Organization | # of DRAM Devices | #of Ranks | # of Row/Col Address bit | # of Banks inside DRAM | Page Size |
|------------------|--------------|---------------|------------------------|-------------------|-------------------|-----------|--------------------------|------------------------|-----------|
| A                | 3200         | 8GB           | 8Gb                    | 1024M x 8         | 8                 | 1         | 16/10                    | 16                     | 8K        |
| A                | 3200         | 16GB          | 16Gb                   | 2048M x 8         | 8                 | 1         | 17/10                    | 16                     | 8K        |
| C                | 3200         | 4GB           | 8Gb                    | 512M x 16         | 4                 | 1         | 16/10                    | 8                      | 8K        |
| C                | 3200         | 8GB           | 16Gb                   | 1024M x 16        | 4                 | 1         | 17/10                    | 8                      | 8K        |
| E                | 3200         | 16GB          | 8Gb                    | 1024M x 8         | 16                | 2         | 16/10                    | 16                     | 8K        |
| E                | 3200         | 32GB          | 16Gb                   | 2048M x 8         | 16                | 2         | 17/10                    | 16                     | 8K        |



DIMM placement: DIMM1 (Up) /DIMM2 (Down)

- Channel Max Capacity (GB): 32GB
- System Max Capacity (GB): 32GB

## 2.3 Onboard Graphics

Board must support all integrated graphics features supported by the processor through the PCH (including but not limited to DirectX, HD/Blu-ray video hardware decoding, PAVP-Lite and HDCP).

Support 3 Display pipes, simultaneous multi-streaming on all three display pipes (1x Internal and 2x External Displays)

Supports Intel® Display Power Saving Technology (DPST) 6.3, Panel Self Refresh (PSR) and Display Refresh Rate Switching Technology (DRRS)

1. HDMI 1.4b x 2ea
2. LVDS x1 / eDP 1.3 internal connector (optional)

### HDMI feature: High-Definition Multimedia Interface (HDMI\*)

- HD – HDMI1.4 flush mount graphics connector: back panel video
- Data Rate: 5.4 GT/s
- HDCP 2.3 Yes
- HD Audio Yes
- Compressed Audio Yes
- DSC (Display Stream Compression): No
  
- The High-Definition Multimedia Interface (HDMI\*) is provided for transmitting uncompressed digital audio and video signals from DVD players, set-top boxes, and other audio-visual sources to television sets, projectors, and other video displays. It can carry high-quality multi-channel audio data and all standard and high-definition consumer electronics video formats. The HDMI display interface connecting the processor and display devices uses transition minimized differential signaling (TMDS) to carry audiovisual information through the same HDMI cable.
- HDMI includes three separate communications channels: TMDS, DDC, and the optional CEC (consumer electronics control). CEC is not supported on the processor. As shown in the following figure, the HDMI cable carries four differential pairs that make up the TMDS data and clock channels. These channels are used to carry video, audio, and auxiliary data. In addition, HDMI carries a VESA DDC. The DDC is used by an HDMI Source to determine the capabilities and characteristics of the Sink.
- Audio, video, and auxiliary (control/status) data is transmitted across the three TMDS data channels. The video pixel clock is transmitted on the TMDS clock channel and is used by the receiver for data recovery on the three data channels. The digital display data signals driven natively through the PCH are AC coupled and needs level shifting to convert the AC coupled signals to the HDMI compliant digital signals.
- Maximum Resolution 3840× 2160@30 Hz (4K@30 Hz); Data Rate 2.9 GT/s

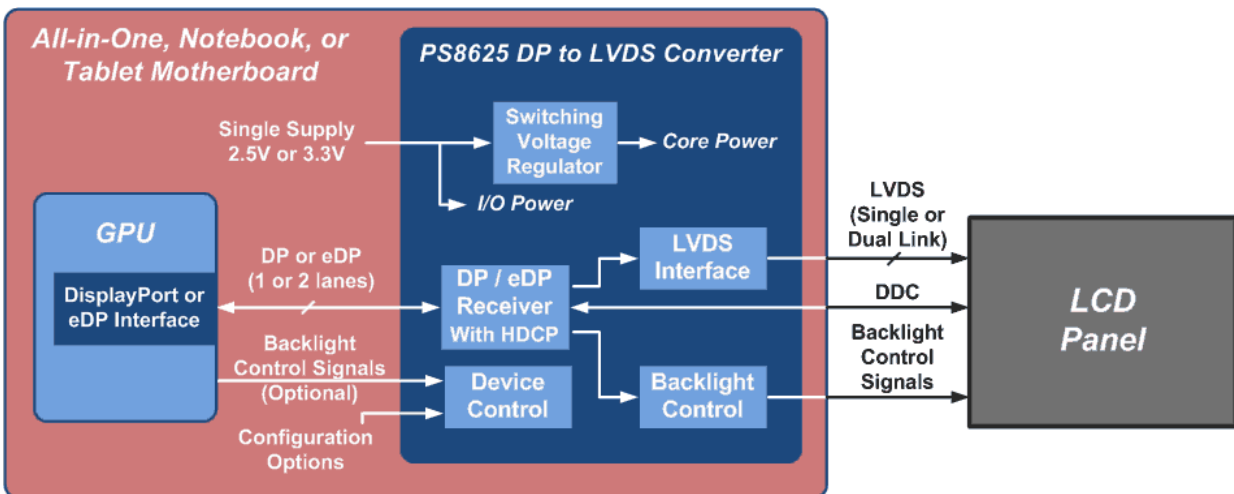
- Supports Audio on HDMI

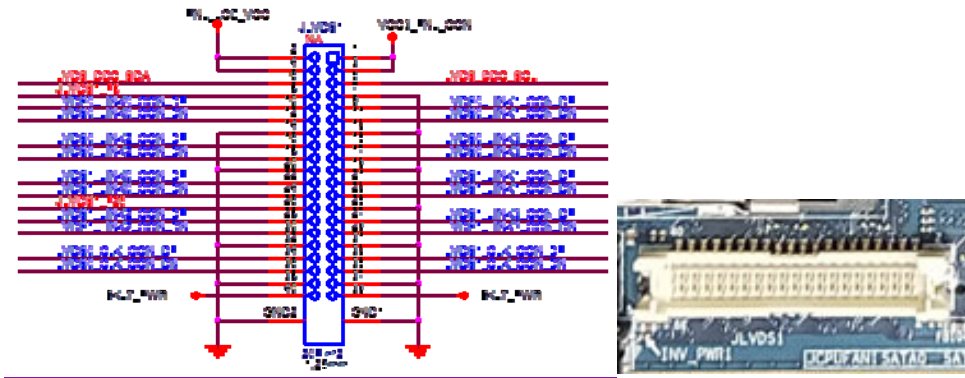


## LVDS feature:

eDP to LVDS bridge IC: [Parade PS8625QFN56GTR](#)

- Enables the use of LVDS display panels with DisplayPort™ or eDP™ video Source devices
- Single link or dual link LVDS output, clock speed up to 135MHz
- Supports up to 1920×1200@60Hz at 18 or 24 bit color depth





Add GP\_D19\_TGPIO43\_LVDS\_CBL\_L\_DET\_N to support LVDS cable detection from Pin 8 & Pin 26



Connector: TF-CON;LVDS,SBU,20Pin\*2,1.25mm,MA,ST,Gold Flash,TWO SIDE,Nature,PA6T

|   |                     |
|---|---------------------|
| Joint Tech Electronic Industrial Co.,Ltd. | A1252WV-SF-2X20PD01 |
| XIAN YI INTERNATIONAL CO., LTD            | W2631-40P-R3211     |

## 2.4 Connector Pinout & Indicator Definition

### 2.4.1 Panel Backlight Header



| Pin | Signal            | Description       |
|-----|-------------------|-------------------|
| 1   | PNL_BL_12V        | BKLT PWR 12V      |
| 2   | GND               | Ground            |
| 3   | PNL_BKLT_PWR_EN   | Backlight enable  |
| 4   | PNL_BKLT_CTRL_PWM | Backlight control |
| 5   | BKLT PWR 5V       | BKLT PWR 5V       |

## 2.4.2 eDP (Optional)

Connector: TF-CON;SBU,40Pin,0.5mm,FM,R/A,Gold Flash,WHITE

|                         |            |
|-------------------------|------------|
| ACES ELECTRONIC CO.,LTD | 88341-4001 |
|-------------------------|------------|

| Pin | Signal               | Pin | Signal              |
|-----|----------------------|-----|---------------------|
| 1   | NC_Reserved          | 21  | LCD_VCC             |
| 2   | High-speed_GND       | 22  | LCD_Self_Test-or-NC |
| 3   | Lane3_N (DDPD_[3]N)  | 23  | LCD_GND             |
| 4   | Lane3_P (DDPD_[3]P)  | 24  | LCD_GND             |
| 5   | High-speed_GND       | 25  | LCD_GND             |
| 6   | Lane2_N (DDPD_[2]N)  | 26  | LCD_GND             |
| 7   | Lane2_P (DDPD_[2]P)  | 27  | HPD (DDPD_HPDP)     |
| 8   | High-speed_GND       | 28  | BKLT_GND            |
| 9   | Lane1_N (DDPD_[1]N)  | 29  | BKLT_GND            |
| 10  | Lane1_P (DDPD_[1]P)  | 30  | BKLT_GND            |
| 11  | High-speed_GND       | 31  | BKLT_GND            |
| 12  | Lane0_N (DDPD_[0]N)  | 32  | BKLT_ENABLE         |
| 13  | Lane0_P (DDPD_[0]P)  | 33  | BKLT_PWM_DIM        |
| 14  | High-speed_GND       | 34  | NC_Reserved         |
| 15  | AUX_CH_P (DDPD_AUXP) | 35  | NC_Reserved         |
| 16  | AUX_CH_N (DDPD_AUXN) | 36  | BKLT_PWR            |
| 17  | High-speed_GND       | 37  | BKLT_PWR            |
| 18  | LCD_VCC              | 38  | BKLT_PWR            |
| 19  | LCD_VCC              | 39  | BKLT_PWR            |
| 20  | LCD_VCC              | 40  | NC_Reserved         |

## 2.4.3 M.2 M Key & E Key Expansion Slot

| Slot Configuration | Electrical       | Physical Connector | Color |
|--------------------|------------------|--------------------|-------|
| M2_KE1             | M.2 key E socket | M.2 Key E socket   | Black |
| M2_KM1             | M.2 key M socket | M.2 key M socket   | Black |

- **M.2 Support key-E Type 2230 for WLAN/USB2.0 feature**

PCI Express GEN1

USB 2.0



- **M.2 Support key-M 1 x 2280 / 2260 (SATA III or PCIe x1/x2 Signal) feature**

PCI Express GEN3

SATA GEN3



| Function               | Pin | Pin | Function                   |
|------------------------|-----|-----|----------------------------|
| GND                    | 1   | 2   | 3V3                        |
| GND                    | 3   | 4   | 3V3                        |
| NC                     | 5   | 6   | NC                         |
| NC                     | 7   | 8   | NC                         |
| GND                    | 9   | 10  | DAS/DSS#_IO/LED1#_I_0/3_3V |
| NC                     | 11  | 12  | 3V3                        |
| NC                     | 13  | 14  | 3V3                        |
| GND                    | 15  | 16  | 3V3                        |
| NC                     | 17  | 18  | 3V3                        |
| NC                     | 19  | 20  | NC                         |
| GND                    | 21  | 22  | NC                         |
| NC                     | 23  | 24  | NC                         |
| NC                     | 25  | 26  | NC                         |
| GND                    | 27  | 28  | NC                         |
| PERN1                  | 29  | 30  | NC                         |
| PERP1                  | 31  | 32  | NC                         |
| GND                    | 33  | 34  | NC                         |
| PERT1                  | 35  | 36  | NC                         |
| PERP1                  | 37  | 38  | DEVSLP_O                   |
| GND                    | 39  | 40  | NC                         |
| PERNO / SATA B+        | 41  | 42  | NC                         |
| PERPO / SATA B-        | 43  | 44  | NC                         |
| GND                    | 45  | 46  | NC                         |
| PETNO / SATA A-        | 47  | 48  | NC                         |
| PETPO / SATA A+        | 49  | 50  | PERST#_O_0/3_3V            |
| GND                    | 51  | 52  | CLKREQ#_IO_0/3_3V          |
| REFCLKN                | 53  | 54  | NC                         |
| REFCLKP                | 55  | 56  | NC                         |
| GND                    | 57  | 58  | NC                         |
| KEY                    | 59  | 60  | KEY                        |
| KEY                    | 61  | 62  | KEY                        |
| KEY                    | 63  | 64  | KEY                        |
| KEY                    | 65  | 66  | KEY                        |
| NC                     | 67  | 68  | NC                         |
| PEDET_NC_PCIE/GND_SATA | 69  | 70  | 3V3                        |
| GND                    | 71  | 72  | 3V3                        |
| GND                    | 73  | 74  | 3V3                        |

GND

75

## 2.4.4 USB 3.0 Port

### 4ea USB 3.0: dual USB3.0 port x2 connector

USB3.0 bus control by USB3.0 Gen1 hub ([Genesys® GL3523](#))

USB2.0 bus control by EHL SOC



USB3.0 Internal – Type A

### 1ea USB 3.0 Type-A connector

USB3.0 /USB2.0 bus control by EHL SOC

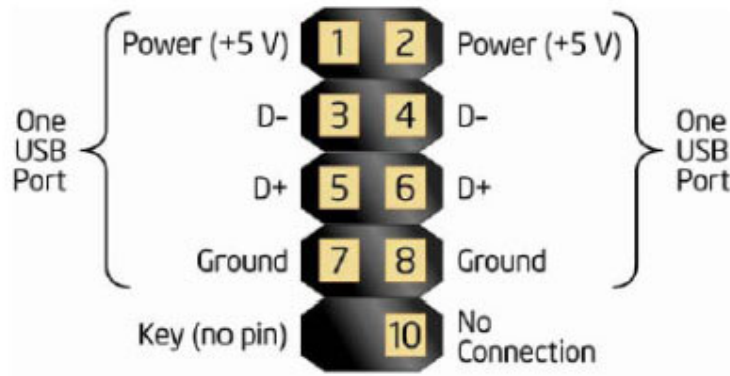
Dual Mode USB 3.0 Vertical Type A Connector (Host & Device)



## 2.4.5 USB 2.0 Port

USB2.0 Internal – 5Px2 NP9 header x2

- 4ea USB 2.0: dual USB2.0 port header x2
- Can't support USB power at S5 mode



| Pin | Signal          | Pin | Signal          |
|-----|-----------------|-----|-----------------|
| 1   | +5V DC          | 2   | +5V DC          |
| 3   | Data (negative) | 4   | Data (negative) |
| 5   | Data (positive) | 6   | Data (positive) |
| 7   | Ground          | 8   | Ground          |
| 9   | Key (no pin)    | 10  | No Connect      |

|  |                        |
|--|------------------------|
| TF-CON;HDR,SBU,5Pin*2,-P9,MA,2.54mm,BLACK,ST,Gold Flash,PA6T(Nylon 6T),NO P9,DIP |                        |
| Joint Tech   | A2546WV-2X05PR6BG0NQ9G |
| GRAND-TEK  | HPH-212050-006         |
| SUPERIOR TECH  | PHED-DS010G1ABONA-N012 |

### 2.4.6 SATA Power – 15pin Standard

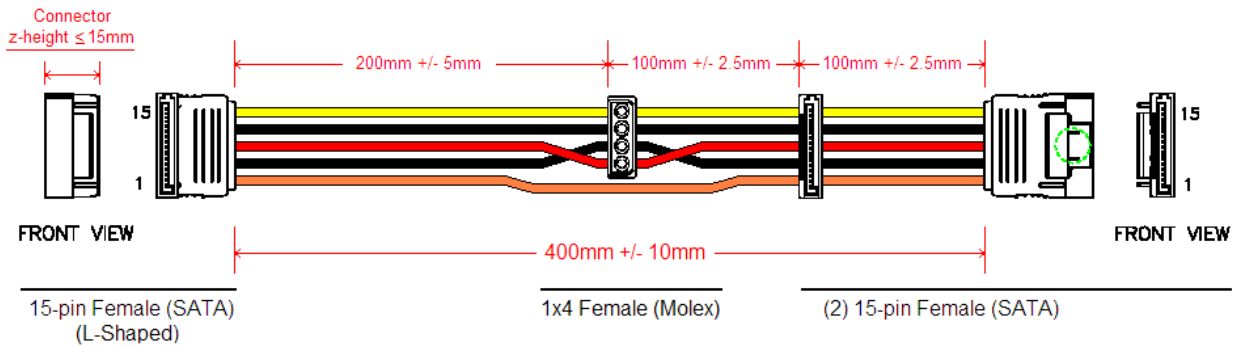
Board must provide internal SATA power connector in order to power internal SATA devices. SATA power connector must be vertically oriented 15-pin male colored black, compatible with standard SATA 15-pin female power cable connectivity solutions.

Board must support SATA power with at least 1.0A from 12V rail, 2.5A from 5V rail and 0.5A from 3.3V rail, which must be provided from the board's DC-to-DC circuit and accounted for in the board's total power budget.

Below is example for cable drawing



### SATA Power Cable Specification



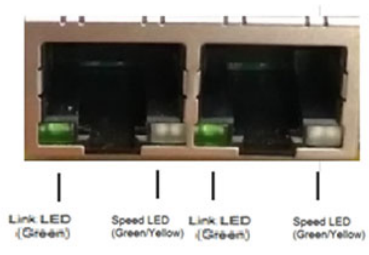
Note: L-shaped connector must be oriented so that cables run above the board when attached to the SATA power header.

| Pin | Name                 | Color  | Description |
|-----|----------------------|--------|-------------|
| 1   | +3.3VDC              | Orange | +3.3 VDC    |
| 2   | +3.3VDC              | Orange | +3.3 VDC    |
| 3   | +3.3VDC/<br>DevSleep | NC     | NC          |
| 4   | COM                  | Black  | Ground      |
| 5   | COM                  | Black  | Ground      |
| 6   | COM                  | Black  | Ground      |
| 7   | +5VDC                | Red    | +5 VDC      |
| 8   | +5VDC                | Red    | +5 VDC      |
| 9   | +5VDC                | Red    | +5 VDC      |
| 10  | COM                  | Black  | Ground      |
| 11  | COM                  | Black  | NC          |
| 12  | COM                  | Black  | Ground      |
| 13  | +12VDC               | Yellow | +12 VDC     |
| 14  | +12VDC               | Yellow | +12 VDC     |
| 15  | +12VDC               | Yellow | +12 VDC     |

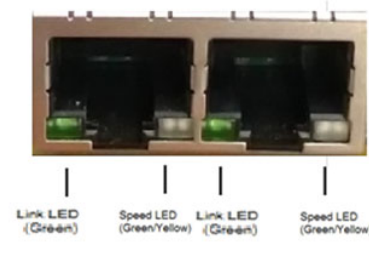
## 2.4.7 i211 and i215LM LAN Indicator

Onboard [I225](#) RJ45 connectors must have integrated magnetics and support dual status LEDs per port, as below data

| Diagram | LED  | Color | State | Condition                   |
|---------|------|-------|-------|-----------------------------|
|         | Link | NA    | off   | LAN link is not established |

|   |       |        |          |   |
|---|-------|--------|----------|---|
|  <p>Link LED (Green)    Speed LED (Green/Yellow)    Link LED (Green)    Speed LED (Green/Yellow)</p> |       |        |          | or LAN disable                              |
|   | Link  | Green  | on       | LAN link is established or LAN port disable |
|   | Link  | Green  | blinking | LAN activity occurring                      |
|   | Speed | NA     | off      | 10/100 M b/s data rate or LAN disable       |
|   | Speed | Green  | on       | 2500 M b/s data rate                        |
|   | Speed | Orange | on       | 1000 M b/s data rate or LAN port disable    |

Onboard I211/I210 RJ45 connectors must have integrated magnetics and support dual status LEDs per port, as Below

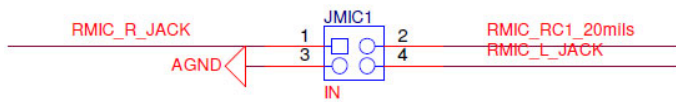
| Diagram   | LED   | Color  | State    | Condition                                   |
|---|-------|--------|----------|---|
|  <p>Link LED (Green)    Speed LED (Green/Yellow)    Link LED (Green)    Speed LED (Green/Yellow)</p> | Link  | NA     | off      | LAN link is not established or LAN disable  |
|   | Link  | Green  | on       | LAN link is established or LAN port disable |
|   | Link  | Green  | blinking | LAN activity occurring                      |
|   | Speed | NA     | off      | 10 M b/s data rate or LAN disable           |
|   | Speed | Green  | on       | 100 M b/s data rate                         |
|   | Speed | Orange | on       | 1000 M b/s data rate or LAN port disable    |

## 2.4.8 Audio Combo Jack

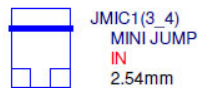
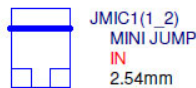
Codec driver cannot support Headset type auto detection from iPhone-type and Nokia-type parts

Here is jumper setting guide to support iPhone-type or Nokia-type parts

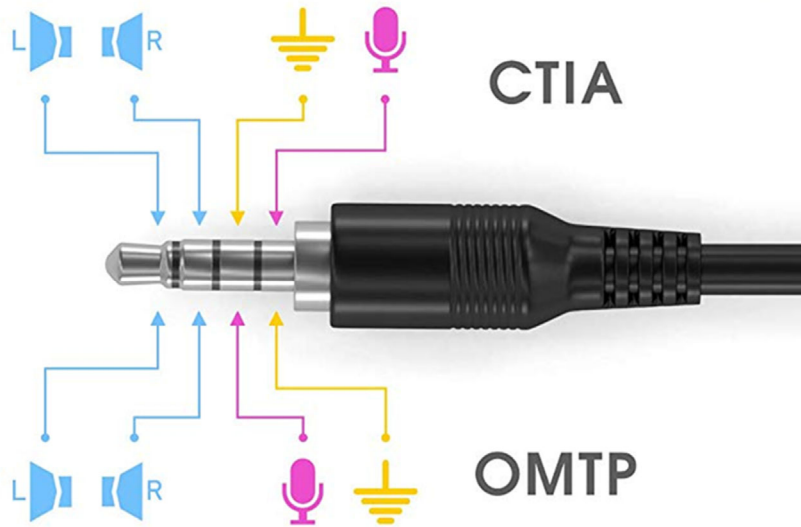
|                          |      | JMIC1 Jumper setting |             |
|--------------------------|------|----------------------|-------------|
| iPhone-type headset CITA | CITA | (1-2) (3-4)          | Default BOM |
| Nokia-type headset CMTD  | CMTD | (1-3) (2-4)          |             |



| JM1C1       |             |      |         |
|-------------|-------------|------|---------|
| iPhone-type | (1-2) (3-4) | CITA | Default |
| Nokia-type  | (1-3) (2-4) | OMTP |         |



[TP Headset Connector Pinout](#) from web data

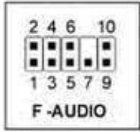


## 2.4.9 Front I/O Header

Front I/O header 5P\*2: MIC + Line out

Front panel audio header must be 2x5, 2.54mm pitch, colored BLACK and keyed at pin 8

### High Definition Audio

|  <p>F-AUDIO</p> | Pin | Pin Assignment              | Pin | Pin Assignment                     |
|--|-----|-----------------------------|-----|------------------------------------|
|  | 1   | MIC2 L (Microphone 2 Left)  | 2   | AGND (Analog Ground)               |
|  | 3   | MIC2 R (Microphone 2 Right) | 4   | AVCC (Analog VCC Power)            |
|  | 5   | FRO-R (Front Right)         | 6   | MIC2_JD (Microphone 2 Jack Detect) |
|  | 7   | F_IO_SEN (Front I/O Sensor) |     |                                    |
|  | 9   | FRO-L (Front Left)          | 10  | LINE2_JD (Line 2 Jack Detect)      |

TF-CON;HDR,SBU,5Pin\*2,-P8,MA,2.54mm,BLACK,ST,Gold Flash,PA6T(Nylon 6T)

|                        |                         |
|------------------------|-------------------------|
| SUPERIOR TECH CO.,LTD. | PHED-DS010G1ABONA-N020  |
| Aquatech Corporation   | YNK12030-HPH-212050-002 |

## 2.4.10 Speaker Header

2W Per Channel Stereo Amplifier:

| Pin | Signal – DVT/PVT | Signal – R01 |
|-----|------------------|--------------|
| 1   | Audio SPK R-     | Audio SPK R- |
| 2   | Audio SPK R+     | Audio SPK R+ |
| 3   | Audio SPK L+     | Audio SPK L- |
| 4   | Audio SPK L1     | Audio SPK L+ |

TF-CON;HDR,SBU,4Pin,4 Walls,MA,2.0mm,NATURAL,ST,TIN,PA46(Nylon 46),DIP

|   |                |
|---|----------------|
| Joint Tech Electronic Industrial Co.,Ltd. | A2001WV-04P146 |
|---|----------------|

## 2.4.11 COM Header

**COM1, COM2 : 2 x RS232 Port (with 5V/12V/RI)**

| Pin |                | Signal                    | Pin |       | Signal                    |
|-----|----------------|---------------------------|-----|-------|---------------------------|
| 1   | COM3_P1_40mils | DCD (Data Carrier Detect) | 2   | NRX3  | RXD# (Receive Data)       |
| 3   | NTX3           | TXD# (Transmit Data)      | 4   | NDTR3 | DTR (Data Terminal Ready) |
| 5   | GND            | Ground                    | 6   | NDSR3 | DSR (Data Set Ready)      |
| 7   | NRTS3          | RTS (Request To Send)     | 8   | NCTS3 | CTS (Clear To Send)       |

|   |                |                     |    |     |              |
|---|----------------|---------------------|----|-----|--------------|
| 9 | COM3_P9_40mils | RI (Ring Indicator) | 10 | Key | Key (no pin) |
|---|----------------|---------------------|----|-----|--------------|

**COM3, COM4 : 2 x RS232/422/485 Port (with 5V/12V/RI)**

| Pin | Signal                    |             |        | Pin | Signal                    |              |              |
|-----|---------------------------|-------------|--------|-----|---------------------------|--------------|--------------|
|     | RS232                     | RS485       | RS422  |     | RS232                     | RS485        | RS422        |
| 1   | DCD (Data Carrier Detect) | R(A) / T(A) | TX(B)  | 2   | RXD# (Receive Data)       | R(B) / T(B)  | TX(A)        |
| 3   | TXD# (Transmit Data)      | NC          | RX(A)  | 4   | DTR (Data Terminal Ready) | NC           | RX(B)        |
| 5   | Ground                    | Ground      | Ground | 6   | DSR (Data Set Ready)      | NC           | NC           |
| 7   | RTS (Request To Send)     | DE#/RE      | NC     | 8   | CTS (Clear To Send)       | NC           | NC           |
| 9   | RI (Ring Indicator)       | NC          | NC     | 10  | Key (no pin)              | Key (no pin) | Key (no pin) |

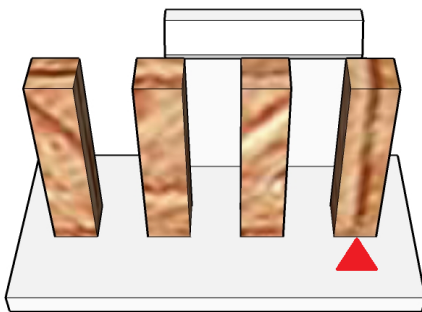
### 2.4.12 CPU & SYS Fan Header

**JCPUFAN1**

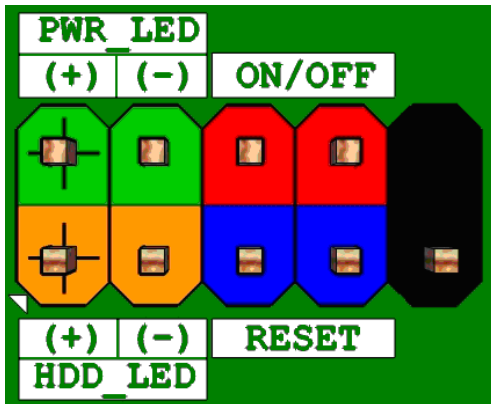
- Pin1 = GND
- Pin2 = 12V
- Pin3 = CPU\_FAN\_TACH
- Pin4 = CPU\_FAN\_CTRL

**JSYSFAN1**

- Pin1 = GND
- Pin2 = 12V
- Pin3 = SYS\_FAN\_TACH
- Pin4 = SYS\_FAN\_CTRL



### 2.4.13 Front Panel Header



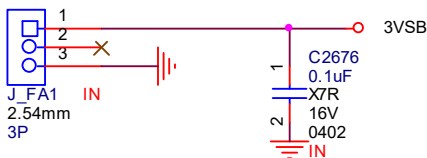
| Pin | Signal Name   | Description                    | Pin | Signal Name    | Description                        |
|-----|---------------|--------------------------------|-----|----------------|------------------------------------|
| 1   | HDD_POWER_LED | Pull-up resistor (750Ω) to +5V | 2   | POWER_LED_MAIN | [Out] Front panel LED (main color) |
| 3   | HDD_LED#      | [Out] Hard disk activity LED   | 4   | POWER_LED_ALT  | [Out] Front panel LED (alt color)  |
| 5   | GROUND        | Ground                         | 6   | POWER_SWITCH#  | [In] Power switch                  |
| 7   | RESET_SWITCH# | [In] Reset switch              | 8   | GROUND         | Ground                             |
| 9   | +5V_DC        | Power                          | 10  | KEY            | No pin                             |

|  |                        |
|--|------------------------|
| TF-CON;HDR,SBU,5Pin*2,-P10,MA,2.54mm,BLACK,ST,Gold Flash,PA6T(Nylon 6T),-P10;(Black + Color Sprayed Printing,DIP |                        |
| SUPERIOR TECH CO.,LTD.   | PHED-DS010G1AZONA-N157 |

### 2.4.14 SPI Header

Notes: MB is at G3 mode and add external 3.3V to support 3VSB power to protect SP600 power leakage when run/program BIOS code

Step1: take 2nd R01 MB (support external 3VSB power)



Step2: link the J\_FA1.1 to J\_FA1.1 (3VSB)

Step3: link the J\_FA1.3 to J\_FA1.3 (3VSB)

Step4: Power on 2nd R01 MB

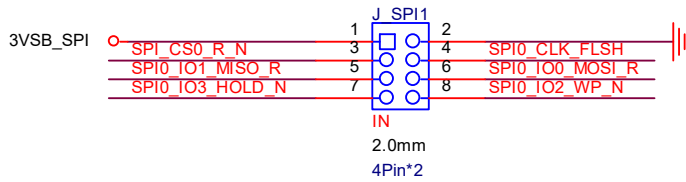
Step5: Make external SPI cable with below spec

| Pin | Function | Link           | Pin | Function |
|-----|----------|----------------|-----|----------|
| 1   | 3VSB_SPI | pin1 link pin1 | 1   | Vcc      |

|   |                 |                |   |      |
|---|-----------------|----------------|---|------|
| 2 | GND             | pin2 link pin2 | 2 | GND  |
| 3 | SPI_CS0_R_N     | pin3 link pin3 | 3 | CS   |
| 4 | SPIO_CLK_FLSH   | pin4 link pin4 | 4 | CLK  |
| 5 | SPIO_IO1_MISO   | pin5 link pin5 | 5 | MISO |
| 6 | SPIO_IO0_MOSI   | pin6 link pin6 | 6 | MOSI |
| 7 | SPIO_IO3_HOLD_N | pin7 link pin8 | 8 | I/O3 |
| 8 | SPIO_IO2_WP_N   | NC             | 7 | NC   |

Step6: Run “program BIOS code” at SF100/SF600 tool

**J\_SPI1 SPI header pinout:**



**Here is R01 MB pinout that PVT/DVT MB J\_SPI1 pin8 is NC**

| Pin | Function        | Function      | Pin |
|-----|-----------------|---------------|-----|
| 1   | 3VSB_SPI        | GND           | 2   |
| 3   | SPI_CS0_R_N     | SPIO_CLK_FLSH | 4   |
| 5   | SPIO_IO1_MISO   | SPIO_IO0_MOSI | 6   |
| 7   | SPIO_IO3_HOLD_N | SPIO_IO2_WP_N | 8   |

**SF100 cable pinout**

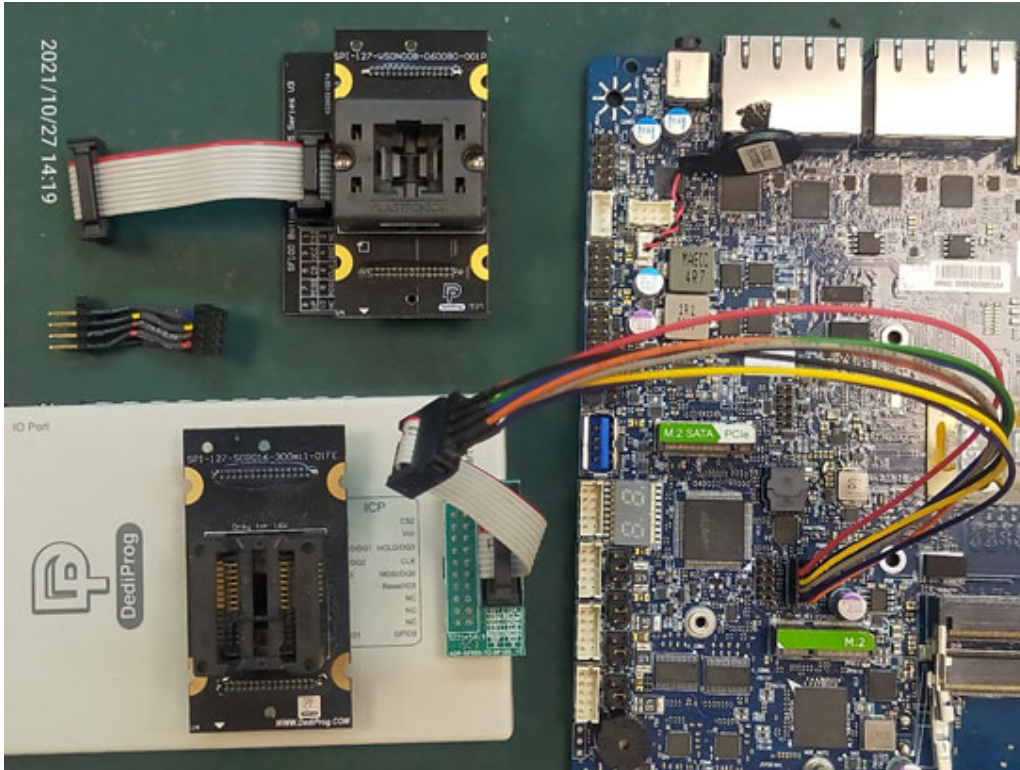
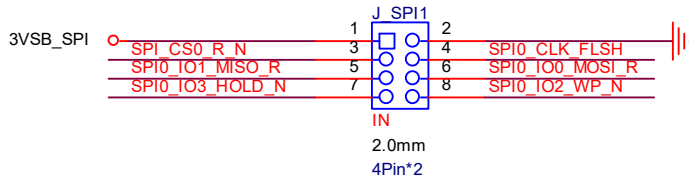
| Pin | Function | Function | Pin |
|-----|----------|----------|-----|
| 1   | Vcc      | GND      | 2   |
| 3   | CS       | CLK      | 4   |
| 5   | MISO     | MOSI     | 6   |
| 7   | NC       | I/O3     | 8   |

**SPI header**

**SF100 SPI NOR Flash or SF600 SPI NOR Flash + SF100 Universal Adaptor + SP100 cable**

**Keep pin8 NC for update BIOS flash IC**

| Pin | Function | Function | Pin |
|-----|----------|----------|-----|
| 1   | Vcc      | GND      | 2   |
| 3   | CS       | CLK      | 4   |
| 5   | MISO     | MOSI     | 6   |
| 7   | NC       | I/O3     | 8   |

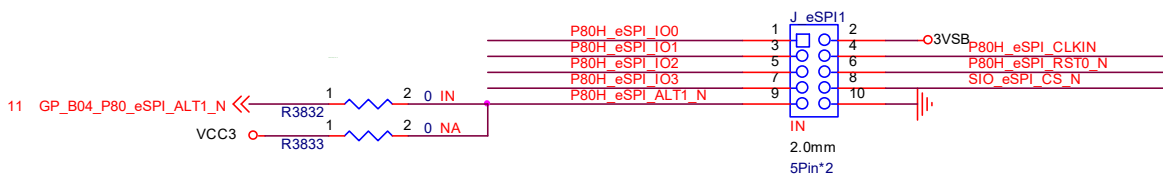


**SF600 SPI NOR Flash**

Wp/DQ2 signal is optional

| Pin | Function | Function | Pin |
|-----|----------|----------|-----|
| 1   | Vpp      | CS2      | 2   |
| 3   | CS1      | Vcc      | 4   |
| 5   | MISO/DQ1 | Hold/DQ3 | 6   |
| 7   | Wp/DQ2   | CLK      | 8   |
| 9   | GND      | MOSI/DQ0 | 10  |
| 11  | NC       | Reset    | 12  |

**2.4.15 eSPI Header**





## 2.4.16 I2C Header

| Function      | Pin | Pin | Function       |
|---------------|-----|-----|----------------|
| V_I2C_3P3V    | 1   | 2   | I2C_RST_N_3P3V |
| 3P3V_I2C2_SCL | 3   | 4   | 1P8V_I2C5_SCL  |
| 3P3V_I2C2_SDA | 5   | 6   | 1P8V_I2C5_SDA  |
| GND           | 7   | 8   | I2C_INT_N_3P3V |

|  |                  |
|--|------------------|
| TF-CON;HDR,SBU,4Pin*2,4 Walls,MA,2.0mm,BEIGE,ST,Gold Flash |                  |
| Joint Tech   | A2004WV-2X04PY21 |

## 2.4.17 I2S Header

| Pin | Function     |
|-----|--------------|
| 1   | V_I2S_PW     |
| 2   | HDR_I2S_TXD  |
| 3   | HDR_I2S_SCLK |
| 4   | HDR_I2S_SFRM |
| 5   | HDR_I2S_RXD  |
| 6   | GND          |

|  |                      |
|--|----------------------|
| TF-CON;HDR,SBU,6Pin,4 Walls,MA,2.0mm,BEIGE,ST,TIN, |                      |
| Joint Tech   | A2001WV-06PR4NT1N05G |

## 2.4.18 GPIO Header

| Function | Pin | Pin | Function |
|----------|-----|-----|----------|
| VCC      | 1   | 2   | GND      |
| GPIO01   | 3   | 4   | GPIO02   |
| GPIO03   | 5   | 6   | GPIO04   |
| GPIO05   | 7   | 8   | GPIO06   |
| GPIO07   | 9   | 10  | GPIO08   |

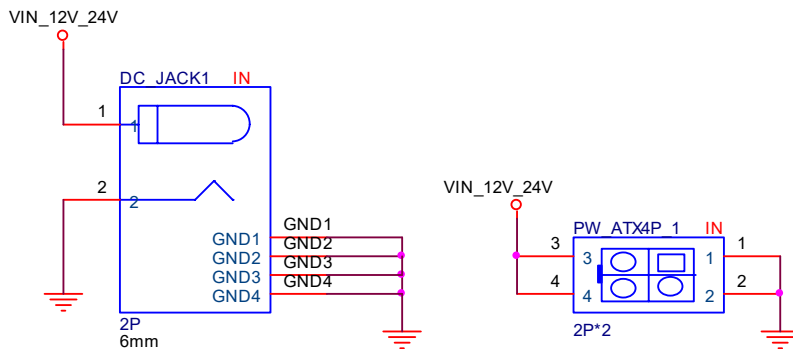
|   |                 |
|---|-----------------|
| TF-CON;HDR,SBU,5Pin*2,MA,2.0mm,BLACK,ST,Gold Flash,PA6T(Nylon 6T) |                 |
| Joint Tech  | A2016WV-2X05P6T |
| ACES  | 60476-010T1-001 |

## 2.4.19 DC-in Connector

12V – 24V Wide Range DC-In

DC\_JACK1 and PW\_ATX4P\_1 are optional to support DC input power

PW\_ATX4P\_1 is Mini-Fit Jr 4 Pin DC-In Connector



|   |                 |
|---|-----------------|
| TF-CON;POWER,SBU,ATX,12V,DC,2P*2,FM,4.2mm,ST,PA46(Nylon 46),IVORY,TIN |                 |
| TE Connectivity CO.LTD  | 1-1775099-2     |
| XIAN YI INTERNATIONAL CO., LTD  | GW11211-04P-1U  |
| LOTES CHIA TSE TERMINAL INDUST  | ABA-POW-003-K34 |
| FOXCONN (HONG HAI PRECISION IN  | HM3502E-P1      |

|  |                    |
|--|--------------------|
| TF-CON;POWER,SBU,DC Power<br>Jack,DC/20V,2P,MA,6mm,R/A,PA10T,2.2mm |                    |
| Ling Yang  | DX-01460-BJ100AT01 |
| SINGATRON  | 2DC-G213-B88F      |

## 2.5 Jumper Setting

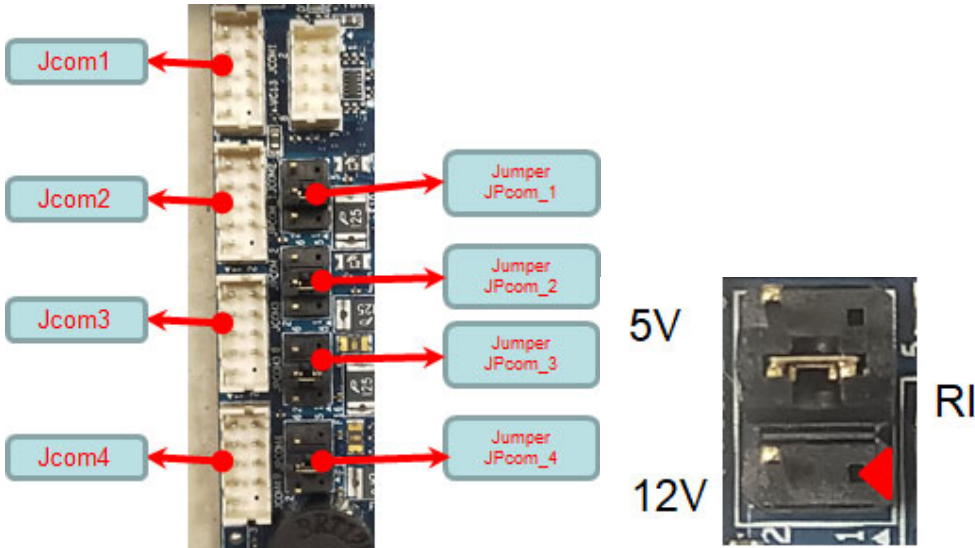
### 2.5.1 COM Power Jumper Setting

Support 5V 1A (Optional)

Support 12V 1A (Optional)

Support RI signal (Default)

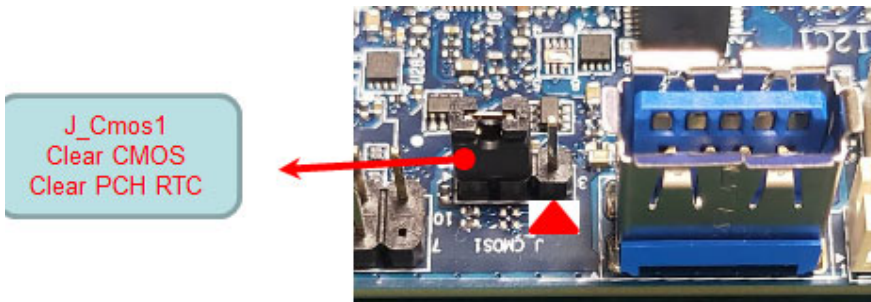
| JPCOM_1/JPCOM_2/JPCOM_3/JPCOM_4 |      |    |         |
|---------------------------------|------|----|---------|
|                                 |      | P2 | V_12P   |
| P3                              | NRI1 | P4 | COM1_P9 |
|                                 |      | P6 | V+5P    |



### 2.5.2 CMOS Jumper Setting

Pins 3&2: Jumper position for CMOS Clear

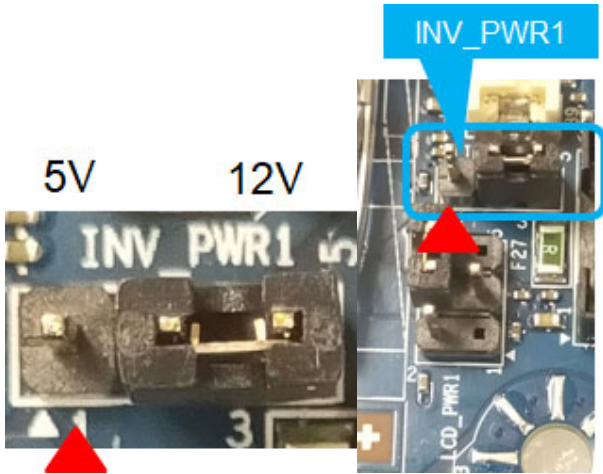
| Pin | Signal Name  |
|-----|--------------|
| 1   | NC           |
| 2   | SRTC_RTEST_N |
| 3   | GND          |



### 2.5.3 Backlight Power Jumper Setting

| Pin | Signal | Description |
|-----|--------|-------------|
|-----|--------|-------------|

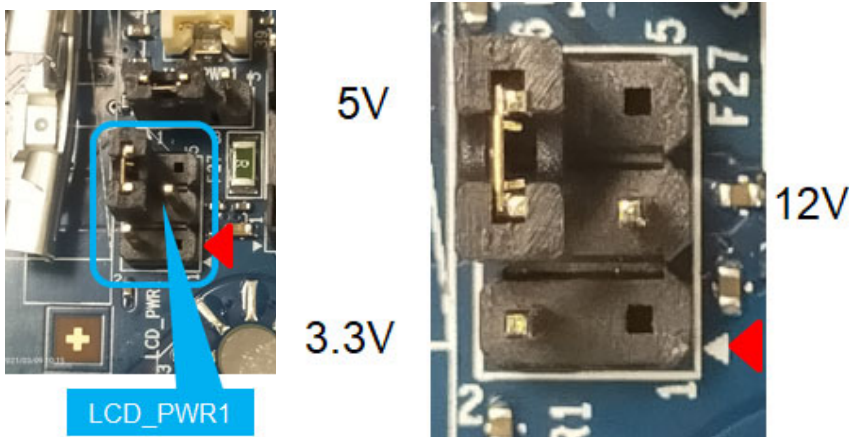
|   |            |                           |
|---|------------|---------------------------|
| 1 | PNL_BL_5V  | 5V option                 |
| 2 | BKLT_PWR   | Send voltage to connector |
| 3 | PNL_BL_12V | 12V option                |



### 2.5.4 LCD Power Jumper Setting

| Pin | Signal   | Description                         |
|-----|----------|-------------------------------------|
| 1   | Key      | No pin                              |
| 2   | 5V       | 5V option (default)                 |
| 3   | 8v~24V   | Vin option same as DC-IN power rail |
| 4   | BKLT_PWR | Send voltage to connector           |
| 5   | Key      | No pin                              |
| 6   | 12V      | 12V option                          |

| Default  | LVDS Panel | eDP Panel | Silkscreen |
|----------|------------|-----------|------------|
| LCD_PWR1 | LCD_PWR1   | LCD_PWR1  | Default    |
| 12V      | (3-4)      | 3.3V      | (2-4)      |
| 5V       | (4-6)      | 5V        | (4-6)      |



## 2.6 Power Management

| Wake-Up Event | From ACPI State        | Comments  |
|---------------|------------------------|---|
| Power button  | S3, S4, S5, deep S5/S4 | Deep sleep doesn't support Deep S3 function                               |
| RTC alarm     | S3, S4, S5             | Doesn't support "S5/S4 WOL disable" and "Deep power enable mode at S4/S5" |
| LAN           | S3, S4, S5             | "S5 WOL after G3" must be supported; monitor to remain in sleep state     |
| USB           | S3                     |   |
| PCIe M2 Key E | S3, S4, S5             |   |
| PCI           | None                   | None  |
| CIR           | None                   | None  |
| PS2           | None                   | None  |

**MX6210N & MX6412J**  
**BIOS SETUP**  
**SPEC**

# 1 Main Page

| Main   Advanced   EventLogs   Security   Boot   Save & Exit |  | Item help              |
|---|--|------------------------|
| <b>BIOS Information</b>                                     |  |                        |
| BIOS Vendor   | American Megatrends                    |                        |
| Core Version  | 5.19                                   |                        |
| Compliancy  | UEFI 2.7 ; PI 1.6                      |                        |
| BIOS Version  | MX6211N (71821) BIOS V0.04             |                        |
| Build Date  | 03/30/2021                             |                        |
| <b>Processor Information</b>                                |  |                        |
| Name  | ElkhartLake ULX                        |                        |
| Type  | Intel(R) Celeron(R) N6211 @<br>1.20GHz |                        |
| Microcode Revision  | 0xF                                    |                        |
| Total Memory  | 8192 MB                                | →←: Select Screen      |
| Memory Data Rate  | 2667 MHz                               | ↑↓: Select Item        |
| ME FW Version   | 15.40.10.2204                          | Enter: Select          |
| System Date   | [Www mm/dd/yyyy]                       | +/- : Change Opt.      |
| System Time   | [hh:mm:ss]                             | F1: General Help       |
|   |  | F2: Previous Values    |
|   |  | F3: Optimized Defaults |
|   |  | F4: Save & Reset       |
|   |  | ESC: Exit              |
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|               |   |
|---------------|---|
| Field Name    | <b>BIOS Vender</b>  |
| Default Value | American Megatrends   |
| Comment       | This field is not selectable. There is no help text associated with it. |

|               |   |
|---------------|---|
| Field Name    | <b>Core Version</b>   |
| Default Value | 5.19  |
| Comment       | This field is not selectable. There is no help text associated with it. |

|               |   |
|---------------|---|
| Field Name    | <b>Compliancy</b>   |
| Default Value | UEFI 2.7 ; PI 1.6   |
| Comment       | This field is not selectable. There is no help text associated with it. |

|               |   |
|---------------|---|
| Field Name    | <b>BIOS Version</b>   |
| Default Value | Display the version of the BIOS   |
| Comment       | This field is not selectable. There is no help text associated with it. |

|               |                                |
|---------------|--------------------------------|
| Field Name    | <b>Build Date</b>              |
| Default Value | Display build date of the BIOS |

|         |   |
|---------|---|
| Comment | This field is not selectable. There is no help text associated with it. |
|---------|---|

|            |   |
|------------|---|
| Field Name | <b>Processor Information</b>  |
| Value      | Display the installed CPU brand.  |
| Comment    | This field is not selectable. There is no help text associated with it. |

|            |   |
|------------|---|
| Field Name | <b>Total Memory</b>   |
| Value      | Display the installed memory size.                                      |
| Comment    | This field is not selectable. There is no help text associated with it. |

|            |   |
|------------|---|
| Field Name | <b>Memory Data Rate</b>   |
| Value      | Display the installed memory frequency.                                 |
| Comment    | This field is not selectable. There is no help text associated with it. |

|            |   |
|------------|---|
| Field Name | <b>ME FW Version</b>  |
| Value      | ME Firmware Version.  |
| Comment    | This field is not selectable. There is no help text associated with it. |

|                |   |
|----------------|---|
| Field Name     | <b>System Date</b>  |
| Default Value  | [Www mm/dd/yyyy]  |
| Possible Value | Www : Mon/Tue/Wed/Thu/Fri/Sat/Sun<br>mm : 1-12<br>dd : 1-31<br>yyyy : 1998-9999 |
| Help           | Set the Date. Use Tab to switch between Date elements.                          |

|                |  |
|----------------|--|
| Field Name     | <b>System Time</b>                                     |
| Default Value  | [hh :mm :ss]   |
| Possible Value | hh : 0-23<br>mm : 0-59<br>ss : 0-59                    |
| Help           | Set the Time. Use Tab to switch between Time elements. |



## 2 Advanced Page

| Main   | Advanced | EventLogs | Security | Boot | Save & Exit  |
|--|----------|-----------|----------|------|--|
| <ul style="list-style-type: none"> <li>▶ Onboard Device</li> <li>▶ CPU Configuration</li> <li>▶ PCH-FW Configuration</li> <li>▶ Trusted Computing</li> <li>▶ NCT6126D Super IO Configuration</li> <li>▶ Hardware Monitor</li> <li>▶ S5 RTC Wake Settings</li> <li>▶ Network Stack Configuration</li> <li>▶ NVMe Configuration</li> </ul> |          |           |          |      | <p><b>Item help</b></p> <p>→←: Select Screen<br/>           ↑↓: Select Item<br/> <b>Enter</b>: Select<br/>           +/- : Change Opt<br/> <b>F1</b>: General Help<br/> <b>F2</b>: Previous Values<br/> <b>F3</b>: Optimized Defaults<br/> <b>F4</b>: Save &amp; Reset<br/> <b>ESC</b>: Exit</p> |
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|            |   |
|------------|---|
| Field Name | <b>Onboard Device</b>   |
| Help       | Onboard Device Configuration.                                 |
| Comment    | Press Enter when selected to go into the associated Sub-Menu. |

|            |   |
|------------|---|
| Field Name | <b>CPU Configuration</b>                                      |
| Help       | CPU Configuration Parameters.                                 |
| Comment    | Press Enter when selected to go into the associated Sub-Menu. |

|            |   |
|------------|---|
| Field Name | <b>PCH-FW Configuration</b>                                   |
| Help       | Configure Management Engine Technology Parameters.            |
| Comment    | Press Enter when selected to go into the associated Sub-Menu. |

|            |   |
|------------|---|
| Field Name | <b>Trusted Computing</b>                                      |
| Help       | Trusted Computing Settings                                    |
| Comment    | Press Enter when selected to go into the associated Sub-Menu. |

|            |   |
|------------|---|
| Field Name | <b>NCT6126D Super IO Configuration</b>                        |
| Help       | System Super IO Chip Parameters.                              |
| Comment    | Press Enter when selected to go into the associated Sub-Menu. |

|            |   |
|------------|---|
| Field Name | <b>Hardware Monitor</b>                                       |
| Help       | Monitor hardware status                                       |
| Comment    | Press Enter when selected to go into the associated Sub-Menu. |

|            |   |
|------------|---|
| Field Name | <b>S5 RTC Wake Settings</b>                                   |
| Help       | Enable system to wake from S5 using RTC alarm                 |
| Comment    | Press Enter when selected to go into the associated Sub-Menu. |

|            |   |
|------------|---|
| Field Name | <b>Network Stack Configuration</b>                            |
| Help       | Network Stack Settings.                                       |
| Comment    | Press Enter when selected to go into the associated Sub-Menu. |

|            |   |
|------------|---|
| Field Name | <b>NVMe Configuration</b>                                     |
| Help       | NVMe Device Options Settings                                  |
| Comment    | Press Enter when selected to go into the associated Sub-Menu. |

**Onboard Device**

| Main <b>Advanced</b> EventLogs   Security   Boot   Save & Exit |                           | Item   help  |
|--|---------------------------|--|
| Restore AC Power Loss  | [Power On]                |  |
| DVMT Pre-Allocated   | [60M]                     |  |
| DVMT Total Gfx Mem   | [256M]                    |  |
| Wake on LAN Enable   | [Enabled]                 |  |
| HD Audio   | [Enabled]                 |  |
| ME Update  | [Disabled]                |  |
| BIOS Lock  | [Power On]                |  |
| LVDS Configuration Control                                     | [8 bit-VESA Dual Channel] | →←: Select Screen  |
| LVDS Resolution  | [1920x1080 LVDS]          | ↑↓: Select Item<br>Enter: Select   |
| Dual Mode USB3.0 Port  | [USB Host Mode]           | : Change Opt<br>F1: General Help<br>F2: Previous Values<br>F3: Optimized Defaults<br>F4: Save & Reset<br>ESC: Exit |

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|                |  |
|----------------|--|
| Field Name     | <b>Restore AC Power Loss</b>   |
| Default Value  | [Power On]   |
| Possible Value | Power On<br>Power Off<br>Last State  |
| Help           | Specify what state to go to when power is re-applied after a power failure (G3 state). |

|                |                                    |
|----------------|------------------------------------|
| Field Name     | <b>DVMT Pre-Allocated</b>          |
| Default Value  | [60M]                              |
| Possible Value | 64M<br>32M/F7<br>36M<br>40M<br>44M |

|      |  |
|------|--|
|      | 48M<br>52M<br>56M<br>60M   |
| Help | Select DVMT 5.0 Pre-Allocated (Fixed) Graphics Memory size used by the Internal Graphics Device. |

|                |  |
|----------------|--|
| Field Name     | <b>DVMT Total Gfx Mem</b>  |
| Default Value  | [256M]   |
| Possible Value | 128M<br>256M<br>MAX  |
| Help           | Select DVMT5.0 Total Graphic Memory size used by the Internal Graphics Device. |

|                |   |
|----------------|---|
| Field Name     | <b>Wake on LAN Enable</b>                         |
| Default Value  | [Enabled]   |
| Possible Value | Enabled<br>Disabled                               |
| Help           | Enable/Disable integrated LAN to wake the system. |

|                |  |
|----------------|--|
| Field Name     | <b>HD Audio</b>  |
| Default Value  | [Enabled]  |
| Possible Value | Enabled<br>Disabled  |
| Help           | Control Detection of the HD-Audio device.<br>Disabled = HDA will be unconditionally disabled<br>Enabled = HDA will be unconditionally enabled. |

|                |  |
|----------------|--|
| Field Name     | <b>ME Update</b>   |
| Default Value  | [Disabled]   |
| Possible Value | Enabled<br>Disabled  |
| Help           | Temporary disable Intel CSME for ME FW Update. Enabled = Intel CSME disabled after first time reboot only. |

|                |  |
|----------------|--|
| Field Name     | <b>BIOS Lock</b>   |
| Default Value  | [Enabled]  |
| Possible Value | Disabled<br>Enabled  |
| Help           | Enable/Disable the PCH BIOS Lock Enable feature. Required to be enabled to ensure SMM protection of flash. |

|                |   |
|----------------|---|
| Field Name     | <b>LVDS Configuration Control</b>   |
| Default Value  | [Disable]   |
| Possible Value | 8 bit-VESA Single Channel<br>8 bit-VESA Dual Channel<br>6 bit-VESA Single Channel<br>6 bit-VESA Dual Channel<br>8 bit-JEIDA Single Channel<br>8 bit-JEIDA Dual Channel<br>Disable |
| Help           | Sets LVDS connectivity.   |

|                |  |
|----------------|--|
| Field Name     | <b>LVDS Resolution</b>                           |
| Default Value  | [1920x1080 LVDS]                                 |
| Possible Value | 1024x768 LVDS<br>1366x768 LVDS<br>1920x1080 LVDS |

|      |  |
|------|--|
| Help | Select LCD panel used by Internal Graphics Device by selecting the appropriate setup item. |
|------|--|

|                |                                  |
|----------------|----------------------------------|
| Field Name     | <b>Dual Mode USB3.0 Port</b>     |
| Default Value  | [USB Host Mode]                  |
| Possible Value | USB Host Mode<br>USB Device Mode |
| Help           | Select USB Operation Mode.       |

### CPU Configuration

| Main                                      |   | Advanced | EventLogs | Security | Boot | Save & Exit   |
|---|---|----------|-----------|----------|------|---|
| <b>CPU Configuration</b>                  |   |          |           |          |      | <b>Item help</b>  |
| Type                                      | Intel(R) Celeron(R)<br>N6211 @ 1.20 GHz |          |           |          |      | →←: Select Screen<br>↑↓: Select Item<br>Enter: Select<br>+/- : Change Opt<br>F1: General Help<br>F2: Previous Values<br>F3: Optimized Defaults<br>F4: Save & Reset<br>ESC: Exit |
| ID  | 0x90661                                 |          |           |          |      |   |
| Speed                                     | 1200 MHz                                |          |           |          |      |   |
| L1 Data Cache                             | 32 KB x 2                               |          |           |          |      |   |
| L1 Instruction Cache                      | 32 KB x 2                               |          |           |          |      |   |
| L2 Cache                                  | 1536 KB x 2                             |          |           |          |      |   |
| L3 Cache                                  | 4MB                                     |          |           |          |      |   |
| L4 Cache                                  | N/A                                     |          |           |          |      |   |
| VMX                                       | Supported                               |          |           |          |      |   |
| SMX/TXT                                   | Supported                               |          |           |          |      |   |
| Intel (VMX) Virtualization Technology     | [Enabled]                               |          |           |          |      |   |
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|               |   |
|---------------|---|
| Field Name    | <b>Type</b>   |
| Default Value | [Intel CPU Brand String]  |
| Comment       | This field is not selectable. There is no help text associated with it. |

|               |   |
|---------------|---|
| Field Name    | <b>ID</b>   |
| Default Value | Displays CPU Signature  |
| Comment       | This field is not selectable. There is no help text associated with it. |

|            |              |
|------------|--------------|
| Field Name | <b>Speed</b> |
|------------|--------------|

|               |   |
|---------------|---|
| Default Value | Displays the CPU Speed  |
| Comment       | This field is not selectable. There is no help text associated with it. |

|               |   |
|---------------|---|
| Field Name    | <b>L1 Data Cache</b>  |
| Default Value | L1 Data Cache Size  |
| Comment       | This field is not selectable. There is no help text associated with it. |

|               |   |
|---------------|---|
| Field Name    | <b>L1 Instruction Cache</b>   |
| Default Value | L1 Instruction Cache Size   |
| Comment       | This field is not selectable. There is no help text associated with it. |

|               |   |
|---------------|---|
| Field Name    | <b>L2 Cache</b>   |
| Default Value | L2 Cache Size   |
| Comment       | This field is not selectable. There is no help text associated with it. |

|               |   |
|---------------|---|
| Field Name    | <b>L3 Cache</b>   |
| Default Value | L3 Cache Size   |
| Comment       | This field is not selectable. There is no help text associated with it. |

|               |   |
|---------------|---|
| Field Name    | <b>L4 Cache</b>   |
| Default Value | L4 Cache Size   |
| Comment       | This field is not selectable. There is no help text associated with it. |

|               |   |
|---------------|---|
| Field Name    | <b>VMX</b>  |
| Default Value | VMX Supported or Not  |
| Comment       | This field is not selectable. There is no help text associated with it. |

|               |   |
|---------------|---|
| Field Name    | <b>SMX/TXT</b>  |
| Default Value | SMX/TXT Supported or Not  |
| Comment       | This field is not selectable. There is no help text associated with it. |

|                |   |
|----------------|---|
| Field Name     | <b>Intel (VMX) Virtualization Technology</b>  |
| Default Value  | [ <del>Disabled</del> Enabled]  |
| Possible Value | Enabled<br>Disabled   |
| Help           | When enabled, a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology. |



|                |   |
|----------------|---|
| Help           | When Disabled ME will be put into ME Temporarily Disabled Mode. |
| Field Name     | <b>ME Unconfig on RTC Clear</b>                                 |
| Default Value  | [Enabled]   |
| Possible Value | Disabled<br>Enabled   |
| Help           | When disabled ME will not be unconfigured on RTC Clear.         |
| Field Name     | <b>Firmware Update Configuration</b>                            |
| Help           | Configure Management Engine Technology Parameters               |
| Comment        | Press Enter when selected to go into the associated Sub-Menu.   |
| Field Name     | <b>PTT Configuration</b>  |
| Help           | Configure PTT   |
| Comment        | Press Enter when selected to go into the associated Sub-Menu.   |

Firmware Update Configuration

| Main   | Advanced | EventLogs | Security | Boot | Save & Exit   |
|--|----------|-----------|----------|------|---|
| Me FW Image Re-Flash [Disabled]<br>FW Update [Enabled] |          |           |          |      | <b>Item help</b><br><br>→←: Select Screen<br>↑↓: Select Item<br>Enter: Select<br>+/- : Change Opt<br>F1: General Help<br>F2: Previous Values<br>F3: Optimized Defaults<br>F4: Save & Reset<br>ESC: Exit |
| <b>Version 2.21.1278. Copyright (C) 2021 AMI</b>       |          |           |          |      |   |

|                |   |
|----------------|---|
| Field Name     | <b>Me FW Image Re-Flash</b>                   |
| Default Value  | [Disabled]                                    |
| Possible Value | Disabled<br>Enabled                           |
| Help           | Enable/Disable Me FW Image Re-Flash function. |

|                |                                       |
|----------------|---------------------------------------|
| Field Name     | <b>FW Update</b>                      |
| Default Value  | [Enabled]                             |
| Possible Value | Disabled<br>Enabled                   |
| Help           | Enable/Disable ME FW Update function. |

PTT Configuration

| Main                                      | Advanced | EventLogs | Security | Boot | Save & Exit |   |
|---|----------|-----------|----------|------|-------------|---|
| PTT Capability / State                    |          |           |          |      | 1 / 0       | <b>Item help</b><br><br>→←: Select Screen<br>↑↓: Select Item<br>Enter: Select<br>+/- : Change Opt<br>F1: General Help<br>F2: Previous Values<br>F3: Optimized Defaults<br>F4: Save & Reset<br>ESC: Exit |
| TPM Device Selection                      |          |           |          |      | [dTPM]      |   |
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|               |   |
|---------------|---|
| Field Name    | PTT Capability / State  |
| Default Value | 1 / 0   |
| Comment       | This field is not selectable. There is no help text associated with it. |

|                |  |
|----------------|--|
| Field Name     | <b>TPM Device Selection</b>  |
| Default Value  | [dTPM]   |
| Possible Value | dTPM<br>PTT  |
| Help           | Selects TPM device: PTT or dTPM. PTT – Enables PTT in SkuMgr<br>dTPM 1.2 – Disables PTT in SkuMgr Warning ! PTT/dTPM will be disabled and all data saved on it will be lost. |



**Trusted Computing**

| Main   | Advanced | EventLogs | Security Boot | Save & Exit   |
|--|----------|-----------|---------------|---|
| <b>TPM 2.0 Device Found</b><br><b>Firmware Version:</b> 7.85<br><b>Vender:</b> IFX<br><br>Security Device Support [Enable]<br>Pending operation [None] |          |           |               | <b>Item help</b><br><br>→←: Select Screen<br>↑↓: Select Item<br>Enter: Select<br>+/- : Change Opt<br>F1: General Help<br>F2: Previous Values<br>F3: Optimized Defaults<br>F4: Save & Reset<br>ESC: Exit |
| Version 2.21.1278. Copyright (C) 2021 AMI  |          |           |               |   |

|                |   |
|----------------|---|
| Field Name     | <b>Security Device Support</b>  |
| Default Value  | [Enable]  |
| Possible Value | Disable<br>Enable   |
| Help           | Enables or Disables BIOS support for security device. O.S. will not show Security Device. TCG EFI protocol and INT1A interface will not be available. |

|                |  |
|----------------|--|
| Field Name     | <b>Pending operation</b>   |
| Default Value  | [None]   |
| Possible Value | None<br>TPM Clear  |
| Help           | Schedule an Operation for the Security Device. NOTE: Your Computer will reboot during restart in order to change State of Security Device. |

## NCT6126D Super IO Configuration

| Main   | Advanced | EventLogs | Security | Boot | Save & Exit   |
|--|----------|-----------|----------|------|---|
| <b>NCT6126D Super IO Configuration</b>   |          |           |          |      | <b>Item help</b>  |
| <b>Super IO Chip</b>   <b>NCT6126D</b>   |          |           |          |      |   |
| <ul style="list-style-type: none"> <li>▶ Serial Port 1 Configuration</li> <li>▶ Serial Port 2 Configuration</li> <li>▶ Serial Port 3 Configuration</li> <li>▶ Serial Port 4 Configuration</li> </ul> |          |           |          |      | →←: Select Screen<br>↑↓: Select Item<br>Enter: Select<br>+/- : Change Opt<br>F1: General Help<br>F2: Previous Values<br>F3: Optimized Defaults<br>F4: Save & Reset<br>ESC: Exit |
| WatchDog Count Mode [Second]   |          |           |          |      |   |
| WatchDog TimeOut Value 0   |          |           |          |      |   |
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|            |   |
|------------|---|
| Field Name | <b>Serial Port 1 Configuration</b>                            |
| Help       | Set Parameters of Serial Port 1 (COMA)                        |
| Comment    | Press Enter when selected to go into the associated Sub-Menu. |

|            |   |
|------------|---|
| Field Name | <b>Serial Port 2 Configuration</b>                            |
| Help       | Set Parameters of Serial Port 2 (COMB)                        |
| Comment    | Press Enter when selected to go into the associated Sub-Menu. |

|            |   |
|------------|---|
| Field Name | <b>Serial Port 3 Configuration</b>                            |
| Help       | Set Parameters of Serial Port 3 (COME)                        |
| Comment    | Press Enter when selected to go into the associated Sub-Menu. |

|            |   |
|------------|---|
| Field Name | <b>Serial Port 4 Configuration</b>                            |
| Help       | Set Parameters of Serial Port 4 (COMF)                        |
| Comment    | Press Enter when selected to go into the associated Sub-Menu. |

|                |                                |
|----------------|--------------------------------|
| Field Name     | <b>WatchDog Count Mode</b>     |
| Default Value  | [Second]                       |
| Possible Value | Second<br>Minute               |
| Help           | Configure watchdog count mode. |

|                |                                   |
|----------------|-----------------------------------|
| Field Name     | <b>WatchDog TimeOut Value</b>     |
| Default Value  | [0]                               |
| Possible Value | 0 ~ 255                           |
| Help           | Configure watchdog TimeOut Value. |

Serial Port 1 Configuration

| Main                                      | Advanced | EventLogs | Security | Boot | Save & Exit   |
|---|----------|-----------|----------|------|---|
| <b>Serial Port 1 Configuration</b>        |          |           |          |      | <b>Item help</b>  |
| Serial Port [Enabled]                     |          |           |          |      | →←: Select Screen<br>↑ ↓ : Select Item<br>Enter: Select<br>+/- : Change Opt<br>F1: General Help<br>F2: Previous Values<br>F3: Optimized Defaults<br>F4: Save & Reset<br>ESC: Exit |
| Device Settings IO=3F8h; IRQ=4;           |          |           |          |      |   |
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|                |                                    |
|----------------|------------------------------------|
| Field Name     | <b>Serial Port</b>                 |
| Default Value  | [Enabled]                          |
| Possible Value | Disabled<br>Enabled                |
| Help           | Enable or Disable Serial Port(COM) |

|               |   |
|---------------|---|
| Field Name    | <b>Device Settings</b>  |
| Default Value | Device Super IO COM1 Address and IRQ.                                   |
| Comment       | This field is not selectable. There is no help text associated with it. |

Serial Port 2 Configuration

| Main                                      | Advanced | EventLogs | Security | Boot | Save & Exit   |
|---|----------|-----------|----------|------|---|
| <b>Serial Port 2 Configuration</b>        |          |           |          |      | <b>Item help</b>  |
| Serial Port [Enabled]                     |          |           |          |      | →←: Select Screen<br>↑ ↓ : Select Item<br>Enter: Select<br>+/- : Change Opt<br>F1: General Help<br>F2: Previous Values<br>F3: Optimized Defaults<br>F4: Save & Reset<br>ESC: Exit |
| Device Settings IO=2F8h; IRQ=3;           |          |           |          |      |   |
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|                |                                    |
|----------------|------------------------------------|
| Field Name     | <b>Serial Port</b>                 |
| Default Value  | [Enabled]                          |
| Possible Value | Disabled<br>Enabled                |
| Help           | Enable or Disable Serial Port(COM) |

|               |   |
|---------------|---|
| Field Name    | <b>Device Settings</b>  |
| Default Value | Device Super IO COM2 Address and IRQ.                                   |
| Comment       | This field is not selectable. There is no help text associated with it. |

Serial Port 3 Configuration

| Main                                      | Advanced | EventLogs | Security | Boot             | Save & Exit  |
|---|----------|-----------|----------|------------------|--|
| <b>Serial Port 3 Configuration</b>        |          |           |          |                  | <b>Item help</b>   |
| Serial Port                               |          |           |          | [Enabled]        | →←: Select Screen<br>↑ ↓: Select Item<br>Enter: Select<br>+/- : Change Opt<br>F1: General Help<br>F2: Previous Values<br>F3: Optimized Defaults<br>F4: Save & Reset<br>ESC: Exit |
| Device Settings                           |          |           |          | IO=220h; IRQ=11; |  |
| Mode Configuration                        |          |           |          | [3T/5R RS232]    |  |
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|                |                                    |
|----------------|------------------------------------|
| Field Name     | <b>Serial Port</b>                 |
| Default Value  | [Enabled]                          |
| Possible Value | Disabled<br>Enabled                |
| Help           | Enable or Disable Serial Port(COM) |

|               |   |
|---------------|---|
| Field Name    | <b>Device Settings</b>  |
| Default Value | Device Super IO COM3 Address and IRQ.                                   |
| Comment       | This field is not selectable. There is no help text associated with it. |

|                |   |
|----------------|---|
| Field Name     | <b>Mode Configuration</b>   |
| Default Value  | [3T/5R RS232]   |
| Possible Value | 1T/1R RS422<br>3T/5R RS232<br>1T/1R RS485 TX ENABLE Low Active<br>1T/1R RS422 with termination resistor<br>1T/1R RS485 with termination resistor TX ENABLE Low Active |
| Help           | Configure serial port as RS232/RS422/RS485.   |

Serial Port 4 Configuration

|  |  |                 |                  |                 |             |                        |
|--|--|-----------------|------------------|-----------------|-------------|------------------------|
| <b>Main</b>                                      |  | <b>Advanced</b> | <b>EventLogs</b> | <b>Security</b> | <b>Boot</b> | <b>Save &amp; Exit</b> |
| <b>Serial Port 4 Configuration</b>               |  |                 |                  |                 |             | <b>Item help</b>       |
| Serial Port                                      |  | [Enabled]       |                  |                 |             | →←: Select Screen      |
| Device Settings                                  |  | IO=3F8h; IRQ=4; |                  |                 |             | ↑ ↓ : Select Item      |
| Mode Configuration                               |  | [3T/5R RS232]   |                  |                 |             | Enter: Select          |
|  |  |                 |                  |                 |             | +/- : Change Opt       |
|  |  |                 |                  |                 |             | F1: General Help       |
|  |  |                 |                  |                 |             | F2: Previous Values    |
|  |  |                 |                  |                 |             | F3: Optimized Defaults |
|  |  |                 |                  |                 |             | F4: Save & Reset       |
|  |  |                 |                  |                 |             | ESC: Exit              |
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|                |                                    |
|----------------|------------------------------------|
| Field Name     | <b>Serial Port</b>                 |
| Default Value  | [Enabled]                          |
| Possible Value | Disabled<br>Enabled                |
| Help           | Enable or Disable Serial Port(COM) |

|               |   |
|---------------|---|
| Field Name    | <b>Device Settings</b>  |
| Default Value | Device Super IO COM4 Address and IRQ.                                   |
| Comment       | This field is not selectable. There is no help text associated with it. |

|                |   |
|----------------|---|
| Field Name     | <b>Mode Configuration</b>   |
| Default Value  | [3T/5R RS232]   |
| Possible Value | 1T/1R RS422<br>3T/5R RS232<br>1T/1R RS485 TX ENABLE Low Active<br>1T/1R RS422 with termination resistor<br>1T/1R RS485 with termination resistor TX ENABLE Low Active |
| Help           | Configure serial port as RS232/RS422/RS485.   |

## Hardware Monitor

| Main                                      | Advanced | EventLogs | Security | Boot       | Save & Exit          |
|---|----------|-----------|----------|------------|----------------------|
| <b>PC Health Status</b>                   |          |           |          |            | <b>Item help</b>     |
| CPU Temperature                           |          |           |          | : xx °C    |                      |
| VR Temperature                            |          |           |          | : xx °C    |                      |
| System Temperature                        |          |           |          | : xx °C    |                      |
| System Fan Speed                          |          |           |          | : xxxx RPM |                      |
| CPU Fan Speed                             |          |           |          | : xxxx RPM |                      |
| 5VSB                                      |          |           |          | : x.xxx V  | →←: Select Screen    |
| VCC                                       |          |           |          | : x.xxx V  | ↑↓: Select Item      |
| 12V                                       |          |           |          | : x.xxx V  | Enter: Select        |
| CPUVCORE                                  |          |           |          | : x.xxx V  | +/- : Change Opt     |
| VCCRTC                                    |          |           |          | : x.xxx V  | F1: General Help     |
| 3VSB                                      |          |           |          | : x.xxx V  | F2: Previous Values  |
|   |          |           |          |            | F3: Optimized Values |
|   |          |           |          |            | F4: Save & Reset     |
|   |          |           |          |            | ESC: Exit            |
| ▶ Smart Fan                               |          |           |          |            |                      |
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| Type               | Range  |
|--------------------|--|
| VR Temperature     | -20 ~ 120 °C   |
| System Temperature | -20 ~ 120 °C   |
| System Fan Speed   | There are many kinds of the fan could be installed into the system, so we could only set 0 RPM for the failed fan speed, and there is also no high RPM limitation. |
| CPU Fan Speed      | There are many kinds of the fan could be installed into the system, so we could only set 0 RPM for the failed fan speed, and there is also no high RPM limitation. |
| 5VSB               | 4.75V~5.25V (Pin 100 VIN0 => Vref = 1V) [R0A Vref = 1.05V]   |
| VCC                | 4.75V~5.25V (Pin 99 VIN1 => Vref = 1V)   |
| 12V                | 11.4V~12.6V (Pin 98 VIN2 => Vref = 1V)   |
| CPUVCORE           | 0V~2V (Pin 101 CPUCORE)  |
| VCCRTC             | 2V~3.465V (Pin 74 VBAT)  |
| 3VSB               | 3.135V~3.465V (Pin 97 AVSB)  |

|            |   |
|------------|---|
| Field Name | Smart Fan   |
| Help       | Smart Fan function setting                                    |
| Comment    | Press Enter when selected to go into the associated Sub-Menu. |

## Smart Fan

| Main  | Advanced | Chipset | Security | Boot | Save & Exit   |
|---|----------|---------|----------|------|---|
| <ul style="list-style-type: none"> <li>▶ System Fan Setting</li> <li>▶ CPU Fan Setting</li> </ul> |          |         |          |      | <p>→←: Select Screen</p> <p>Enter: Select</p> <p>+/- : Change Opt</p> <p>F1: General Help</p> <p>F2: Previous Values</p> <p>F3: Optimized Defaults</p> <p>F4: Save &amp; Reset</p> <p>ESC: Exit</p> |
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|            |   |
|------------|---|
| Field Name | <b>System Fan Setting</b>                                     |
| Help       | Smart Fan function setting                                    |
| Comment    | Press Enter when selected to go into the associated Sub-Menu. |

|            |   |
|------------|---|
| Field Name | <b>CPU Fan Setting</b>  |
| Help       | Smart Fan function setting                                    |
| Comment    | Press Enter when selected to go into the associated Sub-Menu. |





|                |                             |
|----------------|-----------------------------|
| Default Value  | 25                          |
| Possible Value | 0 ~ 255                     |
| Help           | The value of temperature 1. |

|                |                             |
|----------------|-----------------------------|
| Field Name     | <b>Temperature 2</b>        |
| Default Value  | 35                          |
| Possible Value | 0 ~ 255                     |
| Help           | The value of temperature 2. |

|                |                             |
|----------------|-----------------------------|
| Field Name     | <b>Temperature 3</b>        |
| Default Value  | 45                          |
| Possible Value | 0 ~ 255                     |
| Help           | The value of temperature 3. |

|                |                             |
|----------------|-----------------------------|
| Field Name     | <b>Temperature 4</b>        |
| Default Value  | 55                          |
| Possible Value | 0 ~ 255                     |
| Help           | The value of temperature 4. |

|                |   |
|----------------|---|
| Field Name     | <b>FD/RPM 1</b>                                   |
| Default Value  | 50  |
| Possible Value | 0 ~ 255   |
| Help           | The value of Fan Duty/RPM when temperature is T1. |

|                |   |
|----------------|---|
| Field Name     | <b>FD/RPM 2</b>                                   |
| Default Value  | 110   |
| Possible Value | 0 ~ 255   |
| Help           | The value of Fan Duty/RPM when temperature is T2. |

|                |   |
|----------------|---|
| Field Name     | <b>FD/RPM 3</b>                                   |
| Default Value  | 170   |
| Possible Value | 0 ~ 255   |
| Help           | The value of Fan Duty/RPM when temperature is T3. |

|                |   |
|----------------|---|
| Field Name     | <b>FD/RPM 4</b>                                   |
| Default Value  | 230   |
| Possible Value | 0 ~ 255   |
| Help           | The value of Fan Duty/RPM when temperature is T4. |

|                |                                 |
|----------------|---------------------------------|
| Field Name     | <b>Critical temperature</b>     |
| Default Value  | 60                              |
| Possible Value | 0 ~ 255                         |
| Help           | Fan temperature critical value. |

|                |                                 |
|----------------|---------------------------------|
| Field Name     | <b>Critical tolerance</b>       |
| Default Value  | 0                               |
| Possible Value | 0 ~ 7                           |
| Help           | Critical Temperature Tolerance. |

|                |                             |
|----------------|-----------------------------|
| Field Name     | <b>Enable critical duty</b> |
| Default Value  | [Disabled]                  |
| Possible Value | Disabled<br>Enabled         |

|      |  |
|------|--|
| Help | Enable critical duty, if enable will use critical duty value for fan out.<br>If not will use full speed for fan out. |
|------|--|

|                |                        |
|----------------|------------------------|
| Field Name     | <b>Tolerance value</b> |
| Default Value  | 0                      |
| Possible Value | 0 ~ 7                  |
| Help           | Tolerance value.       |

|                |  |
|----------------|--|
| Field Name     | <b>RPM Mode</b>  |
| Default Value  | [Disabled]   |
| Possible Value | Disabled<br>Enabled  |
| Help           | Enable/Disable SMART FAN IV Close Loop Fan Control RPM Mode. |

|                |                                       |
|----------------|---------------------------------------|
| Field Name     | <b>Fan out stepping</b>               |
| Default Value  | [Disabled]                            |
| Possible Value | Disabled<br>Enabled                   |
| Help           | Enable/Disable SMART FAN IV stepping. |

CPU Fan Setting

| Main  | Advanced             | Chipset | Security | Boot           | Save & Exit | Item                   | help |
|---|----------------------|---------|----------|----------------|-------------|------------------------|------|
| <b>CPU Fan Setting</b>  |                      |         |          |                |             |                        |      |
|   | CPU Fan Mode         |         |          | [SMART FAN IV] |             |                        |      |
|   | Step up time         |         |          | 10             |             |                        |      |
|   | Step down time       |         |          | 10             |             |                        |      |
|   | Temperature 1        |         |          | 25             |             |                        |      |
|   | Temperature 2        |         |          | 35             |             |                        |      |
|   | Temperature 3        |         |          | 45             |             |                        |      |
|   | Temperature 4        |         |          | 55             |             |                        |      |
|   | FD/RPM 1             |         |          | 50             |             |                        |      |
|   | FD/RPM 2             |         |          | 110            |             |                        |      |
|   | FD/RPM 3             |         |          | 170            |             |                        |      |
|   | FD/RPM 4             |         |          | 230            |             |                        |      |
|   | Critical temperature |         |          | 60             |             |                        |      |
|   | Critical tolerance   |         |          | 0              |             |                        |      |
|   | Enable critical duty |         |          | [Disabled]     |             |                        |      |
|   | Tolerance value      |         |          | 0              |             |                        |      |
|   | RPM Mode             |         |          | [Disabled]     |             |                        |      |
|   | Fan out stepping     |         |          | [Disabled]     |             |                        |      |
|   |                      |         |          |                |             | →←: Select Screen      |      |
|   |                      |         |          |                |             | ↑ ↓: Select Item       |      |
|   |                      |         |          |                |             | Enter: Select          |      |
|   |                      |         |          |                |             | +/- : Change Opt       |      |
|   |                      |         |          |                |             | F1: General Help       |      |
|   |                      |         |          |                |             | F2: Previous Values    |      |
|   |                      |         |          |                |             | F3: Optimized Defaults |      |
|   |                      |         |          |                |             | F4: Save & Reset       |      |
|   |                      |         |          |                |             | ESC: Exit              |      |
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|                |                             |
|----------------|-----------------------------|
| Field Name     | <b>CPU Fan Mode</b>         |
| Default Value  | [SMART FAN IV]              |
| Possible Value | Manual mode<br>SMART FAN IV |
| Help           | Fan control mode select     |

|                |   |
|----------------|---|
| Field Name     | <b>Step up time</b>   |
| Default Value  | 10  |
| Possible Value | 0 ~ 255   |
| Help           | The amount of time Fan takes to increase its values by one step.<br>(Units are intervals of 0.1 second) |

|                |                       |
|----------------|-----------------------|
| Field Name     | <b>Step down time</b> |
| Default Value  | 10                    |
| Possible Value | 0 ~ 255               |

|      |   |
|------|---|
| Help | The amount of time Fan takes to increase its values by one step.<br>(Units are intervals of 0.1 second) |
|------|---|

|                |                             |
|----------------|-----------------------------|
| Field Name     | <b>Temperature 1</b>        |
| Default Value  | 25                          |
| Possible Value | 0 ~ 255                     |
| Help           | The value of temperature 1. |

|                |                             |
|----------------|-----------------------------|
| Field Name     | <b>Temperature 2</b>        |
| Default Value  | 35                          |
| Possible Value | 0 ~ 255                     |
| Help           | The value of temperature 2. |

|                |                             |
|----------------|-----------------------------|
| Field Name     | <b>Temperature 3</b>        |
| Default Value  | 45                          |
| Possible Value | 0 ~ 255                     |
| Help           | The value of temperature 3. |

|                |                             |
|----------------|-----------------------------|
| Field Name     | <b>Temperature 4</b>        |
| Default Value  | 55                          |
| Possible Value | 0 ~ 255                     |
| Help           | The value of temperature 4. |

|                |   |
|----------------|---|
| Field Name     | <b>FD/RPM 1</b>                                   |
| Default Value  | 50  |
| Possible Value | 0 ~ 255   |
| Help           | The value of Fan Duty/RPM when temperature is T1. |

|                |   |
|----------------|---|
| Field Name     | <b>FD/RPM 2</b>                                   |
| Default Value  | 110   |
| Possible Value | 0 ~ 255   |
| Help           | The value of Fan Duty/RPM when temperature is T2. |

|                |   |
|----------------|---|
| Field Name     | <b>FD/RPM 3</b>                                   |
| Default Value  | 170   |
| Possible Value | 0 ~ 255   |
| Help           | The value of Fan Duty/RPM when temperature is T3. |

|                |   |
|----------------|---|
| Field Name     | <b>FD/RPM 4</b>                                   |
| Default Value  | 230   |
| Possible Value | 0 ~ 255   |
| Help           | The value of Fan Duty/RPM when temperature is T4. |

|                |                                 |
|----------------|---------------------------------|
| Field Name     | <b>Critical temperature</b>     |
| Default Value  | 60                              |
| Possible Value | 0 ~ 255                         |
| Help           | Fan temperature critical value. |

|                |                                 |
|----------------|---------------------------------|
| Field Name     | <b>Critical tolerance</b>       |
| Default Value  | 0                               |
| Possible Value | 0 ~ 7                           |
| Help           | Critical Temperature Tolerance. |

|                |   |
|----------------|---|
| Field Name     | <b>Enable critical duty</b>   |
| Default Value  | [Disabled]  |
| Possible Value | Disabled<br>Enabled   |
| Help           | Enable critical duty, if enable will use critical duty value for fan out. If not will use full speed for fan out. |

|                |                        |
|----------------|------------------------|
| Field Name     | <b>Tolerance value</b> |
| Default Value  | 0                      |
| Possible Value | 0 ~ 7                  |
| Help           | Tolerance value.       |

|                |  |
|----------------|--|
| Field Name     | <b>RPM Mode</b>  |
| Default Value  | [Disabled]   |
| Possible Value | Disabled<br>Enabled  |
| Help           | Enable/Disable SMART FAN IV Close Loop Fan Control RPM Mode. |

|                |                                       |
|----------------|---------------------------------------|
| Field Name     | <b>Fan out stepping</b>               |
| Default Value  | [Disabled]                            |
| Possible Value | Disabled<br>Enabled                   |
| Help           | Enable/Disable SMART FAN IV stepping. |

S5 RTC Wake Settings

| Main                                      | Advanced | EventLogs | Security | Boot       | Save & Exit   |
|---|----------|-----------|----------|------------|---|
| Wake system from S5                       |          |           |          | [Disabled] | <b>Item help</b>  |
| Wake up hour                              |          |           |          | 0          |   |
| Wake up minute                            |          |           |          | 0          |   |
| Wake up second                            |          |           |          | 0          |   |
|   |          |           |          |            | →←: Select Screen<br>↑↓: Select Item<br>Enter: Select<br>+/- : Change Opt<br>F1: General Help<br>F2: Previous Values<br>F3: Optimized Defaults<br>F4: Save & Reset<br>ESC: Exit |
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|                |   |
|----------------|---|
| Field Name     | Wake system from S5   |
| Default Value  | [Disabled]  |
| Possible Value | Disabled<br>Fixed Time  |
| Help           | Enable or disable System wake on alarm event, Select FixedTime, system will wake on the hr::min::sec specified. |

|                |   |
|----------------|---|
| Field Name     | Wake up hour(Show when Wake system from S5 set to Fixed Time) |
| Default Value  | 0   |
| Possible Value | 0-23  |
| Help           | Select 0-23 For example enter 3 for 3am and 15 for 3pm        |

|                |   |
|----------------|---|
| Field Name     | Wake up minute(Show when Wake system from S5 set to Fixed Time) |
| Default Value  | 0   |
| Possible Value | 0-59  |
| Help           | Select 0 – 59 for Minute  |

|            |   |
|------------|---|
| Field Name | Wake up second(Show when Wake system from S5 set to Fixed Time) |
|------------|---|

|                |                          |
|----------------|--------------------------|
| Default Value  | 0                        |
| Possible Value | 0 - 59                   |
| Help           | Select 0 – 59 for Second |



**Network Stack Configuration**

| Main  |  | Advanced | EventLogs | Security | Boot | Save & Exit   |
|---|--|----------|-----------|----------|------|---|
| Network stack [Enabled]<br>Ipv4 PXE Support [Disabled]<br>Ipv6 PXE Support [Disabled] |  |          |           |          |      | <b>Item help</b><br>→←: Select Screen<br>↑↓: Select Item<br>Enter: Select<br>+/- : Change Opt<br>F1: General Help<br>F2: Previous Values<br>F3: Optimized Defaults<br>F4: Save & Reset<br>ESC: Exit |
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|                |                                    |
|----------------|------------------------------------|
| Field Name     | <b>Network stack</b>               |
| Default Value  | [Disabled]                         |
| Possible Value | Disabled<br>Enabled                |
| Help           | Enable/Disable UEFI Network stack. |

|                |  |
|----------------|--|
| Field Name     | <b>Ipv4 PXE Support (Available when Network stack Enabled)</b>                                 |
| Default Value  | [Disabled]   |
| Possible Value | Disabled<br>Enabled  |
| Help           | Enable/Disable Ipv4 PXE Boot Support. If disabled IPV4 PXE boot support will not be available. |

|                |  |
|----------------|--|
| Field Name     | <b>Ipv6 PXE Support (Available when Network stack Enabled)</b>                                 |
| Default Value  | [Disabled]   |
| Possible Value | Disabled<br>Enabled  |
| Help           | Enable/Disable Ipv6 PXE Boot Support. If disabled IPV6 PXE boot support will not be available. |

## NVMe Configuration

| Main <b>Advanced</b> EventLogs   Security   Boot   Save & Exit |   |
|--|---|
| <p><b>NVMe Configuration</b></p> <p>▶ (Device)</p>             | <p><b>Item   help</b></p> <p>→←: Select Screen</p> <p>↑↓: Select Item</p> <p>Enter: Select</p> <p>+/- : Change Opt</p> <p>F1: General Help</p> <p>F2: Previous Values</p> <p>F3: Optimized Defaults</p> <p>F4: Save &amp; Reset</p> <p>ESC: Exit</p> <p>ESC: Exit</p> |
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|            |   |
|------------|---|
| Field Name | <b>(Device)</b>   |
| Comment    | Press Enter when selected to go into the associated Sub-Menu. |

### 3 Event Logs



|            |   |
|------------|---|
| Field Name | <b>Change Smbios Event Log Settings</b>                       |
| Help       | Press <Enter> to change the Smbios Event Log configuration.   |
| Comment    | Press Enter when selected to go into the associated Sub-Menu. |

|            |   |
|------------|---|
| Field Name | <b>View Smbios Event Log</b>                                  |
| Help       | Press <Enter> to view the Smbios Event Log records.           |
| Comment    | Press Enter when selected to go into the associated Sub-Menu. |

## Change Smbios Event Log Settings

| Aptio Setup - AMI   |  |
|---|--|
| Event Logs  |  |
| Enabling/Disabling Options<br>Smbios Event Log [Enabled]  | Change this to enable or disable all features of Smbios Event Logging during boot. |
| Erasing Settings<br>Erase Event Log [No]<br>When Log is Full [Do Nothing]   |  |
| ++: Select Screen<br>↑↓: Select Item<br>Enter: Select<br>+/-: Change Opt.<br>F1: General Help<br>F2: Previous Values<br>F3: Optimized Defaults<br>F4: Save & Reset<br>ESC: Exit |  |
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|                |   |
|----------------|---|
| Field Name     | <b>Smbios Event Log</b>   |
| Default Value  | [Enabled]   |
| Possible Value | Enabled<br>Disabled   |
| Help           | Change this to enable or disable all feature of Smbios Event Logging during boot. |

|                |  |
|----------------|--|
| Field Name     | <b>Erase Event Log</b>   |
| Default Value  | [No]   |
| Possible Value | No / Yes, Next reset / Yes, Every reset  |
| Help           | Choose options for erasing Smbios Event Log. Erasing is done prior to any logging activation during reset. |

|                |  |
|----------------|--|
| Field Name     | <b>When Log is Full</b>                                  |
| Default Value  | [Do Nothing]   |
| Possible Value | Do Nothing<br>Erase Immediately                          |
| Help           | Choose options for reactions to a full Smbios Event Log. |

**View Smbios Event Log**

Event Logs
Aptio Setup - AMI

| DATE     | TIME     | ERROR CODE  | SEVERITY | COUNT | DESCRIPTION  |
|----------|----------|-------------|----------|-------|--|
| 06/04/20 | 06:35:10 | Smbios 0x16 | N/A      | N/A   | Log Area Reset and Count is applicable only for Multi-Events |

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

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|                |  |
|----------------|--|
| Field Name     | <b>DATE / TIME / ERROR CODE / SEVERITY / COUNT</b> |
| Default Value  | MM/DD/YY HH:MM:SS Smbios 0x16 N/A N/A              |
| Possible Value | By Events.   |
| Help           | By Events.   |



|         |   |
|---------|---|
| Help    | Secure Boot Configuration                                     |
| Comment | Press Enter when selected to go into the associated Sub-Menu. |

|            |   |
|------------|---|
| Field Name | <b>BIOS Update</b>  |
| Help       | BIOS Update support   |
| Comment    | Press Enter when selected to go into the associated Sub-Menu. |

**HDD Security**

| Main   Advanced   EventLogs <b>Security</b> Boot   Save & Exit  |  |
|---|--|
| <p>HDD Password Description :</p> <p>Allows Access to Set, Modify and Clear Hard Disk User Password and Master Password.</p> <p>User Password is mandatory to Enable HDD Security.</p> <p>If Master password is installed (optional), it can also be used to unlock the HDD.</p> <p>If the 'Set User Password' option is hidden, do power cycle to enable the option again.</p> <p>HDD PASSWORD CONFIGURATION:</p> <p>Security Supported : Yes</p> <p>Security Enabled : No</p> <p>Security Locked : No</p> <p>Security Frozen : No</p> <p>HDD User Pwd Status : NOT INSTALLED</p> <p><a href="#">Set User Password</a></p> | <p><b>Item help</b></p> <hr/> <p>→←: Select Screen</p> <p>↑↓: Select Item</p> <p>Enter: Select</p> <p>+/- : Change Opt</p> <p>F1: General Help</p> <p>F2: Previous Values</p> <p>F3: Optimized Defaults</p> <p>F4: Save &amp; Reset</p> <p>ESC: Exit</p> |
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| Field Name | Set User Password  |
|------------|--|
| Help       | Set HDD User Password. *** Advisable to Power Cycle System after Setting Hard Disk Passwords ***.Discard or Save changes option in setup does not have any impact on HDD when password is set or removed. If the 'Set HDD User Password' option is hidden, do power cycle to enable the option again |



## Secure Boot

| Main                                      | Advanced | EventLogs | Security | Boot                     | Save & Exit   |
|---|----------|-----------|----------|--------------------------|---|
| System Mode                               |          |           |          | Setup                    | <b>Item help</b>  |
| Secure Boot                               |          |           |          | [Disabled]<br>Not Active | →←: Select Screen<br>↑↓: Select Item<br>Enter: Select<br>+/- : Change Opt<br>F1: General Help<br>F2: Previous Values<br>F3: Optimized Defaults<br>F4: Save & Reset<br>ESC: Exit |
| Secure Boot Mode                          |          |           |          | [Custom]                 |   |
| ▶ Restore Factory Keys                    |          |           |          |                          |   |
| ▶ Reset To Setup Mode                     |          |           |          |                          |   |
| ▶ Key Management                          |          |           |          |                          |   |
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|                |   |
|----------------|---|
| Field Name     | <b>Secure Boot</b>  |
| Default Value  | [Disabled]  |
| Possible Value | Enabled<br>Disabled   |
| Help           | Secure Boot feature is Active if Secure Boot is Enabled,Platform Key(PK) is enrolled and the System is in User mode.The mode change requires platform reset |

|                |   |
|----------------|---|
| Field Name     | <b>Secure Boot Mode</b>   |
| Default Value  | [Custom]  |
| Possible Value | Standard<br>Custom  |
| Help           | Secure Boot mode options:Standard or Custom.In Custom mode, Secure Boot Policy variables can be configured by a physically present user without full authentication |

|            |  |
|------------|--|
| Field Name | <b>Restore Factory Keys</b>  |
| Help       | Force System to User Mode. Install factory default Secure Boot key databases |

|            |   |
|------------|---|
| Field Name | <b>Reset to Setup Mode</b>                      |
| Help       | Delete all Secure Boot key databases from NVRAM |

|            |   |
|------------|---|
| Field Name | <b>Key Management</b>   |
| Help       | Enables expert users to modify Secure Boot Policy variables without full authentication |
| Comment    | Enables expert users to modify Secure Boot Policy variables without full authentication |

Key Management

| Main                                      | Advanced | EventLogs | Security | Boot   | Save & Exit |
|---|----------|-----------|----------|--|-------------|
| Vender Key                                |          |           |          | Valid  |             |
| Factory Key Provision                     |          |           |          | [Disabled]   |             |
| ▶ Restore Factory Keys                    |          |           |          |  |             |
| ▶ Reset To Setup Mode                     |          |           |          |  |             |
| ▶ Export Secure Boot variables            |          |           |          |  |             |
| ▶ Enroll Efi Image                        |          |           |          |  |             |
| Device Guard ready                        |          |           |          |  |             |
| ▶ Remove 'UEFI CA' from DB                |          |           |          |  |             |
| ▶ Restore DB defaults                     |          |           |          |  |             |
| Secure Boot variable                      |          | Size      | Keys     | Key Source   |             |
| ▶ Platform Key(PK)                        |          | 0         | 0        | No Keys  |             |
| ▶ Key Exchange Keys                       |          | 0         | 0        | No Keys  |             |
| ▶ Authorized Signatures                   |          | 0         | 0        | No Keys  |             |
| ▶ Forbidden Signatures                    |          | 0         | 0        | No Keys  |             |
| ▶ Authorized TimeStamps                   |          | 0         | 0        | No Keys  |             |
| ▶ OsRecovery Signatures                   |          | 0         | 0        | No Keys  |             |
|   |          |           |          | <b>Item help</b><br>→←: Select Screen<br>↑↓: Select Item<br>Enter: Select<br>+/- : Change Opt.<br>F1: General Help<br>F2: Previous Values<br>F3: Optimized Defaults<br>F4: Save & Reset<br>ESC: Exit |             |
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|                |   |
|----------------|---|
| Field Name     | <b>Factory Key Provision</b>  |
| Default Value  | [Disabled]  |
| Possible Value | Enabled<br>Disabled   |
| Help           | Install factory default Secure Boot keys after the platform reset and while the System is in Setup mode |

|            |  |
|------------|--|
| Field Name | <b>Restore Factory Keys</b>  |
| Help       | Force System to User Mode. Install factory default Secure Boot key databases |

|            |   |
|------------|---|
| Field Name | <b>Reset to Setup Mode</b>                      |
| Help       | Delete all Secure Boot key databases from NVRAM |

|            |   |
|------------|---|
| Field Name | <b>Export Secure Boot variables</b>   |
| Help       | Copy NVRAM content of Secure Boot variables to files in a root folder on a file system device |

|            |                         |
|------------|-------------------------|
| Field Name | <b>Enroll Efi Image</b> |
|------------|-------------------------|

|      |  |
|------|--|
| Help | Allow the image to run in Secure Boot mode. Enroll SHA256 Hash certificate of a PE image into Authorized Signature Database (db) |
|------|--|

|            |   |
|------------|---|
| Field Name | <b>Remove 'UEFI CA' from DB</b>   |
| Help       | Device Guard ready system must not list 'Microsoft UEFI CA' Certificate in Authorized Signature database (db) |

|            |   |
|------------|---|
| Field Name | <b>Restore DB defaults</b>              |
| Help       | Restore DB variable to factory defaults |

|               |   |
|---------------|---|
| Field Name    | <b>Platform Key (PK)</b>  |
| Default Value | Size:0, Keys:0, Key source: No Keys   |
| Help          | Enroll Factory Defaults or load certificates from a file:<br>1.Public Key Certificate:<br>a)EFI_SIGNATURE_LIST<br>b)EFI_CERT_X509 (DER)<br>c)EFI_CERT_RSA2048 (bin)<br>d)EFI_CERT_SHAXXX<br>2.Authenticated UEFI Variable<br>3.EFI PE/COFF Image(SHA256)<br>Key Source:<br>Factory,External,Mixed |
| comment       | Press Enter when selected to go into the associated Sub-Menu "Key Management".  |

|               |   |
|---------------|---|
| Field Name    | <b>Key Exchange Keys</b>  |
| Default Value | Size:0, Keys:0, Key source: No Keys   |
| Help          | Enroll Factory Defaults or load certificates from a file:<br>1.Public Key Certificate:<br>a)EFI_SIGNATURE_LIST<br>b)EFI_CERT_X509 (DER)<br>c)EFI_CERT_RSA2048 (bin)<br>d)EFI_CERT_SHAXXX<br>2.Authenticated UEFI Variable<br>3.EFI PE/COFF Image(SHA256)<br>Key Source:<br>Factory,External,Mixed |
| comment       | Press Enter when selected to go into the associated Sub-Menu.   |

|               |   |
|---------------|---|
| Field Name    | <b>Authorized Signatures</b>  |
| Default Value | Size:0, Keys:0, Key source: No Keys   |
| Help          | Enroll Factory Defaults or load certificates from a file:<br>1.Public Key Certificate:<br>a)EFI_SIGNATURE_LIST<br>b)EFI_CERT_X509 (DER)<br>c)EFI_CERT_RSA2048 (bin)<br>d)EFI_CERT_SHAXXX<br>2.Authenticated UEFI Variable<br>3.EFI PE/COFF Image(SHA256)<br>Key Source:<br>Factory,External,Mixed |
| comment       | Press Enter when selected to go into the associated Sub-Menu.   |

|               |  |
|---------------|--|
| Field Name    | <b>Forbidden Signatures</b>  |
| Default Value | Size:0, Keys:0, Key source: No Keys  |
| Help          | Enroll Factory Defaults or load certificates from a file:<br>1.Public Key Certificate:<br>a)EFI_SIGNATURE_LIST |

|         |   |
|---------|---|
|         | b)EFI_CERT_X509 (DER)<br>c)EFI_CERT_RSA2048 (bin)<br>d)EFI_CERT_SHAXXX<br>2.Authenticated UEFI Variable<br>3.EFI PE/COFF Image(SHA256)<br>Key Source:<br>Factory,External,Mixed |
| comment | Press Enter when selected to go into the associated Sub-Menu.   |

|               |   |
|---------------|---|
| Field Name    | <b>Authorized TimeStamps</b>  |
| Default Value | Size:0, Keys:0, Key source: No Keys   |
| Help          | Enroll Factory Defaults or load certificates from a file:<br>1.Public Key Certificate:<br>a)EFI_SIGNATURE_LIST<br>b)EFI_CERT_X509 (DER)<br>c)EFI_CERT_RSA2048 (bin)<br>d)EFI_CERT_SHAXXX<br>2.Authenticated UEFI Variable<br>3.EFI PE/COFF Image(SHA256)<br>Key Source:<br>Factory,External,Mixed |
| comment       | Press Enter when selected to go into the associated Sub-Menu.   |

|               |   |
|---------------|---|
| Field Name    | <b>OsRecovery Signatures</b>  |
| Default Value | Size:0, Keys:0, Key source: No Keys   |
| Help          | Enroll Factory Defaults or load certificates from a file:<br>1.Public Key Certificate:<br>a)EFI_SIGNATURE_LIST<br>b)EFI_CERT_X509 (DER)<br>c)EFI_CERT_RSA2048 (bin)<br>d)EFI_CERT_SHAXXX<br>2.Authenticated UEFI Variable<br>3.EFI PE/COFF Image(SHA256)<br>Key Source:<br>Factory,External,Mixed |
| comment       | Press Enter when selected to go into the associated Sub-Menu.   |

**BIOS Update**

| Main   Advanced   EventLogs <b>Security</b> Boot   Save & Exit  |  |
|---|--|
| <p>▶ Path for ROM Image</p> <p>Notice :</p> <p>ROM Image must in the root folder of storage device.<br/>File name must match with current BIOS project.</p> | <p><b>Item   help</b></p> <p>→←: Select Screen<br/>↑↓: Select Item<br/>Enter: Select<br/>+/- : Change Opt<br/>F1: General Help<br/>F2: Previous Values<br/>F3: Optimized Defaults<br/>F4: Save &amp; Reset<br/>ESC: Exit</p> |
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|            |   |
|------------|---|
| Field Name | <b>Path for ROM Image</b>                 |
| Help       | Enter the path to the Secure flash option |

## 5 Boot Page

| Main   | Advanced | EventLogs | Security | Boot | Save & Exit  |
|--|----------|-----------|----------|------|--|
| <b>Boot Configuration</b><br>Setup Prompt Timeout 1<br>Bootup NumLock State [On]   |          |           |          |      | <b>Item help</b>   |
| <b>FIXED BOOT ORDER Priorities</b><br>Boot Option #1 [USB Floppy]<br>Boot Option #2 [CD/DVD]<br>Boot Option #3 [USB CD/DVD]<br>Boot Option #4 [Hard Disk]<br>Boot Option #5 [USB Key]<br>Boot Option #6 [USB Hard Disk]<br>Boot Option #7 [NVME]<br>Boot Option #8 [Network]   |          |           |          |      |  |
| <ul style="list-style-type: none"> <li>▶ UEFI USB Floppy Drive BBS Priorities</li> <li>▶ UEFI CDROM/DVD Drive BBS Priorities</li> <li>▶ UEFI USB CDROM/DVD Drive BBS Priorities</li> <li>▶ UEFI Hard Disk Drive BBS Priorities</li> <li>▶ UEFI USB Key Drive BBS Priorities</li> <li>▶ UEFI USB Hard Disk Drive BBS Priorities</li> <li>▶ UEFI NVME Drive BBS Priorities</li> <li>▶ UEFI Network Drive BBS Priorities</li> </ul> |          |           |          |      | →←: Select Screen<br>↑↓: Select Item<br>Enter: Select<br>+/- : Change Opt.<br>F1: General Help<br>F2: Previous Values<br>F3: Optimized Defaults<br>F4: Save & Reset<br>ESC: Exit |
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|                |   |
|----------------|---|
| Field Name     | <b>Setup Prompt Timeout</b>   |
| Default Value  | 1   |
| Possible Value | 1~65535   |
| Help           | Number of seconds to wait for setup activation key. 65535(0xFFFF) means indefinite waiting. |

|                |                                   |
|----------------|-----------------------------------|
| Field Name     | <b>Bootup NumLock State</b>       |
| Default Value  | [On]                              |
| Possible Value | On<br>Off                         |
| Help           | Select the keyboard NumLock state |

|            |                       |
|------------|-----------------------|
| Field Name | <b>Boot Option #1</b> |
|------------|-----------------------|

|                |  |
|----------------|--|
| Default Value  | [USB Floppy]   |
| Possible Value | USB Floppy, CD/DVD, USB CD/DVD, Hard Disk , USB Key, USB Hard Disk , NVME, Network, Disabled |
| Help           | Sets the system boot order   |

|                |  |
|----------------|--|
| Field Name     | <b>Boot Option #2</b>  |
| Default Value  | [CD/DVD]   |
| Possible Value | USB Floppy, CD/DVD, USB CD/DVD, Hard Disk , USB Key, USB Hard Disk , NVME, Network, Disabled |
| Help           | Sets the system boot order   |

|                |  |
|----------------|--|
| Field Name     | <b>Boot Option #3</b>  |
| Default Value  | [USB CD/DVD]   |
| Possible Value | USB Floppy, CD/DVD, USB CD/DVD, Hard Disk , USB Key, USB Hard Disk , NVME, Network, Disabled |
| Help           | Sets the system boot order   |

|                |  |
|----------------|--|
| Field Name     | <b>Boot Option #4</b>  |
| Default Value  | [Hard Disk]  |
| Possible Value | USB Floppy, CD/DVD, USB CD/DVD, Hard Disk , USB Key, USB Hard Disk , NVME, Network, Disabled |
| Help           | Sets the system boot order   |

|                |  |
|----------------|--|
| Field Name     | <b>Boot Option #5</b>  |
| Default Value  | [USB Key]  |
| Possible Value | USB Floppy, CD/DVD, USB CD/DVD, Hard Disk , USB Key, USB Hard Disk , NVME, Network, Disabled |
| Help           | Sets the system boot order   |

|                |  |
|----------------|--|
| Field Name     | <b>Boot Option #6</b>  |
| Default Value  | [USB Hard Disk]  |
| Possible Value | USB Floppy, CD/DVD, USB CD/DVD, Hard Disk , USB Key, USB Hard Disk , NVME, Network, Disabled |
| Help           | Sets the system boot order   |

|                |  |
|----------------|--|
| Field Name     | <b>Boot Option #7</b>  |
| Default Value  | [NVME]   |
| Possible Value | USB Floppy, CD/DVD, USB CD/DVD, Hard Disk , USB Key, USB Hard Disk , NVME, Network, Disabled |
| Help           | Sets the system boot order   |

|                |  |
|----------------|--|
| Field Name     | <b>Boot Option #8</b>  |
| Default Value  | [Network]  |
| Possible Value | USB Floppy, CD/DVD, USB CD/DVD, Hard Disk , USB Key, USB Hard Disk , NVME, Network, Disabled |
| Help           | Sets the system boot order   |

|            |  |
|------------|--|
| Field Name | <b>UEFI USB Floppy Drive BBS Priorities</b>  |
| Help       | Specifies the Boot Device Priority sequence from available UEFI USB Floppy Drives. |
| Comment    | Press Enter when selected to go into the associated Sub-Menu.                      |

|            |   |
|------------|---|
| Field Name | <b>UEFI CDROM/DVD ROM Drive BBS Priorities</b>                  |
| Help       | Specifies the Boot Device Priority sequence from available UEFI |

|         |   |
|---------|---|
|         | CDROM/DVD Drives.   |
| Comment | Press Enter when selected to go into the associated Sub-Menu. |

|            |   |
|------------|---|
| Field Name | <b>UEFI USB CDROM/DVD ROM Drive BBS Priorities</b>                                    |
| Help       | Specifies the Boot Device Priority sequence from available UEFI USB CDROM/DVD Drives. |
| Comment    | Press Enter when selected to go into the associated Sub-Menu.                         |

|            |   |
|------------|---|
| Field Name | <b>UEFI Hard Disk Drive BBS Priorities</b>  |
| Help       | Specifies the Boot Device Priority sequence from available UEFI Hard Disk Drives. |
| Comment    | Press Enter when selected to go into the associated Sub-Menu.                     |

|            |   |
|------------|---|
| Field Name | <b>UEFI USB KEY Drive BBS Priorities</b>  |
| Help       | Specifies the Boot Device Priority sequence from available UEFI USB Key Drives. |
| Comment    | Press Enter when selected to go into the associated Sub-Menu.                   |

|            |   |
|------------|---|
| Field Name | <b>UEFI USB Hard Disk Drive BBS Priorities</b>  |
| Help       | Specifies the Boot Device Priority sequence from available UEFI USB Hard Disk Drives. |
| Comment    | Press Enter when selected to go into the associated Sub-Menu.                         |

|            |  |
|------------|--|
| Field Name | <b>UEFI NVME Drive BBS Priorities</b>  |
| Help       | Specifies the Boot Device Priority sequence from available UEFI NVME Drives. |
| Comment    | Press Enter when selected to go into the associated Sub-Menu.                |

|            |   |
|------------|---|
| Field Name | <b>UEFI NETWORK Drive BBS Priorities</b>  |
| Help       | Specifies the Boot Device Priority sequence from available UEFI NETWORK Drives. |
| Comment    | Press Enter when selected to go into the associated Sub-Menu.                   |



**(List Boot Device Type) Drive BBS Priorities**

| Main   | Advanced | EventLogs | Security | Boot | Save & Exit   |
|--|----------|-----------|----------|------|---|
| Boot Option #1 [Boot Device Name 1]<br>Boot Option #2 [Boot Device Name 2] |          |           |          |      | <b>Item help</b><br>→←: Select Screen<br>↑↓: Select Item<br>Enter: Select<br>+/- : Change Opt<br>F1: General Help<br>F2: Previous Values<br>F3: Optimized Defaults<br>F4: Save & Reset<br>ESC: Exit |
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|                |  |
|----------------|--|
| Field Name     | <b>Boot Option #1</b>                    |
| Default Value  |  |
| Possible Value | Boot Device Name 1 of this type, Disable |
| Help           | Sets the system boot order               |

|                |  |
|----------------|--|
| Field Name     | <b>Boot Option #2</b>                    |
| Default Value  |  |
| Possible Value | Boot Device Name 2 of this type, Disable |
| Help           | Sets the system boot order               |

## 6 Save & Exit Page

| Main                                      | Advanced | EventLogs | Security | Boot | Save & Exit               |   |
|---|----------|-----------|----------|------|---------------------------|---|
|   |          |           |          |      | Save Changes and Reset    | Item help   |
|   |          |           |          |      | Discard Changes and Reset |   |
|   |          |           |          |      | Restore Defaults          |   |
|   |          |           |          |      |                           | →←: Select Screen<br>↑↓: Select Item<br>Enter: Select<br>+/- : Change Opt<br>F1: General Help<br>F2: Previous Values<br>F3: Optimized Defaults<br>F4: Save & Reset<br>ESC: Exit |
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|            |  |
|------------|--|
| Field Name | <b>Save Changes and Reset</b>                          |
| Help       | Reset the system after saving the changes.             |
| Field Name | <b>Discard Changes and Rest</b>                        |
| Help       | Reset system setup without saving any changes.         |
| Field Name | <b>Restore Defaults</b>                                |
| Help       | Restore/Load Default values for all the setup options. |

**7 Recovery Page (Active for 4.3 Secure Flash Update only)**

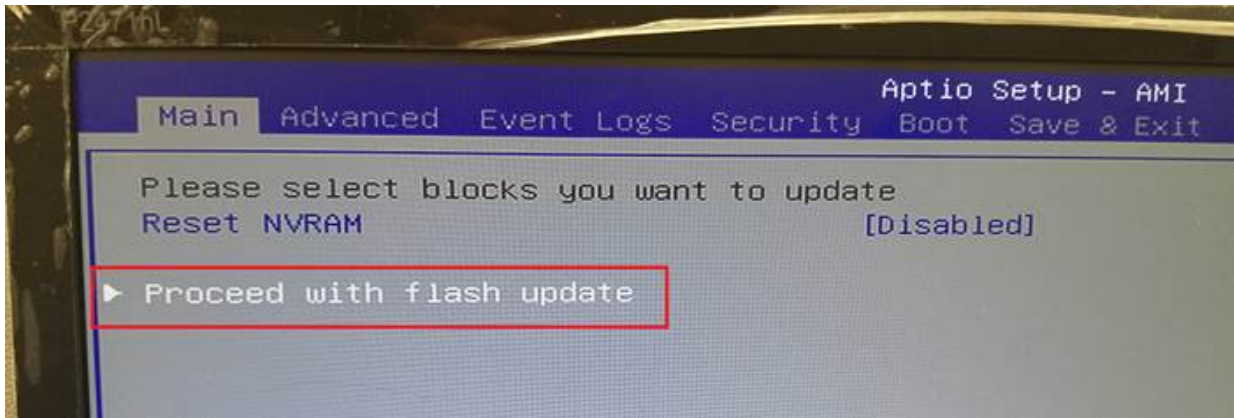
| Main                                      | Advanced | EventLogs | Security | Boot | Save & Exit | Recovery  |
|---|----------|-----------|----------|------|-------------|---|
| Please select block you want to update    |          |           |          |      |             | <b>Item help</b>  |
| Reset NVRAM [Disabled]                    |          |           |          |      |             |   |
| ▶ Process with flash update               |          |           |          |      |             |   |
|   |          |           |          |      |             | →←: Select Screen<br>↑↓: Select Item<br>Enter: Select<br>+/- : Change Opt<br>F1: General Help<br>F2: Previous Values<br>F3: Optimized Defaults<br>F4: Save & Reset<br>ESC: Exit |
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|                |  |
|----------------|--|
| Field Name     | <b>Reset NVRAM</b>                               |
| Default Value  | [Disabled]                                       |
| Possible Value | Enabled<br>Disabled                              |
| Help           | Set this option to reset NVRAM to default values |

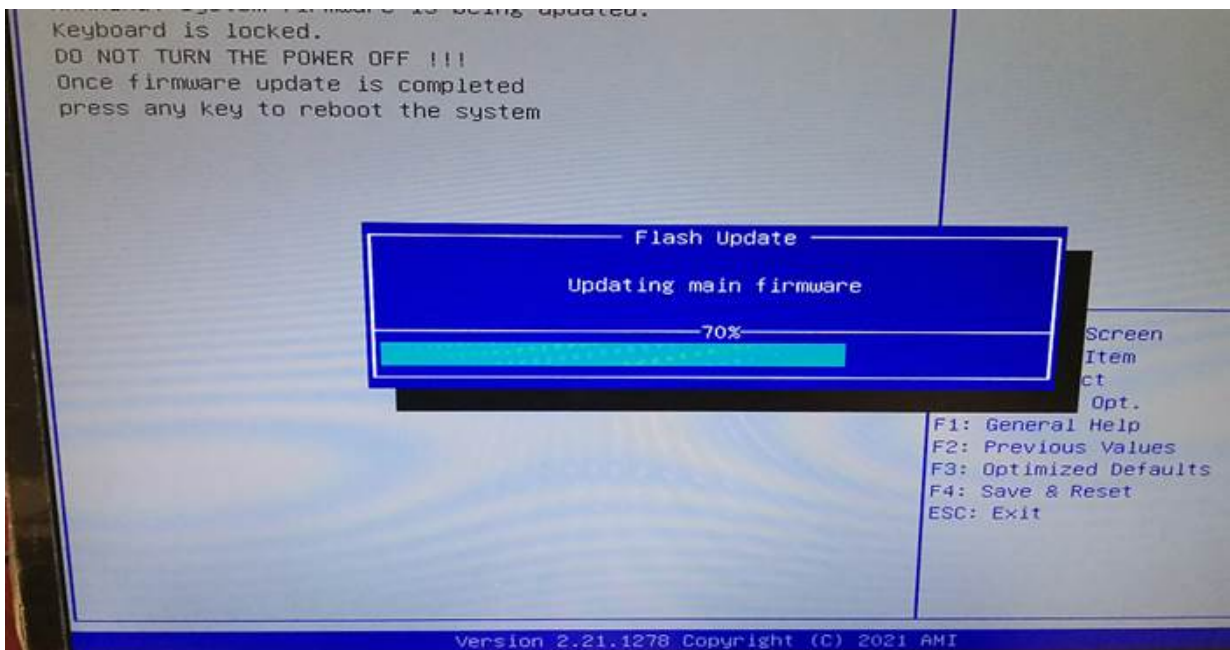
|            |                                   |
|------------|-----------------------------------|
| Field Name | <b>Process with flash update</b>  |
| Help       | Select this to start flash update |

Please see the BIOS update instructions as below.

1. Advanced -> Onboard Device -> BIOS Lock -> Disabled
2. Save Changes and Reboot
3. Security -> BIOS update
4. After “System is going to reboot” and press ‘OK’, then next reboot will enter BIOS menu and appear below screen.



5. Press “Process with flash update”.
6. When the BIOS is updating, you will see the following screen.



7. When BIOS update is done, you will see the information as below. Press any key to reboot the system.

