ROScube-Pico TGL

User's Manual

Embedded Real-Time Robotic Controller with
11th Gen Intel® Core ™ Processor



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Leading **EDGE COMPUTING**

Preface

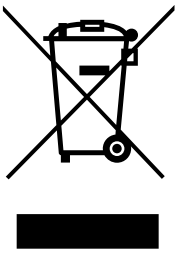
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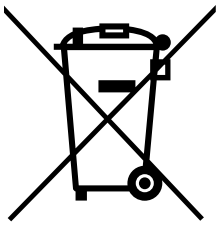
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Revision History

Revision	Description	Date	By
1.0	Initial release	2022-18-06	JC

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1. Introduction

ADLINK's ROScube Pico TGL is a real-time ROS 2 enabled robotic controller based on the 11th Gen Intel® Core™ i7/i5/i3 processor with Intel® Iris® Xe Graphics, featuring exceptional I/O connectivity and supporting a wide variety of sensors and actuators for unlimited robotic applications. The ROScube Pico TGL supports the full complement of resources provided by ADLINK Neuron SDK, the perfect platform for development of industrial use service robotic applications such as autonomous mobile robots (AMR) and autonomous mobile industrial robots (AMIR)

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2. Specifications

2.1. Product Specifications

Model	RQP-T37	RQP-T35	RQP-T33
Processor	Intel® Core™ i7-1185G7E 28W	Intel® Core™ i5-1145G7E 28W	Intel® Core™ i3-1115G4E 28W
Cores	4	4	2
Threads	8	8	4
Base Freq.	1.8GHz @ 15W	1.5GHz @ 15W	2.2GHz @ 15W
Max. Turbo Freq.	4.4GHz	4.1GHz	3.9GHz
Memory	2x 16GB DDR4 3200MHz	2x 8GB DDR4 3200MHz	2x 4GB DDR4 3200MHz
Storage Devices	M.2 M Key 256GB NVMe	M.2 M Key 128GB NVMe	M.2 M Key 64GB NVMe
External I/O Interface			
Ethernet	1x 1GbE, 1x 2.5GbE		
	LAN1: Intel® I219LM 10/100/1000 Mbps		LAN1: Intel® I219V 10/100/1000 Mbps
	LAN2: Intel® I225LM, 10/100/1000/2500 Mbps		
Display	1x DP, 1x HDMI		
USB	2x USB 3.2 Gen2 Type A ports with lockable connectors		
Audio	1x headphone/microphone jack		
USB	2x USB 3.2 Gen2 Type A with lockable connectors 2x USB 3.2 Gen2 Type C ports		
Serial Port	RS-232 (“COM 1”)		
System Management	1x power button, 1x reset button, 1x power LED to breakout cable (via “COM 2” DB9 connector)		
Internal I/O Interfaces			
M.2	1x M.2 E Key- 2230 for Wi-Fi 1x M.2 M Key- for NVMe PCIe x4 Gen4 SSD		
TPM	TPM 2.0		

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Power Requirements	
DC Power Input	12-19VDC (±5% tolerance, reverse polarity protection)
Power Consumption	60.5W
AC/DC Power Adapter	90W AC/DC power adapter (optional, see ordering information)
Mechanical	
Dimensions (WxDxH)	140 x 110 x 63 mm (5.5 x 4.33 x 2.48 inches)
Weight	1,086 g
Mounting	Wall mount kit
Environmental	
Operating Temperature	0 to 50°C (with 0.6 m/s airflow)
Operating Humidity	~95% @40°C (non-condensing)
Storage Temperature	-40°C to 85°C (-40°F to 185°F)
Vibration	IEC 60068-2-64: Operating 3Grms, 5-500 Hz, 3 axes w/ M.2 2280 SSD
Shock	Operating: 50G, half sine 11ms duration w/ M.2 SSD
EMI	CE & FCC Class B with validated AC/DC adapter (EN 55032/35, EN61000-6-4/-2)
EMS	▫ IEC 61000-4-2: ESD, contact: ±4kV, air: ±8kV ▫ IEC 61000-4-3: RS, 10V/m from 80-1000MHz, 3V/m from 1400-2000MHz, 1V/m from 2000-2700MHz, 1kHZ sine wave, 80% AM ▫ IEC 61000-4-4: EFT, ±2kV at 5KHz on power port, ±1kV at 5KHz on signal port ▫ IEC 61000-4-5: Surge, ±2kV line to earth CM on power port, ±1kV line to earth CM on signal port ▫ IEC 61000-4-6: CS, 10Vrms with 1kHz sine wave, 80% AM from 0.15MHz-80MHz ▫ IEC 61000-4-8: power-frequency magnetic fields ▫ IEC 61000-4-11: voltage dips & voltage interruptions
Safety	LVD
Software	
SDK	ADLINK Neuron SDK
Environment	Compatible with Ubuntu 20.04
Middleware	ROS/ROS 2 Intel® Distribution of OpenVINO™

2.2. Packing List

Controller	1x ROSCube Pico TGL (RQP-T37/T35/T33)
Power Transfer Cable	1x DC plug adapter cable
Wall Mount kit	2x wall mount kit

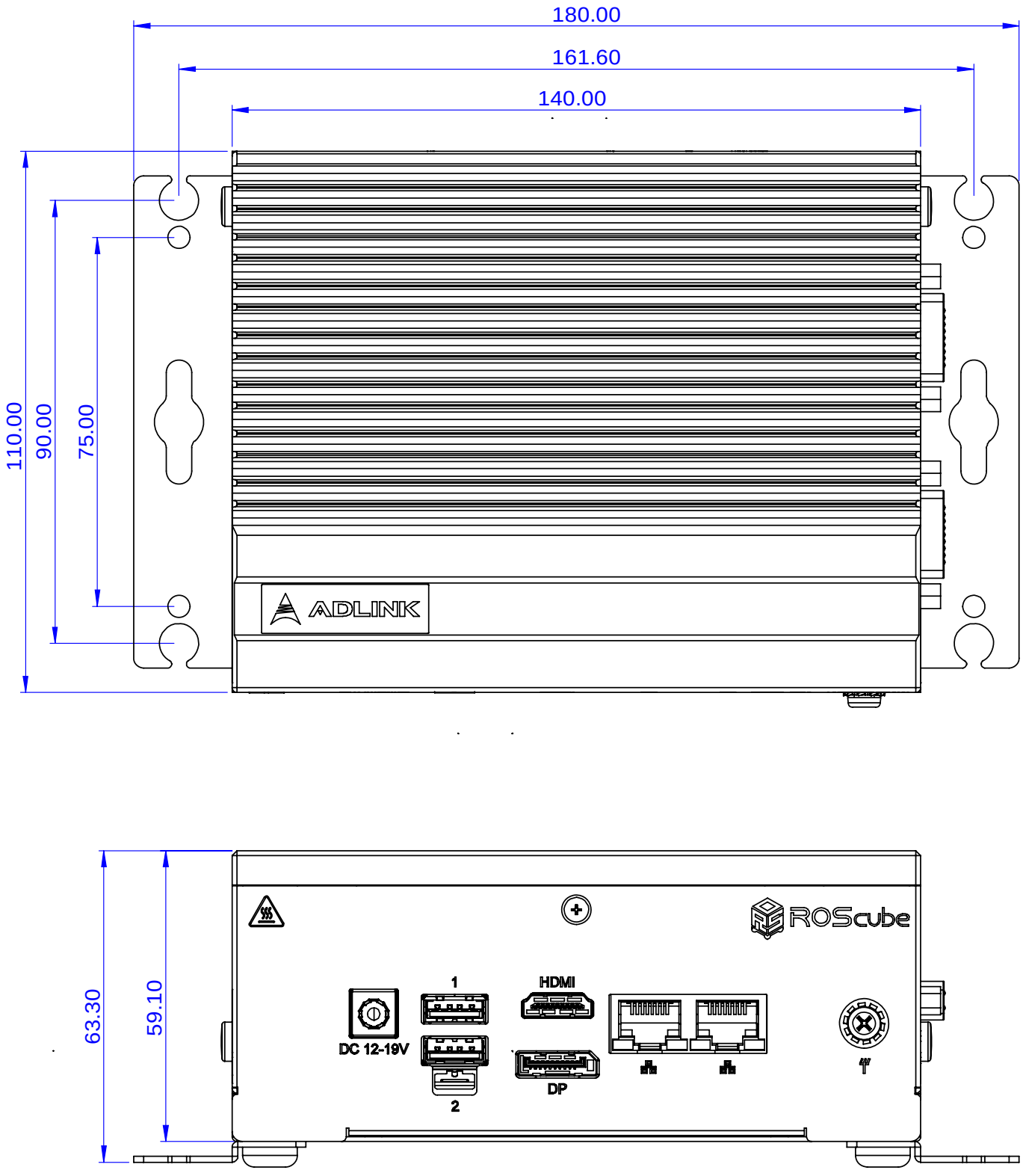
2.3. Optional Accessories

Wi-Fi Module	Intel® Wireless-AC 9260 M.2 2230, Dual-Band 2x2 Wi-Fi + Bluetooth+ 5 kit, P/N: 91-95278-0010
AC/DC Adapter	90-264VAC to 19V DC, 90W power adapter, P/N: 31-62137-0000 (board level with 90W adapter as default)

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2.4. Mechanical Layout

2.5. Mechanical Dimensions



Dimensions: mm

Figure 1: ROScube-Pico TGL Mechanical Dimensions

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2.6. System Layout

2.6.1. Carrier Board Connector Locations

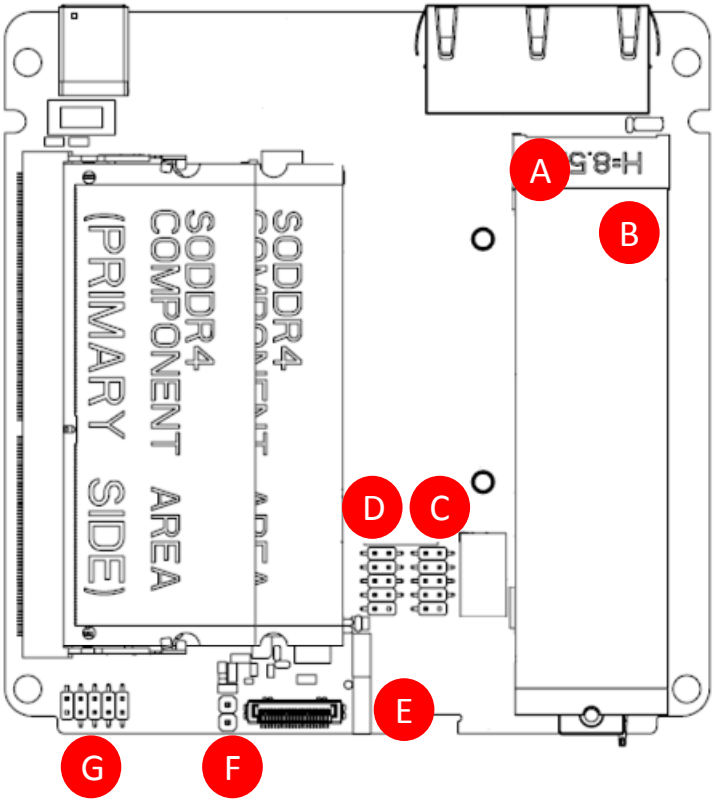


Figure 2 -Carrier Board Connectors (top)

A	M.2 Key-M socket for NVMe SSD (Top, M2_M1)
B	M.2 Key-E socket for M.2 2230 Wi-Fi card (Bottom, M2_E1)
C	USB 2.0 connector (USB2_7_8)
D	COM port header (to RS-232 “COM 1” on right side I/O)
E	Clear CMOS jumper (CLRCMOS1)
F	Power mode jumper (SIO_AT1) (open: ATX; shorted: AT)
G	Power Management Header (PANEL1) (to COM2 on right side I/O)

Table 1: Carrier Board Connector Legend (top)

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2.6.2. External Connector Locations

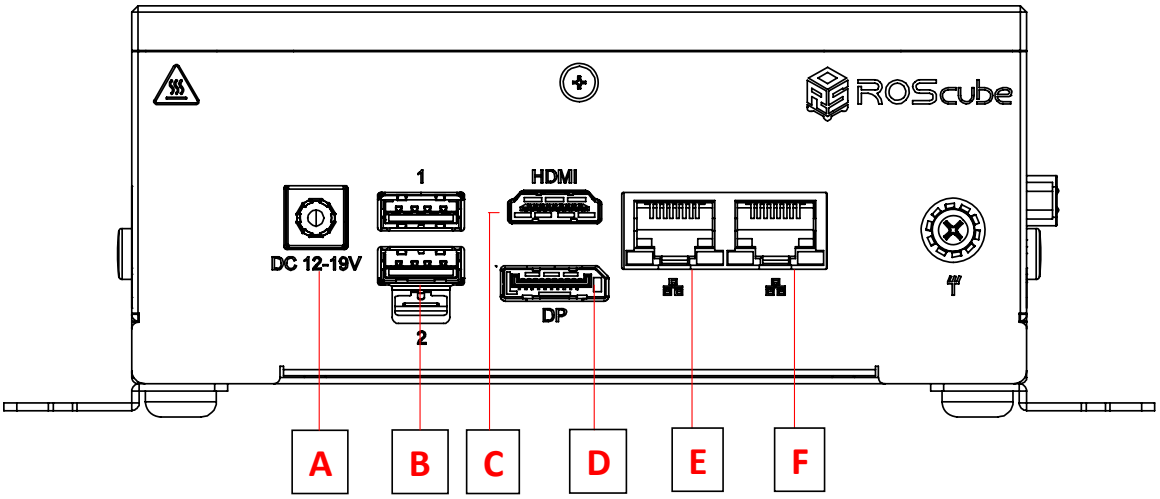


Figure 3: Front Panel I/O

A	DC power input, 12-19V DC-in jack	**D**	1x DisplayPort 1.4
B	2x USB 3.2 Gen2 Type A ports with lockable connectors	**E**	1x 1GbE (LAN1)
C	HDMI connector	**F**	1x 2.5GbE (LAN2)

Table 2: Front Panel I/O Legend

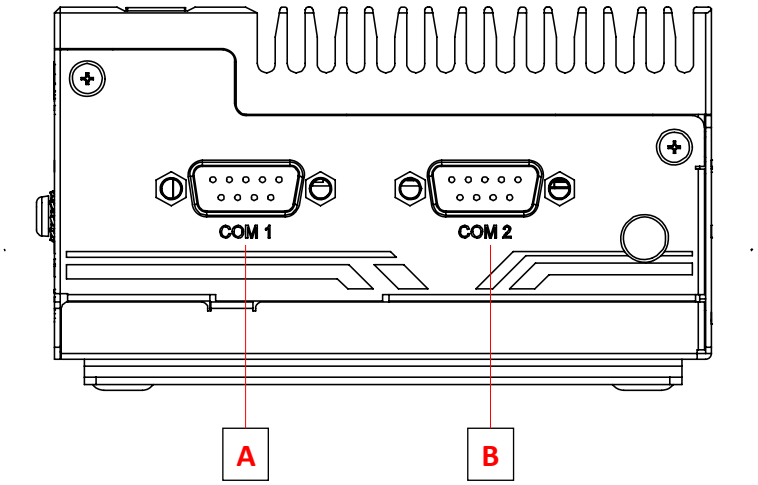


Figure 4: Right Side Panel I/O

A	RS-232 (“COM 1”)
B	System Management Header 1x power button, 1x reset button, 1x power LED (“COM 2”)

Table 3: Right Side Panel I/O

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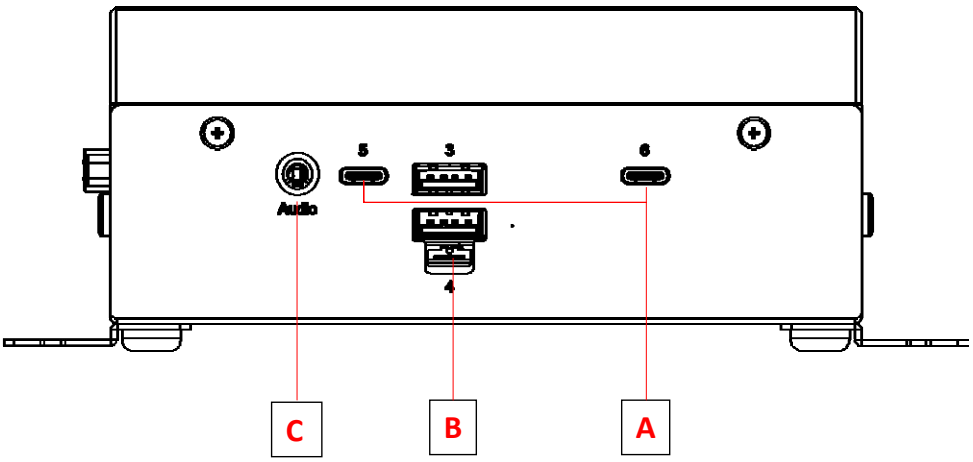


Figure 5: Rear Side Panel I/O

A	2x USB 3.2 Gen2 Type C ports
B	2 x USB 3.2 Gen2 Type A with lockable connectors
C	1x headphone/microphone jack

Table 4: Rear Side Panel I/O

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3. Pinouts and Signal Descriptions

3.1. Gigabit Ethernet Ports

There are two Gigabit Ethernet ports on the front panel. Please refer to the table below for the LAN port LED behaviour.

LAN1/2 port LED behavior is as below:

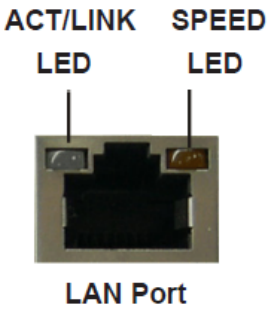


Figure 6: LAN Port LEDs

Activity/Link LED		Speed LED	
Status	**Description**	**Status**	**Description**
Off	No Link	Off	10 Mbps connection
Blinking	Data Activity	Orange	LAN1: 100 Mbps connection LAN2: 100 Mbps/1 Gbps connection
On	Link	Green	LAN1: 1 Gbps connection LAN2: 2.5 Gbps connection

Table 5: LAN Port LED Behaviour

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3.2. HDMI

The ROSCube Pico provides one external HDMI port for connection to an external monitor.

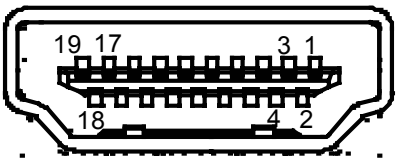


Figure 7: HDMI Connector

Pin	Signal	Pin	Signal
1	HDMI1_D2_CN_P	11	GND
2	GND	12	HDMI1_CK_CN_N
3	HDMI1_D2_CN_N	13	HDMI1_CN_CEC
4	HDMI1_D1_CN_P	14	
5	GND	15	HDMI1_CN_SCL
6	HDMI1_D1_CN_N	16	HDMI1_CN_SDA
7	HDMI1_D0_CN_P	17	GND
8	GND	18	+V5P0_HDMI
9	HDMI1_D0_CN_N	19	HDMI1_CN_HPD
10	HDMI1_CK_CN_P		

Table 6: HDMI Connector Pin definition

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3.3. DisplayPort Connector

The DisplayPort connector on the front panel can also connect to VGA, DVI, and HDMI displays via DisplayPort to VGA adapter cable, DisplayPort to DVI adapter cable, or DisplayPort to HDMI adapter cable.

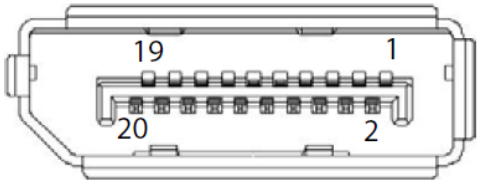


Figure 8: DisplayPort Connector

Pin	Signal	Pin	Signal
1	CN_DDPx0+	11	GND
2	GND	12	CN_DDPx3-
3	CN_DDPx0-	13	CN_DDPx_AUX_SEL
4	CN_DDPx1+	14	CN_DDPx_CONFIG2
5	GND	15	CN_DDPx_AUX+
6	CN_DDPx1-	16	GND
7	CN_DDPx2+	17	CN_DDPx_AUX-
8	GND	18	CN_DDPx_HPD
9	CN_DDPx2-	19	GND
10	CN_DDPx3+	20	+V3.3_DDPx_PWR_CN

Table 7: DisplayPort Connector Pin definition

Optional Adapter Cables

- Active DisplayPort to HDMI adapter cable (P/N: 30-01119-0010)
- Active DisplayPort to DVI adapter cable (P/N: 30-01120-0010)
- Active DisplayPort to VGA adapter cable (P/N: 30-01121-0010)

3.4. USB 3.2 Gen2 Type A ports

There are 4x USB 3.2 Gen2 Type A ports on the front panel.

- Speed: 10 Gbps
- Voltage: 5 V
- Current: 900 mA
- Inrush current: 100 mA or 44 Ohm || 10 µF
- Protection: TPS2553, 910 mA min., 1010 mA max.

3.5. USB 3.2 Gen2 Type C ports

There are 2x USB 3.2 Gen2 Type C ports on the rear panel (supporting DP1.4 dsiplay output).

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3.6. RS-232 Serial Port Header (COM 1)

There is a RS232 DB9 port on the right side panel (labeled “COM1”).

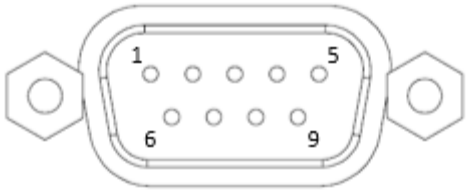


Figure 9: RS-232 DB9 Serial Port

Pin	Signal	Pin	Signal
1	DDCD#1	6	DDSR#1
2	RRXD1	7	RRTS#1
3	TTXD1	8	CCTS#1
4	DDTR#1	9	RRI#1
5	GND		

Table 8: RS-232 Serial Port Pin Definition

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3.7. System Management Header (COM 2)

There is a DB9 port with proprietary pinout on the right side panel for system management (labeled “COM 2”).

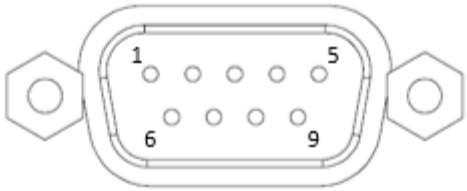


Figure 10: System Management Header

Pin	Signal	Pin	Signal
1	HDLED+	6	PWRBTN#
2	PLED+	7	RESET#
3	HOLED-	8	GND
4	PLED-	9	N/C
5	GND		

Table 9: System Management Header Pin definition

PWRBTN: Power Switch

- Short pins 5 and 6 to do the following: (1) if the system is off, the system will be power on; (2) if the operating system is running, then a window will pop up asking if the user wishes to turn off the system.

RESET: Reset Switch

- Short pins 7 and 8 to trigger a hard reset.

PLED: System Power LED

- On: system is operating
- Blinking: system is in S1/S3 sleep state
- Off: system is in S4 sleep state or powered off (S5).

HDLED: Drive Activity LED

- The LED is on when the hard drive is reading or writing data.

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3.8. M.2 Expansion Slots

There are 2 internal M.2 slots on the motherboard. Refer to *2.6.1Carrier Board Connector Locations* on page 6 for their locations.

3.8.1. M.2 for SSD

M.2 (Key M, 2242/2260/2280*) with PCIe x4 Gen4 and SATA 6Gb/s for SSD.

(*M.2 Key M 2280 supported by bracket)

Pin	Signal	Signal	Pin
1	GND	+3.3V	2
3	GND	+3.3V	4
5	PERn3	NC	6
7	PERp3	NC	8
9	GND	SATA LED	10
11	PETn3	+3.3V	12
13	PETp3	+3.3V	14
15	GND	+3.3V	16
17	PERn2	+3.3V	18
19	PERp2	NA	20
21	GND	NA	22
23	PETn2	NA	24
25	PETp2	NA	26
27	GND	NA	28
29	PERn1	NA	30
31	PERp1	NA	32
33	GND	NA	34
35	PETn1	NA	36
37	PETp1	DEVSLP	38
39	GND	SMB_CLK	40
41	PERn0/SATA-B+	SMB_DATA	42
43	PERp0/SATA-B-	NA	44
45	GND	NA	46
47	PETn0/SATA-A-	NA	48
49	PETp0/SATA-A+	PERST#	50
51	GND	CLKREQ#	52
53	PEFCLKn	WAKE#	54
55	PEFCLKp	NA	56
57	GND	NA	58
Key			
67	NA	NA	68
69	PEDET	+3.3V	70
71	GND	+3.3V	72
73	GND	+3.3V	74
75	GND		

Table 10: M.2 Key-M Socket (M2_M1)

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3.8.2. M.2 for Wi-Fi/Bluetooth

M.2 (Key E, 2230) with PCIe x1, USB 2.0 and CNVi for wireless

Pin	Signal	Signal	Pin
1	GND	+3.3V	2
3	USB_D+	+3.3V	4
5	USB_D-	NA	6
7	GND	NA	8
9	CNV_WGR_D1-	CNV_RF_RESET	10
11	CNV_WGR_D1+	NA	12
13	GND	MODEM_CLKREQ	14
15	CNV_WGR_D0-	NA	16
17	CNV_WGR_D0+	GND	18
19	GND	NA	20
21	CNV_WGR_CLK-	CNV_BRI_RSP	22
23	CNV_WGR_CLK+		
Key			
33	GND	CNV_BGI_DT	32
35	PETp	CNV_RGI_RSP	34
37	PETn	CNV_BRI_DT	36
39	GND	NA	38
41	PERp	NA	40
43	PERn	NA	42
45	GND	NA	44
47	PEFCLKp	NA	46
49	PEFCLKn	NA	48
51	GND	SUSCLK	50
53	CLKREQ#	PERST0#	52
55	WAKE#	W_DISABLE1#	54
57	GND	W_DISABLE2#	56
59	CNV_WT_D1-	SMB_DATA	58
61	CNV_WT_D1+	SMB_CLK	60
63	GND	NA	62
65	CNV_WT_D0-	CLKIN_XTAL_LCP	64
67	CNV_WT_D0+	NA	66
69	GND	NA	68
71	CNV_WT_CLK-	NA	70
73	CNV_WT_CLK+	+3.3V	72
75	GND	+3.3V	74

Table 11: M.2 Key-E Socket (M2_E1)

Note: Pins 6 and 8 are defined as USB 2.0 signals to support Key-M to Key-B extension card

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3.9. Jumpers

Refer to *2.6.1Carrier Board Connector Locations* on page 6

3.9.1. Clear CMOS Jumper

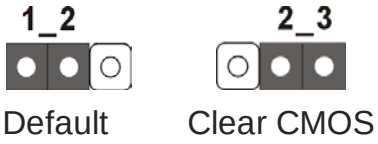


Figure 11: Clear CMOS Jumper (CLRCMOS1)

The jumper CLRCMOS1 allows you to clear the data in CMOS. To clear and reset the system parameters to default values, please turn off the computer and unplug the power cord from the power supply. After waiting for 15 seconds, use a jumper cap to short Pin 2 and Pin 3 on CLRCMOS1 for 5 seconds.

Note: Do not clear the CMOS immediately after a BIOS update. Reboot the system first, then shut it down before clearing the CMOS. The password, date, time, user default profile and MAC address will be cleared only if the CMOS battery is removed.

3.9.2. Power Mode Jumper



Figure 12: Power Mode Jumper (SIO_AT1)

- Open: ATX Mode
- Shorted: AT Mode (default)

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3.10. Onboard Headers

Refer to *2.6.1 Carrier Board Connector Locations* on page 6 for onboard header locations.

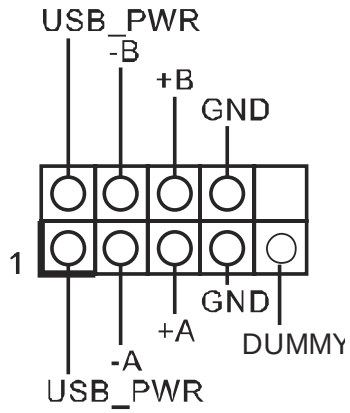
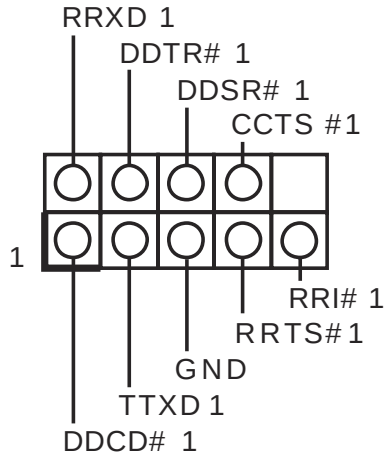
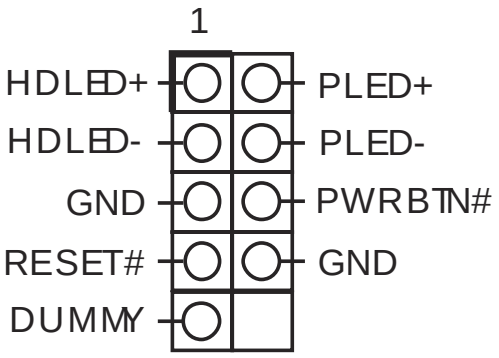
Header	Pin Definition	Function
USB 2.0 Pin Header		9-pin USB 2.0 header (USB2_7_8)
COM1 Pin Header		RS-232 COM1 port header
Power Management Header		Header for system front panel functions (PANEL1, to COM2 on right side I/O)

Table 12: Onboard Header Pin Definitions

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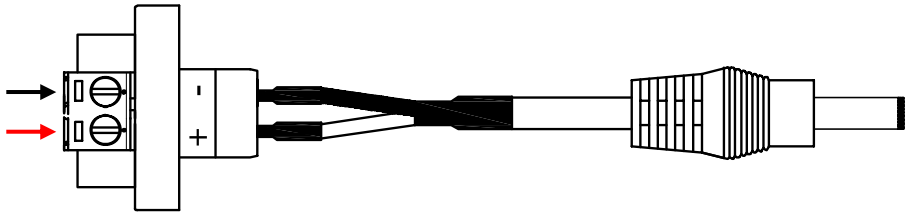
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4. Getting Started

The chapter describes the steps needed to install optional expansion modules onto ROScube Pico series and begin using it in your application.

4.1. Connect the DC plug adapter cable

Locate the DC plug adapter cable, included in the accessory box (shown below). Insert to the DC output wires of the AC adapter into the terminal block P1 as indicated: negative (black) to “-“ and positive (red) to “+”.

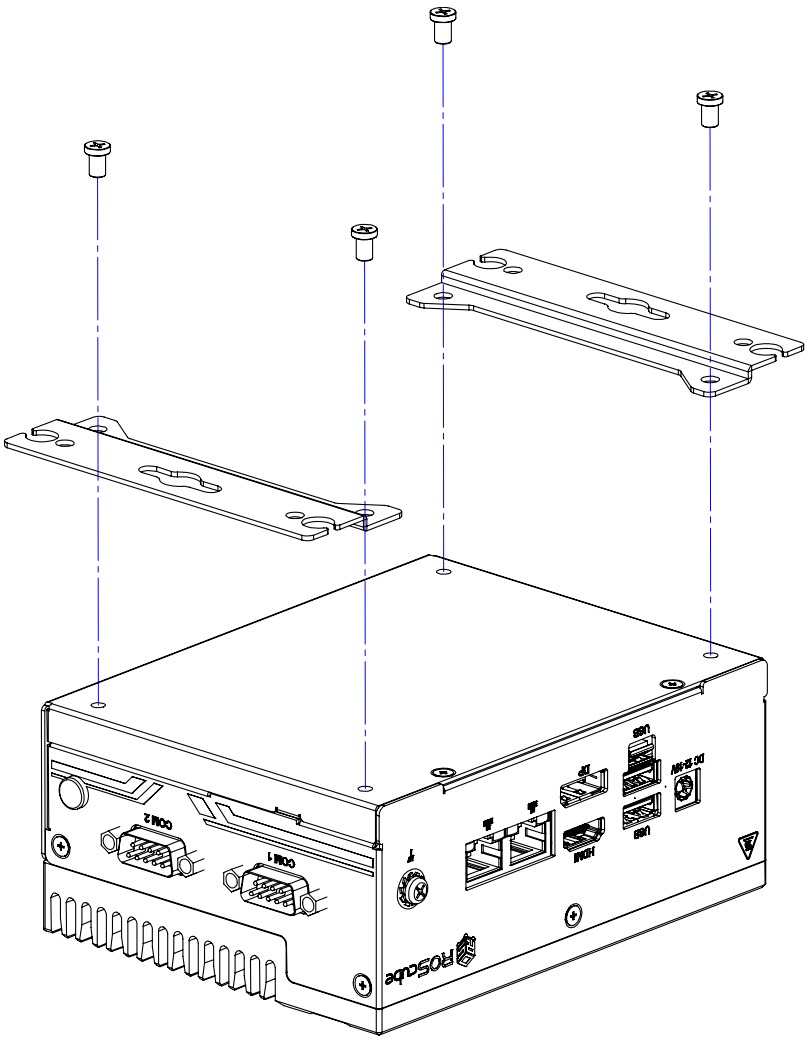


P1 **P2**

Insert the DC plug P2 into the DC power input jack on the front panel (see Figure 3: Front Panel I/O on page 7)

4.2. Mounting the ROSCube Pico TGL

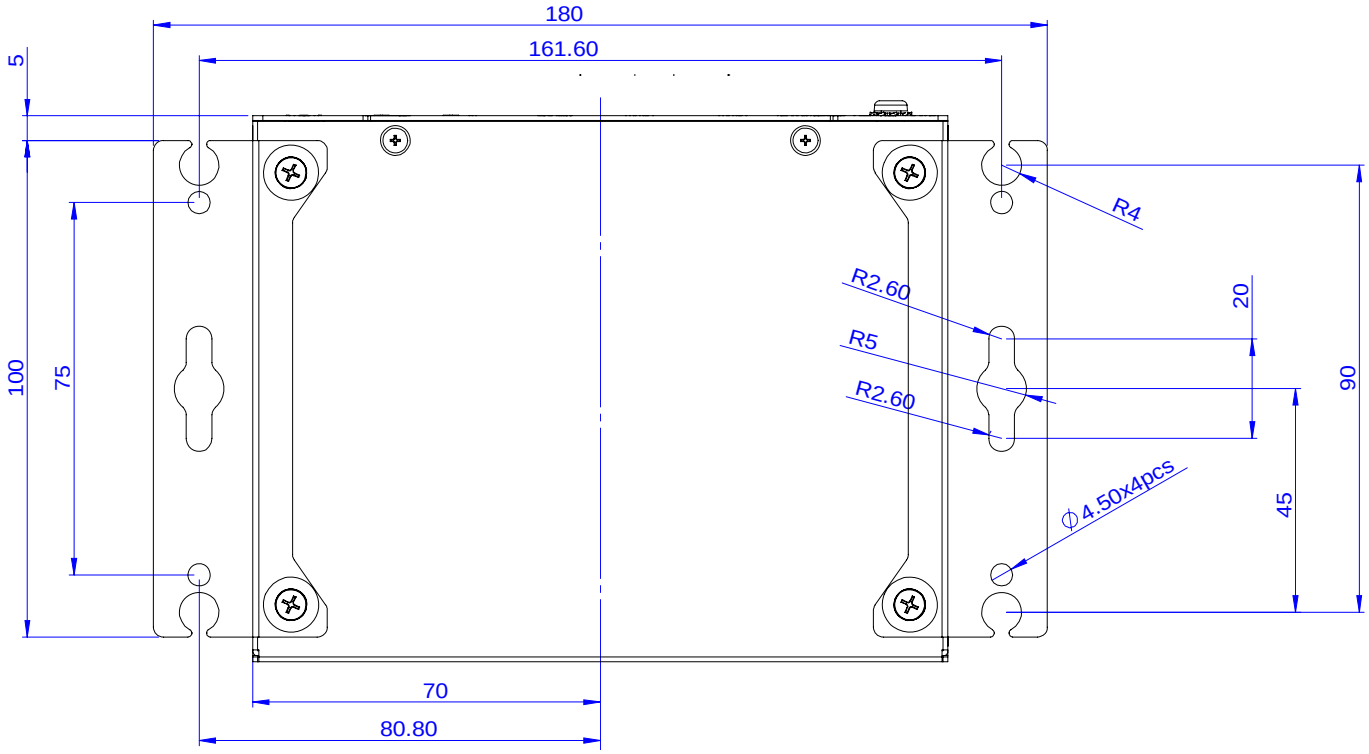
Attach the 2 included wall-mount brackets to the chassis as shown below.



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Mount the device to a wall using the or mounting holes or keyhole openings indicated below, according to the spacing dimensions of the holes in the bracket as shown.

All dimensions shown in millimeters



5. UEFI setup

5.1. Introduction

The Unified Extensible Firmware Interface (UEFI) is a program that provides a basic level of communication between the processor and peripherals. In addition, the UEFI also contains codes for various advanced features applied to the ROScube-Pico TGL Series. The UEFI setup program includes menus for configuring settings and enabling features of the ROScube-Pico TGL Series. Most users do not need to use the UEFI setup program, as the ROScube-Pico TGL Series ships with default settings that work well for most configurations. Enter UEFI setup by selecting DEL when the system is powered on the POST (Power On Self Test) message is displayed. The ROScube-Pico TGL Series controller supports one-time Boot Menu allowing selection of boot device.

If you wish to enter the UEFI SETUP UTILITY after POST, restart the system by pressing <Ctl> + <Alt> + <Delete>, or by pressing the reset button on the system chassis. You may also restart by turning the system off and then back on.

- UEFI options listed are for reference only.
- Different configurations can affect UEFI behavior.
- Displayed material may reflect only the UEFI version corresponding to initial release and may differ from that of the purchased motherboard.
- Users are welcome to download the latest UEFI version from our official website.

5.1.1. UEFI Menu Bar

The top of the screen has a menu bar with the following selections:

- **Main:** To set up the system time/date information
- **Advanced:** To set up the advanced UEFI features
- **H/W Monitor:** To display current hardware status
- **Security:** To set up the security features
- **Boot:** To set up the default system device to locate and load the Operating System
- **Exit :**To exit the current screen or the UEFI SETUP UTILITY
- Use <← > key or < →> key to choose among the selections on the menu bar, and then press <Enter> to get into the sub screen. You can also use the mouse to click your required item.

5.1.2. Navigation Keys

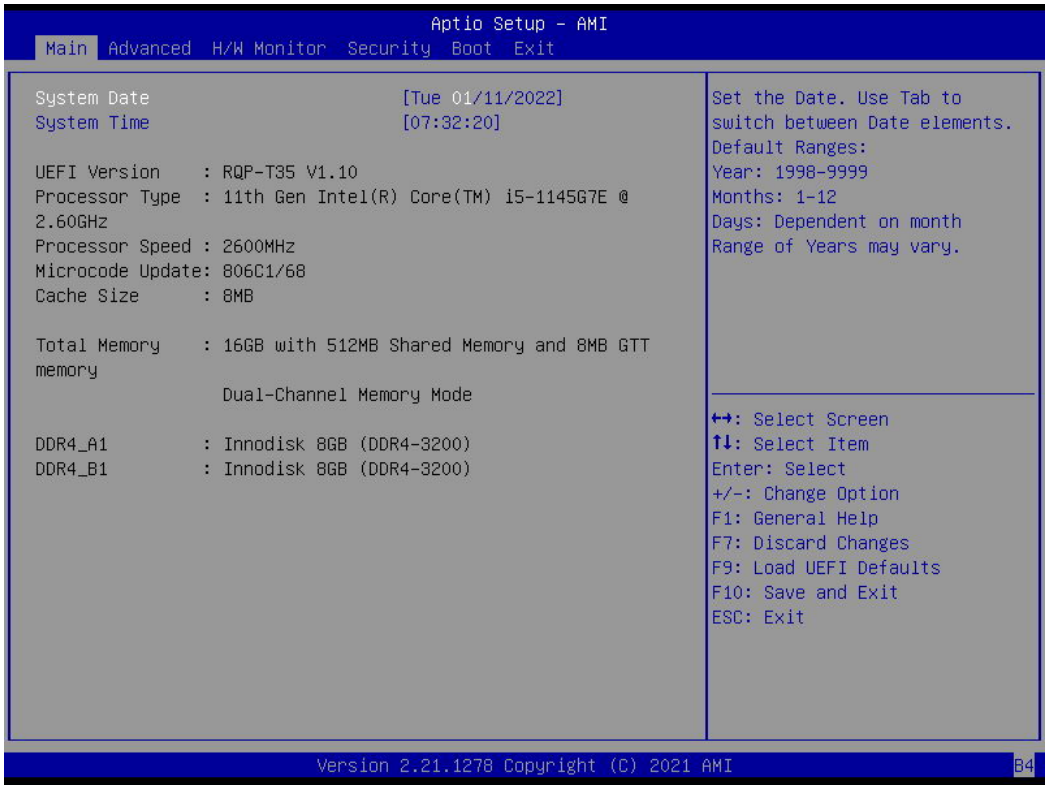
Please check the following table for the function description of each navigation key.

Navigation Key(s)	Function Description
← / →	Moves cursor left or right to select Screens
↑ / ↓	Moves cursor up or down to select items
+ / -	To change option for the selected items
<enter>	To bring up the selected screen
<F1>	To display the General Help Screen
<F7>	Discard changes
<F9>	To load optimal default values for all the settings
<F10>	To save changes and exit the UEFI SETUP UTILITY
<F12>	Print screen
<esc>	To jump to the Exit Screen or exit the current screen

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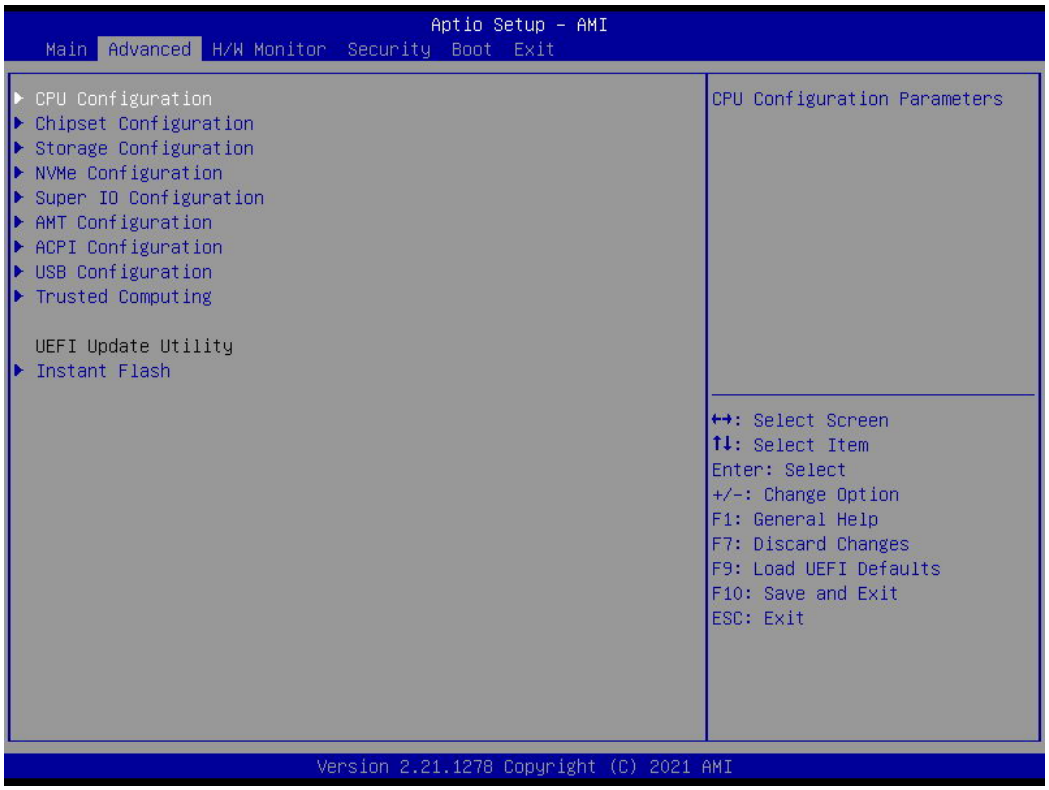
5.2. Main Screen

When you enter the UEFI SETUP UTILITY, the Main screen will appear and display the system overview.



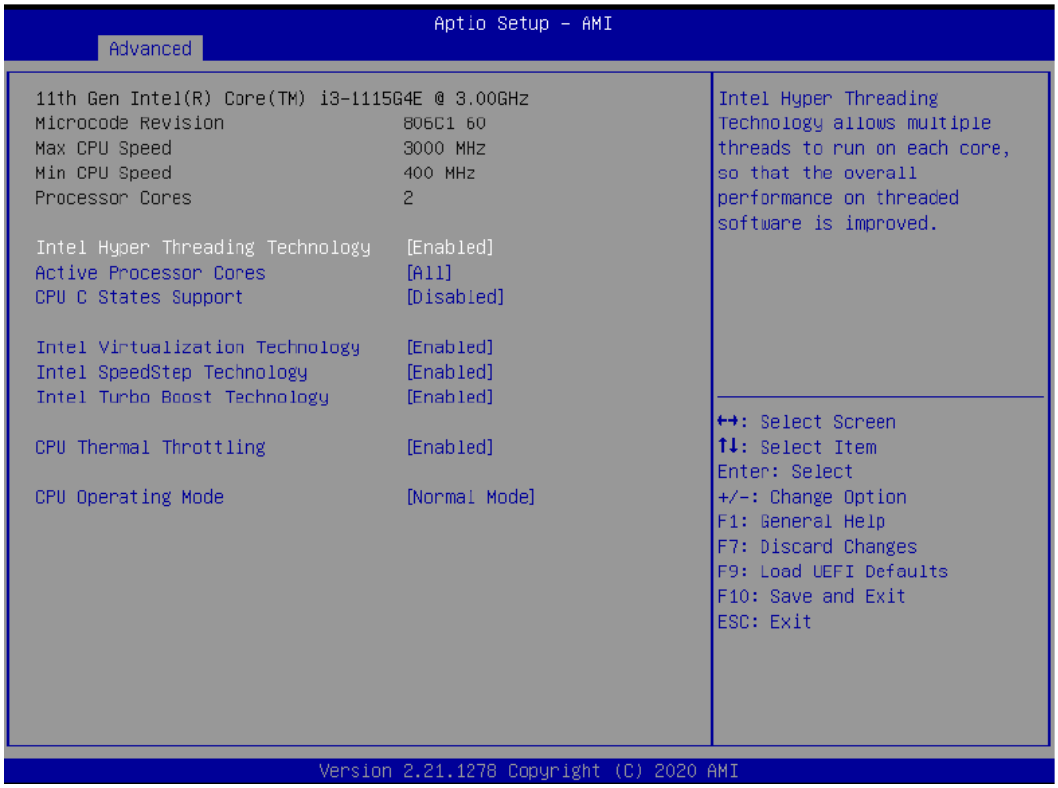
5.3. Advanced Screen

In this section, you may set the configurations for the following items: CPU Configuration, Chipset Configuration, Storage Configuration, NVMe Configuration, Super IO Configuration, ACPI Configuration, USB Configuration and Trusted Computing.



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5.3.1. CPU Configuration



Intel Hyper Threading Technology
This feature, requires an Intel processor that supports Hyper-Threading technology and an operating system that includes optimization for this technology, such as Microsoft® Windows® 10 64-bit, 8.1 64-bit, 7 32-bit, 7 64-bit. Set to [Enabled] if using Microsoft® Windows® 10 64-bit, 8.1 64-bit, 7 32-bit, 7 64-bit or Linux kernel version 2.4.18 or higher. This option will be hidden if the installed CPU does not support Hyper-Threading technology.

Active Processor Cores
Select the number of cores to enable in each processor package.

CPU C States Support
Enable CPU C States Support for power saving. It is recommended to keep C3, C6 and C7 all enabled for better power saving.

Intel Virtualization Technology
When this option is set to [Enabled], a VMM (Virtual Machine Architecture) can utilize the additional hardware capabilities provided by Vanderpool Technology. This option will be hidden if the installed CPU does not support Intel Virtualization Technology.

Intel SpeedStep Technology
Intel SpeedStep technology is Intel's new power saving technology. Processors can switch between multiple frequencies and voltage points to enable power saving. The default value is [Enabled]. Configuration options: [Enabled] and [Disabled]. If you install Windows® 10 64-bit, 8.1 64-bit, 7 32-bit, 7 64-bit and want to enable this function, please set this item to [Enabled]. This item will be hidden if the current CPU does not support Intel SpeedStep technology.

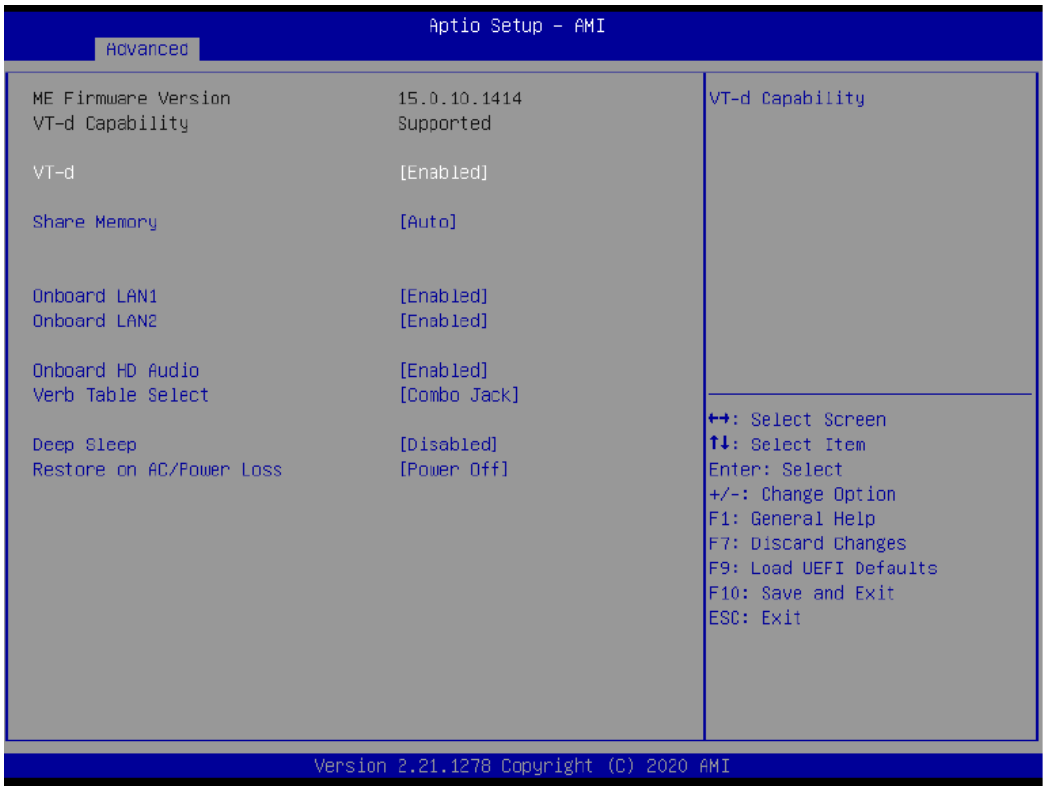
Intel Turbo Boost Technology
Use this item to enable or disable Intel Turbo Boost Mode Technology. Turbo Boost Mode allows processor cores to run faster than marked frequency in specific conditions. The default value is [Enabled].

CPU Thermal Throttling
You may select [Enabled] to enable CPU internal thermal control mechanism to keep the CPU from overheating.

CPU Operation Mode
Use this item to the select CPU Operating Mode, [Normal Mode] or [Performance Mode]. The default mode is [Normal Mode]. We recommend users do not to change this setting as [Performance Mode] may cause the CPU to overheat and result in unexpected system shutdown.

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5.3.2. Chipset Configuration



VT-d
Use this to enable or disable Intel® VT-d technology (Intel® Virtualization Technology for Directed I/O). The default value of this feature is [Disabled].

Share Memory
Configure the size of memory that is allocated to the integrated graphics processor when the system boots up.

Onboard LAN1
This allows you to enable or disable the Onboard LAN1 feature.

Onboard LAN2
This allows you to enable or disable the Onboard LAN2 feature.

Onboard HD Audio
Enable/disable onboard HD audio. Set to Auto to enable onboard HD audio and automatically disable it when a sound card is installed.

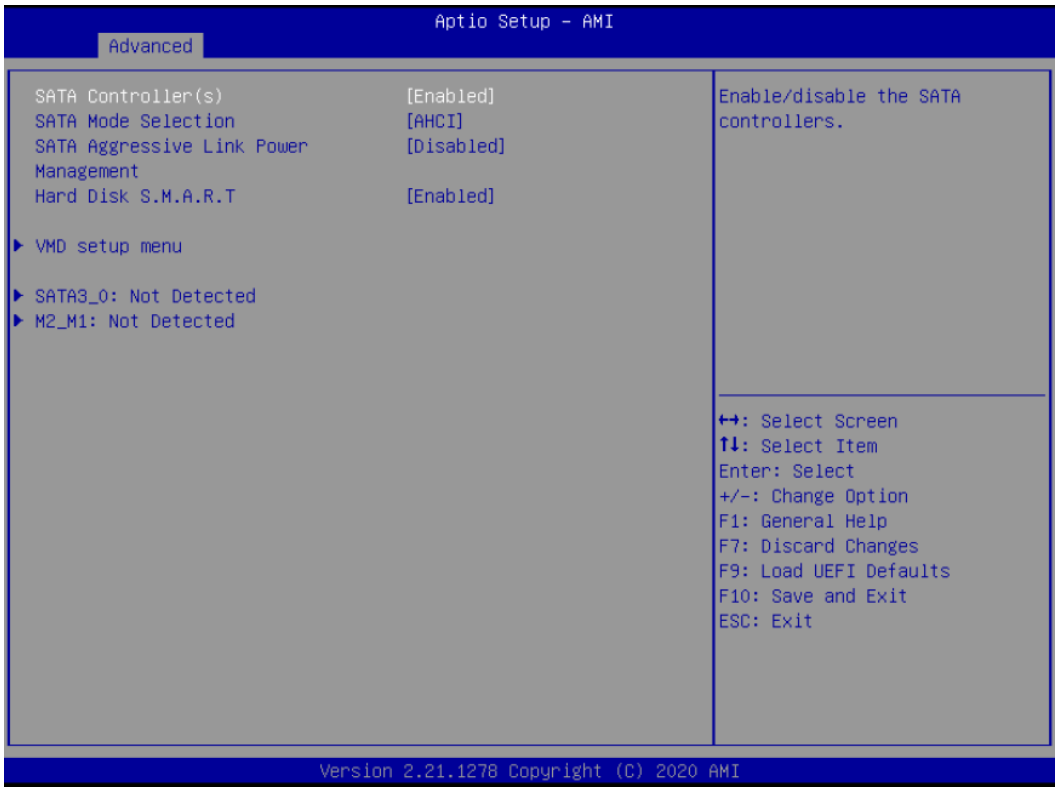
Verb Table Select
The default value is [Combo Jack].

Deep Sleep
Mobile platforms support Deep S4/S5 in DC only and desktop platforms support Deep S4/S5 in AC only. The default value is [Disabled].

Restore on AC/Power Loss
Select the power state after a power failure. If [Power Off] is selected, the power will remain off when the power recovers. If [Power On] is selected, the system will start to boot up when the power recovers.

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5.3.3. Storage Configuration



SATA Controller(s)
Use this item to enable or disable the SATA Controller feature.

SATA Mode Selection
Use this to select SATA mode. The default value is [AHCI Mode]. AHCI (Advanced Host Controller Interface) supports NCQ and other new features that will improve SATA disk performance but IDE mode does not have these advantages.

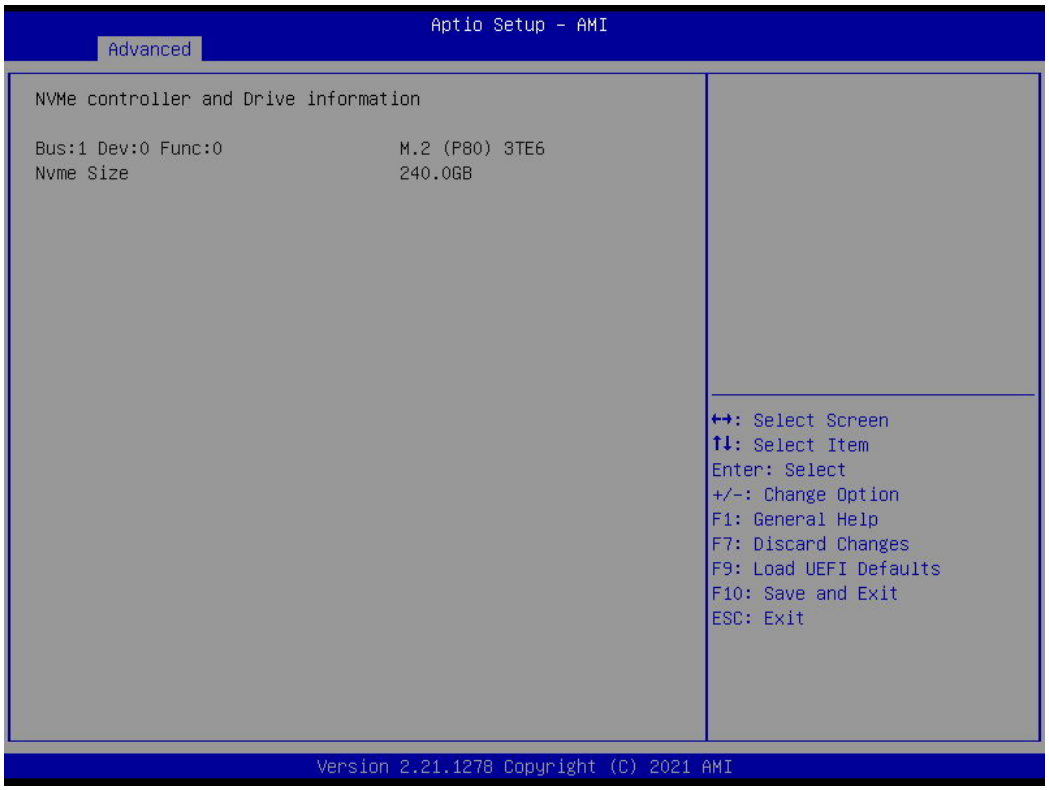
SATA Aggressive Link Power Management
Use this item to configure SATA Aggressive Link Power Management.

Hard Disk S.M.A.R.T.
Use this item to enable or disable the S.M.A.R.T. (Self-Monitoring, Analysis, and Reporting Technology) feature. Configuration options: [Disabled] and [Enabled].

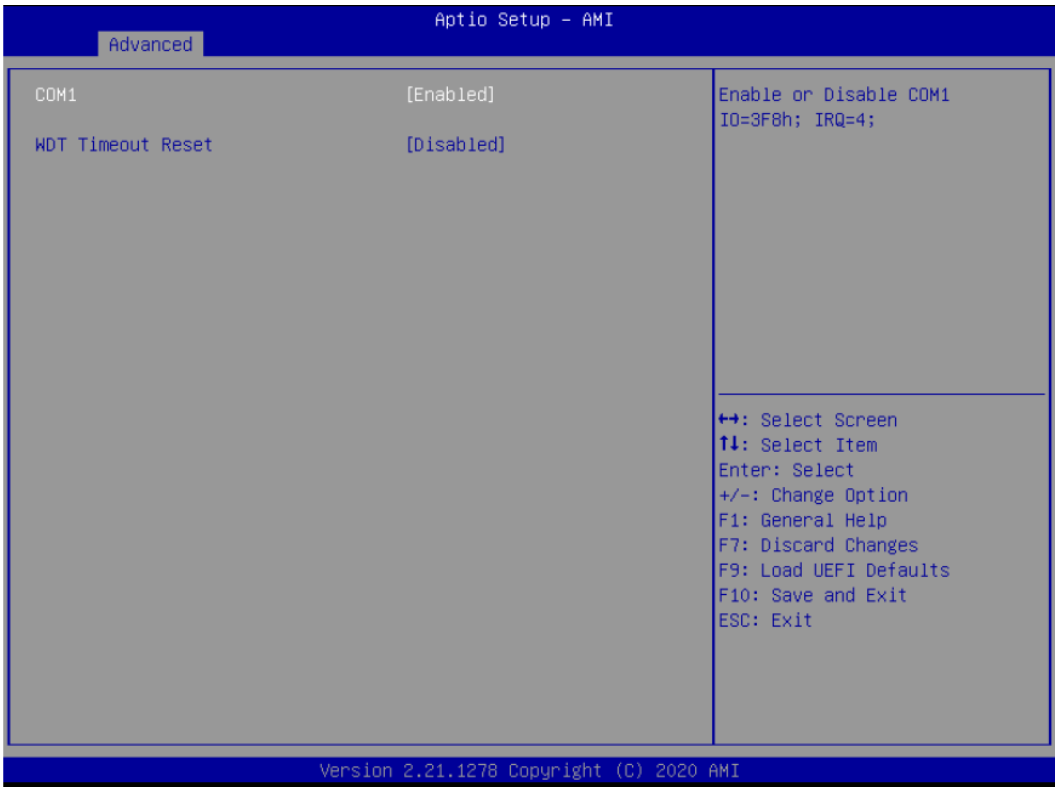
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5.3.4. NVMe Configuration

Displays NVMe controller and drive Information.



5.3.5. Super IO Configuration

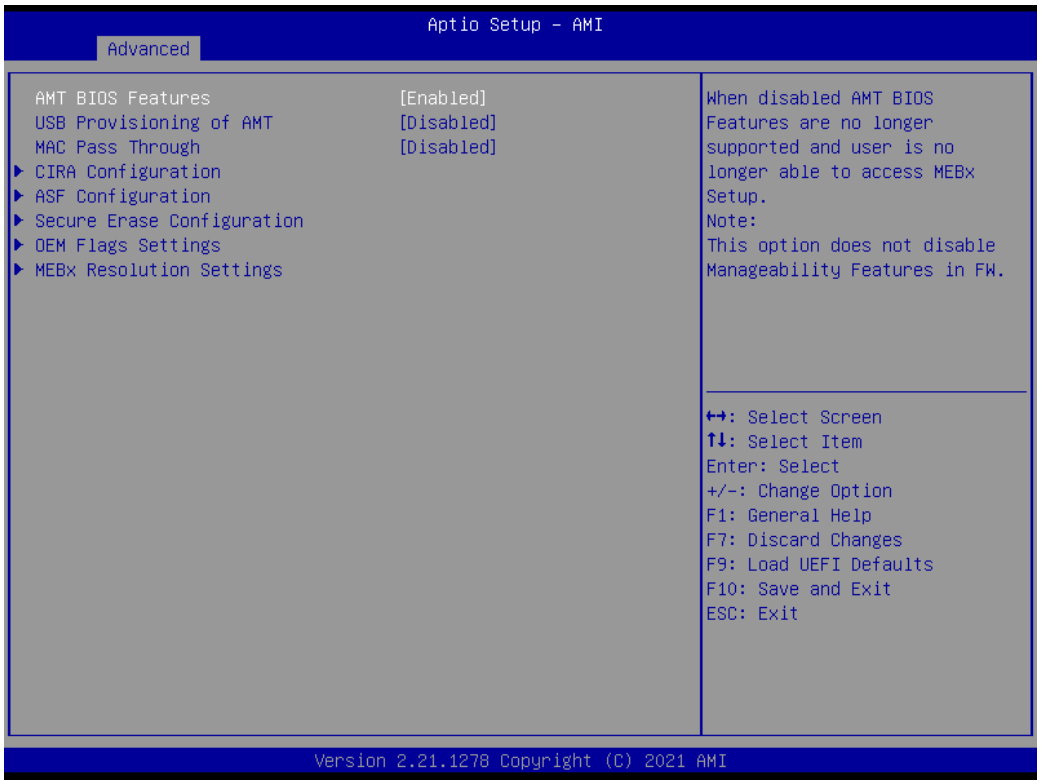


COM1 Configuration
Use this to set parameters of COM1.

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WDT Timeout Reset
Use this to set the Watch Dog Timer.

5.3.6. AMT Configuration

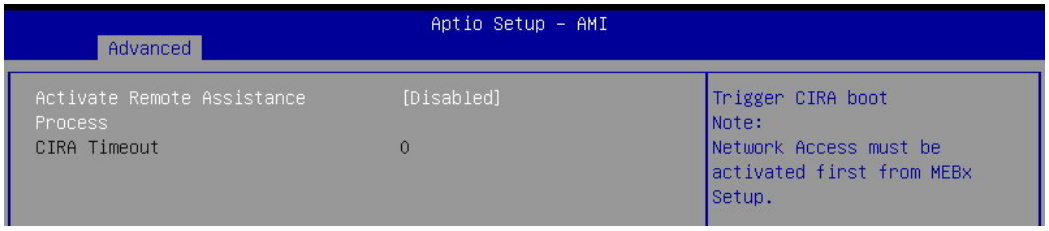


AMT BIOS Features
When disabled, AMT BIOS Features are no longer supported and the user is no longer able to access MEBx Setup.

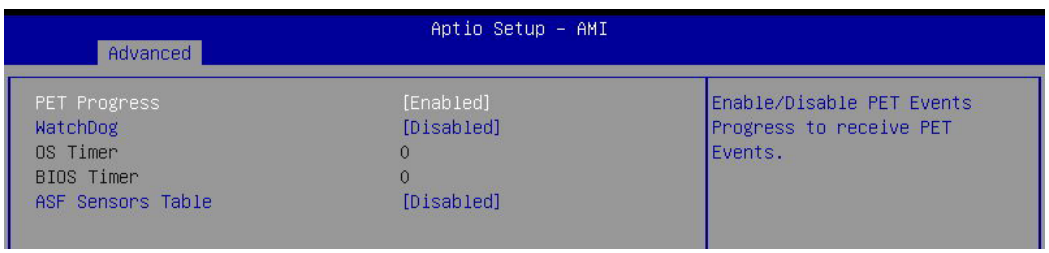
USB Provisioning of AMT
Enable or disable AMT USB Provisioning.

MAC Pass Through
Enable or disable MAC Pass Through function.

CIRA Configuration
Configure Remote Assistance Process parameters. User can activate the remote assistance process by enabling this function (Network Access must be first activated from MEBx Setup).

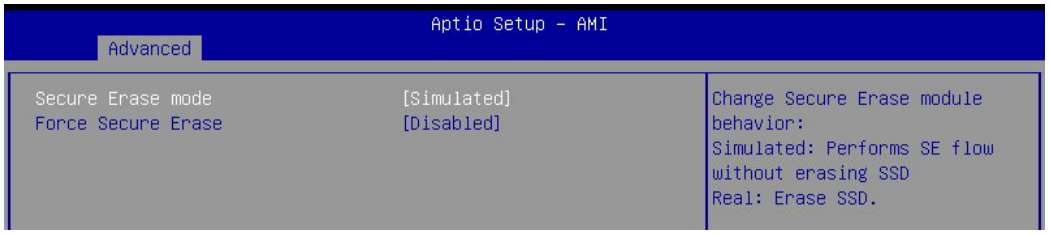


ASF Configuration
Configure Alert Standard Format parameters: (1) Enable or disable PET Events Progress to receive PET Events; (2) Enable or disable Watchdog Timer; (3) Add ASF Sensor Table into ASF ACPI Table.

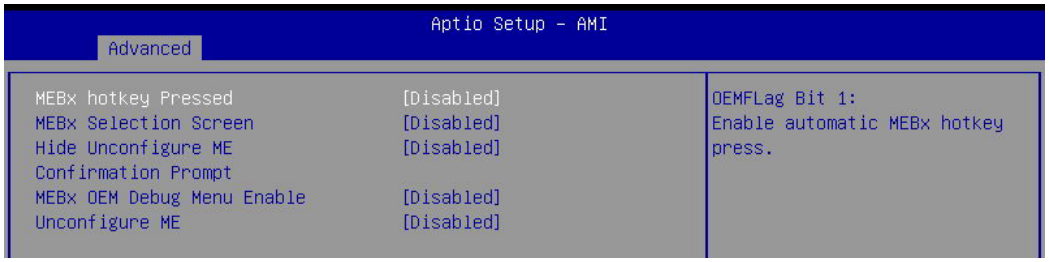


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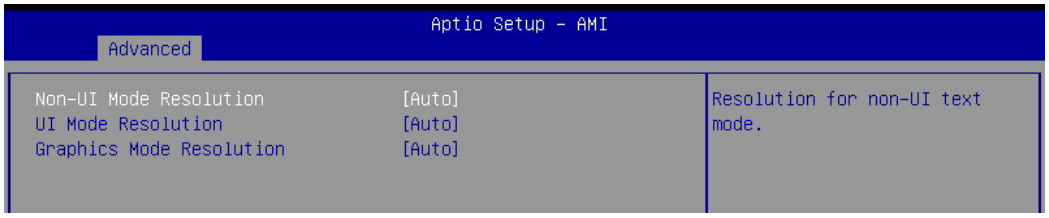
Secure Erase Configuration
Secure Erase Configuration menu: (1) Change Secure Erase module behavior by switching to Simulated mode (this performs SE flow without erasing the SSD), or switching to Real mode (erases SSD); (2) Force Secure Erase on next boot by enabling this function.



OEM Flags Settings
This can configure OEM Flags. Users can do the following things: (1) Enable or disable MEBx hotkey pressed; (2) Enable or disable MEBx selection screen; (3) Hide unconfigure ME confirmation prompt; (4) Enable or disable MEBx OEM debug menu; (5) enable or disable unconfigure ME.

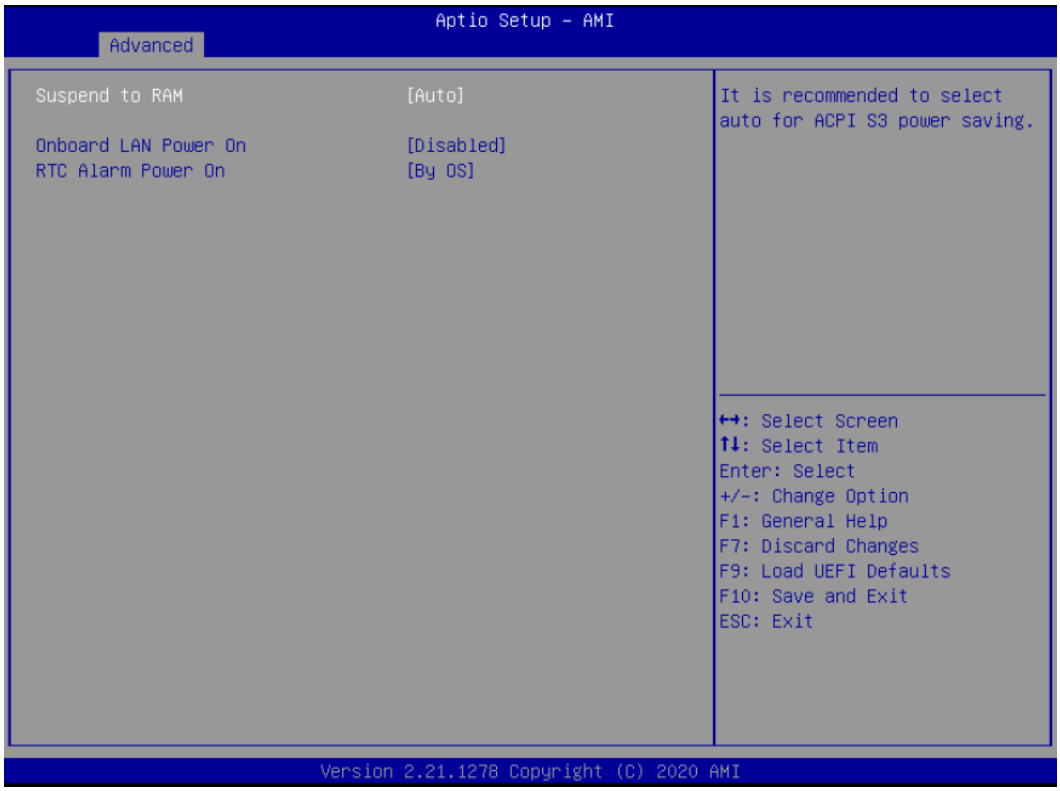


MEBx Resolution Settings
This is Resolution Settings for MEBx display modes. Users can adjust the following three resolutions: (1) Non-UI Mode Resolution; (2) UI Mode Resolution; (3) Graphics Mode Resolution.



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5.3.7. ACPI Configuration



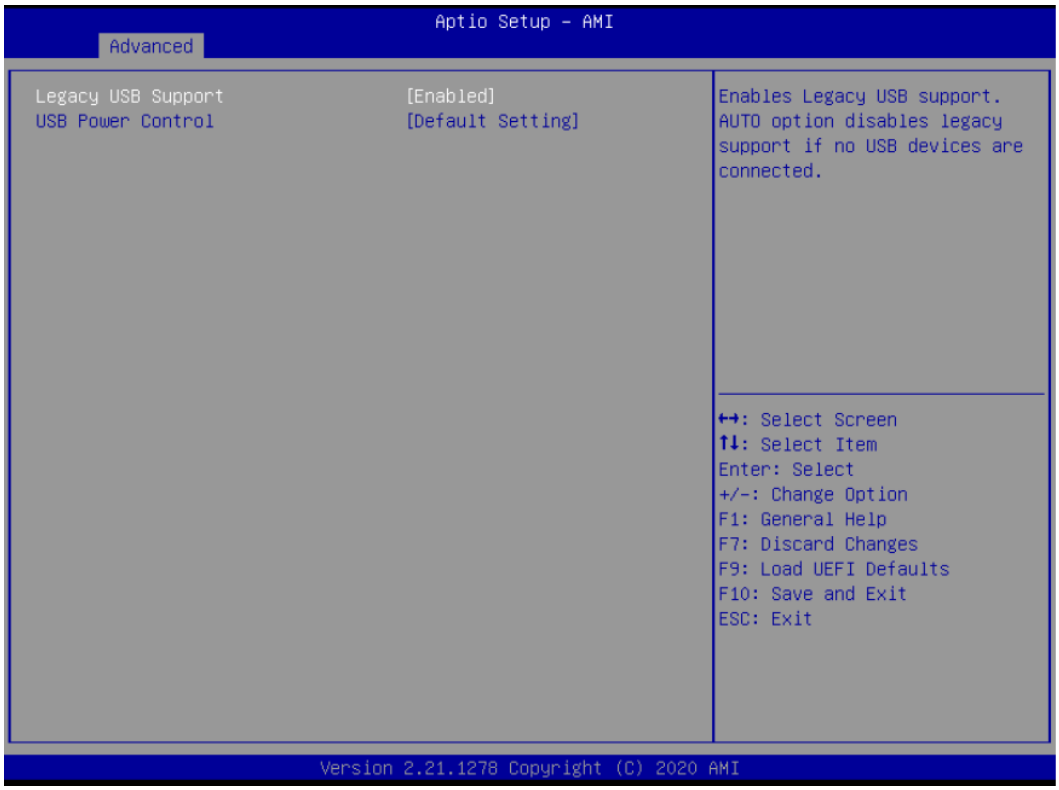
Suspend to RAM
Use this item to select whether to auto-detect or disable the Suspend-to- RAM feature. Select [Auto] will enable this feature if the OS supports it.

Onboard LAN Power On
Use this item to enable or disable onboard LAN to turn on the system from the power-soft-off mode.

RTC Alarm Power On
Use this item to enable or disable RTC (Real Time Clock) to power on the system.

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5.3.8. USB Configuration

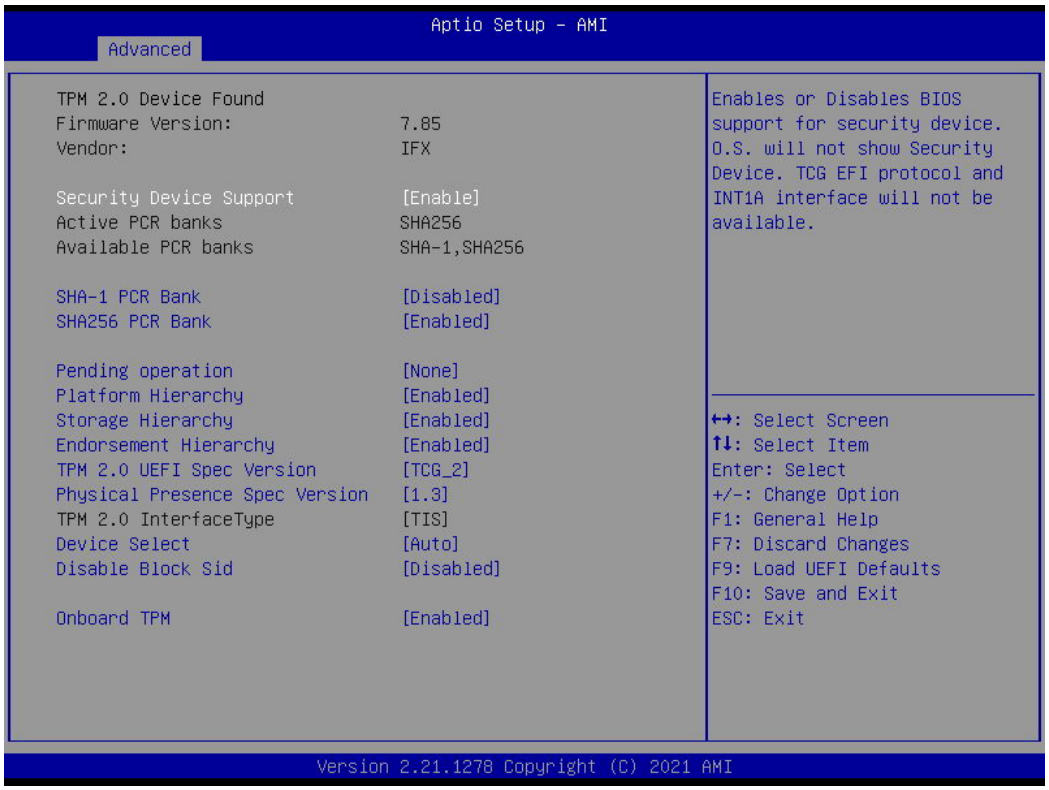


Legacy USB Support
Enable or disable Legacy OS Support for USB 2.0 devices. If you encounter USB compatibility issues it is recommended to disable legacy USB support. Select UEFI Setup Only to support USB devices under the UEFI setup and Windows/Linux operating systems only.

USB Power Control
Use this item to control USB power.

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5.3.9. Trusted Computing



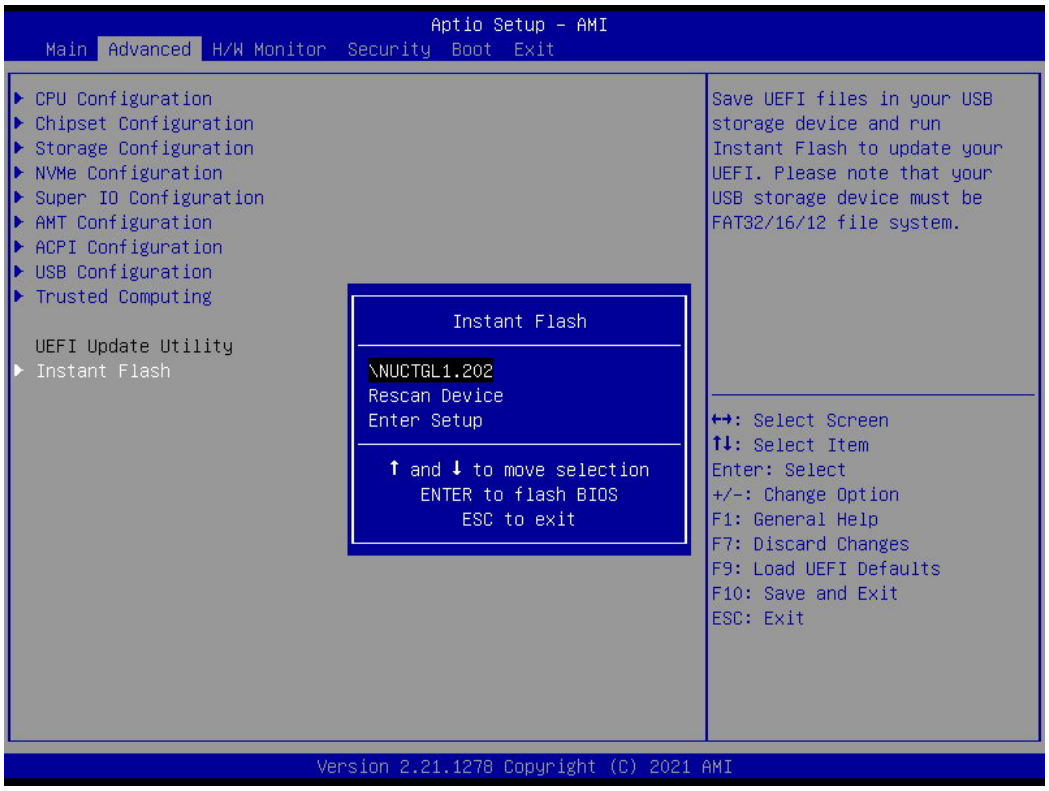
Security Device Support
Enable or disable BIOS support for security device.

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5.3.10. Instant Flash

Instant Flash is a UEFI flash utility embedded in Flash ROM. This convenient UEFI update tool allows you to update the system UEFI BIOS without first entering the operating system. Just launch this tool and save the new UEFI file to your USB flash drive, or hard drive to update your UEFI. Please note that the USB flash drive or hard drive must use FAT32/16/12 file system. If you execute Instant Flash utility, the utility will show the UEFI files and their respective information. Select the proper UEFI file to update your UEFI, and reboot your system after the UEFI update process completes.

Below is an example of what flashing a new version of UEFI looks like:



Checking UEFI version on Windows 10

Step 1. Type “cmd” under search bar to bring up cmd.exe

Step 2. Type the following command:

```
wmic bios get smbiosbiosversion
```

Checking UEFI version on Ubuntu

Step 1. Get into terminal

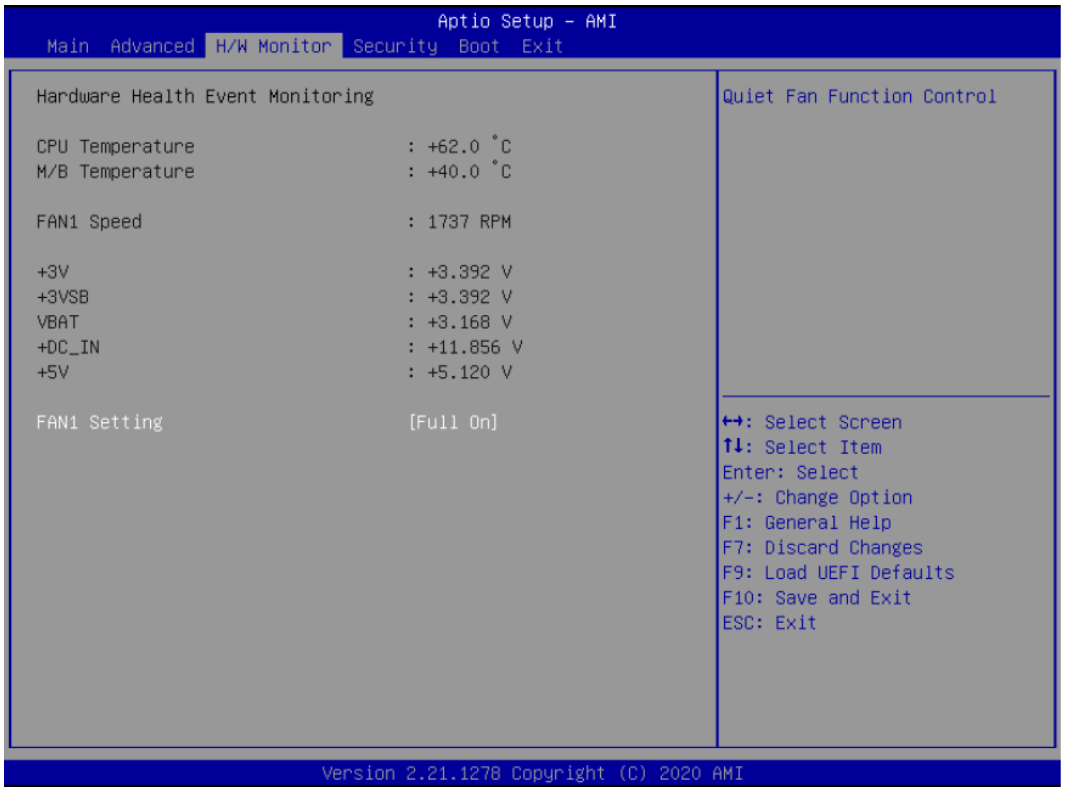
Step 2. Type the following command:

```
sudo dmidecode -s bios-version
```


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5.4. Hardware Health Event Monitoring Screen

In this section, it allows you to monitor the status of the hardware on your system, including the parameters of the CPU temperature, motherboard temperature, CPU fan speed, chassis fan speed, and the critical voltage.



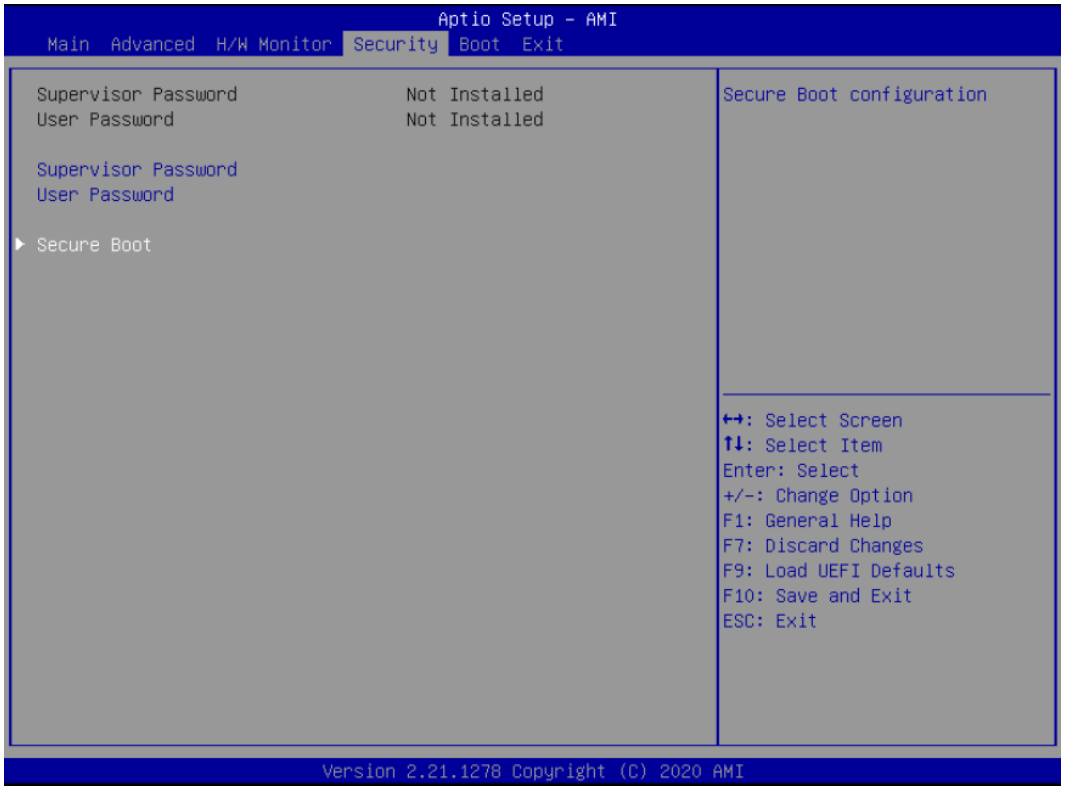
5.4.1. FAN1 Setting

This RQP-T3 series does not have any fans. This allows you to set FAN1's speed. Configuration options: [Full On] and [Automatic Mode]. The default value is [System Auto].

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5.5. Security Screen

In this section, you may set, change or clear the supervisor/user password for the system.



Supervisor Password
Set or change the password for the administrator account. Only the administrator has authority to change the settings in the UEFI Setup Utility. Leave it blank and press enter to remove the password.

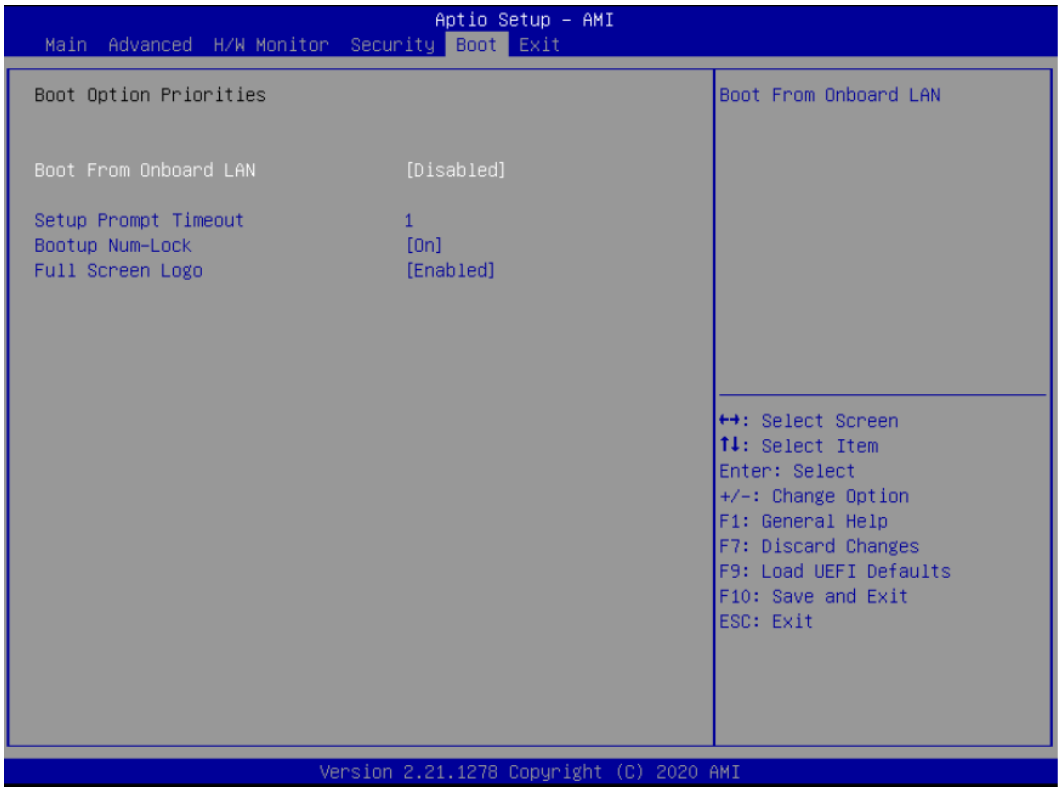
User Password
Set or change the password for the user account. Users are unable to change the settings in the UEFI Setup Utility. Leave it blank and press enter to remove the password.

Secure Boot
Enable to support Windows 8.1, 8 Secure Boot.

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5.6. Boot Screen

In this section, it will display the available devices on your system for you to configure the boot settings and the boot priority.



Boot From Onboard LAN
Use this item to enable or disable the Boot From Onboard LAN feature.

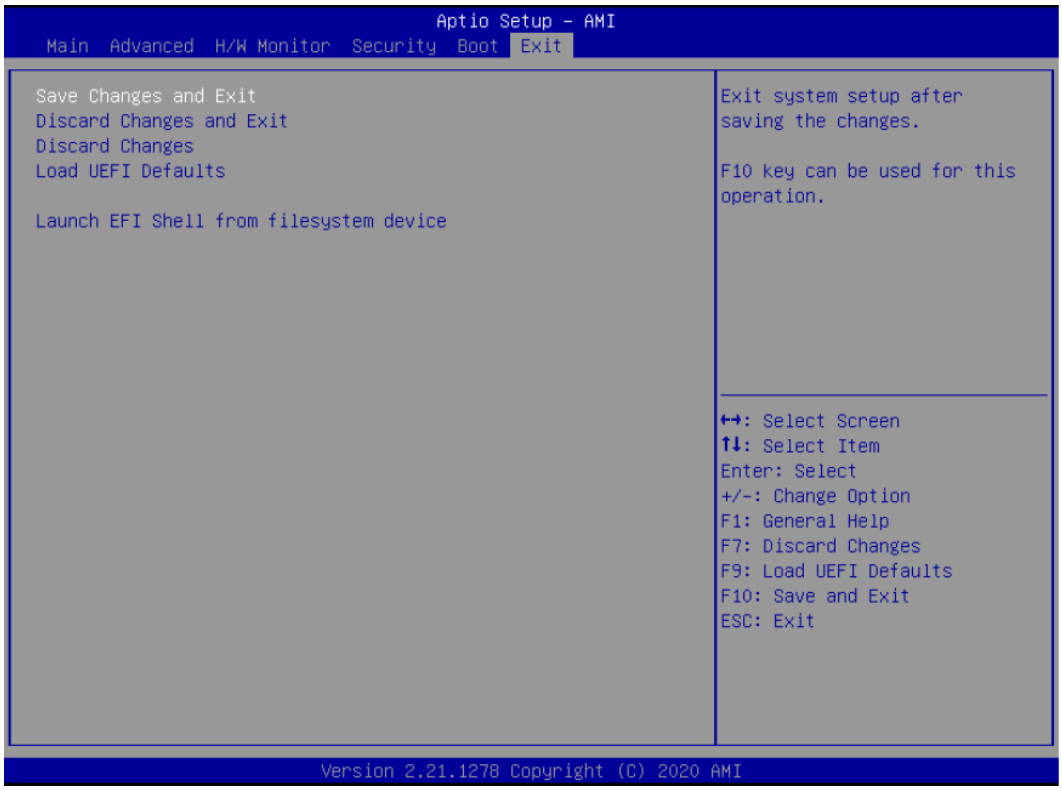
Setup Prompt Timeout
This shows the number of seconds to wait for setup activation key. 65535 (0XFFFF) means indefinite waiting.

Bootup Num-Lock
If this item is set to [On], it will automatically activate the Numeric Lock function after boot-up.

Full Screen Logo
Use this item to enable or disable OEM Logo. The default value is [Enabled].

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5.7. Exit Screen



Save Changes and Exit
When you select this option, it will pop-out the following message, “Save configuration changes and exit setup?” Select [OK] to save the changes and exit the UEFI SETUP UTILITY.

Discard Changes and Exit
When you select this option, it will pop-out the following message, “Discard changes and exit setup?” Select [OK] to exit the UEFI SETUP UTILITY without saving any changes.

Discard Changes
When you select this option, it will pop-out the following message, “Discard changes?” Select [OK] to discard all changes.

Load UEFI Defaults
Load UEFI default values for all the setup questions. F9 key can be used for this operation.

Launch EFI Shell from filesystem device
Attempts to Launch EFI Shell application (Shell64.efi) from one of the available filesystem devices.

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Safety Instructions

Read and follow all instructions marked on the product and in the documentation before you operate your system. Retain all safety and operating instructions for future use.

- Please read these safety instructions carefully.
- Please keep this User‘s Manual for later reference.
- Read the specifications section of this manual for detailed information on the operating environment of this equipment.
- When installing/mounting or uninstalling/removing equipment, turn off the power and unplug any power cords/cables.
- To avoid electrical shock and/or damage to equipment:
  - Keep equipment away from water or liquid sources.
  - Keep equipment away from high heat or high humidity.
  - Keep equipment properly ventilated (do not block or cover ventilation openings).
  - Make sure to use recommended voltage and power source settings.
  - Always install and operate equipment near an easily accessible electrical socket-outlet.
  - Secure the power cord (do not place any object on/over the power cord).
  - Only install/attach and operate equipment on stable surfaces and/or recommended mountings.
  - If the equipment will not be used for long periods of time, turn off and unplug the equipment from its power source.
- Never attempt to fix the equipment. Equipment should only be serviced by qualified personnel.

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Getting Service

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Address: 9F, No.166 Jian Yi Road, Zhonghe District
New Taipei City 235, Taiwan
Tel: +886-2-8226-5877
Fax: +886-2-8226-5717
Email: service@adlinktech.com

Ampro ADLINK Technology, Inc.
Address: 5215 Hellyer Avenue, #110, San Jose, CA 95138, USA
Tel: +1-408-360-0200
Toll Free: +1-800-966-5200 (USA only)
Fax: +1-408-360-0222
Email: info@adlinktech.com

ADLINK Technology (China) Co., Ltd.
Address: 300 Fang Chun Rd., Zhangjiang Hi-Tech Park, Pudong New Area
Shanghai, 201203 China
Tel: +86-21-5132-8988
Fax: +86-21-5132-3588
Email: market@adlinktech.com

ADLINK Technology GmbH
Hans-Thoma-Straße 11
D-68163 Mannheim, Germany
Tel: +49-621-43214-0
Fax: +49-621 43214-30
Email: germany@adlinktech.com

Please visit the Contact page at www.adlinktech.com for information on how to contact the ADLINK regional office nearest you.

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