# MiTAC Thin Mini-ITX Board PD10EHI Product Guide

# Thin Mini-ITX Board Features

This chapter briefly describes the features of Thin Mini-ITX Board PD10EHI.

Below to summarizes the major features of the Desktop Board.

## Feature Summary

**TABLE: MITAC DESKTOP BOARD PD10EHI FEATURES**

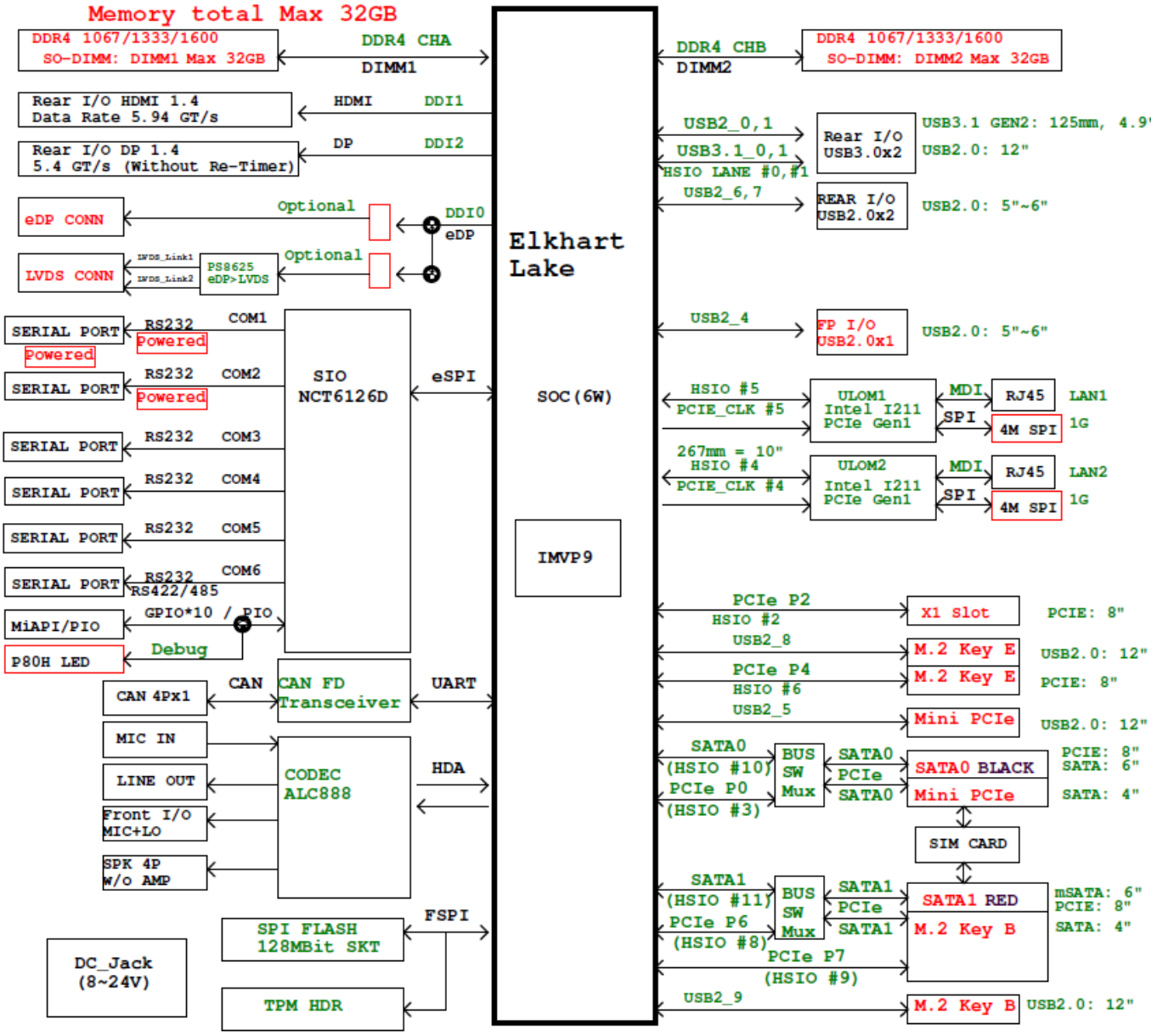
| | | |
|---|---|---|
| Form Factor | Low-profile Mini-ITX (20 millimeters [0.79 inches] x 170.18 millimeters [6.7 inches] x 170.18 millimeters [6.7 inches]) | |
| Processor Chipset | Intel Elkhart Lake Processor with integrated graphics | |
| Main Memory | • Support for dual channel DDR4 3200 SO-DIMMs | |
| | • Maximum support up to 32GB | |
| | • 260-pin DDR4 SO-DIMM | 2 |
| Audio Controller | Realtek ALC888 audio codec | |
| Expansion Capability | • PCI Express 3.0 x1 connector | 1 |
| | • M.2 3042 / 3052 / 2242 / 2260 / 2280 B key (USB2.0, SATAIII, *PCIex1) *Not support M.2 M Key NVMe SSD | 1 |
| | • Mini PCIe Full size (USB2.0 / SATAIII / PCIex1) | 1 |
| | • M.2 2230 E key (PCIe, USB 2.0) | 1 |
| External I/O | • DC-in Jack | 1 |
| | • HD-out | 1 |
| | • DP-out | 1 |
| | • line-out | 1 |
| | • Mic-in | 1 |
| | • USB 3.1 Gen2 back panel connectors | 2 |
| | • USB 2.0 back panel connectors | 2 |
| | • RJ45 | 2 |
| | • LVDS Connector (40Pin) | 1 |
| | • eDP Connector (40Pin) (colay with LVDS connector) | optional |
| | • Stereo speaker header (w/o Amplifier) | 1 |
| | • Front Audio Header with Mic-in and Line-out | 1 |
| | • USB 2.0 front panel ports | 2 |

| | | |
|---|---|---|
| Internal I/O | • SATA 3.0 Gb/s port (multiplexed with an mSATA slot) | 1 |
| | • SATA 3.0 Gb/s port (multiplexed with an m.2 slot) | 1 |
| | • RS232 (Extra 1 x RS232/422/485 Header + 3 x RS232 Header for Option. Max. 6 x COM by Option) | 2 |
| | • MiAPI header (Option with Parallel port header) | 1 |
| | • 4-pin system fan header | 2 |
| | • 4-pin ATX Power Connector | 1 |
| S I/O Controller | NCT6126D | |
| LAN Support | Intel I211-AT (10/100/1000 Mb/s) Ethernet LAN controller *2 | |
| BIOS | • BIOS resident in a Serial Peripheral Interface (SPI) Flash device<br>• Support for Advanced Configuration and Power Interface (ACPI), and System Management BIOS (SMBIOS) | |
| Hardware Management | Nuvoton NCT6793D based subsystem, including:<br>• Voltage sense to detect out of range power supply voltages<br>• Thermal sense to detect out of range thermal values | |
| Power Requirement | DC-in 8~24V (2.5 mm / ID, 5.5 mm / OD) / ATX 4-pin | |
| Environment | Operating Temperature: 0°C to +60°C<br>Storage Temperature: -40°C to +85°C<br>Operating Humidity: 10% ~ 95% R/H (Non-condensing) | |
| OS SUPPORT | Windows® 10 64-bit / Linux (support by request) | |
| Certification | CE, FCC | |

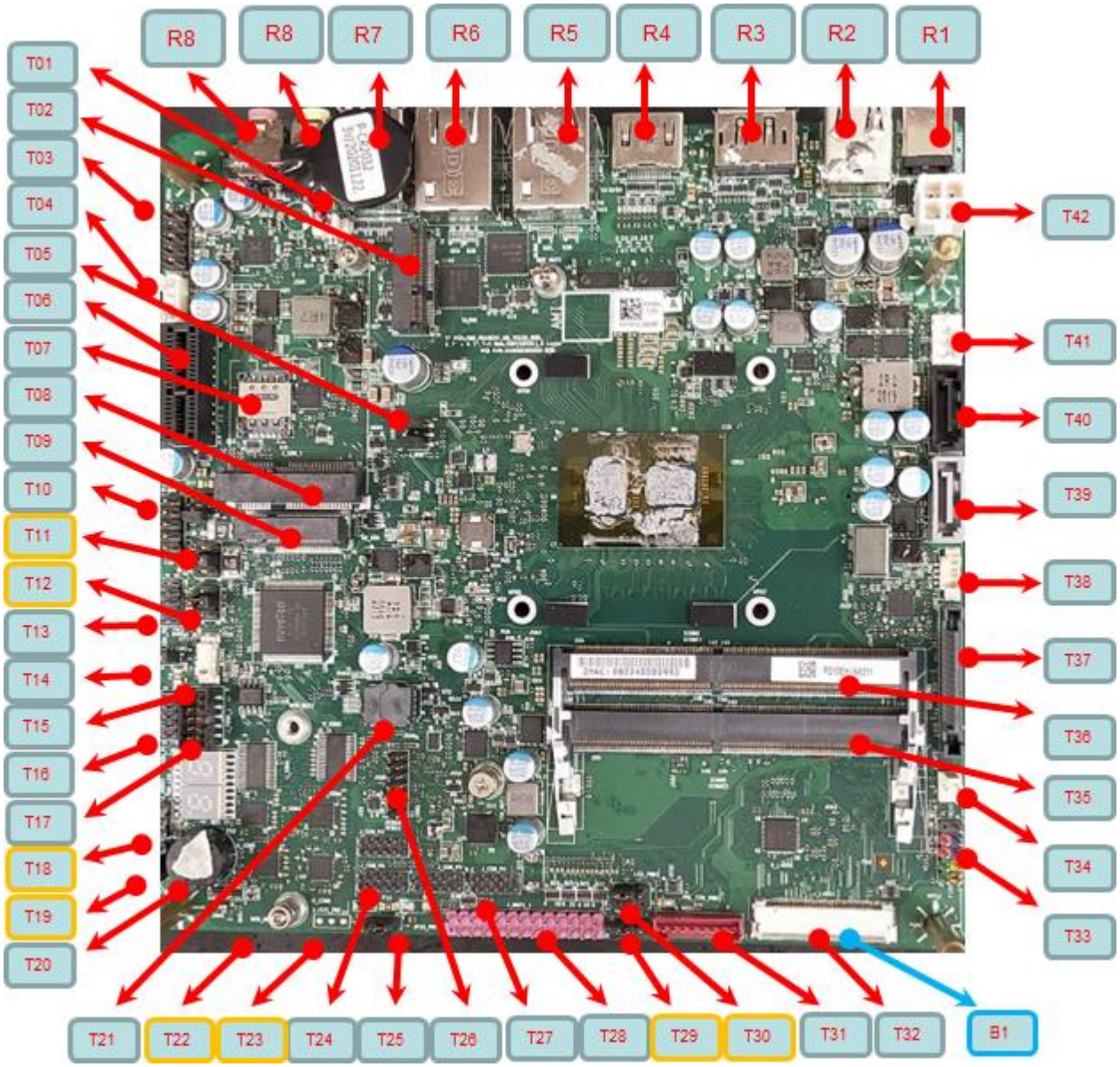
# 1. Hardware Specification

## 1.1 HW Design

### 1.1.1Block Diagram



## 1.1.2 Placement - Top




| | | | | | |
|---|---|---|---|---|---|
| T01 | Battery CONN | T15 | CAN CONN | T29 | INV_PWR1 (3P) |
| T02 | M2 Key-E | T16 | J_Com_P2 | T30 | Lcd_Pwr1 |
| T03 | Front Audio MIC + LO | T17 | eSPI header | T31 | Pnl_Fpd_Pwr1 (8P) |
| T04 | INT_SPK1 | T18 | CMOS clear | T32 | LVDS CONN(40P) |
| T05 | Board ID | T19 | AT/ATX header (3P) | T33 | Front I/O header |
| T06 | PCIE X1 | T20 | Buzzer | T34 | 2nd BAT CONN |
| T07 | SIM socket | T21 | BIOS SPI Flash/Socket | T35 | SODIMM 2 |
| T08 | Mini PCIe | T22 | N/A | T36 | SODIMM 1 |
| T09 | M2 Key-B | T23 | N/A | T37 | SATA_PW1 (15P) |
| T10 | Front USB2.0x2 | T24 | COM6 header | T38 | SATA_PW2 (4P) |
| T11 | J_Com_P1 PWR jumper | T25 | N/A | T39 | SATA2 |
| T12 | J_Com_P2 PWR jumper | T26 | TPM header (SPI) | T40 | SATA1 |
| T13 | J_Com_P1 | T27 | COM3~COM5 header | T41 | CPU FAN |
| T14 | CAN 120ohm header | T28 | MiAPI header | T42 | Mini FIT 4P PWR |

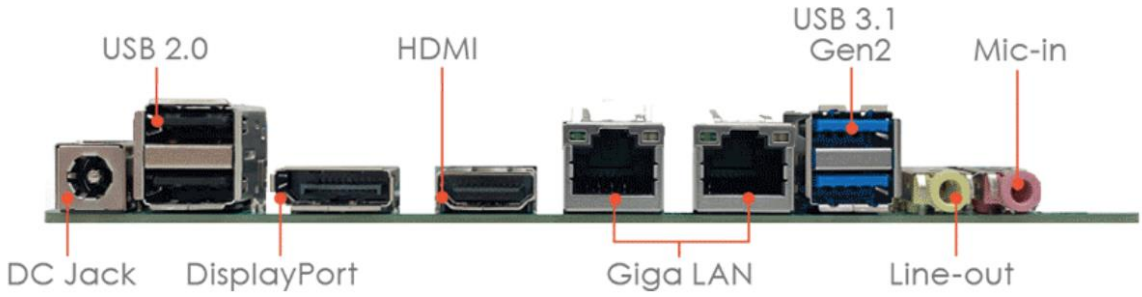
## 1.1.3 Placement - Bottom

*Only eDP cable connector*

*Location: JEDP1*

| | |
|---|---|
| B1 | eDP connector |

## 1.1.4 Placement – Rear IO



# 2. Product Specification

## 2.1 Display Features

1. HDMI 1.4: 4096 x 2160 @30 Hz; Data Rate 5.4 GT/s
2. Display port 1.4 : 4096 x 2160 @60 Hz; Data Rate 5.4 GT/s (Without Re- Timer)
3. eDP to LVDS (LVDS chipset PS8625): 1920x1200@60Hz
4. eDP 1.3: 4096 x 2160 @60 Hz

(Only Active Displays,resolution is limited to 4k when multiple displays are active)

## 2.2 Connector Pinout

### 2.2.1 LVDS Connector

40-pin LVDS connector must be right-angled, single-row shrouded colored white, as shown in Figure 1 (part number reference: ACES 88341-40xx). Connector must support four data-pairs of dual-channel LVDS traffic, clock and EDID signals, panel logic power as well as backlight power and control signals, as defined in Table 1. Connector must be located on the topside (and along the front edge) of the board.

ACES ELECTRONIC CO.,LTD 88341-4001

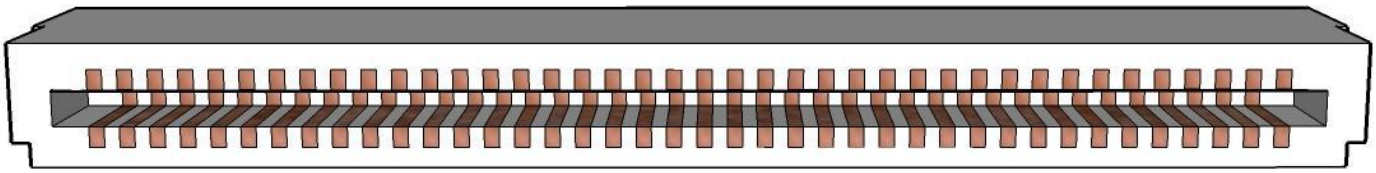


**Figure 1:** Panel 40-pin LVDS connector

| Pin | Signal |
|---|---|
| 1 | ODD_Lane3_P |
| 2 | ODD_Lane3_N |
| 3 | ODD_Lane2_P |
| 4 | ODD_Lane2_N |
| 5 | ODD_Lane1_P |
| 6 | ODD_Lane1_N |
| 7 | ODD_Lane0_P |
| 8 | ODD_Lane0_N |
| 9 | EVEN_Lane3_P |
| 10 | EVEN_Lane3_N |
| 11 | EVEN_Lane2_P |
| 12 | EVEN_Lane2_N |
| 13 | EVEN_Lane1_P |
| 14 | EVEN_Lane1_N |
| 15 | EVEN_Lane0_P |
| 16 | EVEN_Lane0_N |
| 17 | EDID_GND |
| 18 | LCD_VCC |
| 19 | LCD_VCC |
| 20 | LCD_VCC |

| Pin | Signal |
|---|---|
| 21 | N/C |
| 22 | EDID_3.3V |
| 23 | LCD_GND |
| 24 | LCD_GND |
| 25 | LCD_GND |
| 26 | ODD_CLK_P |
| 27 | ODD_CLK_N |
| 28 | BKLT_GND |
| 29 | BKLT_GND |
| 30 | BKLT_GND |
| 31 | EDID_CLK |
| 32 | BKLT_ENABLE |
| 33 | BKLT_PWM_DIM |
| 34 | EVEN_CLK_P |
| 35 | EVEN_CLK_N |
| 36 | BKLT_PWR |
| 37 | BKLT_PWR |
| 38 | BKLT_PWR |
| 39 | N/C |
| 40 | EDID_DATA |

## 2.2.2 Embedded DisplayPort (eDP) (BOM Optional) at J_EDP1 connector on bottom side

The embedded DisplayPort (eDP) is an embedded version of the DisplayPort standard oriented towards applications such as notebook and All-In-One PCs. Like DisplayPort, embedded DisplayPort also consists of a Main Link, Auxiliary channel, and an optional Hot-Plug Detect signal.

- Support Backlight PWM control signal.
- Support VESA DSC (Data Stream Compression)
- Support SSC
- Panel Self Refresh 1 & 2
- Adaptive sync

40-pin eDP connector must be right-angled, single-row shrouded colored black, as shown in Figure 2 (part number reference: ACES 50203-04001-001). Connector must support four lanes of eDP traffic, AUX channel, panel logic power as well as backlight power and control signals, compliant with the VESA Embedded DisplayPort™ (eDP™) Standard for 40-pin eDP pin assignment, Connector must be located on the backside of the board, preferably under the LVDS connector.

ACES ELECTRONIC CO.,LTD 88341-4001

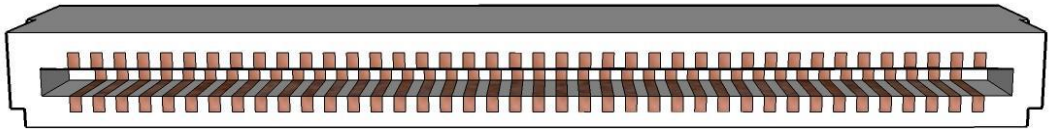


**Figure 2:** Panel 40-pin LVDS connector

| Pin | Signal |
|---|---|
| 1 | NC_Reserved |
| 2 | High-speed_GND |
| 3 | Lane3_N (DDPD_[3]N) |
| 4 | Lane3_P (DDPD_[3]P) |
| 5 | High-speed_GND |
| 6 | Lane2_N (DDPD_[2]N) |
| 7 | Lane2_P (DDPD_[2]P) |
| 8 | High-speed_GND |
| 9 | Lane1_N (DDPD_[1]N) |
| 10 | Lane1_P (DDPD_[1]P) |
| 11 | High-speed_GND |
| 12 | Lane0_N (DDPD_[0]N) |
| 13 | Lane0_P (DDPD_[0]P) |
| 14 | High-speed_GND |
| 15 | AUX_CH_P (DDPD_AUXP) |
| 16 | AUX_CH_N (DDPD_AUXN) |
| 17 | High-speed_GND |
| 18 | LCD_VCC |
| 19 | LCD_VCC |
| 20 | LCD_VCC |

| Pin | Signal |
|---|---|
| 21 | LCD_VCC |
| 22 | LCD_Self_Test-or-NC |
| 23 | LCD_GND |
| 24 | LCD_GND |
| 25 | LCD_GND |
| 26 | LCD_GND |
| 27 | HPD (DDPD_HPD) |
| 28 | BKLT_GND |
| 29 | BKLT_GND |
| 30 | BKLT_GND |
| 31 | BKLT_GND |
| 32 | BKLT_ENABLE |
| 33 | BKLT_PWM_DIM |
| 34 | NC_Reserved |
| 35 | NC_Reserved |
| 36 | BKLT_PWR |
| 37 | BKLT_PWR |
| 38 | BKLT_PWR |
| 39 | BKLT_PWR |
| 40 | NC_Reserved |

**Table 2: 40-pin eDP connector pin-out**

## 2.2.3 Front Panel header

The front panel main header must be shrouded 2x5, 2.54mm pitch, multi-colored, keyed at pin 10 and with silkscreen text as defined in below list. Polarity markings on pins 1 & 2 and color-coding on all pins are required.

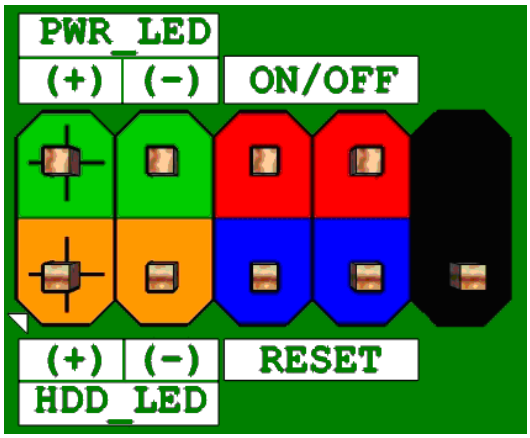



**Figure 10: Front panel main header pin-out**

| 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 |

**Table 12: Front panel main header signals**

## 2.2.4USB2.0 Interface

- 2 total USB2.0 Ports (2 internal)

Front panel USB2.0 headers must be 2x5, 2.54mm pitch, colored black and keyed at pin 9. Follow the Intel Front Panel I/O Connectivity Design Guide for front panel USB solutions.

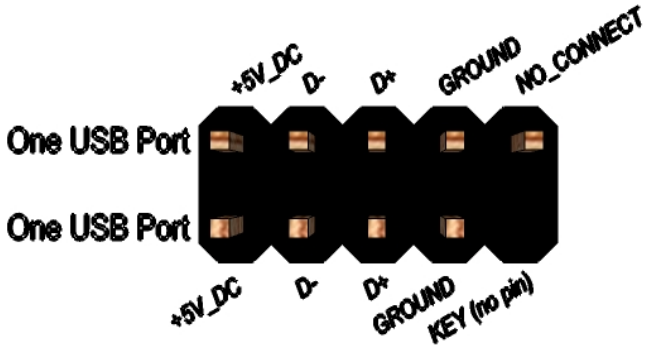



**Figure 9: Front panel USB header pin-out**

| 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 |

**Table 11: Front panel USB header signals**

## 2.2.5 LAN Interface:

2ea I211 LOM

Board must implement Intel® I211 - Base GbE LAN, supporting 10/100/1000 Mb/s.

Board must implement a LAN solution supporting 10/100/1000 Mb/s with the following features:

Onboard RJ45 connectors must have integrated magnetics and support dual status LEDs per port, as shown in below list.

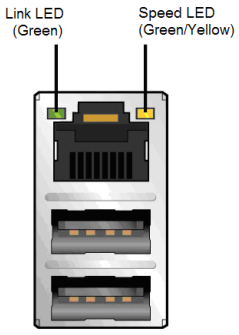
| Diagram | LED | Color | State | Condition |
|---|---|---|---|---|
|   | Link | N/A | Off | LAN link is not established |
| | | Green | On | LAN link is established |
| | | | Blinking | LAN activity occurring |
| | Speed | N/A | Off | 10 Mb/s data rate |
| | | Green | On | 100 Mb/s data rate |
| | | Yellow | On | 1000 Mb/s data rate |

**Table 10: RJ45 LED behavior**

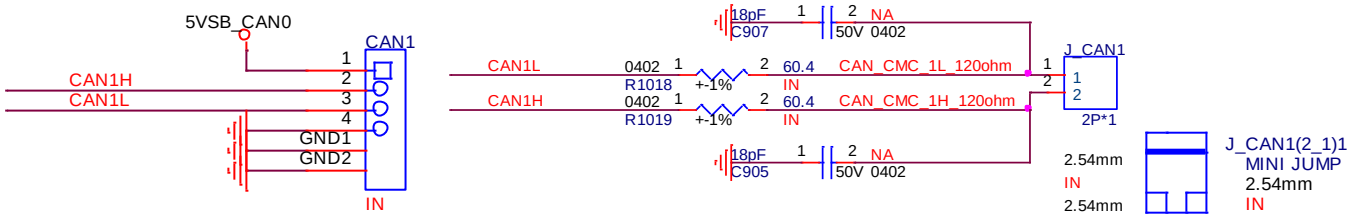
Note: LAN subsystem must be tested for IEEE802.3 conformance on each port.

## 2.2.6 Controller Area Network (CAN) Bus Controller at CAN1 location

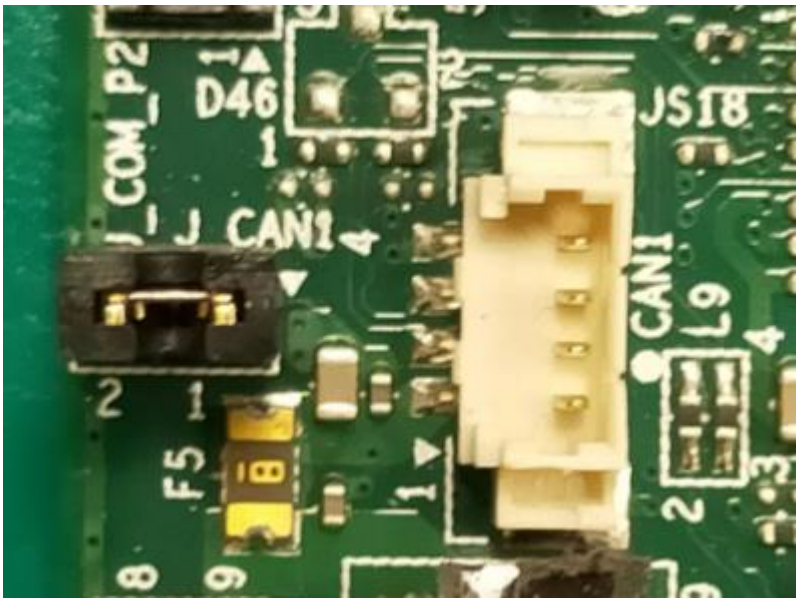
The CANBUS controller performs communication according to ISO 11898-1 (identical to Bosch CAN protocol specification 2.0 part A,B) and according to ISO 11898-4 (Timetriggered communication on CAN).

### Key Features

- 1ea CAN nodes
  - — CAN FD supported (up to 64B message size for FD-long)
  - — Time Triggered CAN
  - — CAN instances has a full sized message RAM
- Parity protection for the message RAMs, with error injection functionality
- CAN disable inputs to prevent access to all CSRs and message RAM
- Per CAN instances interrupt output
- CAN Error Logging
- AUTOSAR optimized
- SAE J1939 optimized
- Improved acceptance filtering
- Programmable loop-back test mode




POP 2P jumper header to support 120ohm by default jumper setting at J_CAN1 2pin header J_CAN1(2_1)1




TF-CON;HDR,SBU,4Pin,3 Walls,MA,1.25mm,BEIGE,ST,Gold Flash,PA6T(Nylon 6T),SMT

| | |
|---|---|
| ACES ELECTRONIC CO.,LTD | 85205-04701 |
| Joint Tech Electronic Industrial Co.,Ltd. | A1250WV-S-04PD20 |

### 2.2.7 MiAPI interface pinout at J_Mapi_1 location

Support 10ea GPIO (3.3V) feature

Support 1ea UART (3.3V)

Support I2C (3.3V) bus

Support power button feature

| Pin | Signal Name | Pin | Signal Name |
|---|---|---|---|
| 1 | NC | 2 | VCC |
| 3 | MAPI_GPIO1 | 4 | Power Button |
| 5 | MAPI_GPIO2 | 6 | UART_TX (3.3V) |
| 7 | MAPI_GPIO3 | 8 | UART_RX (3.3V) |
| 9 | MAPI_GPIO4 | 10 | 5VSB |
| 11 | MAPI_GPIO5 | 12 | Watchdog Timer |
| 13 | MAPI_GPIO6 | 14 | GND |
| 15 | MAPI_GPIO7 | 16 | GP_H04_SIO_I2C2_SDA (3.3V) |

| | | | |
|---|---|---|---|
| 17 | MAPI_GPIO8 | 18 | GP_H05_SIO_I2C2_SCL (3.3V) |
| 19 | MAPI_GPIO9 | 20 | GP_D17_PSE_TGPIO41 (3.3V) |
| 21 | MAPI_GPIO10 | 22 | GP_D18_PSE_TGPIO42 (3.3V) |
| 23 | SMB_MAIN_DATA | 24 | GND |
| 25 | SMB_MAIN_CLK | 26 | KEY (no pin) |

## 2.2.8Audio Interface

High Definition audio using (at a minimum) 2+2 channel codec, supporting:

2 ports for analog input and line-out on backpanel

front panel HD Audio header 5Px2 2.54mm header

internal speaker header without AMP feature by 4px1 2.0mm header

jack detection and manual port re-tasking

Board must support 2-channel (i.e. stereo) "Front Speakers" audio stream via a rear line-out port with jack detection as well as through an internal stereo speakers header. "Front Speakers" audio stream must be shared between the aforementioned audio outputs. Audio routing and jack detection must be implemented as indicated in Table 6.

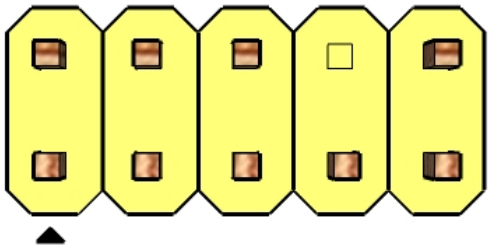
| | Headphones | Microphone | Line-Out | Line-In |
|---|---|---|---|---|
| FP Green Jack | Default | | | |
| FP Pink Jack | | Default | | |
| Rear Green Jack | (ctrl panel) | | (jack-detect) | |
| Rear Pink Jack | | | | Default |
| Internal Stereo Spk | | | Default | |

**: headphone/mic front panel audio port assignments**

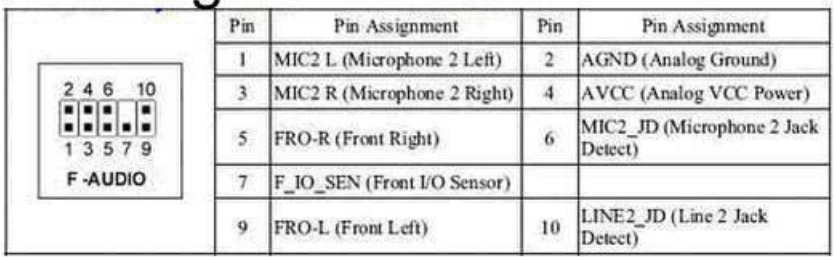
Front panel audio header must be 2x5, 2.54mm pitch, colored **BLACK** and keyed at pin 8. It must be designed and validated to support HD Audio only

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 |



High Definition Audio




| 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) |

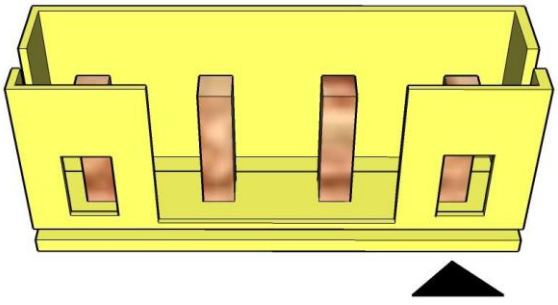
**Table 6: HD headphone/mic front panel audio port pin assignments**

| Pin | Signal name | Description |
|---|---|---|
| 1 | PORT 1L | Analog Port 1 - Left channel (Microphone) |
| 2 | GND | Ground |
| 3 | PORT 1R | Analog Port 1 - Right channel (Microphone) |
| 4 | PRESENCE# | Active low signal that signals BIOS that an Intel® HD Audio dongle is connected to the analog header. PRESENCE# = 0 when an Intel® HD Audio dongle is connected. |
| 5 | PORT 2R | Analog Port 2 - Right channel (Headphone) |
| 6 | SENSE1 RETURN | Jack detection return for front panel (JACK1) |
| 7 | SENSE SEND | Jack detection sense line from the Intel® HD Audio CODEC jack detection resistor network |
| 8 | KEY | No pin |
| 9 | PORT 2L | Analog Port 2 - Left channel (Headphone) |
| 10 | SENSE2 RETURN | Jack detection return for front panel (JACK2) |

HD Audio front panel audio header pinout - FP_HDA1

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 |

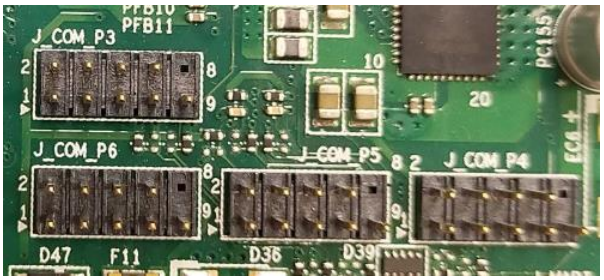


Internal 4pin speakers without AMP feature

| Pin | Signal name | Description |
|---|---|---|
| 1 | A_GND_L | GND |
| 2 | Front_L+ | Analog front left (differential positive) |
| 3 | Front_R+ | Analog front right (differential positive) |
| 4 | A_GND_R | GND |

Internal stereo speakers header pinout

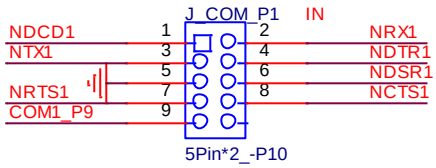
## 2.2.9 Serial Port –RS232 Interface: 2ea COM1 and COM2 default, 3ea COM3~COM5 are BOM optional

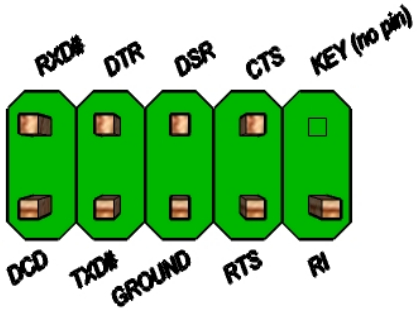



TF-CON;HDR,SBU,5Pin*2,-P10,MA,2.0mm,BLACK,ST,Gold Flash,PA6T(Nylon 6T)

| | |
|---|---|
| FOXCONN (HONG HAI PRECISION IN | HBF1051-L3B1D-EH |
| Joint Tech Electronic Industrial Co.,Ltd. | A2016WV-2X05PR6BG1N03G |
| SUPERIOR TECH CO.,LTD. | PHDD-DS010G1ABONA-N119 |

Serial Port RS232 pin defintion at COM1~COM5 port

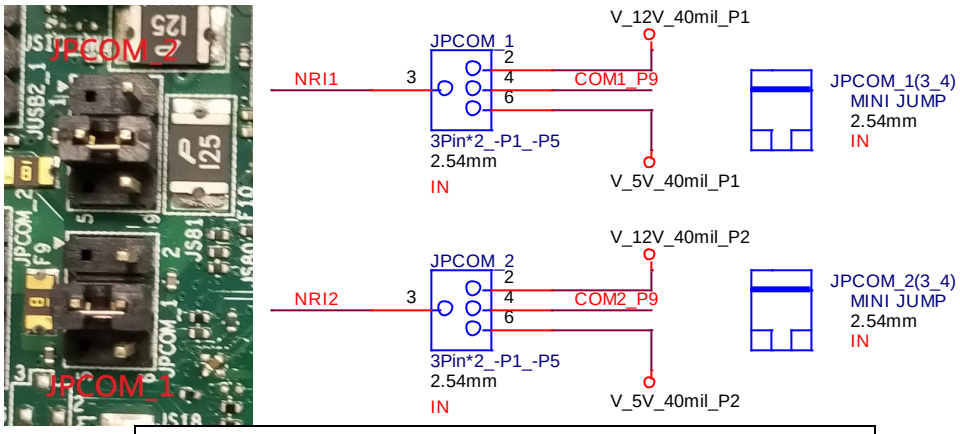



| Pin | | Signal | Pin | | Signal |
|---|---|---|---|---|---|
| 1 | COM3_P1_40mils | DCD (Data Carrier Detect) | 2 | NRX3 | RXD# (Receive Data) |
| 3 | NTX3 | TXD# (Transmit Data) | 4 | NDTR3 | DTR (Data Terminal Ready) |
| 5 | GND | Ground | 6 | NDSR3 | DSR (Data Set Ready) |
| 7 | NRTS3 | RTS (Request To Send) | 8 | NCTS3 | CTS (Clear To Send) |
| 9 | COM3_P9_40mils | RI (Ring Indicator) | 10 | Key | Key (no pin) |

**RS232 Serial port header signals**

## 2.2.10 Power RS232 voltage jumper setting




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

**power RS232 Serial port header signals**

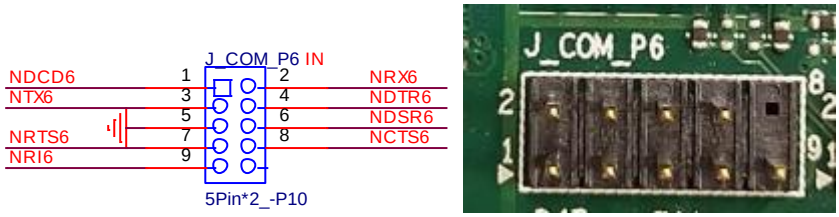
## 2.2.11 Serial Port –RS232/RS422/RS485 Interface –COM6 port (BOM optional)

BUS seeting at BIOS setup menu to support below feature

| Pin 29 MODE_0 | Pin 36 MODE_1 | Pin 28 MODE_2 | MODE | Status |
|---|---|---|---|---|
| 0 | 0 | 0 | RS-422 Full Duplex | 1T/1R RS-422 |
| 0 | 0 | 1 | Pure RS-232 | 3T/5R RS-232 |
| 0 | 1 | 0 | RS-485 Half Duplex | 1T/1R RS-485 TX ENABLE Low Active |
| 1 | 0 | 0 | RS-422 Full Duplex | 1T/1R RS-422 with termination resistor |
| 1 | 1 | 0 | RS-485 Half Duplex | 1T/1R RS-485 with termination resistor TX ENABLE Low Active |
| 1 | 1 | 1 | Shutdown | All I/O pins are High Impedance |

TF-CON;HDR,SBU,5Pin*2,-P10,MA,2.0mm,BLACK,ST,Gold Flash,PA6T(Nylon 6T)

| | |
|---|---|
| FOXCONN (HONG HAI PRECISION IN | HBF1051-L3B1D-EH |
| Joint Tech Electronic Industrial Co.,Ltd. | A2016WV-2X05PR6BG1N03G |
| SUPERIOR TECH CO.,LTD. | PHDD-DS010G1ABONA-N119 |




| 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) |

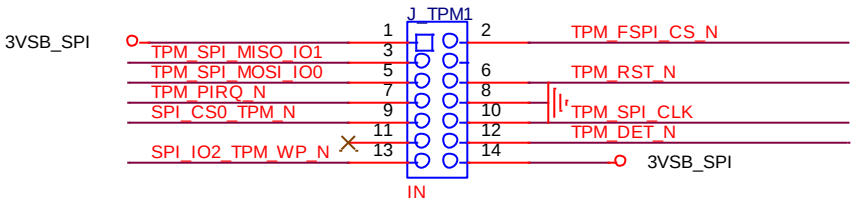
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 3 | TXD# (Transmit Data) | NC | RX(A) | 4 | DTR (Data Terminal Ready) | NC | RX(B) |
| 5 | Ground | Ground | Ground | 6 | DSR (Data Set Ready) | NC | NC |
| 7 | RTS (Request To Send) | DE#/RE | NC | 8 | CTS (Clear To Send) | NC | NC |
| 9 | RI (Ring Indicator) | NC | NC | 10 | Key (no pin) | Key (no pin) | Key (no pin) |

**RS485/RS422/RS232 Serial port header signals**

## 2.2.12 SPI TPM module daughter board Interface at J_TPM1 location (TPM module is optional)

TF-CON;HDR,SBU,7Pin*2,-P4,MA,2.0mm,BLACK,ST,Gold Flash,PA6T(Nylon 6T)

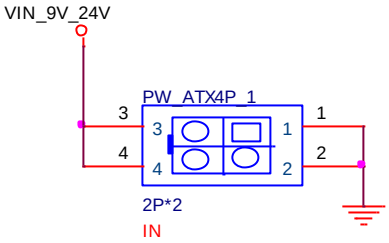
| | |
|---|---|
| SUPERIOR TECH CO.,LTD. | PHDD-DS014G1ABONA-N058 |
| ACES ELECTRONIC CO.,LTD | 60024-01431-001 |




| Pin | Signal Name | Pin | Signal Name |
|---|---|---|---|
| 1 | 3VSB | 2 | TPM_FSPI_CS_N |
| 3 | TPM_SPI_MISO_IO1 | 4 | key |
| 5 | TPM_SPI_MOSI_IO0 | 6 | TPM_RST_N |
| 7 | TPM_PIRQ_N | 8 | GND |
| 9 | SPI_CS0_TPM_N | 10 | TPM_SPI_CLK |
| 11 | | 12 | TPM_DET_N |
| 13 | SPI_IO2_TPM_WP_N | 14 | 3VSB |

## 2.2.13 DC input power (2X2P) connector

- Pin1 = GND
- Pin2 = GND
- Pin3 = Input power
- Pin4 = Input power
-




TF-CON;POWER,SBU,ATX,12V,DC,2P*2,FM,4.2mm,ST,PA46(Nylon 46),IVORY,TIN

| | | |
|---|---|---|
| PW_ATX4P_1 | LOTES CHIA TSE TERMINAL INDUST | ABA-POW-003-K34 |
| | TE Connectivity CO.LTD | 1-1775099-2 |
| | FOXCONN (HONG HAI PRECISION IN | HM3502E-P1 |

## 2.3 Other Interface

### 2.3.1BIOS / CMOS Clear Jumper

The BIOS security (CMOS Clear) header must be 1x3, 2.54mm pitch and colored black, with an extended grip jumper colored yellow. Board must power up to one of three states per setting of the jumper, as shown in below table.

**Clear CMOS header pin-out**

| Pin | Signal Name |
|---|---|
| 1 | RTC_CLEAR |
| 2 | GND |
| 3 | CMOS_CLEAR |

**CMOS header signals**

| CMOS | Jumper Header location |
|---|---|
| Clear RTC | Pin1 and Pin2 |
| Clear CMOS | Pin2 and Pin3 |

### 2.3.2AT/ATX Mode Jumper

The BIOS security (CMOS Clear) header must be 1x3, 2.54mm pitch and colored black, with an extended grip jumper colored yellow. Board must power up to one of three states per setting of the jumper, as shown in below table.

**AT/ATX mode header pin-out**

| Pin | Signal Name |
|---|---|
| 1 | PU 1K |
| 2 | SIO_AT_L_ATX_H_SET |
| 3 | PD 1K |

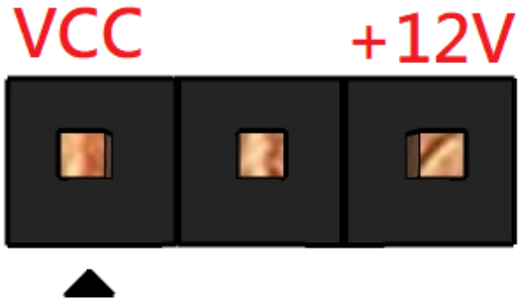
**AT/ATX mode header signals**

| AT/ATX | Jumper Header location |
|---|---|
| Default – ATX mode | Pin2 and Pin3 |
| Auto PWR ON – AT mode | Pin1 and Pin2 |

## 2.3.3eDP/LVDS Backlight Voltage Power Jumper Setting at INV_PWR1 location

eDP/LVDS panel connector must be validated to support maximum current rating for backlight inverter power at 5V and 12V.

• Output voltage for panel power jumper header 3x1 pins header between 5V and 12V (default) by a 3x1, 2.54mm pitch header capable of 3A per pin and colored red with black jumper,




Panel back Light voltage power selection header

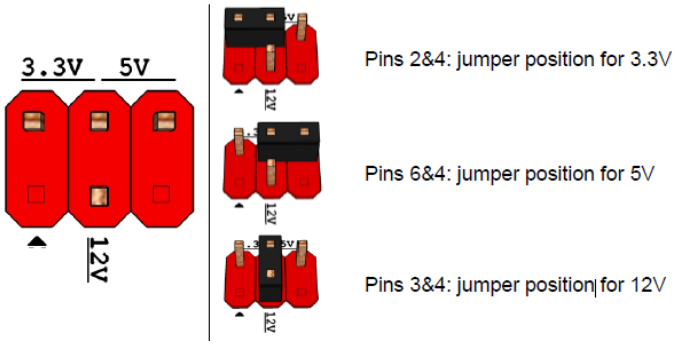
| Pin | Signal | Description |
|---|---|---|
| 1 | VCC | 5V |
| 2 | BKLT_PWR | 5V/12V |
| 3 | 12V | 12V (default) |

# eDP/LVDS panel VDD voltage power jumper setting at LCD_PWR1 location

eDP/LVDS panel connector must be validated to support maximum current rating for LCD panel power at 3.3V, 5V and 12V

• Output voltage for LCD panel at eDP connector pins 18-21 must be selectable between 3.3V (eDP default), 5V (LVDS default) and 12V by a 3x2 NP1_NP5, 2.54mm pitch header capable of 3A per pin and colored red with black jumper

Panel LCD voltage power selection header pin-out




Panel LCD VDD voltage power selection header

| Pin | Signal | Description |
|---|---|---|
| 1 | Key | No pin |
| 2 | 3.3V | 3.3V (eDP default) |
| 3 | 12V | 12V |
| 4 | LCD_VCC | Send voltage to connector (3.3V / 5V /12V) |
| 5 | Key | No pin |
| 6 | 5V | 5V (LVDS default) |

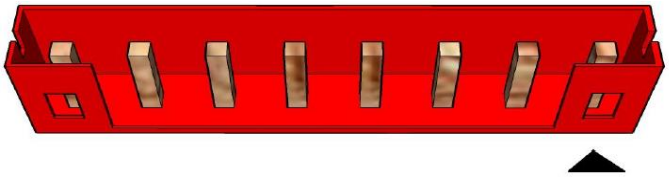
**Panel LCD voltage power selection header pin-out**

## 2.3.4eDP/LVDS FPD 8pin connector at PNL_FPD_PWR1 location

Board must provide separate backlight inverter connectivity via an "FPD Brightness" connector. 8-pin FPD brightness connector must be 1x8 shrouded, 2.00mm pitch with 2A rating per pin and colored red, as shown in Figure 5 (part number reference: Foxconn HF5508). Connector must provide backlight inverter control signals (same as routed to LVDS and eDP connectors, for customer convenience) as well as panel brightness control signals.

TF-CON;HDR,SBU,Oregon,8Pin,4 Walls,MA,2.0mm,RED,ST,TIN 100u",PA66(Nylon 66),For Marshall Town only

| | |
|---|---|
| Aquatech Corporation | L-WA108083R74 |
| GRAND-TEK TECHNOLOGY CO., LTD. | RWA-411087-R00 |
| Joint Tech Electronic Industrial Co.,Ltd. | A2001WV-F-08PR6RT1NY7G |



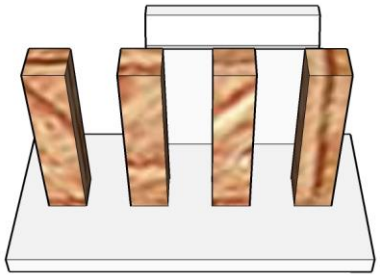
8-pin FPD power connector

| Pin | Signal | Description |
|---|---|---|
| 1 | BKLT_EN | Backlight enable |
| 2 | BKLT_PWM | Backlight control |
| 3 | BKLT_PWR (5V/12V) | Backlight inverter power |
| 4 | BKLT_PWR (5V/12V) | Backlight inverter power |
| 5 | BKLT_GND/Brightness_GND | Ground (shared) |
| 6 | BKLT_GND/Brightness_GND | Ground (shared) |
| 7 | Brightness_Up | Panel brightness increase |
| 8 | Brightness_Down | Panel brightness decrease |

8-pin FPD power connector pin-out

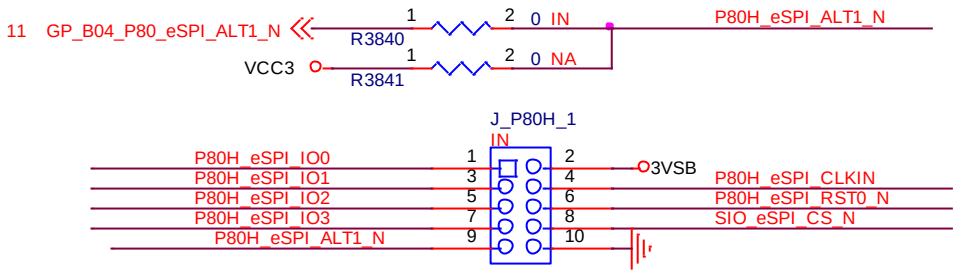
## 2.3.5CPU Fan Header

| Pin | Signal | Description |
|---|---|---|
| 1 | GND | GND |
| 2 | 12V | FAN power |
| 3 | CPU_FAN_CTRL | Output |
| 4 | CPUFANIN | Input |

- 

- 4Pin FAN connector pin-out

## 2.3.6eSPI debug header for eSPI P80_LED function at J_P80H_1 location




| Pin | Signal Name | Pin | Signal Name |
|---|---|---|---|
| 1 | P80H_eSPI_IO0 | 2 | 3VSB |
| 3 | P80H_eSPI_IO1 | 4 | P80H_eSPI_CLKIN |
| 5 | P80H_eSPI_IO2 | 6 | P80H_eSPI_RST0_N |
| 7 | P80H_eSPI_IO3 | 8 | SIO_eSPI_CS_N |
| 9 | P80H_eSPI_ALT1_N | 10 | GND |

TF-CON;HDR,SBU,5Pin*2,MA,2.0mm,BLACK,ST,Gold Flash,PA6T(Nylon 6T)

| | |
|---|---|
| SUPERIOR TECH CO.,LTD. | PHDD-SS010G1BBONE-B166 |

# 2.4 Power Management

## 2.4.1Wake Events

Board must support the wake-up events listed as below.

| Wake-Up Event | From ACPI State | Comments |
|---|---|---|
| Power button | S3, S4, S5, Deep_S5 | |
| RTC alarm | S3, S4, S5 | monitor to remain in sleep state<br>Notes: Can't wake at WOL disable |
| LAN | S3, S4, S5 | "S5 WOL after G3" must be supported; monitor to remain in sleep state |
| USB | S3 | |
| PCIe | S3, S4, S5 | via WAKE; monitor to remain in sleep state |
| PCI | N/A | N/A |
| CIR | N/A | N/A |
| PS2 | N/A | N/A |

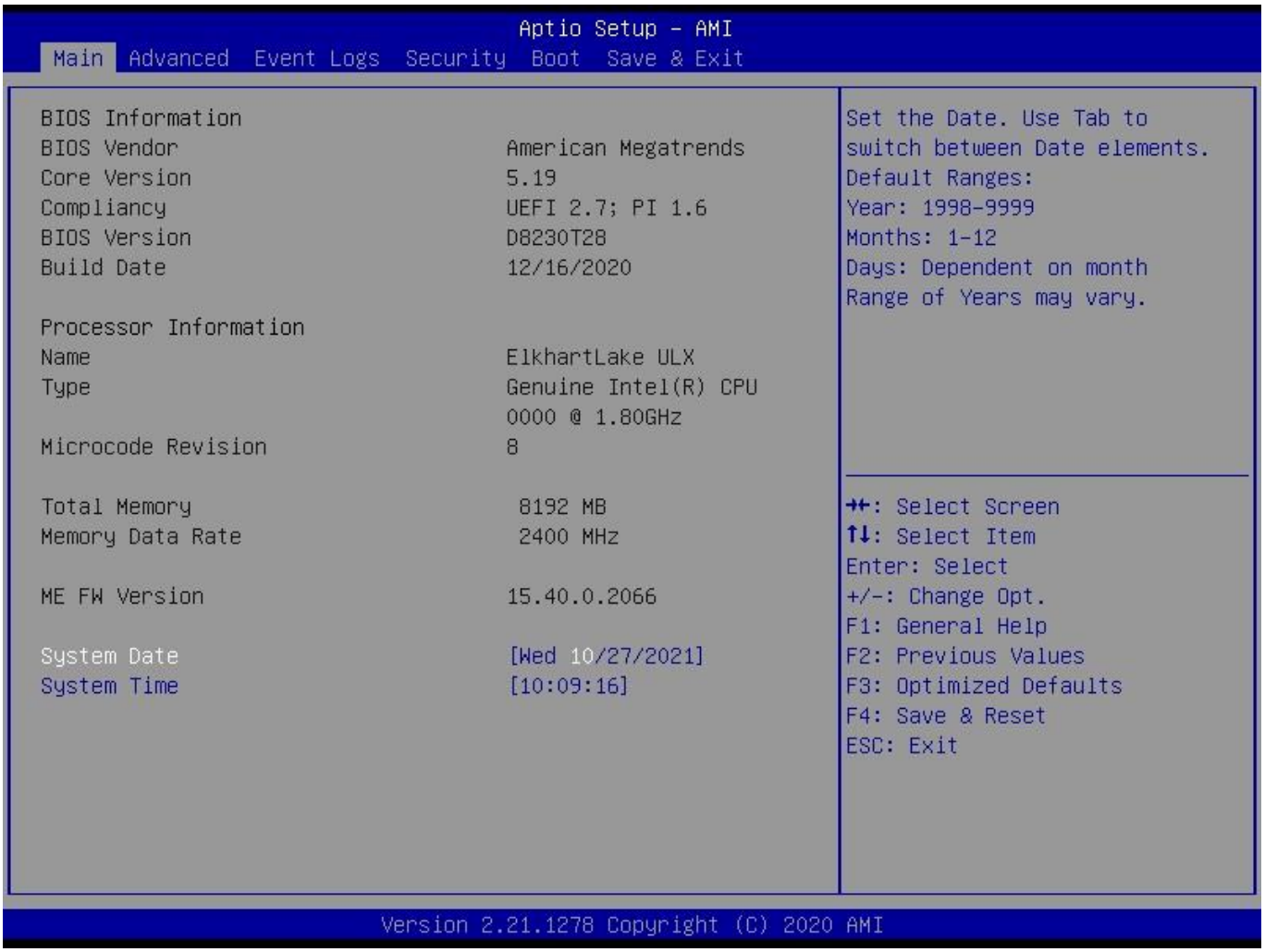
**Wake-up events reference table**

Notes: S4 implies OS support only

# PD10EHI

# BIOS SETUP
# SPEC

# 1 Main Page




| Field Name | **BIOS Vender** |
|---|---|
| Default Value | American Megatrends |
| Comment | This field is not selectable. There is no help text associated with it. |

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

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

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

| Field Name | **Build Date** |
|---|---|
| Default Value | Display build date of the BIOS |
| Comment | This field is not selectable. There is no help text associated with it. |

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

| Field Name | **Microcode Version** |
|---|---|

| | |
|---|---|
| Value | Display the CPU microcode revision. |
| Comment | This field is not selectable. There is no help text associated with it. |

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

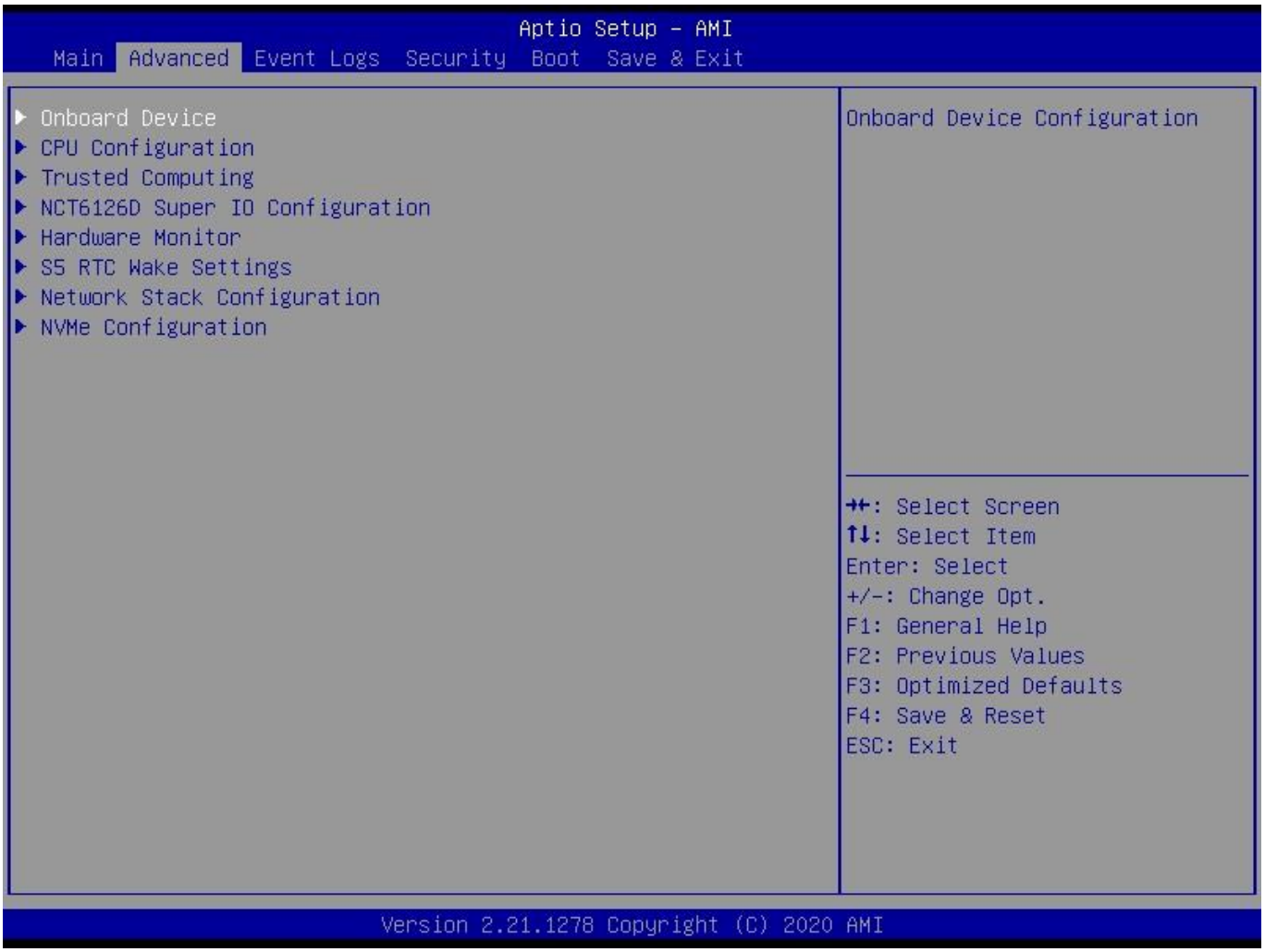
| | |
|---|---|
| Field Name | **Memory Frequency** |
| Value | Display the installed memory frequency. |
| Comment | This field is not selectable. There is no help text associated with it. |

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

| | |
|---|---|
| Field Name | **System Date** |
| 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 : 2005-2099 |
| Help | Set the Date. Use Tab to switch between Date elements. Default Ranges:<br>Year: 2005-2099<br>Months: 1-12<br>Days: Dependent on month Range of Years may vary. |

| | |
|---|---|
| Field Name | **System Time** |
| 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




| Field Name | **Onboard Device** |
|---|---|
| Help | Onboard Device Configuration. |
| Comment | Press Enter when selected to go into the associated Sub-Menu. |

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

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

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

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

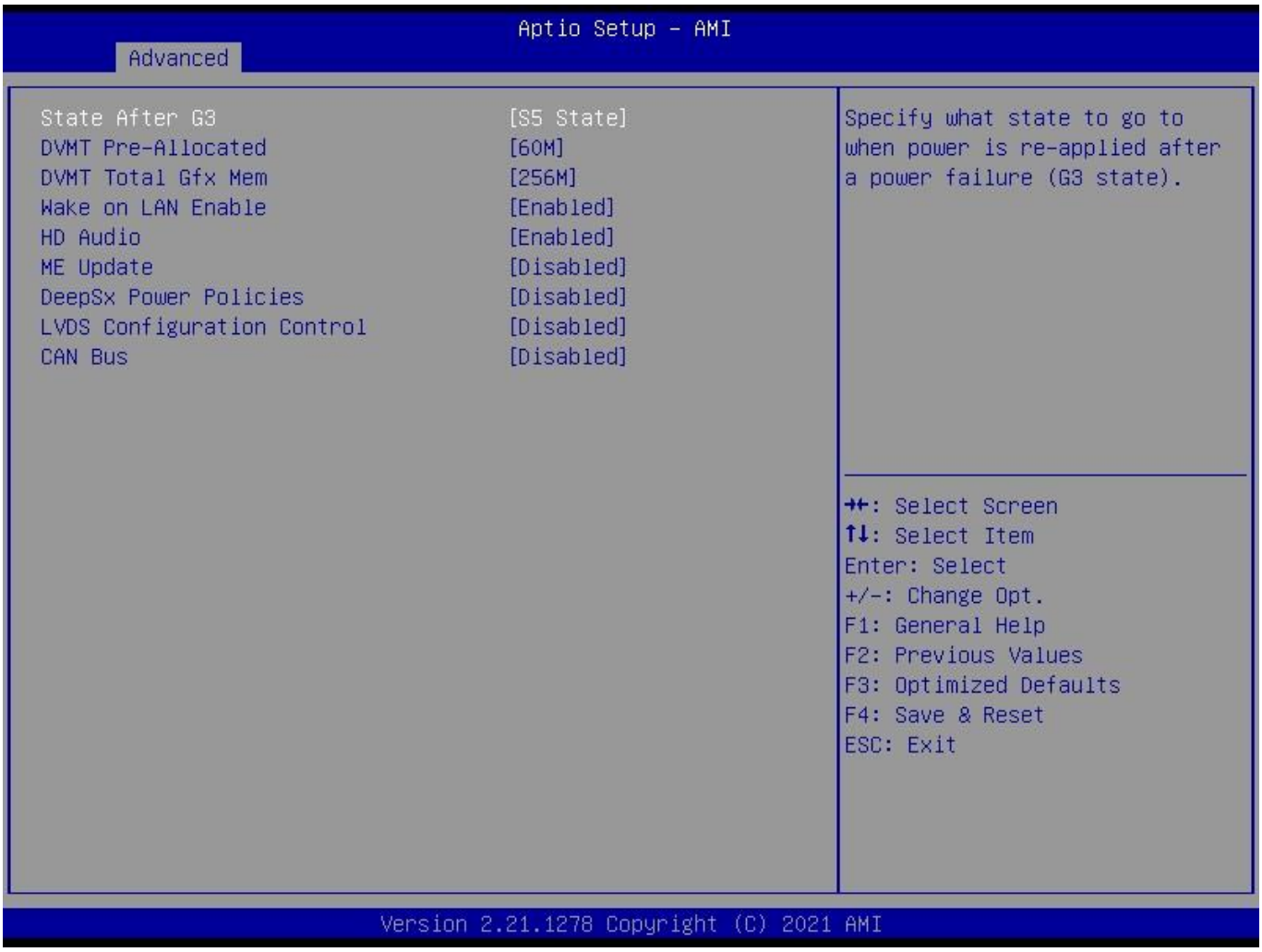
| Field Name | **S5 RTC Wake Settings** |
|---|---|
| Help | Enable system to wake from S5 using RTC alarm |
| Comment | Press Enter when selected to go into the associated Sub-Menu. |

| Field Name | **Network Stack Configuration** |
|---|---|
| Help | Network Stack Settings. |

| | |
|---|---|
| Comment | Press Enter when selected to go into the associated Sub-Menu. |

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

## 2.1 Onboard Device




| Field Name | **State After G3** |
|---|---|
| Default Value | [S5 State] |
| Possible Value | S0 State<br>S5 State |
| Help | Specify what state to go to when power is re-applied after a power failure (G3 state). |

| Field Name | **DVMT Pre-Allocated** |
|---|---|
| Default Value | [64M] |
| Possible Value | 64M<br>32M/F7<br>36M<br>40M<br>44M<br>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 | **DVMT Total Gfx Mem** |
|---|---|
| Default Value | [256M] |
| Possible Value | 128M<br>256M |

| | |
|---|---|
| | MAX |
| Help | Select DVMT5.0 Total Graphic Memory size used by the Internal Graphics Device. |

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

| Field Name | **HD Audio** |
|---|---|
| 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 | **ME Update** |
|---|---|
| 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. |

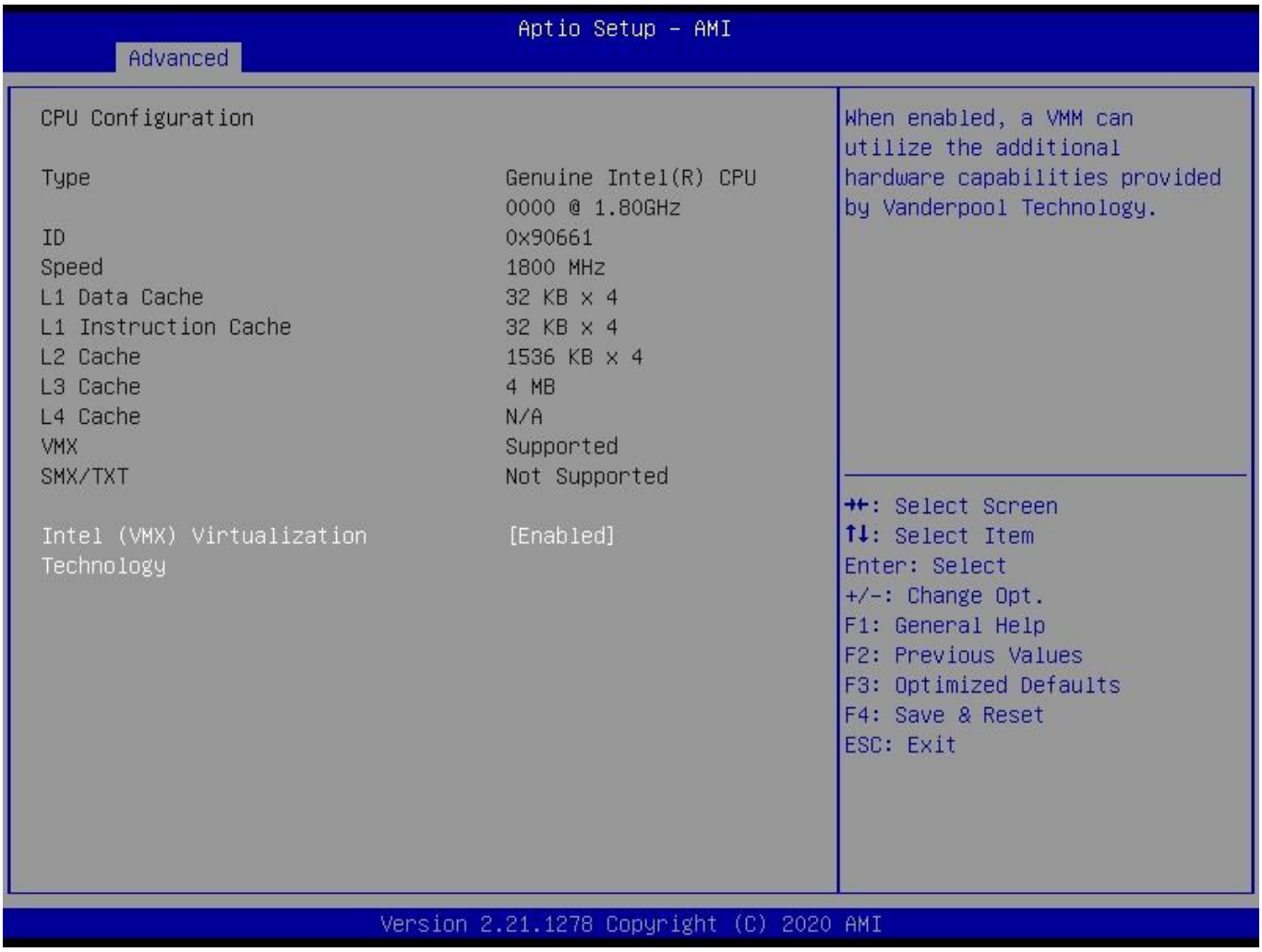
| Field Name | **DeepSx Power Policies** |
|---|---|
| Default Value | [Disabled] |
| Possible Value | Enabled in S4-S5<br>Disabled |
| Help | Configure the DeepSx Mode configuration. |

| Field Name | **LVDS Configuration Control** |
|---|---|
| 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 | **LVDS Resolution** |
|---|---|
| Default Value | [1024x768 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 | **CAN Bus** |
|---|---|
| Default Value | [Disabled] |
| Possible Value | Enabled<br>Disabled |
| Help | Enable/Disable CAN Bus |

## 2.2 CPU Configuration




| Field Name | **Type** |
|---|---|
| Default Value | [Intel CPU Brand String] |
| Comment | This field is not selectable. There is no help text associated with it. |

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

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

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

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

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

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

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

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

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

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

## 2.3 Trusted Computing

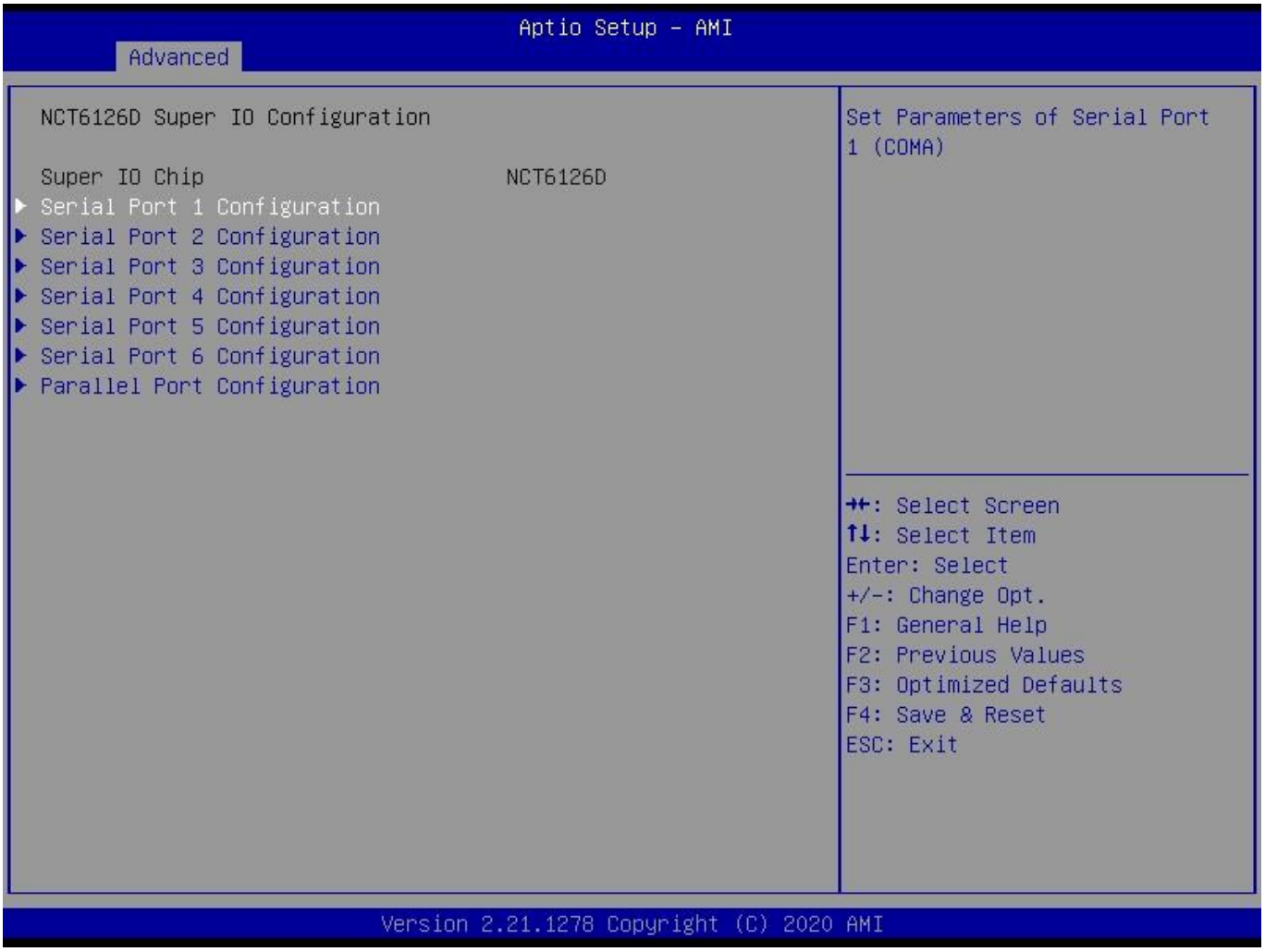

| Field Name | **Firmware Version** |
|---|---|
| Default Value | TPM module version. |
| Comment | This field is not selectable. There is no help text associated with it. |

| Field Name | **Vender** |
|---|---|
| Default Value | TPM module vender name. |
| Comment | This field is not selectable. There is no help text associated with it. |

| Field Name | **Security Device Support** |
|---|---|
| Default Value | [Enable] |
| Possible Value | Enable<br>Disable |
| 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 | **Pending operation** |
|---|---|
| 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. |

## 2.4 NCT6126D Super IO Configuration




| Field Name | **Serial Port 1 Configuration** |
|---|---|
| Help | Set Parameters of Serial Port 1 (COMA) |
| Comment | Press Enter when selected to go into the associated Sub-Menu. |

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

| Field Name | **Serial Port 3 Configuration** |
|---|---|
| Help | Set Parameters of Serial Port 3 (COMC) |
| Comment | Press Enter when selected to go into the associated Sub-Menu. |

| Field Name | **Serial Port 4 Configuration** |
|---|---|
| Help | Set Parameters of Serial Port 4 (COMD) |
| Comment | Press Enter when selected to go into the associated Sub-Menu. |

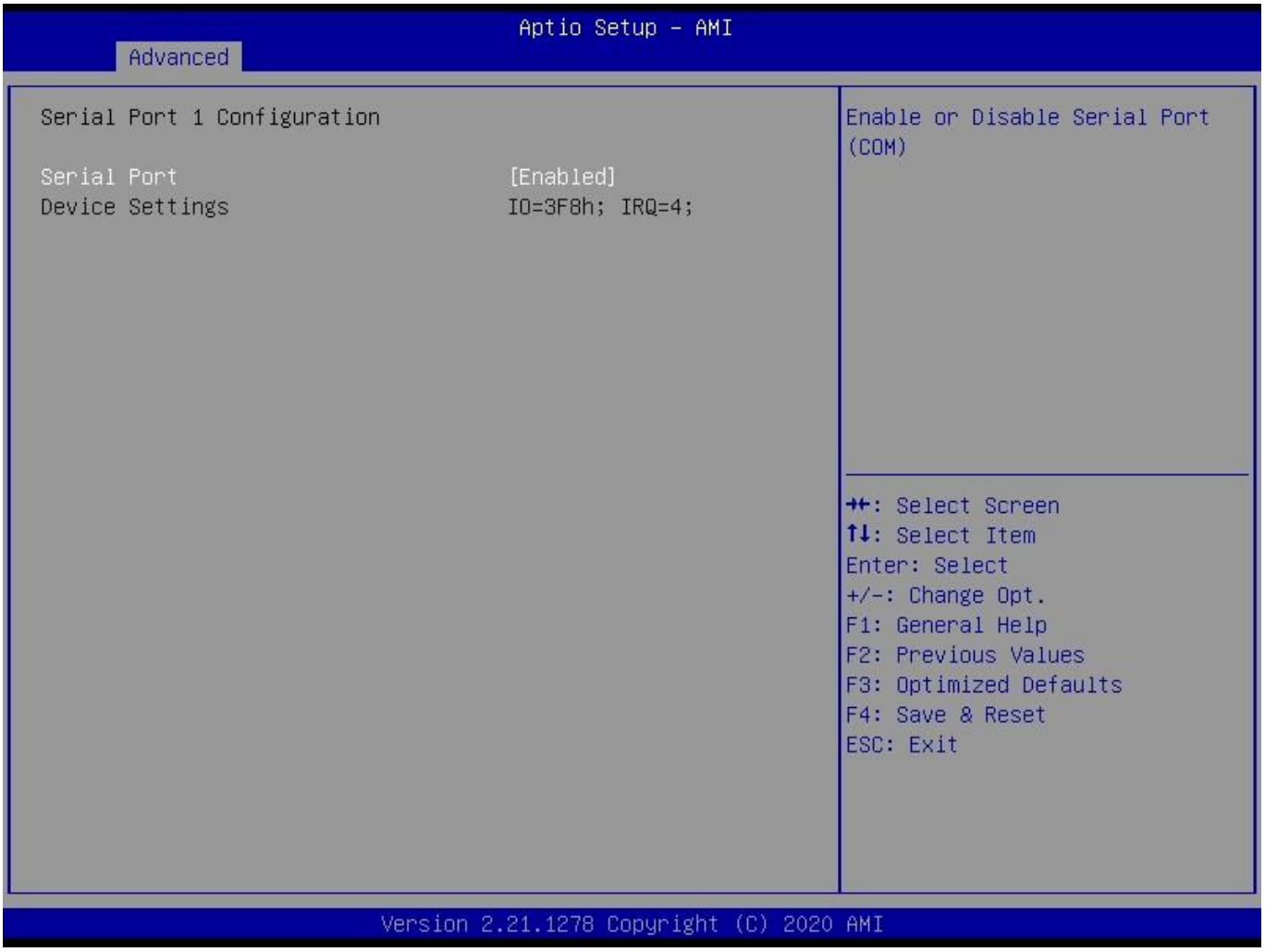
| Field Name | **Serial Port 5 Configuration** |
|---|---|
| Help | Set Parameters of Serial Port 4 (COME) |
| Comment | Press Enter when selected to go into the associated Sub-Menu. |

| Field Name | **Serial Port 6 Configuration** |
|---|---|

| | |
|---|---|
| Help | Set Parameters of Serial Port 4 (COMF) |
| Comment | Press Enter when selected to go into the associated Sub-Menu. |

| Field Name | **Parallel Port Configuration** |
|---|---|
| Help | Set Parameters of Parallel Port (LPT/LPTE) |
| Comment | Press Enter when selected to go into the associated Sub-Menu. |

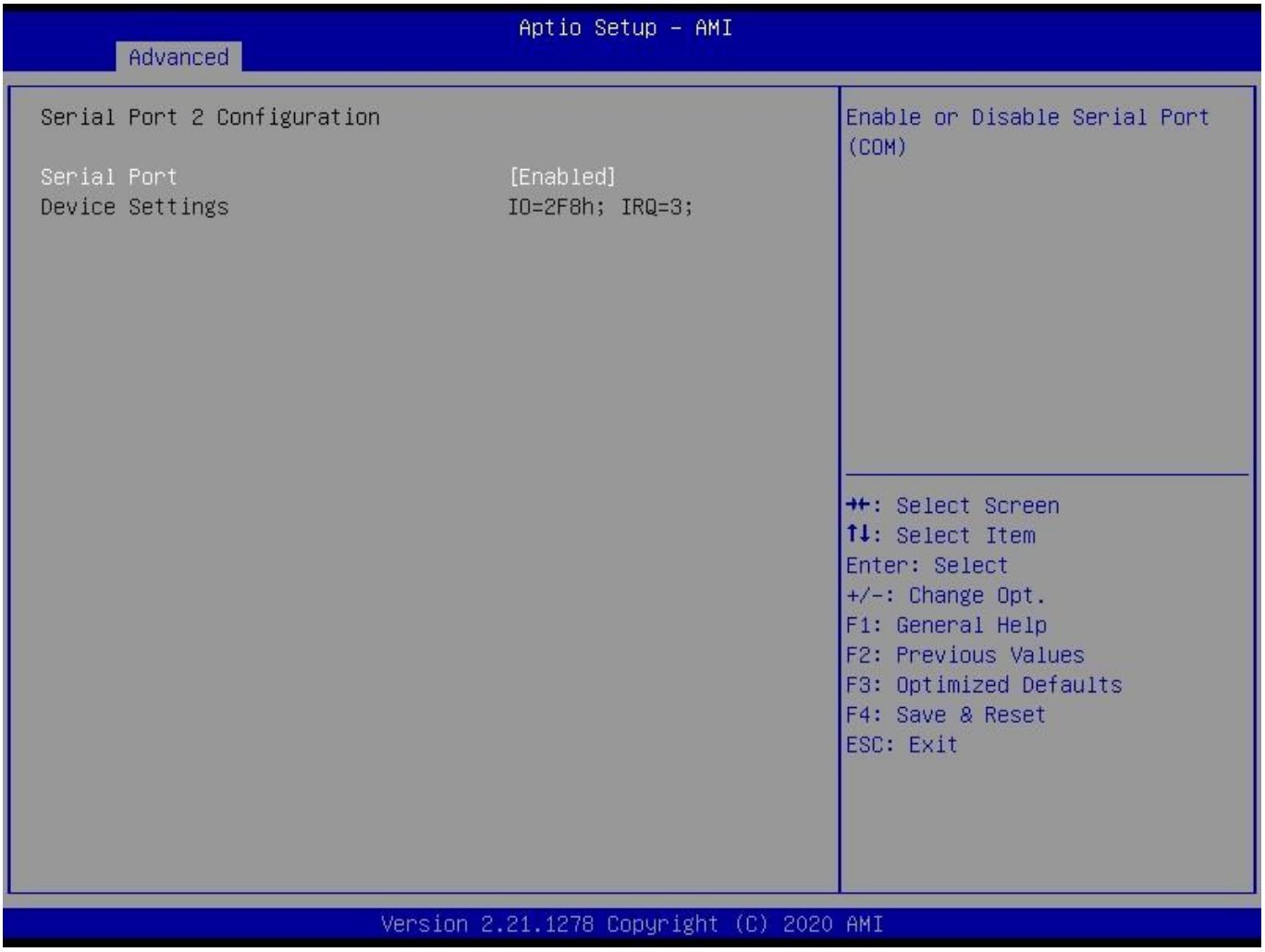
### 2.4.1 Serial Port 1 Configuration




| Field Name | **Serial Port** |
|---|---|
| Default Value | [Enabled] |
| Possible Value | Disabled<br>Enabled |
| Help | Enable or Disable Serial Port(COM) |

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

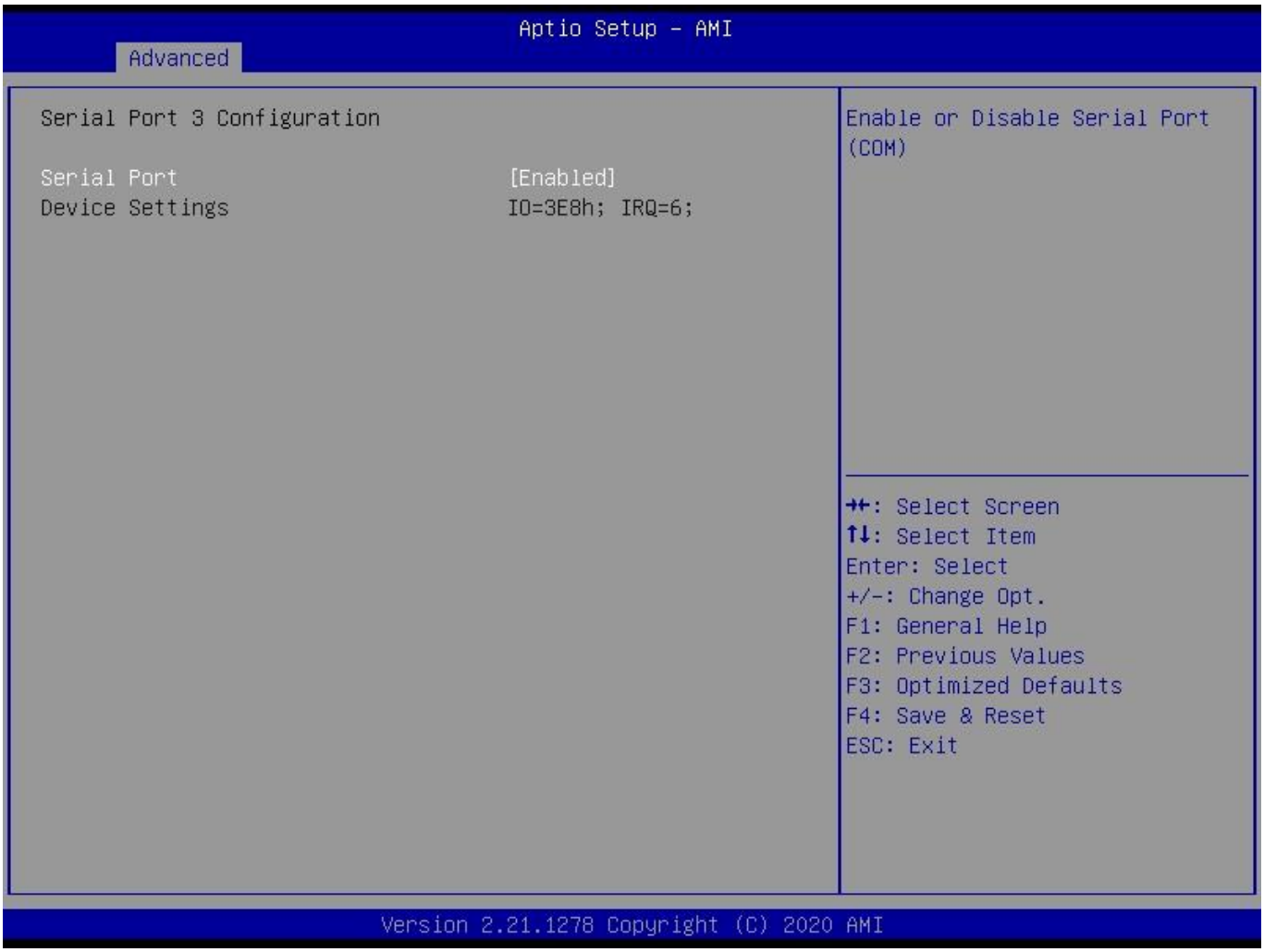
## 2.4.2 Serial Port 2 Configuration




| Field Name | **Serial Port** |
|---|---|
| Default Value | [Enabled] |
| Possible Value | Disabled<br>Enabled |
| Help | Enable or Disable Serial Port(COM) |

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

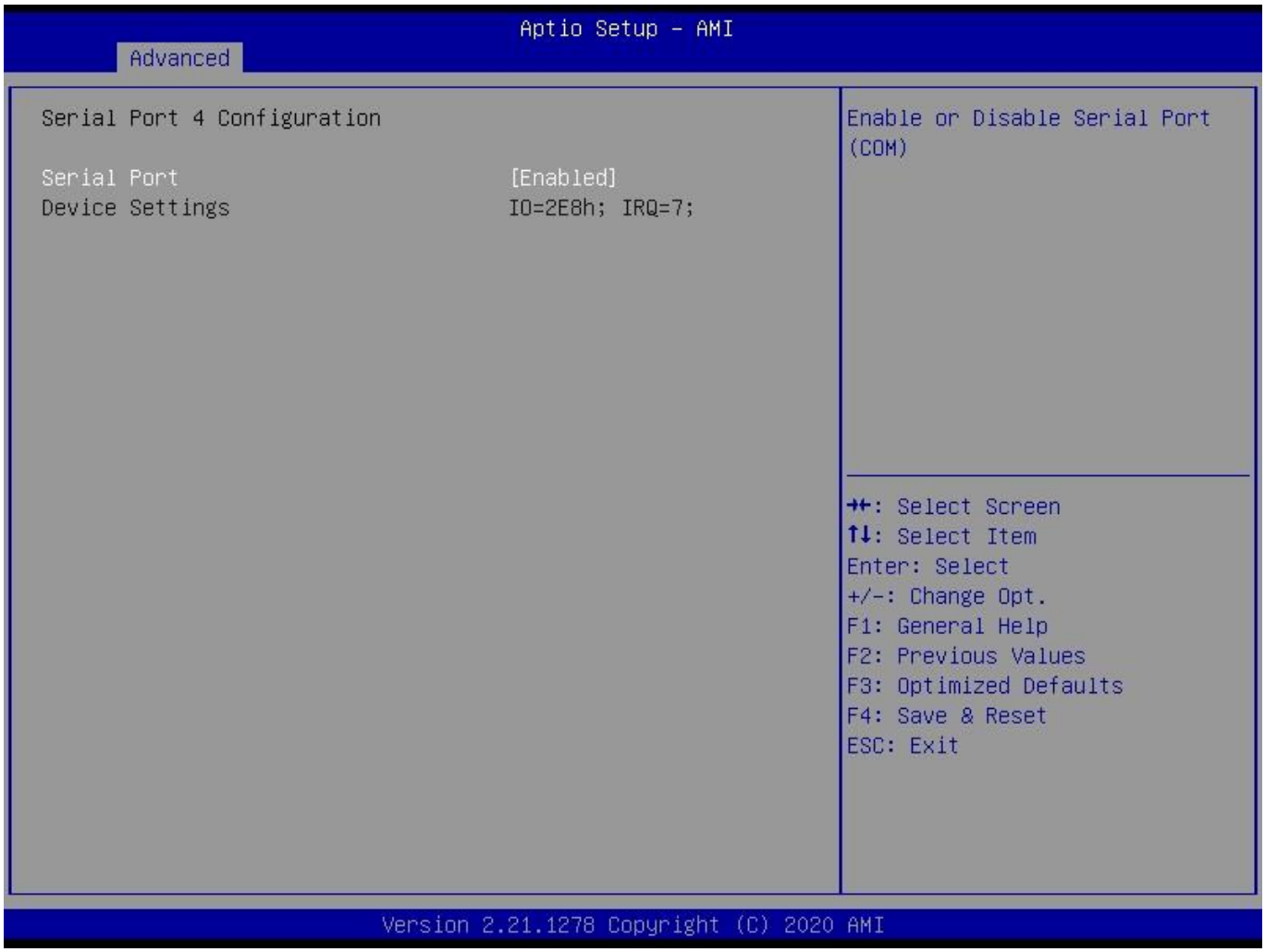
### 2.4.3 Serial Port 3 Configuration




| Field Name | **Serial Port** |
|---|---|
| Default Value | [Enabled] |
| Possible Value | Disabled<br>Enabled |
| Help | Enable or Disable Serial Port(COM) |

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

## 2.4.4 Serial Port 4 Configuration

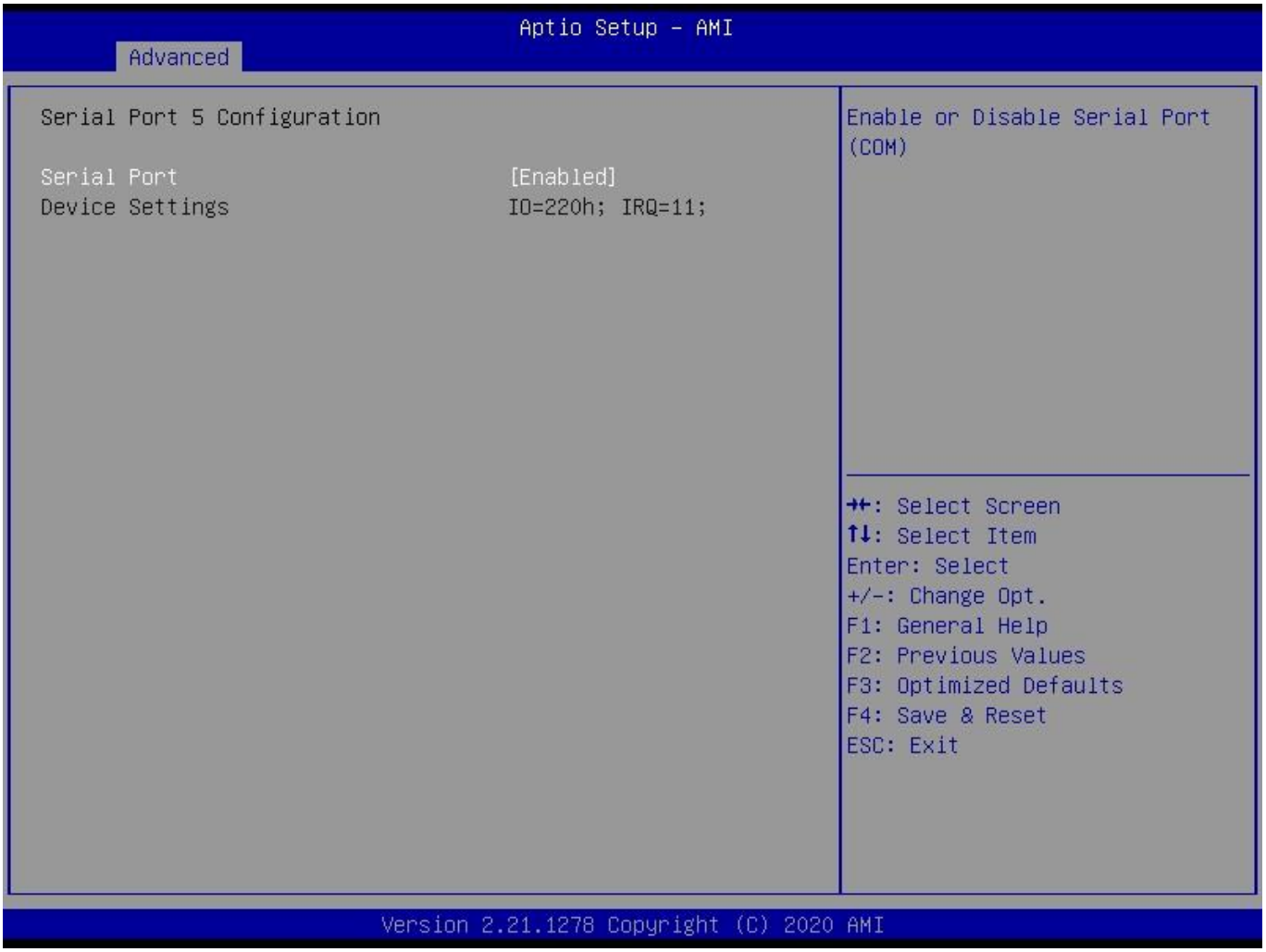



| Field Name | **Serial Port** |
|---|---|
| Default Value | [Enabled] |
| Possible Value | Disabled<br>Enabled |
| Help | Enable or Disable Serial Port(COM) |

| Field Name | **Device Settings** |
|---|---|
| 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 | **Change Settings** |
|---|---|
| Default Value | [Auto] |
| Possible Value | Auto<br>IO=220h; IRQ=7;<br>IO=3E8h; IRQ=3,4,5,6,7,9,10,11,12;<br>IO=2E8h; IRQ=3,4,5,6,7,9,10,11,12;<br>IO=220h; IRQ=3,4,5,6,7,9,10,11,12;<br>IO=228h; IRQ=3,4,5,6,7,9,10,11,12; |
| Help | Select an optimal settings for Super IO Device |

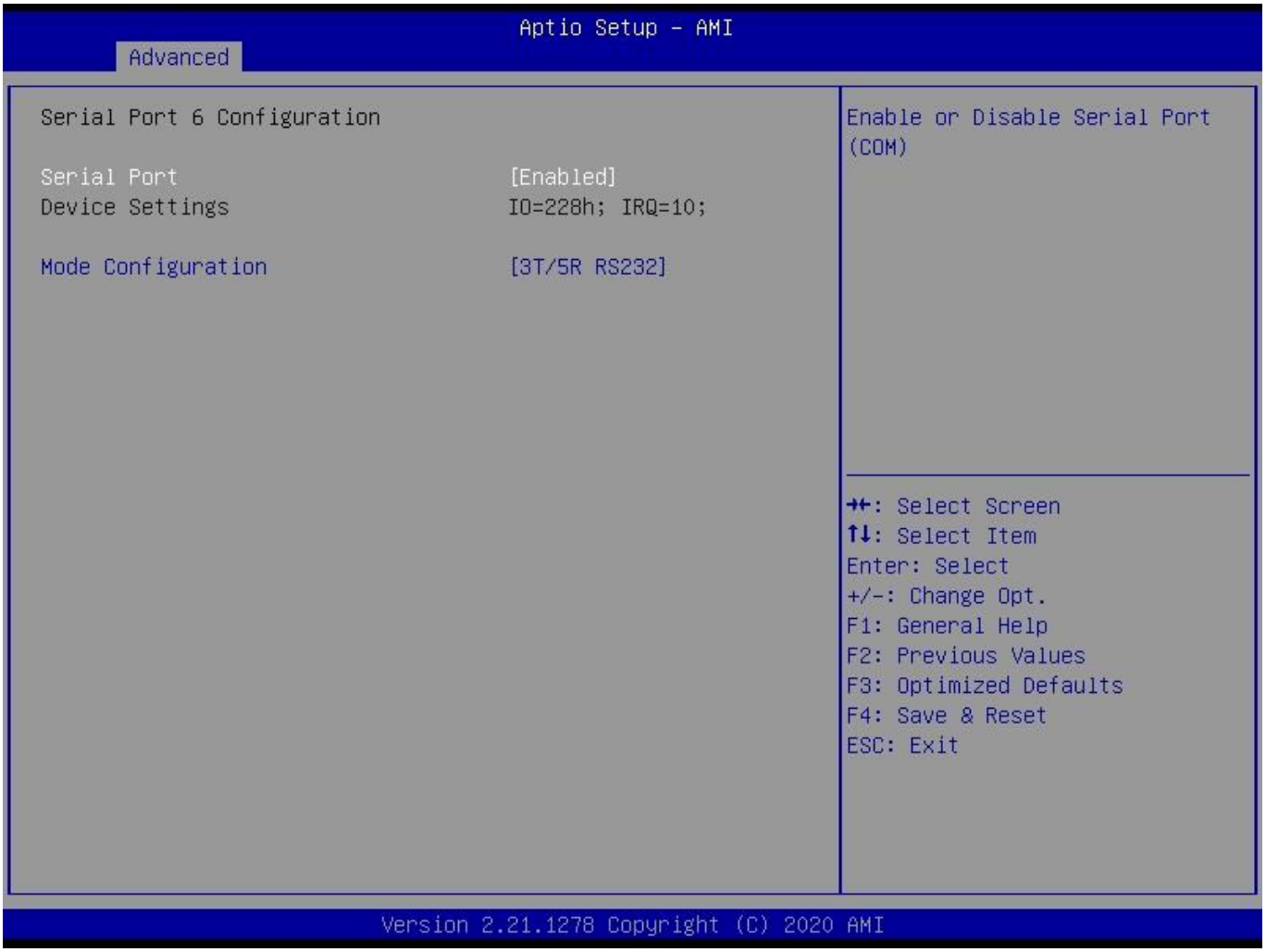
## 2.4.5 Serial Port 5 Configuration




| Field Name | **Serial Port** |
|---|---|
| Default Value | [Enabled] |
| Possible Value | Disabled<br>Enabled |
| Help | Enable or Disable Serial Port(COM) |

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

## 2.4.6 Serial Port 6 Configuration

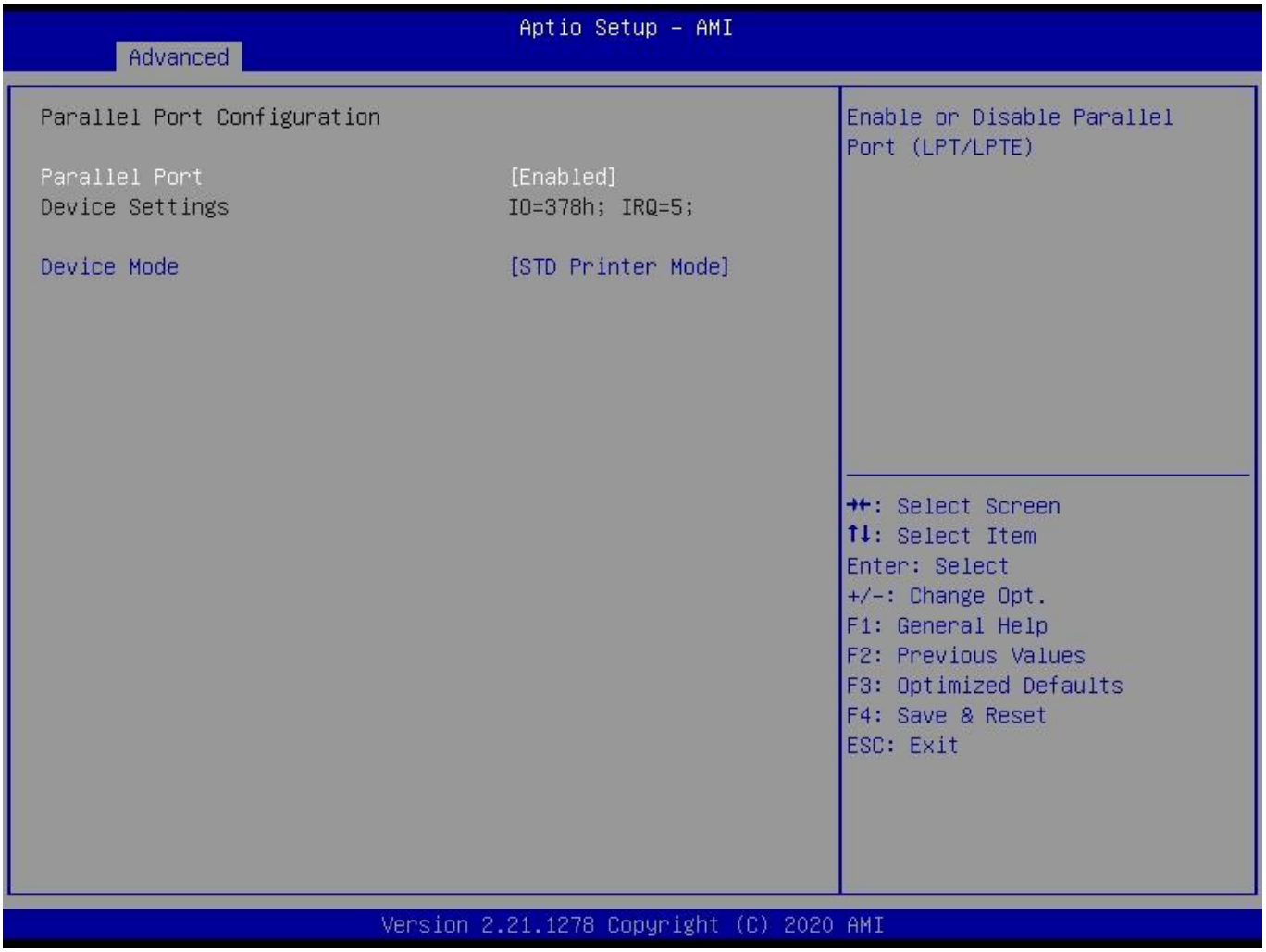



| Field Name | **Serial Port** |
|---|---|
| Default Value | [Enabled] |
| Possible Value | Disabled<br>Enabled |
| Help | Enable or Disable Serial Port(COM) |

| Field Name | **Device Settings** |
|---|---|
| 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 | **Mode Configuration** |
|---|---|
| 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<br>Disabled |
| Help | Configure serial port as RS232/RS422/RS485. |

## 2.4.7 Parallel Port Configuration

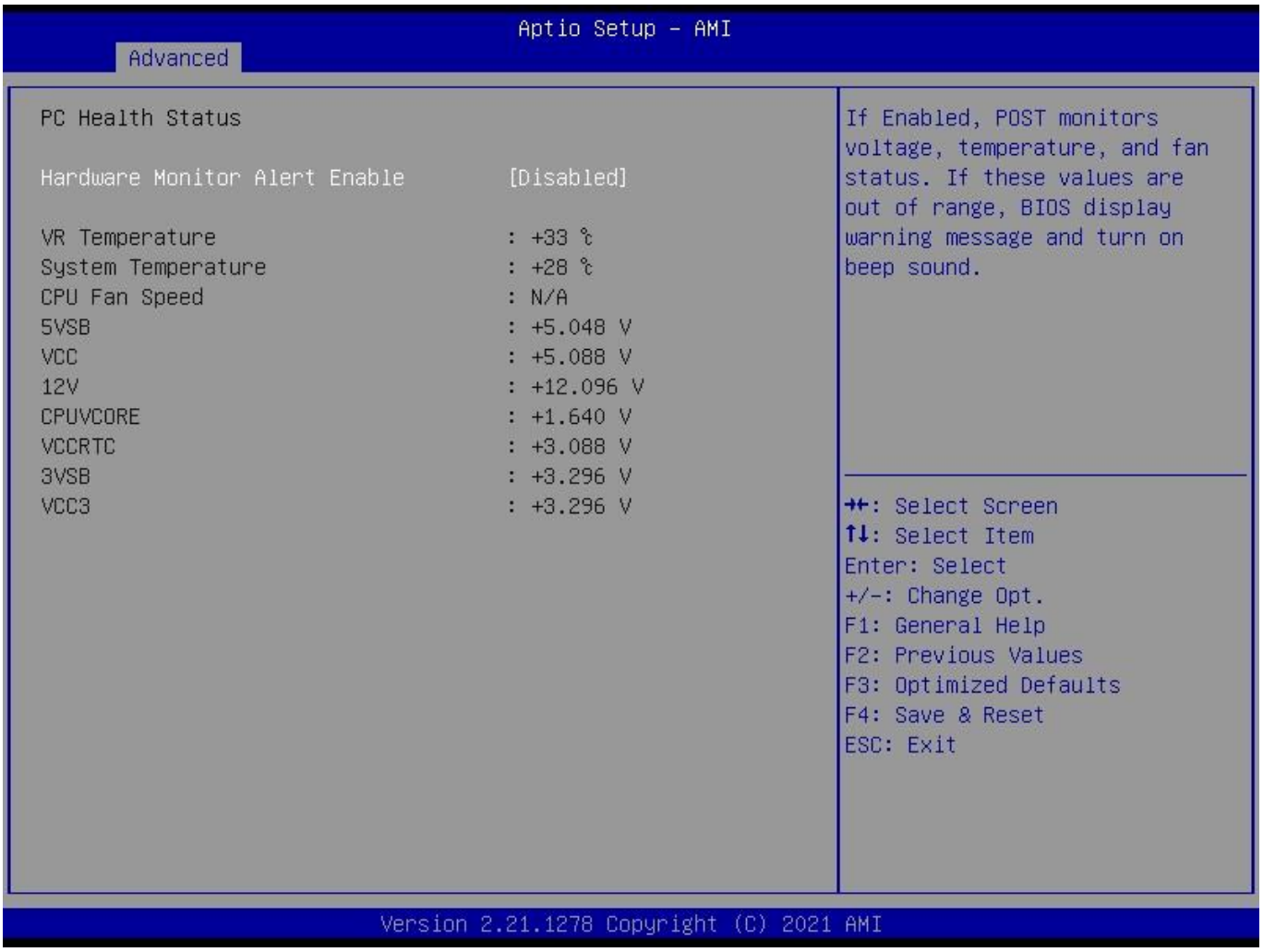



| Field Name | **Parallel Port** |
|---|---|
| Default Value | [Enabled] |
| Possible Value | Disabled<br>Enabled |
| Help | Enable or Disable Parallel Port(LPT/LPTE) |

| Field Name | **Device Settings** |
|---|---|
| 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 | **Device Mode** |
|---|---|
| Default Value | [STD Printer Mode] |
| Possible Value | SPP Mode<br>EPP-1.9 and SPP Mode<br>EPP-1.7 and SPP Mode<br>ECP Mode<br>ECP and EPP 1.9 Mode<br>ECP and EPP 1.7 Mode |
| Help | Change the Printer Port mode. |

## 2.5 Hardware Monitor

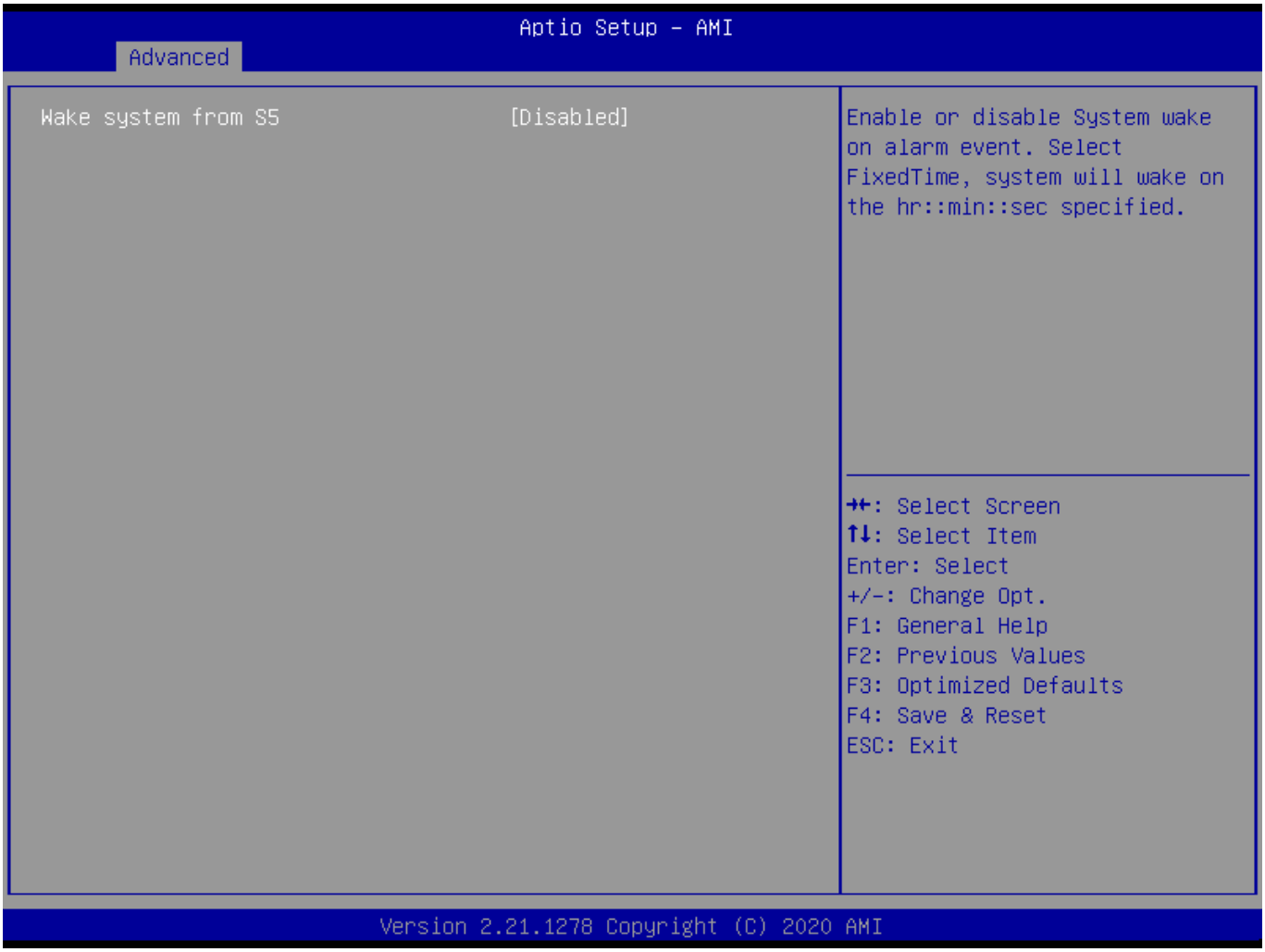



| **Type** | **Range** |
|---|---|
| VR Temperature | -20 ~ 120 °C |
| System Temperature | -20 ~ 120 °C |
| CPU Fan Speed | There are many kinds of the fan could be installed into the system, so we could only set 0 RPM for the failed fan speed, and there is also no high RPM limitation. |
| 5VSB | 4.75V~5.25V (Pin 100 VIN0 => Vref = 1V) |
| 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) |
| VCC3 | 3.135V~3.465V(Pin 12 3VCC) |

| Field Name | Hardware Monitor Alert Enable |
|---|---|
| Default Value | [Disabled] |
| Possible Value | Enabled<br>Disabled |

| | |
|---|---|
| Help | If Enabled, POST monitors voltage, temperature, and fan status. If these values are out of range, BIOS display warning message and turn on beep sound. |

## 2.6 S5 RTC Wake Settings




| 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 wil 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 |

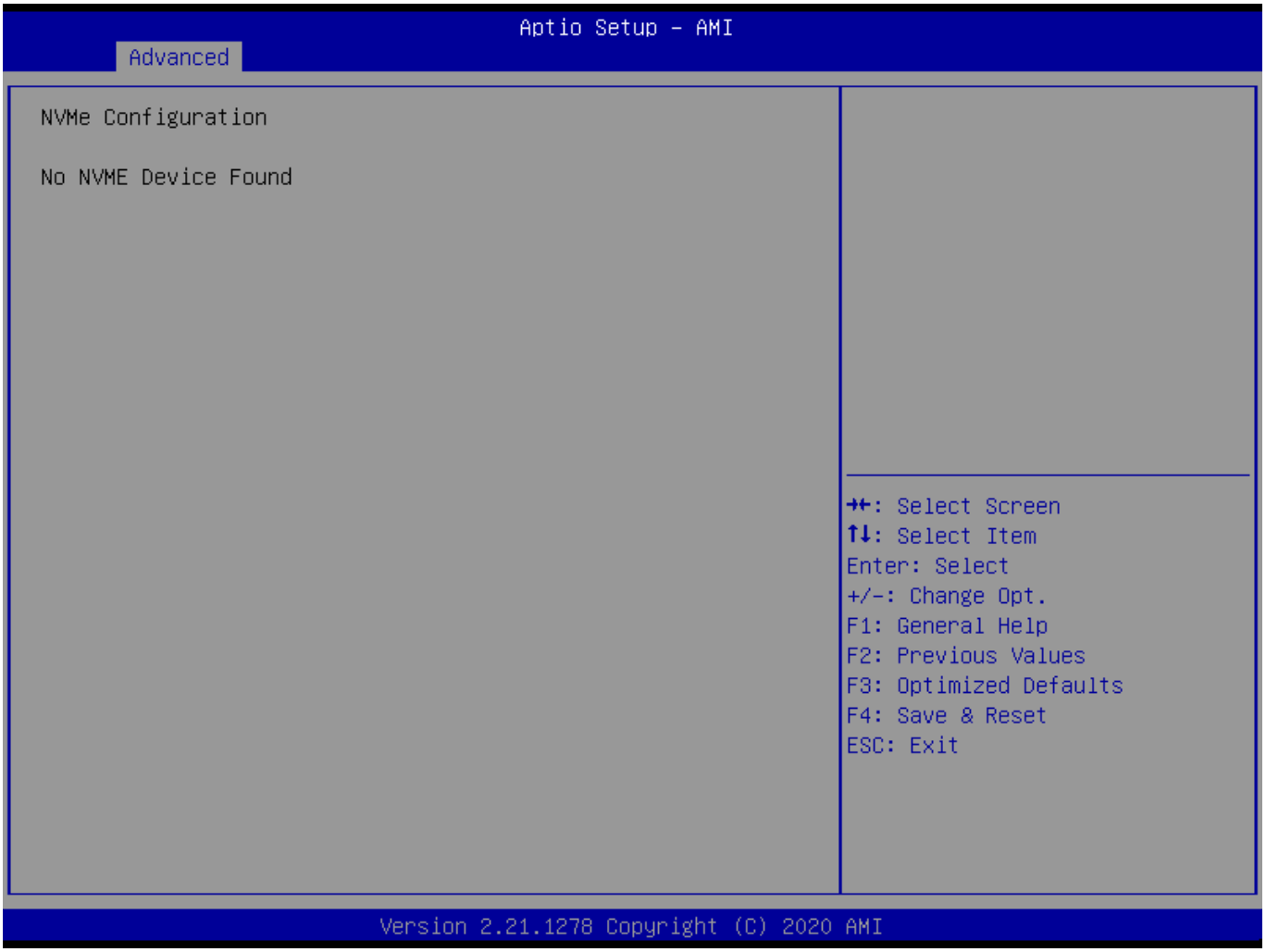
## 2.7 Network Stack Configuration


| Field Name | **Network stack** |
|---|---|
| Default Value | [Disabled] |
| Possible Value | Disabled<br>Enabled |
| Help | Enable/Disable UEFI Network stack. |

| Field Name | **Ipv4 PXE Support (Available when Network stack Enabled)** |
|---|---|
| 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 | **Ipv6 PXE Support (Available when Network stack Enabled)** |
|---|---|
| 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. |

## 2.8 NVMe Configuration



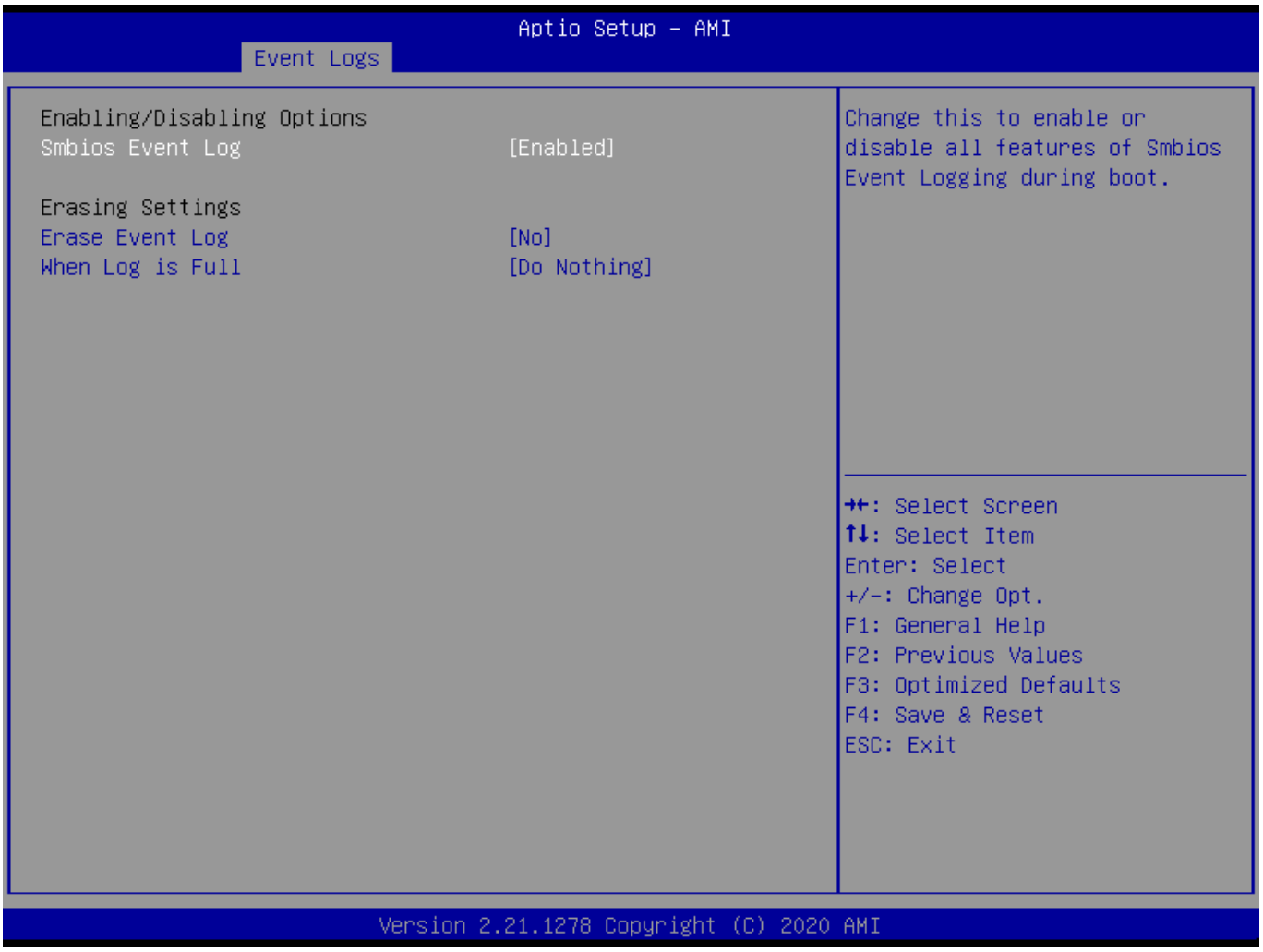

| Field Name | **(Device)** |
|---|---|
| Comment | Press Enter when selected to go into the associated Sub-Menu. |

# 3 Event Logs


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

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

## 3.1 Change Smbios Event Log Settings

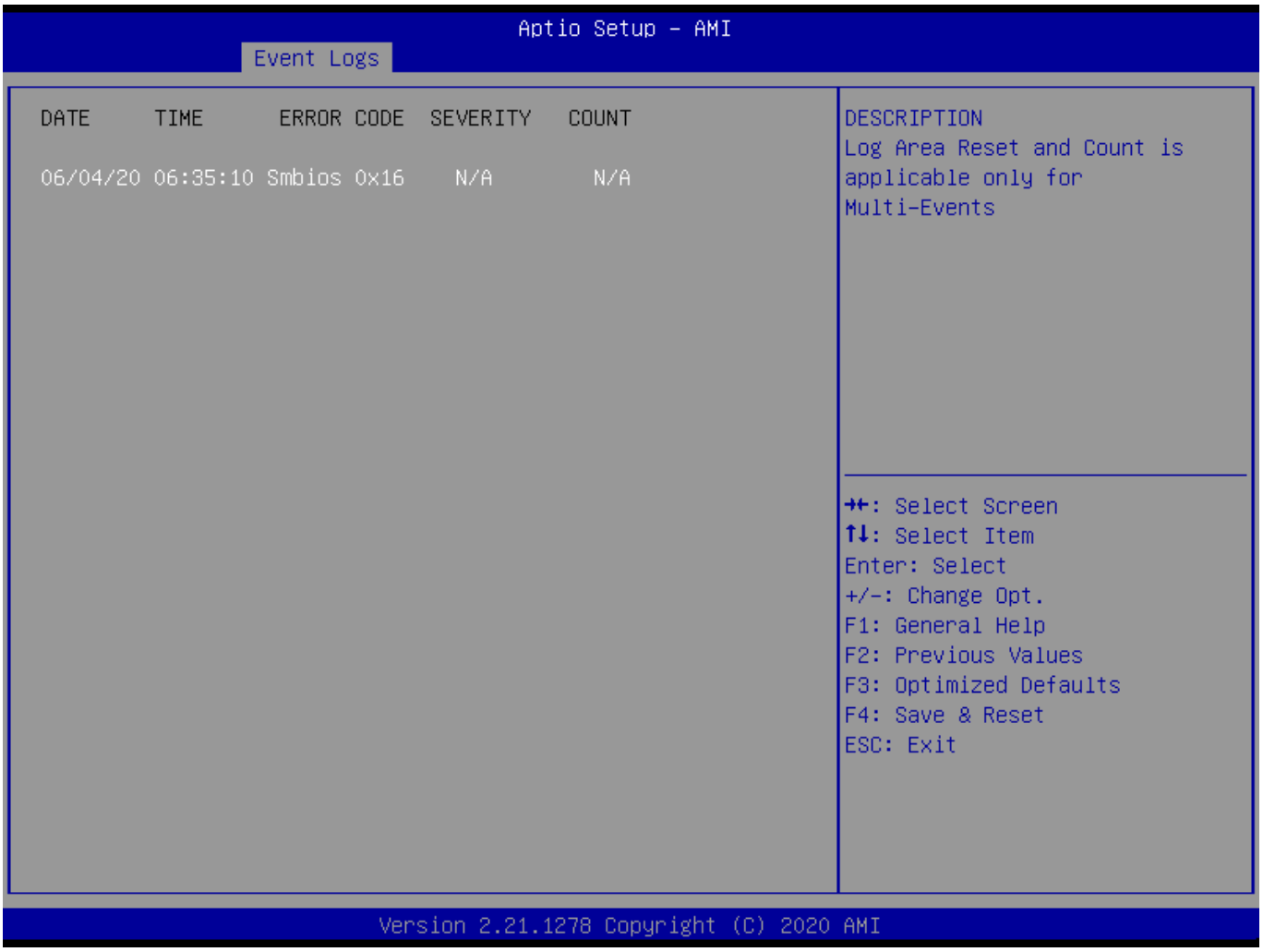



| Field Name | **Smbios Event Log** |
|---|---|
| Default Value | [Enabled] |
| Possible Value | Enabled<br>Disabled |
| Help | Change this to enable or disable all feature of Smbios Event Logging during boot. |

| Field Name | **Erase Event Log** |
|---|---|
| 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. |

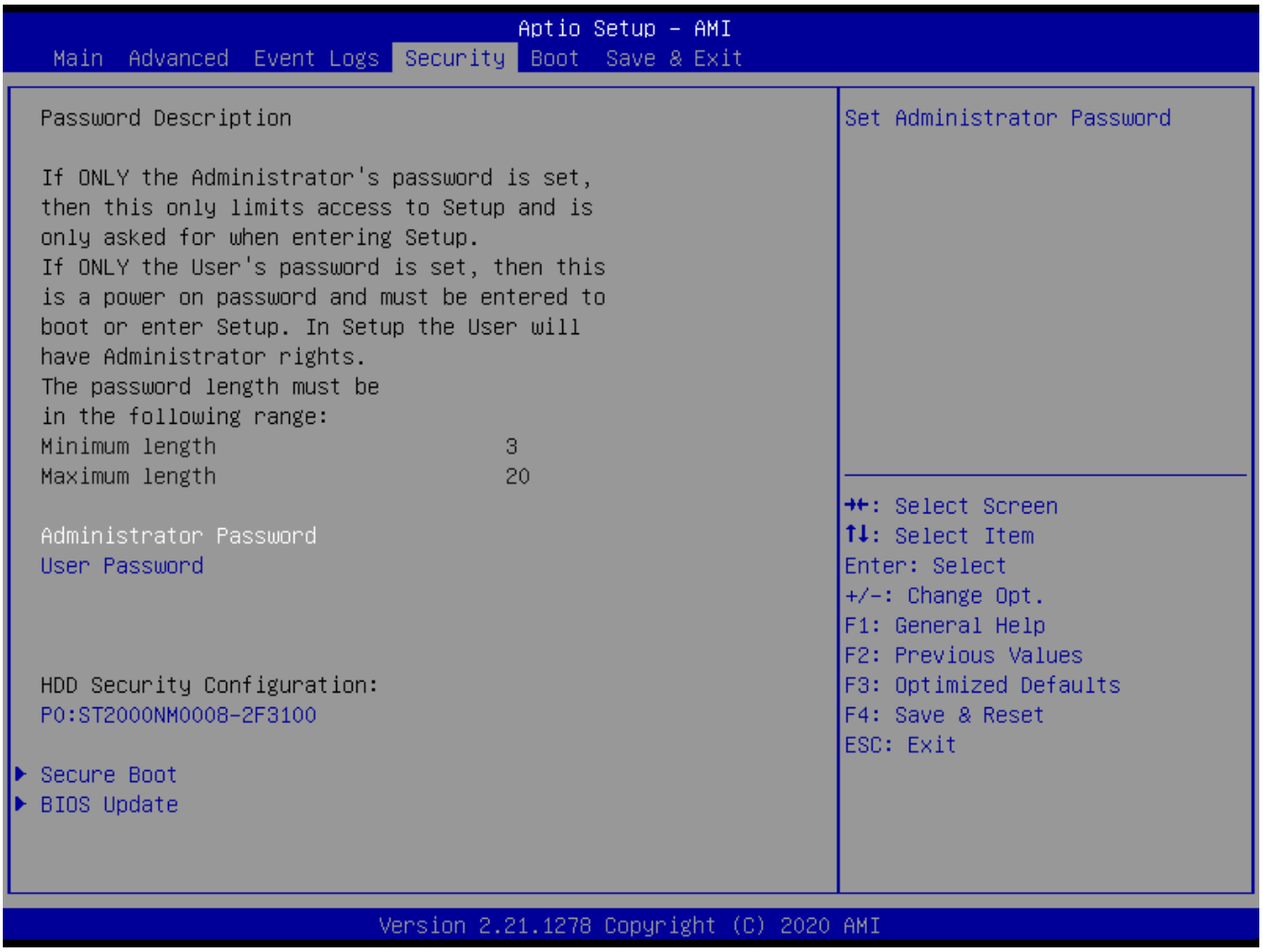
| Field Name | **When Log is Full** |
|---|---|
| Default Value | [Do Nothing] |
| Possible Value | Do Nothing<br>Erase Immediately |
| Help | Choose options for reactions to a full Smbios Event Log. |

## 3.2 View Smbios Event Log




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

# 4 Security Page




| Field Name | **Administrator Password** |
|---|---|
| Help | Set Administrator Password |

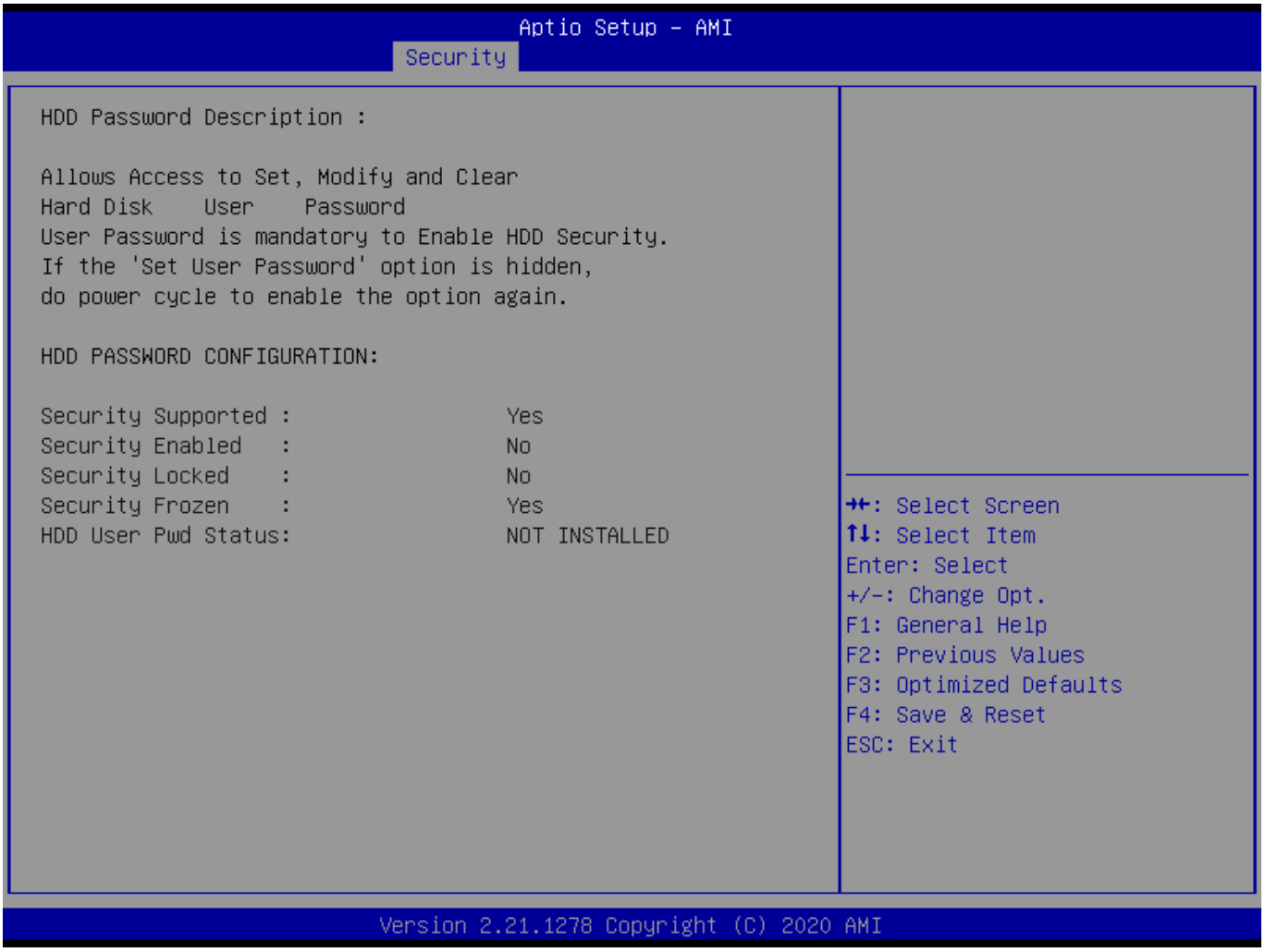
| Field Name | **User Password** |
|---|---|
| Help | Set User Password. |

| Field Name | **HDD Security drive** |
|---|---|
| Help | HDD Security Configuration for selected drive |
| Comment | Press Enter when selected to go into the associated Sub-Menu. |

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

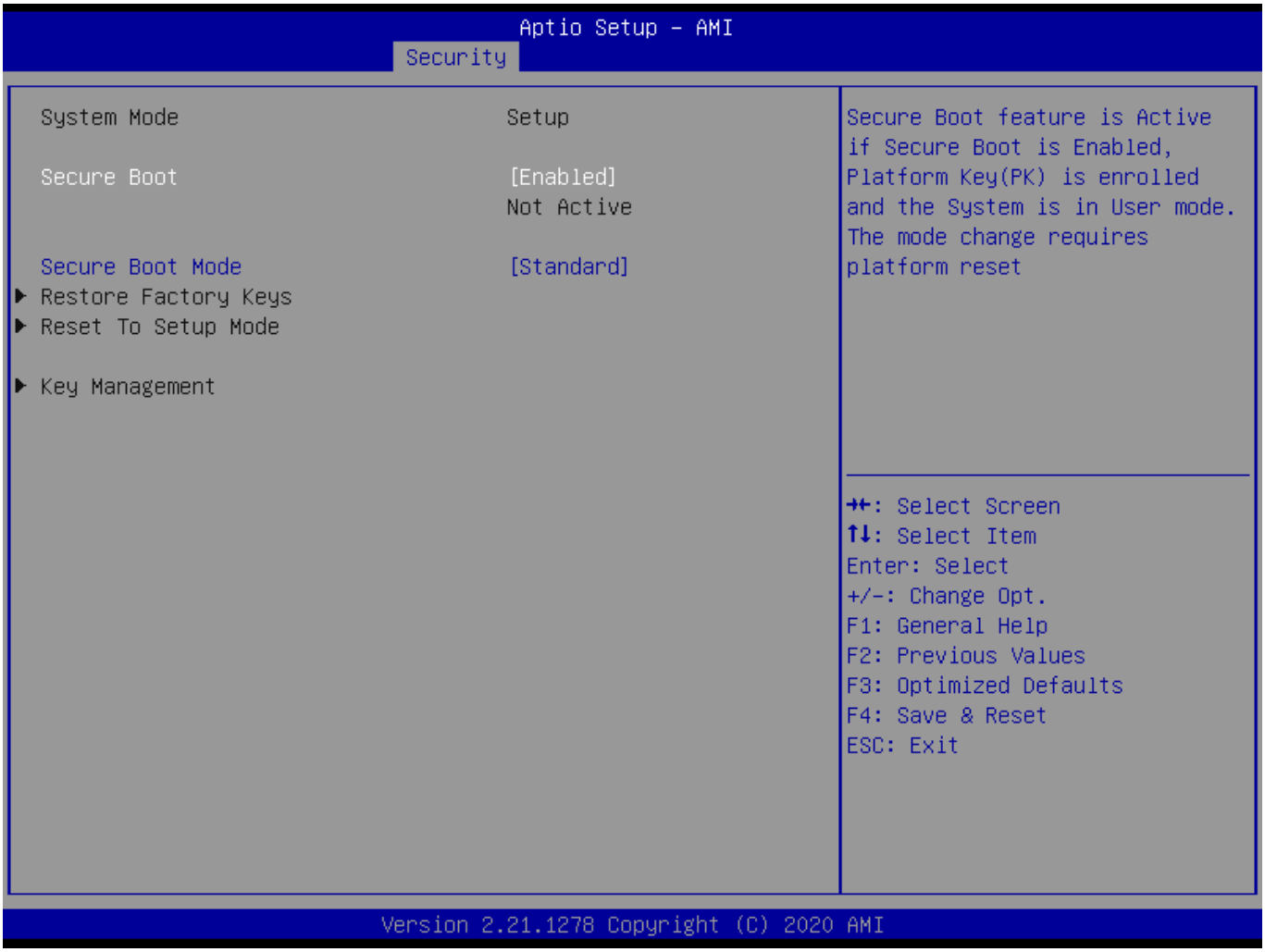
| Field Name | **BIOS Update** |
|---|---|
| Help | BIOS Update support |
| Comment | Press Enter when selected to go into the associated Sub-Menu. |

## 4.1 HDD Security




| 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 impac 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 |

## 4.2 Secure Boot

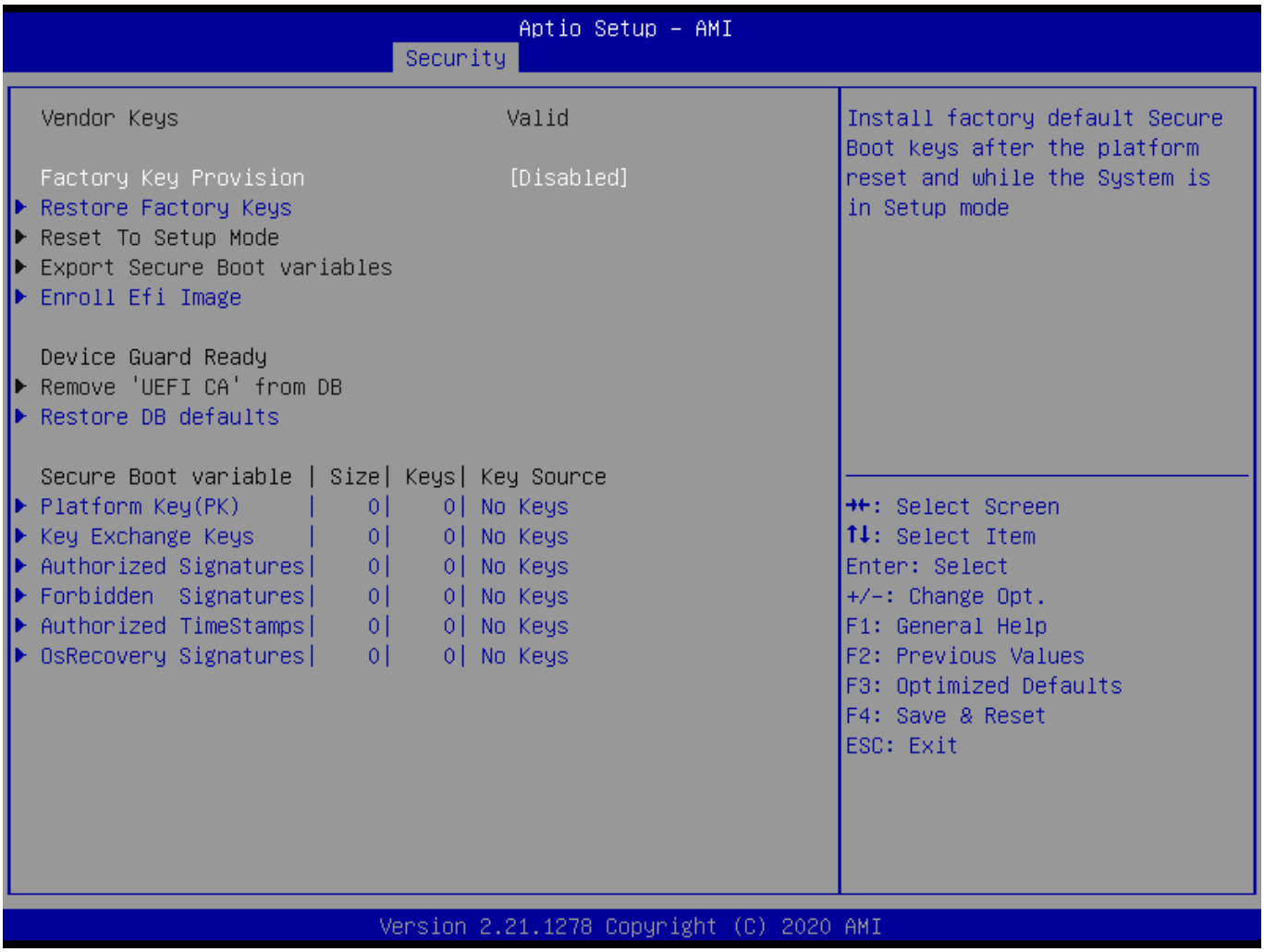



| Field Name | **Secure Boot** |
|---|---|
| Default Value | [Enabled] |
| Possible Value | Enabled<br>Disabled |
| Help | Secure Boot feature is Active if Secure Boot is Enabled,Platform Key(PK) is enrolled and the System is in User mode.The mode change requires platform reset |

| Field Name | **Secure Boot Mode** |
|---|---|
| Default Value | [Standard] |
| 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 | **Restore Factory Keys** |
|---|---|
| Help | Force System to User Mode. Install factory default Secure Boot key databases |
| Field Name | **Reset to Setup Mode** |
| Help | Delete all Secure Boot key databases from NVRAM |
| Field Name | **Key Management** |
| 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 |

### 4.2.1 Key Management




| Field Name | **Factory Key Provision** |
|---|---|
| Default Value | [Disabled] |
| Possible Value | Enabled<br>Disabled |
| Help | Install factory default Secure Boot keys after the platform reset and while the System i in Setup mode |

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

| Field Name | **Reset to Setup Mode** |
|---|---|
| Help | Delete all Secure Boot key databases from NVRAM |

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

| Field Name | **Enroll Efi Image** |
|---|---|
| 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 | **Remove ‘UEFI CA’ from DB** |
|---|---|

| | |
|---|---|
| Help | Device Guard ready system must not list 'Microsoft UEFI CA' Certificate in Authorized Signature database (db) |

| | |
|---|---|
| Field Name | **Restore DB defaults** |
| Help | Restore DB variable to factory defaults |

| | |
|---|---|
| Field Name | **Platform Key (PK)** |
| 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 | **Key Exchange Keys** |
| 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 | **Authorized Signatures** |
| 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. |

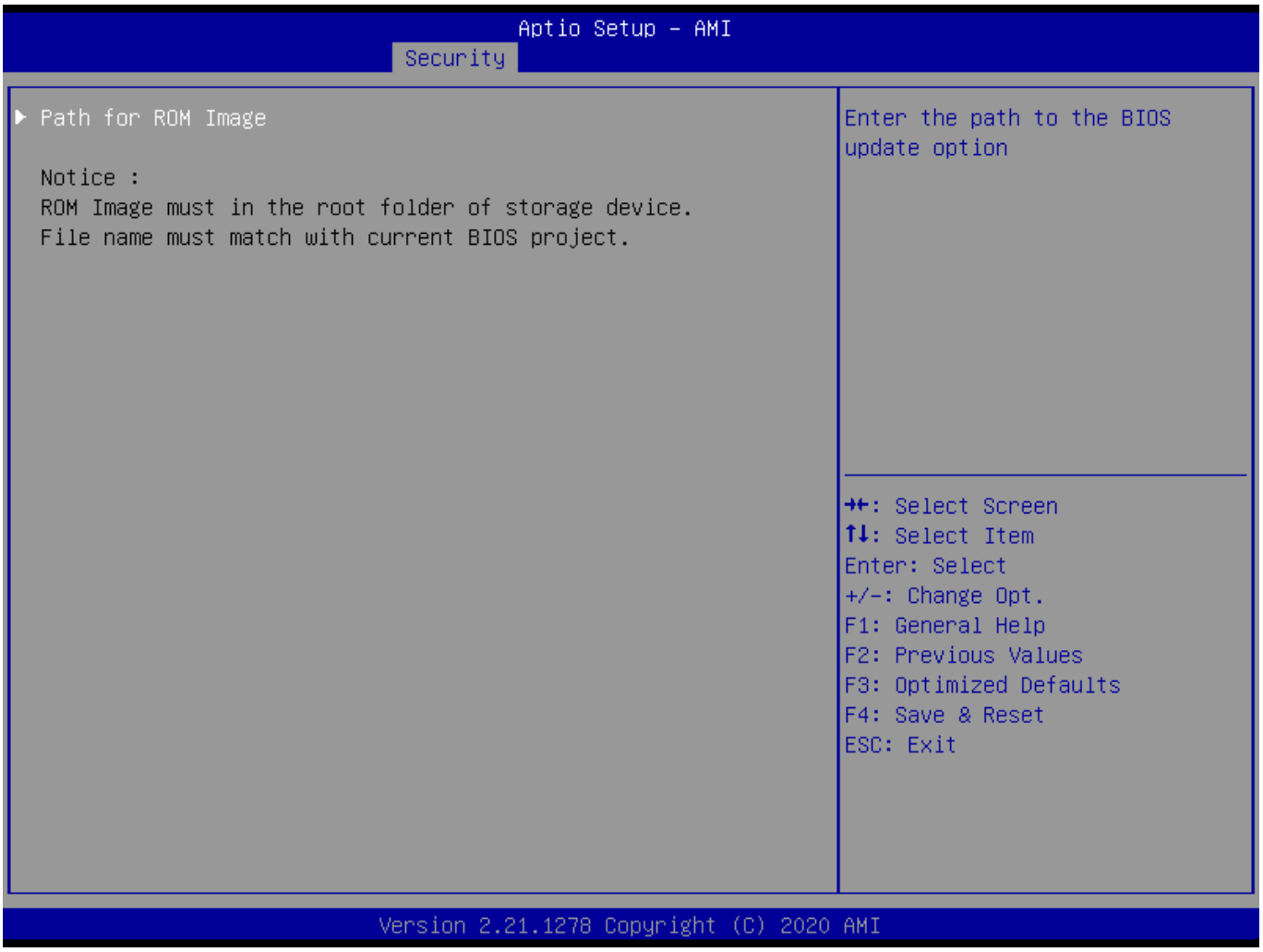
| | |
|---|---|
| Field Name | **Forbidden Signatures** |
| Default Value | Size:0, Keys:0, Key source: No Keys |
| Help | Enroll Factory Defaults or load certificates from a file:<br>1.Public Key Certificate:<br>a)EFI_SIGNATURE_LIST<br>b)EFI_CERT_X509 (DER)<br>c)EFI_CERT_RSA2048 (bin)<br>d)EFI_CERT_SHAXXX<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 | **Authorized TimeStamps** |
|---|---|
| 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. |

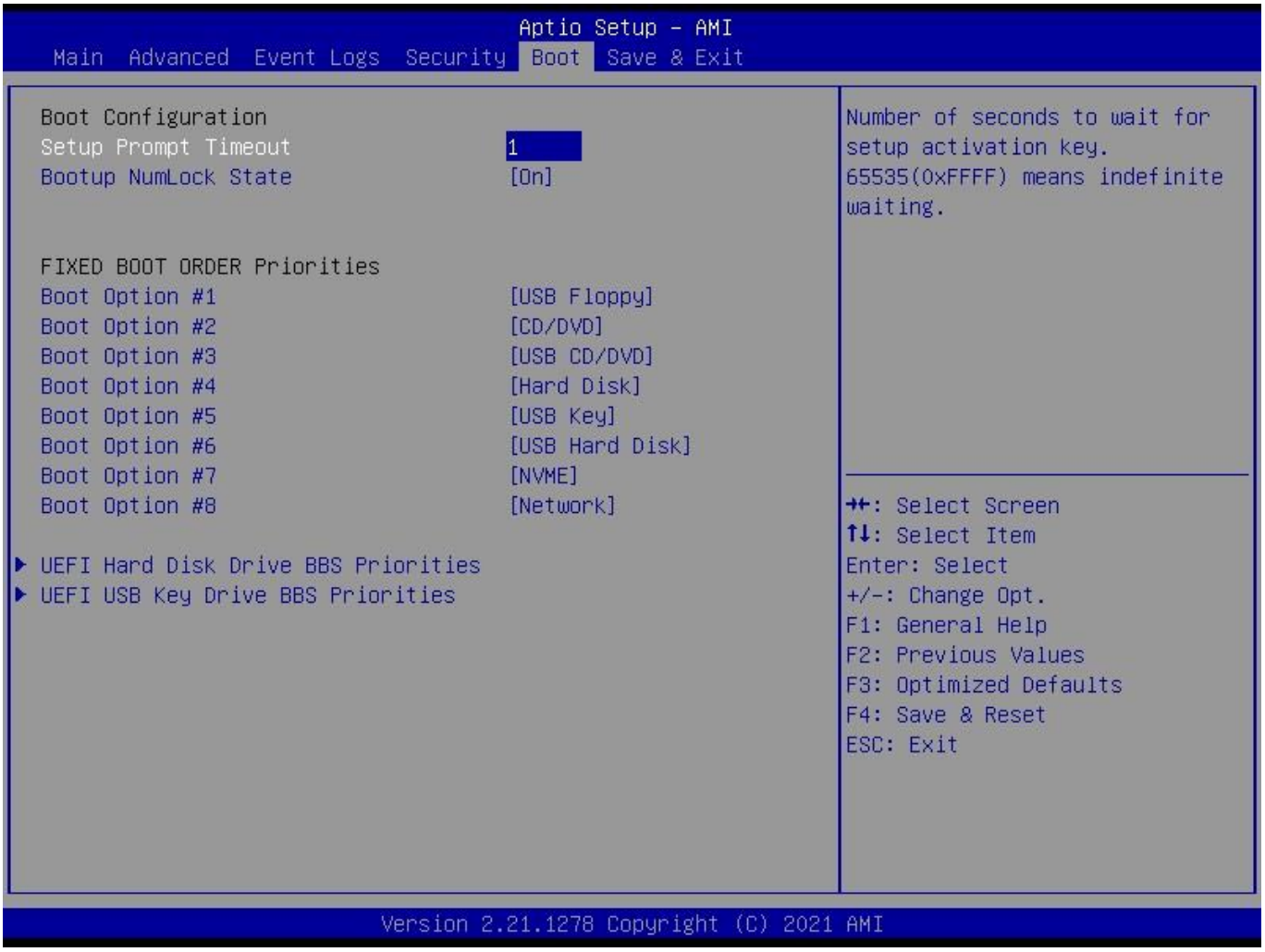
| Field Name | **OsRecovery Signatures** |
|---|---|
| Default Value | Size:0, Keys:0, Key source: No Keys |
| Help | Enroll Factory Defaults or load certificates from a file:<br>1.Public Key Certificate:<br>a)EFI_SIGNATURE_LIST<br>b)EFI_CERT_X509 (DER)<br>c)EFI_CERT_RSA2048 (bin)<br>d)EFI_CERT_SHAXXX<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. |

## 4.3 BIOS Update




| Field Name | **Path for ROM Image** |
|---|---|
| Help | Enter the path to the BIOS update option |

# 5 Boot Page




| Field Name | **Setup Prompt Timeout** |
|---|---|
| Default Value | 1 |
| Possible Value | 1~65535 |
| Help | Number of seconds to wait for setup activation key. 65535(0xFFFF) means indefinite waiting. |

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

| Field Name | **Boot Option #1** |
|---|---|
| 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 | **Boot Option #2** |
|---|---|
| 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 | **Boot Option #3** |
|---|---|
| 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 | **Boot Option #4** |
|---|---|
| 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 | **Boot Option #5** |
|---|---|
| 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 | **Boot Option #6** |
|---|---|
| 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 | **Boot Option #7** |
|---|---|
| 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 | **Boot Option #8** |
|---|---|
| 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 | **UEFI USB Floppy Drive BBS Priorities** |
|---|---|
| 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 | **UEFI CDROM/DVD ROM Drive BBS Priorities** |
|---|---|
| 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 | **UEFI USB CDROM/DVD ROM Drive BBS Priorities** |
|---|---|
| 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 | **UEFI Hard Disk Drive BBS Priorities** |
|---|---|
| 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 | **UEFI USB KEY Drive BBS Priorities** |
|---|---|
| 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 | **UEFI USB Hard Disk Drive BBS Priorities** |
|---|---|
| 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. |

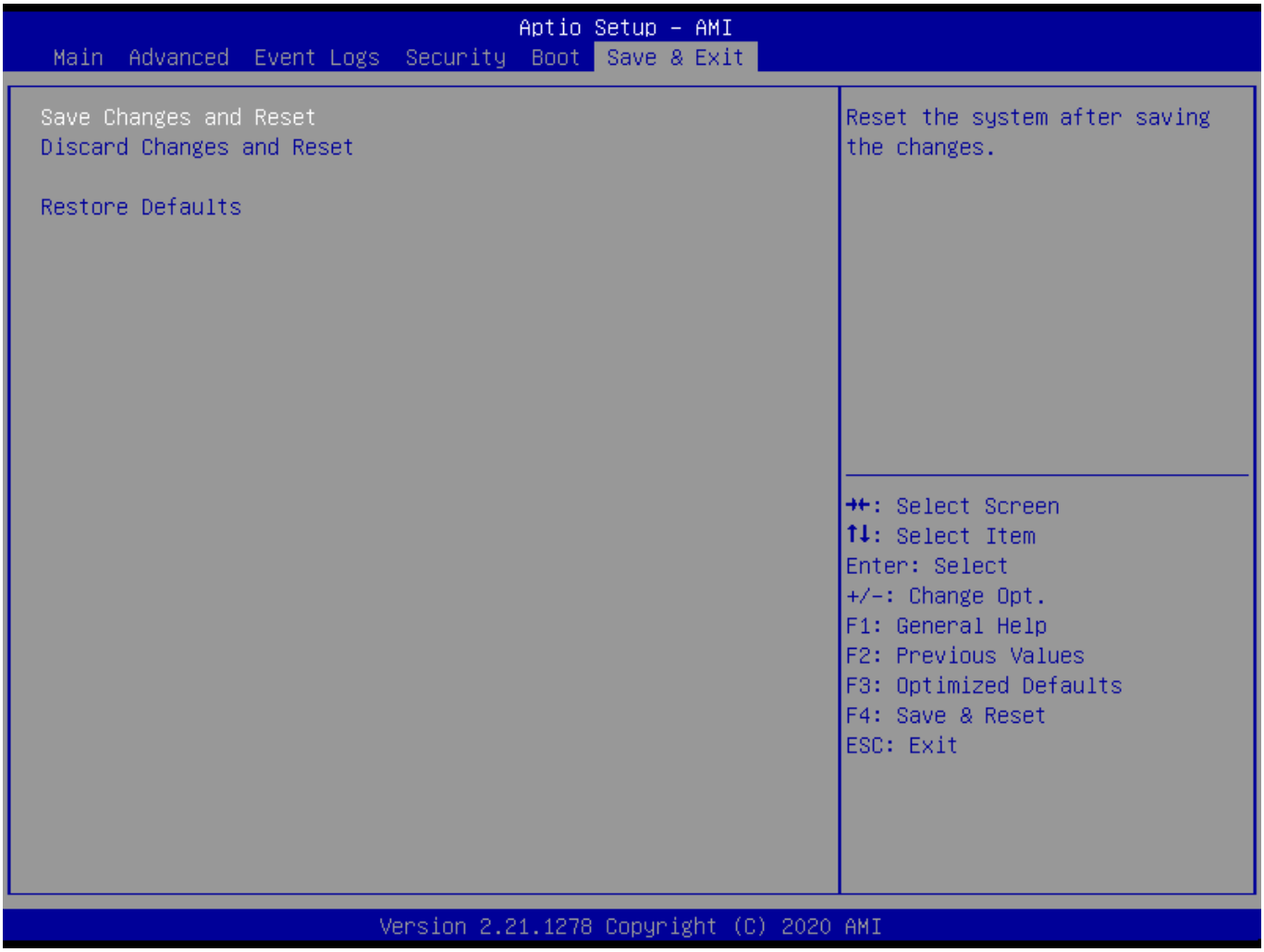
| Field Name | **UEFI NVME Drive BBS Priorities** |
|---|---|
| Help | Specifies the Boot Device Priority sequence from available UEFI NVME Drives. |
| Comment | Press Enter when selected to go into the associated Sub-Menu. |

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

## 5.1 (List Boot Device Type) Drive BBS Priorities


| Field Name | **Boot Option #1** |
|---|---|
| Default Value | |
| Possible Value | Boot Device Name 1 of this type, Disable |
| Help | Sets the system boot order |

# 6 Save & Exit Page




| Field Name | **Save Changes and Reset** |
|---|---|
| Help | Reset the system after saving the changes. |

| Field Name | **Discard Changes and Rest** |
|---|---|
| Help | Reset system setup without saving any changes. |

| Field Name | **Restore Defaults** |
|---|---|
| Help | Restore/Load Default values for all the setup options. |