TEGUAR®

TRT-3493-12
User Guide

Rugged Tablet

Revision History

Current Rev: 5.2 Date: 03.16.2022

Revision	
1.0	New Release
2.0	1.) New added 1pc Tablet Main Battery shipping along with Docking Station 2.) Win10 OS revision 3.) LTE category update 4.) Barcode Scanner SwiftDecoder supplement 5.) Battery Hot-swappable features supplement 6.) MIL-STD-810G Test Compliance update
3.0	1.) Update main battery description
4.0	1.) new added battery charger
5.0	1.) Revised CPU module no. from N4200E to N4200 (Intel change model no.) 2.) Update BT version to 5.0 3.) Update GPS as optional part. 4.) Update description for page.3 feature Summary, page.20 on AC Adapter & page.21 on battery pack
5.1	1.) Update on pg.3 for rugged tablet feature & pg.6 for feature summary
5.2	1.) Update on pg.24 with French on caution texts concerning lithium batteries, update on RF Exposure Information (SAR), and caution information

Rugged Tablet Features

This chapter briefly describes the features of Rugged Tablet-TRT-3493-12 which has three products repsectively as well as purchased individually as optional peripherals.

- **TRT-3493-12 Tablet (system)**
- **TRT-3493-12 Docking Station (optional peripheral) (including one standalone Tablet Battery)**
- **TRT-3493-12 Extension Cover (optional peripheral)**
- **TRT-3493-12 Battery Charger (optional peripheral)**

Summarize the major features below.

Feature Summary

TABLE: TEGUAR TRT-3493-12 FEATURES

TRT-3493-12 System- Tablet

DISPLAY	
Size	11.6" TFT-LCD
Max. Resolution	1920 x 1080
Luminance (cd/m2)	300 nits Optional: 500 nits
Glass Type	Gorilla® Glass 3 and Direct Bonding
TOUCH SCREEN	
Type	P-CAP
Touch	10 point capacitive multi-touchscreen supporting glove mode and rain mode
SYSTEM	
Operating System	Windows 10 IoT Enterprise 2019 LTSB
Processor	Intel® Apollo Lake Pentium N4200 (Quad-Cores) 1.1GHz with turbo frequency to 2.5GHz, 2MB L2 Cache (4 Threads)
Chipset	Intel® SoC Integrated
System RAM	LPDDR4 3733MHz 4GB (Option: 8GB)
System ROM	M.2 SSD 64GB (Option: 256GB)
Wireless	IEEE 802.11 ac/a/b/g/n (2.4GHz/5GHz)
Bluetooth	BT V5.0
LTE/GPS (optional)	GPS (UBX-G8020-KT) LTE CAT6 w/ M.2 Slot Comp. w/ regular M.2 card (Support by Request)
NFC	NFC Reader (NXP NPC300)
Barcode Scanner	Optional: SW Decode: Honeywell SwiftDecoder (1D/2D Support)*SDK Solution only. (SDK + Integration Guide). Further integration with customer's proprietary application would be mandatory.
Rear Camera	8MP Auto-Focus CMOS built-in module with Flash LED
Switch Key	1 x Dump Switch ; 1 x Reset Switch
Sensor	Ambient Light Sensor, Gyro Sensor & G-Sensor
Speaker	2 x 0.8W

Microphone	Yes
LED Indicator	Charging LED Power LED
Main Battery	19.532Whr Removable lithium battery with latch lock (2570mAh, 7.6V)*****
Hot-Swappable Battery	Yes, 2.66Whr back-up battery (700mAh*1, 3.8V, 1S1P)
I/O Port	1 x USB 3.0 Type-A ; 1 x Nano-SIM (Support by Request w/LTE feature) 1 x Audio Jack ; 1 x DC Jack ; 1 x POGO Connector
Keypad	1 x Power Key 2 x Volume Key 3 x Capacitive Function Key (on front side)
Fully Rugged Feature	IP65 MIL-STD-810G: - 1.2M Drop - Shock & Vibration - Sand & Dust-Blowing Sand - High/Low Temperature – Operation - High/Low temperature – Storage - Freeze/thaw –Rapid temperature change - Thermal Shock 299 x 199 x 17.7 mm
Dimension	299 x 199 x 17.7 mm (without bumpers & hand-strap) 307.9 x 207.9 x 29.3 mm (with bumpers & hand-strap)
Weight	895g (Entry WiFi SKU)
Operating Temperature	-10°C ~ 50°C
Storage Temperature	-20°C ~ 60°C
Storage Humidity	10% ~ 90% @40°C non-condensing
Security	HW TPM 2.0 FIPS 140-2 Level 2 Compliance
Certification	CE/FCC/VCCI
Hand-strap	Yes
Shoulder-strap	Yes
Power Adapter	AC to DC, DC 19V 65W Adaptor

*****With JEITA2.0 Test Report 4.2hrs

TRT-3493-12 optional peripheral- Docking Station

DOCKING STATION	
Key Features	Desktop Cradle with Power Charging. Battery Charging Bay and I/O Expansion
I/O	1 x Powered 24V USB 1 x USB 3.0 Type-A 2 x USB 2.0 Type-A 1 x HDMI 1.3 1 x Powered 5V/12V Serial Port 1 x Giga LAN 1 x Battery Charging Slot 1 x DC Jack
Power Adapter	AC to DC, DC 24V 180W Adapter
Tablet Main Battery	1 x Standalone Tablet Main Battery (shipping along with Docking Station)

TRT-3493-12 optional peripheral- Extension Cover

EXTENSION COVER	
Key Features	Vehicle Mounting VESA mount support 75 mm x 75mm Power Charging and I/O Expansion Clip-Fix Design for Pick-up Tablet by Tool-Less
I/O	1 x Powered 24V USB 1 x USB 3.0 Type-A 1 x HDMI 1.3 1 x Powered 5V/12V Serial Port 1 x Giga LAN (Optional) 3 x SMA (2 x LTE and 1 x GPS) for RF Antenna Path (Optional) 1 x Nano-SIM (support by request) 1 x DC Jack
Power Adapter	AC to DC, DC 24V 180W Adapter

TRT-3493-12 optional peripheral- Battery Charger

EXTENSION COVER	
Battery Slot	2 x slots
LED indicator	3 x LED - w/o battery insert: Green (blink) - w/ battery insert, Charging On-going : Green - w/ battery insert, Charging Complete : no light
I/O	**1 x DC Jack (adapter : use tablet adapter)**
Power Adapter	DC 19V 65W Adaptor (sames as tablet; no included in package)
SKU	SKU 1 : with 1 battery pack SKU 2 : with 2 battery packs

TRT-3493-12 Dimensions and I/O Placement

Figure shows the dimension and I/O placement of Tablet, Docking Station and Extension Cover.

Figure1:Teguar TRT-3493-12 Tablet Dimension

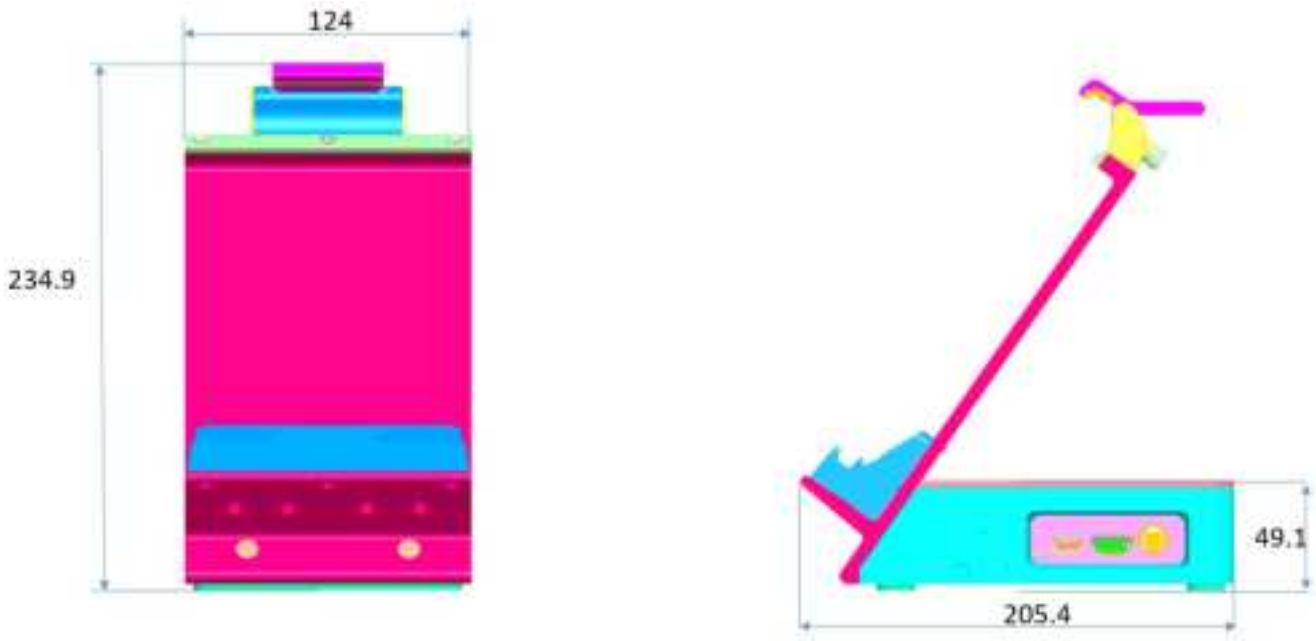


Figure2: Teguar TRT-3493-12 Docking Station Dimension (without Cable Cover)

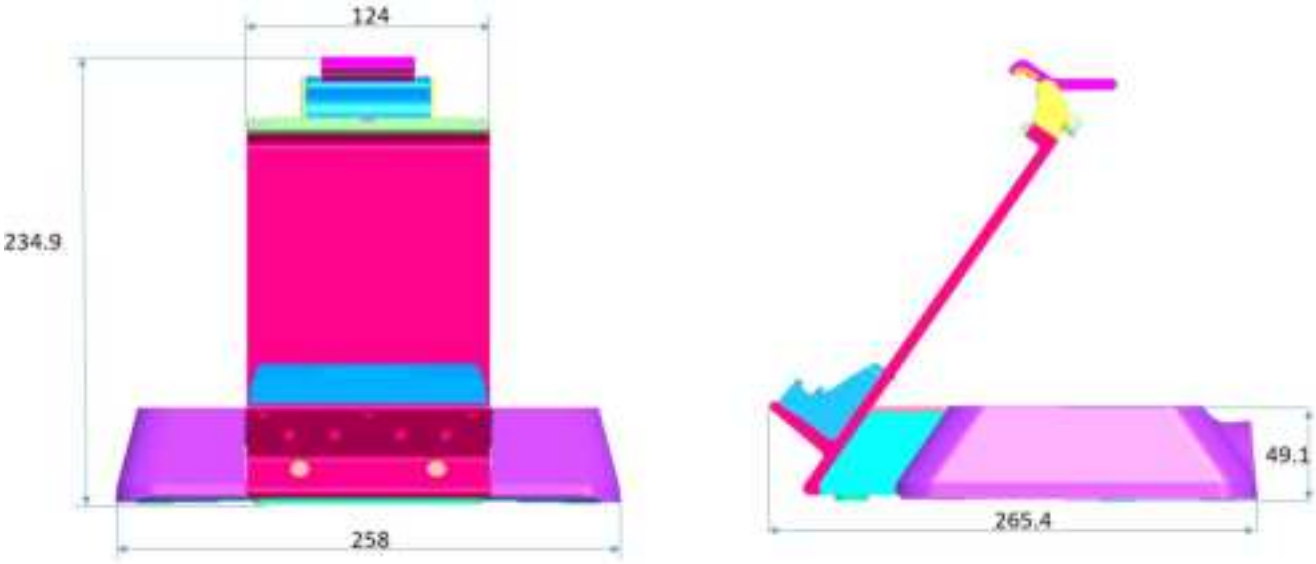


Figure3: Teguar TRT-3493-12 Docking Station Dimension (with Cable Cover)

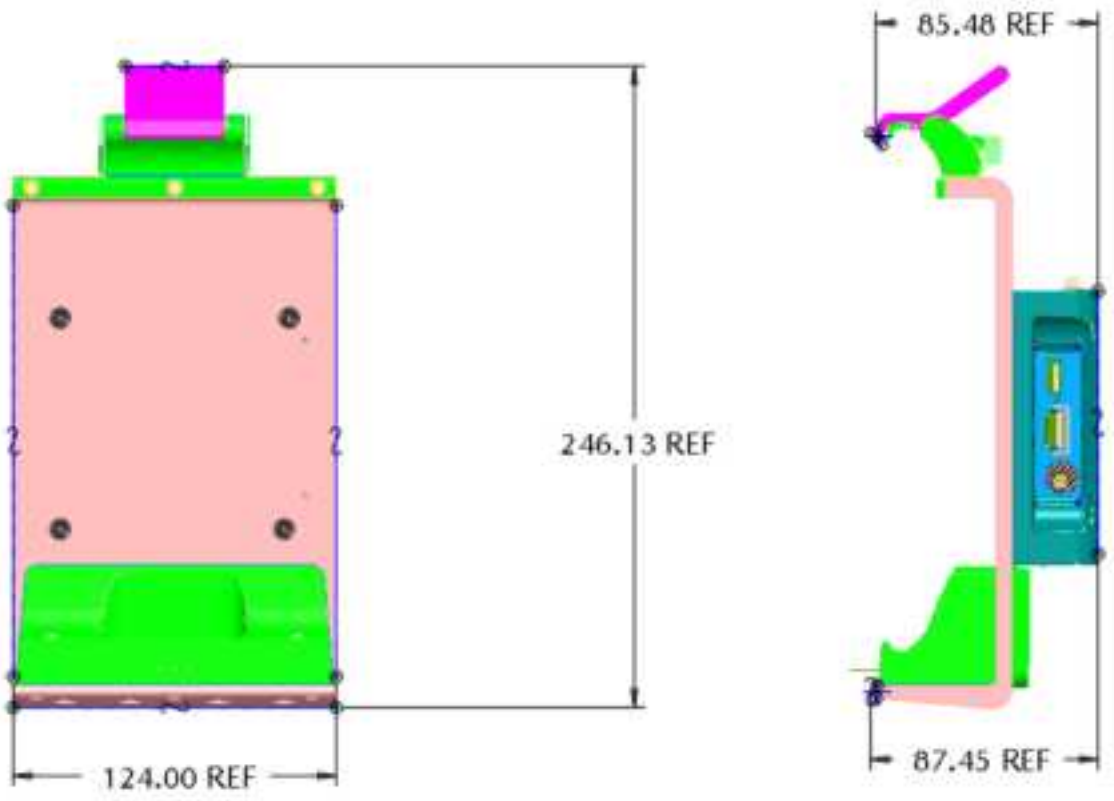


Figure4: Teguar TRT-3493-12 Extension Cover Dimension

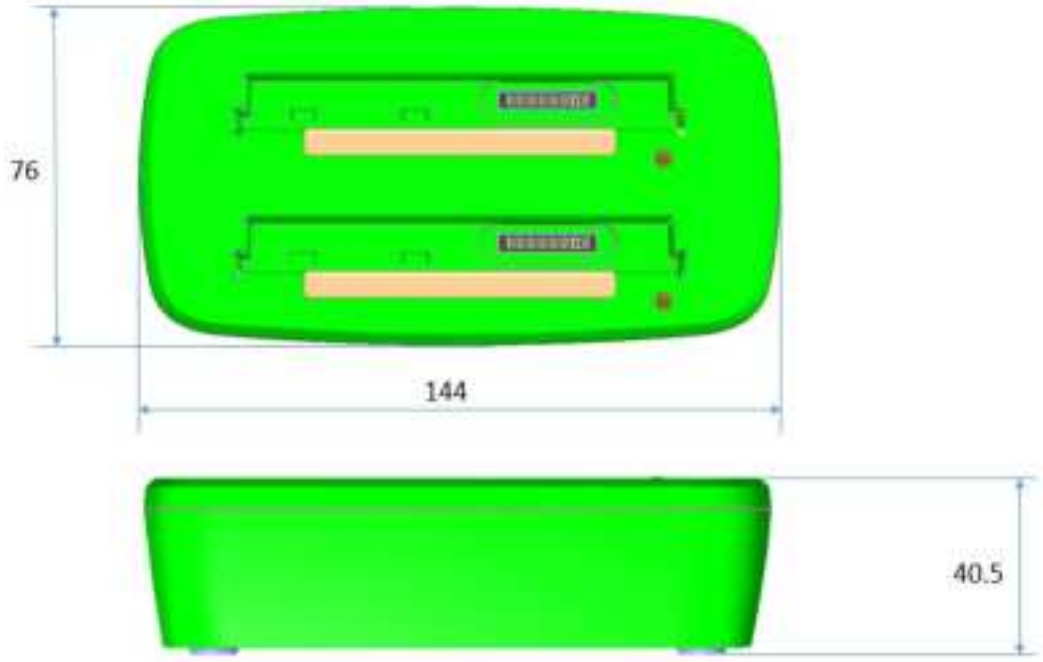


Figure5: Teguar TRT-3493-12 Battery Charger Dimension

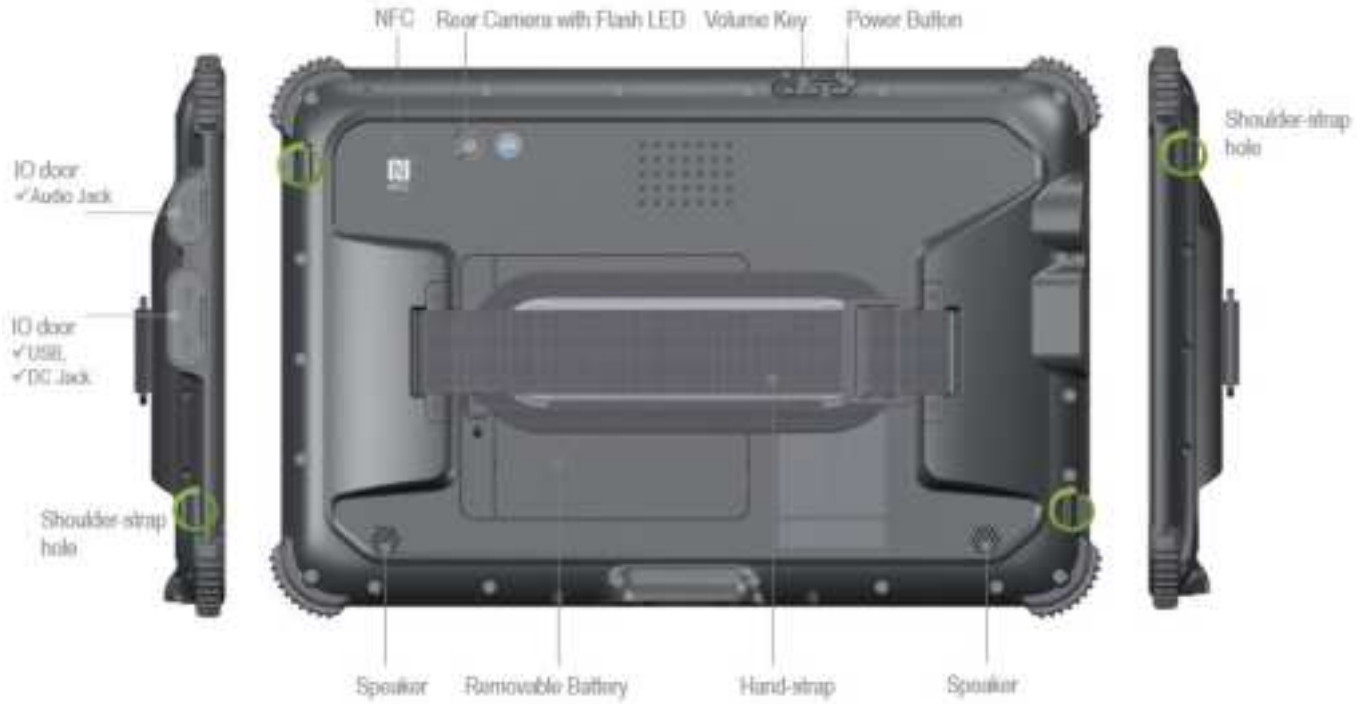


Figure6: Teguar TRT-3493-12 Tablet Placement

Figure7: Teguar TRT-3493-12 Docking Station Placement (without Cable Cover)

Figure8: Teguar TRT-3493-12 Docking Station Placement (with Cable Cover)

Figure9: Teguar TRT-3493-12 Extension Cover Placement

Figure10: Teguar TRT-3493-12 Battery chager Placement

Quick Start Guide

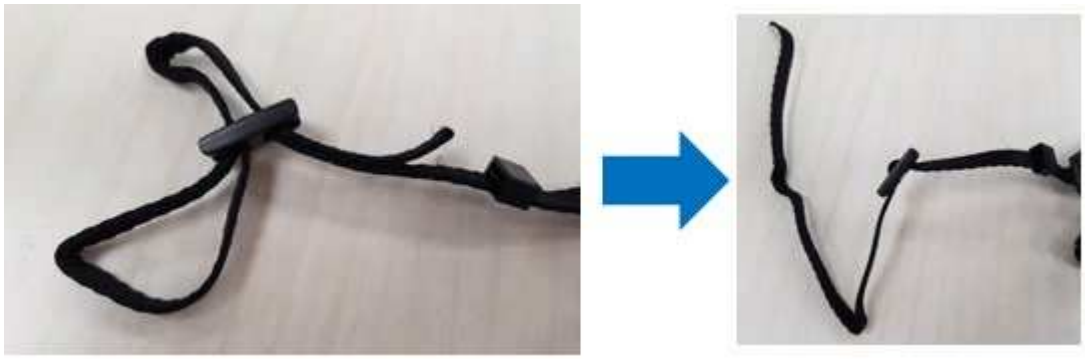
This chapter briefly describes the how to install Shoulder-strap and Cable Cover along with Docking Station as well as Capacitive Function Key on front panel side.

Shoulder-strap Quick Installation Guide

Shoulder-strap installation SOP as follows:

Step1: Place Shoulder-strap this way in front of you on the desk

Step2: Loose strap from buckle



Step3: Make strap go through the hole of Rear Cover and tighten well

Step4: Repeat same way as Step2 and Step3 on the other side (as following circle)

Step4: Complete

Cable Cover Quick Installation Guide

Cable Cover installation SOP as follows:

Step1: Place Docking Station this way in front of you on the desk

Step2: Put down the front side of Docking Station on the desk

Step3: Assemble Cable Cover

Step4: Assemble Bottom Plate

Step5: Screw on Bottom Plate with 4 screws

Battery charger Quick Installation Guide

Step1: Use TRT-3493-12's adapter to access the DC jack of the battery charger

Step2: Insert Battery to charge

Capacitive Function Key

Default key function in F1, F2 and F3 are:

F1: Rotation Lock

F2: Power Key

F3: Windows Home Key

However, any other requirements of usage would be considered as “support by request” from customized BIOS.

Please refer usage list as below Table1-1, Table1-2 and Table1-3 for detail.

HID Index[2]	Hot key	Usage Page	HID Usage ID[3]	Usage Name	Usage Type	Notes
27	No hot key for wake	Generic Desktop Page (0x01)	0x83	System Wake	OSC	For more details on the "Intel Proprietary Wake Source" please check section **Error! Reference source not found.**.
21 to 26		Reserved for Internal Use				
20	LFTARW	Consumer Page (0x0C)	0x70	Display Brightness Decrement	RTC	
19	RTARW	Consumer Page (0x0C)	0x6F	Display Brightness Increment	RTC	
18	DWNARW	Consumer Page (0x0C)	0xEA	Volume Decrement	RTC	
17	UPARW	Consumer Page (0x0C)	0xE9	Volume Increment	RTC	
16	END	Consumer Page (0x0C)	0xE2	Mute	OSC	

Table1-1: Capacitive Function Key Usage List

HID Index[2]	Hot key	Usage Page	HID Usage ID[3]	Usage Name	Usage Type	Notes
15	PGDN	Consumer Page (0x0C)	0xCD	Play/Pause	OSC	
14	PGUP	Consumer Page (0x0C)	0xB7	Stop	OSC	
13	HOME	Consumer Page (0x0C)	0xB5	Scan Next Track	OSC	
13	INS	Consumer Page (0x0C)	0xB6	Scan Previous Track	OSC	
12		Reserved				
11	F12	Generic Desktop Page (0x01)	0x82	System Sleep	OSC	
9	O	Generic Desktop Page (0x01)	0x81	System Power Down	OSC	
8	I	Generic Desktop Page (0x01)	0xC6	Wireless Radio Button	OOC	Implemented. Spec says this is an OOC (On/Off Control). So, we should send '0' to turn off and '1' to turn on. However, on Windows 8 it works like all of the other OSC's and it toggles when the request is sent. Windows also turns airplane mode on/off when this HID request is sent to the OS. For now the driver always sends a '1'. The behavior is the same even when sending a '0'.
7	U	Keyboard/ Keypad Page (0x07)	0x4E	Page Down	SEL	Requires BIOS delay due to <Ctrl><Alt><Shift> being held for hot-key.
6	Y	Keyboard/ Keypad Page (0x07)	0x4B	Page Up	SEL	Requires BIOS delay due to <Ctrl><Alt><Shift> being held for hot-key.
5	T	Keyboard/ Keypad Page (0x07)	0x4D	End	SEL	Requires BIOS delay due to <Ctrl><Alt><Shift> being held for hot-key.

Table1-2: Capacitive Function Key Usage List

HID Index[3]	Hot key	Usage Page	HID Usage ID[3]	Usage Name	Usage Type	Notes
4	R	Keyboard/ Keypad Page (0x07)	0x4A	Home	SEL	Requires BIOS delay due to <Ctrl><Alt>< Shift> being held for hot-key.
3	E	Keyboard/ Keypad Page (0x07)	0x53	Num Lock	SEL	Requires BIOS delay due to <Ctrl><Alt>< Shift> being held for hot-key.
2	W	Keyboard/ Keypad Page (0x07)	0xE3 + 0x69	Rotation Lock		Requires BIOS delay due to <Ctrl><Alt>< Shift> being held for hot-key.
1	Q	Keyboard/ Keypad Page (0x07)	0xE3	Keyboard Left GUI (windows button)		Requires BIOS delay due to <Ctrl><Alt>< Shift> being held for hot-key.
0		-	-	-		Index 0 is not supported.

Table1-3: Capacitive Function Key Usage List

Managing System Power

This chapter briefly describes the guideline on external power supply, battery pack as well as Safety Notice.

AC Adapter

- Two AC adapters are designed for use with Tablet and peripheral respectively.
  - Tablet & Battery Charger : 19V/65W
  - Docking Station & Extension Cover : 24V/180W
- Connecting the AC adapter to another device could damage the adapter.
- The AC power cord supplied with Tablet is for use in the country where you purchased it. If you plan to go overseas with Tablet, consulting your dealer for corresponding power cord may be necessary.
- When unplugging the connector, always hold the plug head. Pulling on the cord would be prohibited.

The AC adapter serves as a converter from AC (Alternating Current) to DC (Direct Current) power as your Tablet runs on DC power. However, an electrical outlet usually provides AC power. Not only this but also charging the battery pack while connecting to AC power.

The adapter operates on the voltage range of 100 to 240V AC.

Battery Pack

The battery pack is hot-swappable design as well as the internal power source for Tablet. It is rechargeable by using the AC adapter.

- Hot-swappable features
  - Main Battery (2570mAh) supports hot-swappable and back-up battery(700mAh, non-removable) can provide provisional(30sec to 45sec) power to remain system awake until new main battery(2570mAh) reload.
  - Typical hot-swappable procedure:
    - Step1: Main battery(2570mAh) unloaded by latch unlocked
    - Step2: LCD backlite turned off (system is still waking)
    - Step3: Another main battery(2570mAh) reloaded by latch locked (click)
    - Step4: LCD backlite turned on

- Charging the battery pack
  - Charging will not be started if battery pack's temperature is out of allowed range which is between 0°C(32°F) and 45°C(113°F). Once the temperature meets the requirements, charging automatically resumes.
  - At the period of charging, please do not disconnect the AC adapter prior to fully-charge of battery, otherwise you will get a prematurely charged battery.
  - The battery has a high temperature protection mechanism which limits the maximum charge of the battery to 70% of total capacity in the event of high temperature conditions. Under this circumstances, the battery will be considered as fully charged at 70% capacity.
  - The battery level may automatically be reduced due to self-charge even when the battery pack is fully-charged (100%). Please be cautious that it happens no matter whether the battery pack is installed in the Tablet.

To charge the battery pack, connect the AC adapter to the Tablet and an electrical outlet. The battery indicator on front panel side shows amber to indicate charging status. Users will be suggested to remain Tablet power off while charging. Once battery is fully-charged, the battery indicator will be green.

It is expected approximately 3 hours to fully charge the battery pack when the power is OFF while approximately 3.5 hours when the power is ON (may need a longer charging time at lower temperature)

Initializing the Battery Pack

Users need to initialize a new battery pack before using it at the 1st time or when the actual operating time of the battery pack is much less than expected. Initializing would be the prcoess of fully charging, discharging, and then charging. It may take several hours to be completed.

Note: All battery pack on tablet system would be default as shutdown mode and AC-ON would be necessary to initialize the battery pack when first out of box. (Users need to plug AC adapter charging to wake up system)

Battery Pack Guidelines

- When it is nearly discharged, users need to recharge the battery pack. While recharging, make sure the battery pack is fully charged. By this, it could avoid battery pack damaged.
- The battery pack is a consumable product and it will shorten battery life by doing so:
  - Charging the battery pack frequently
  - Using, charging or storing the battery pack in high temperature condition
- To avoid hastening the deterioration of the battery pack thereby prolonging its life time, minimize the number of times you perform battery charging.
- Charge the battery pack between 10°C (50°F) and 30°C (86°F) temperature range. A higher environment temperature will lead to battery packs' temperature raising-up.
- Avoid charging the battery pack inside a small space and in hot weather condition. Above all, charging will not be initialized if the battery pack is not within the allowed temperature range.
- It would be recommended that users do not charge the battery pack more than once a day.
- It is recommended that user charge the battery pack with the tablet's power-off.
- To maintain the battery pack's operating efficiency, store it in a cool place removed from the tablet system and with 30 % ~ 40 % charge remaining.
- When installing or removing the battery pack, please take notes of the following:
  - Avoid installing or removing the battery pack when the tablet system is in Sleep Mode. Abruptly removing the battery pack may cause loss of data or the tablet system may get unstable.
  - Avoid touching the battery pack terminals or damage may occur, thereby causing improper operation to it or the tablet system.

  The tablet system's input voltage and ambient temperature will directly affect the battery pack's charge and discharge time:
  - Charging time will be prolonged when the tablet system is power-on. To shorten the charging time, it is recommended that users place the tablet system in Sleep or Hibernation mode.
  - A low temperature will prolong the charging time as well as hasten the discharge time.
- When using battery power in an extremely low temperature environment, users may experience shortened operating time and incorrect battery level reading. This phenomenon comes from the chemical characteristics of batteries. The appropriate operating temperature for the battery is 0°C (32°F) and 45°C(113°F).
- Please do not leave the battery pack in storage for more than two months without recharging it.

Solving Battery Problems

The battery does not charge (Battery Charge indicator does not light orange).

- Make sure that the AC adapter is properly connected.
- Make sure that the battery is not too hot or cold. Allow time for the battery pack to return to room temperature.
- If the battery doesn't charge after it has been stored in very low temperatures, try disconnecting and reconnecting the AC adapter to solve the problem.
- Make sure that the battery pack is installed correctly.
- Make sure that the battery terminals are clean.

The operating time of a fully charged battery becomes shorter.

- If you often partially recharge and discharge, the battery might not be charged to its full potential. Such results may lead to deterioration of battery pack.

The battery operating time indicated by the battery meter does not match the actual operating time.

- The actual operating time can be different from the estimated time, depending on how users are using the tablet system. If the actual operating time is much less than the estimated time, it may lead to deterioration of battery pack..

The tablet system does not resume from Sleep or Hibernation Mode.

- The tablet system automatically enters Sleep or Hibernation Mode when the battery pack is empty. Proceed any one of the following:
  - Connect the AC adapter to the tablet system.
  - Replace the empty battery pack with a fully charged one.

Solving Startup Problems

- When users turn on the tablet system, it does not respond and the Power Indicator does not light green.
  - If users are using an external AC power, make sure that the AC adapter is correctly and securely connected. If so, make sure that the electrical outlet works properly.
  - If users are using the battery power, make sure that the battery is not discharged.
  - When the ambient temperature is below -20 °C (-4 °F), tablet system might be unable to power on.
  - Tablet system is unable to power on without AC adapter and battery pack.

Safety Notices

About the Battery

Caution Texts Concerning Lithium Batteries

ENGLISH CAUTION: Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the equipment manufacturer. Discard used batteries according to manufacturer's instructions.

Français ATTENTION : Danger d'explosion si la pile n'est pas remplacée correctement. Remplacez uniquement par le même type ou un type équivalent recommandé par le fabricant de l'équipement. Jetez les piles usagées conformément aux instructions du fabricant.

RF Exposure Information (SAR)

This device meets the government's requirements for exposure to radio waves. This device is designed and manufactured not to exceed the emission limits for exposure to radio frequency (RF) energy set by the Federal Communications Commission of the U.S. Government.

The exposure standard employs a unit of measurement known as the Specific Absorption Rate, or SAR. The SAR limit set by the FCC is 1.6 W/kg. Tests for SAR are conducted using standard operating positions accepted by the FCC with the EUT transmitting at the specified power level in different channels.

Tests for SAR are conducted using standard operating positions accepted by the FCC with the device transmitting at its highest certified power level in all tested frequency bands. For body worn operation, this device has been tested and meets the FCC RF exposure guidelines for use with an accessory that contains no metal and be positioned a minimum of 0 cm from the body. Use of other accessories may not ensure compliance with FCC RF exposure guidelines.

The FCC has granted an Equipment Authorization for this device with all reported SAR levels evaluated as in compliance with the FCC RF exposure guidelines. SAR information on this device is on file with the FCC and can be found under the Display Grant section of www.fcc.gov/eot/ea/fccid after searching on FCC ID: 2ADL6-TRT-3493-12.

To ensure that RF exposure levels remain at or below the tested levels, use a belt-clip, holster, or similar accessory that maintains a minimum separation distance of 0mm between your body and the device.

FEDERAL COMMUNICATIONS COMMISSION INTERFERENCE STATEMENT

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
-Reorient or relocate the receiving antenna.
-Increase the separation between the equipment and receiver.
-Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
-Consult the dealer or an experienced radio/ TV technician for help.

CAUTION

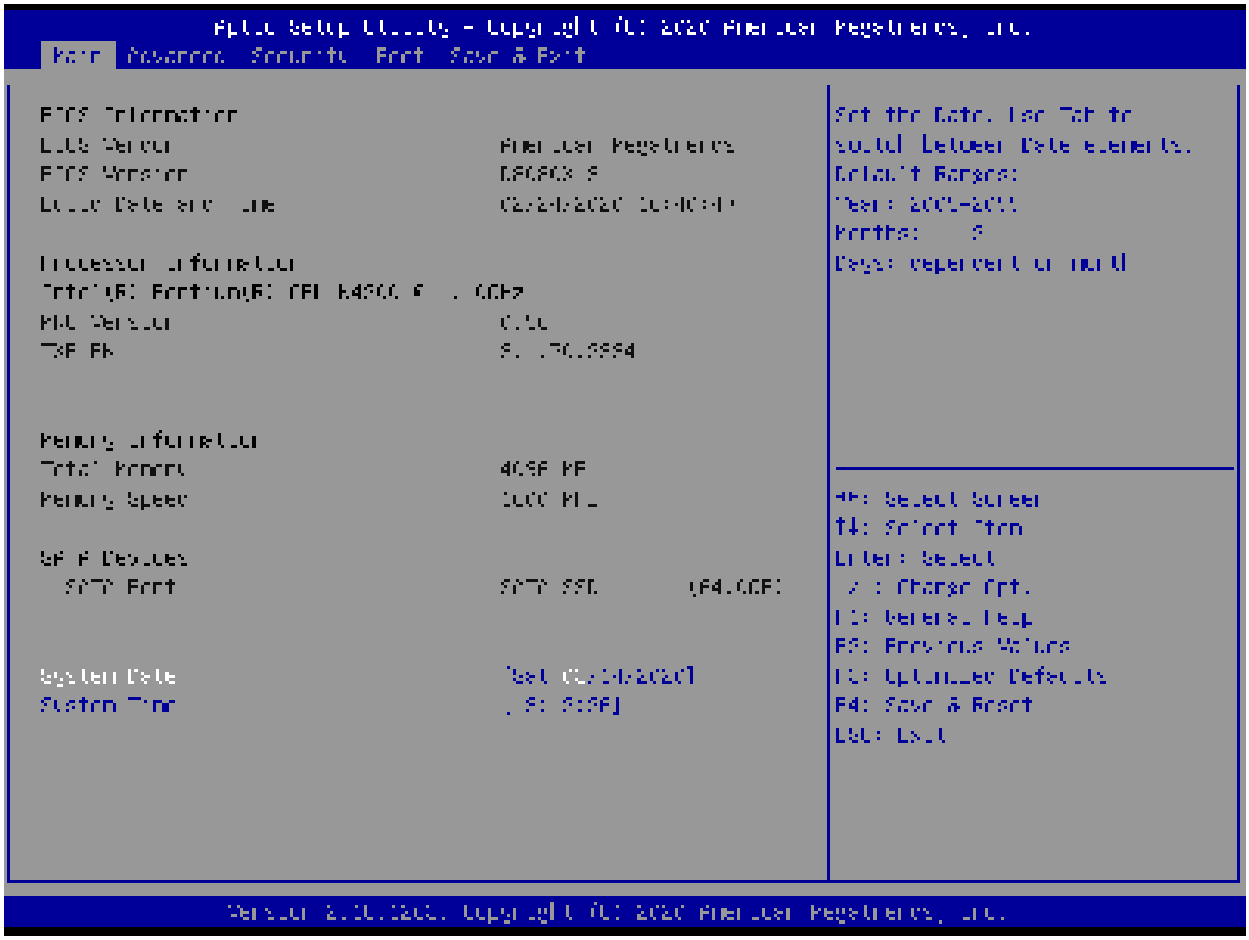
Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment.

This device meets all the other requirements specified in Part 15E, Section 15.407 of the FCC Rules.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) This device may not cause harmful interference, and
(2) This device must accept any interference received, including interference that may cause undesired operation.

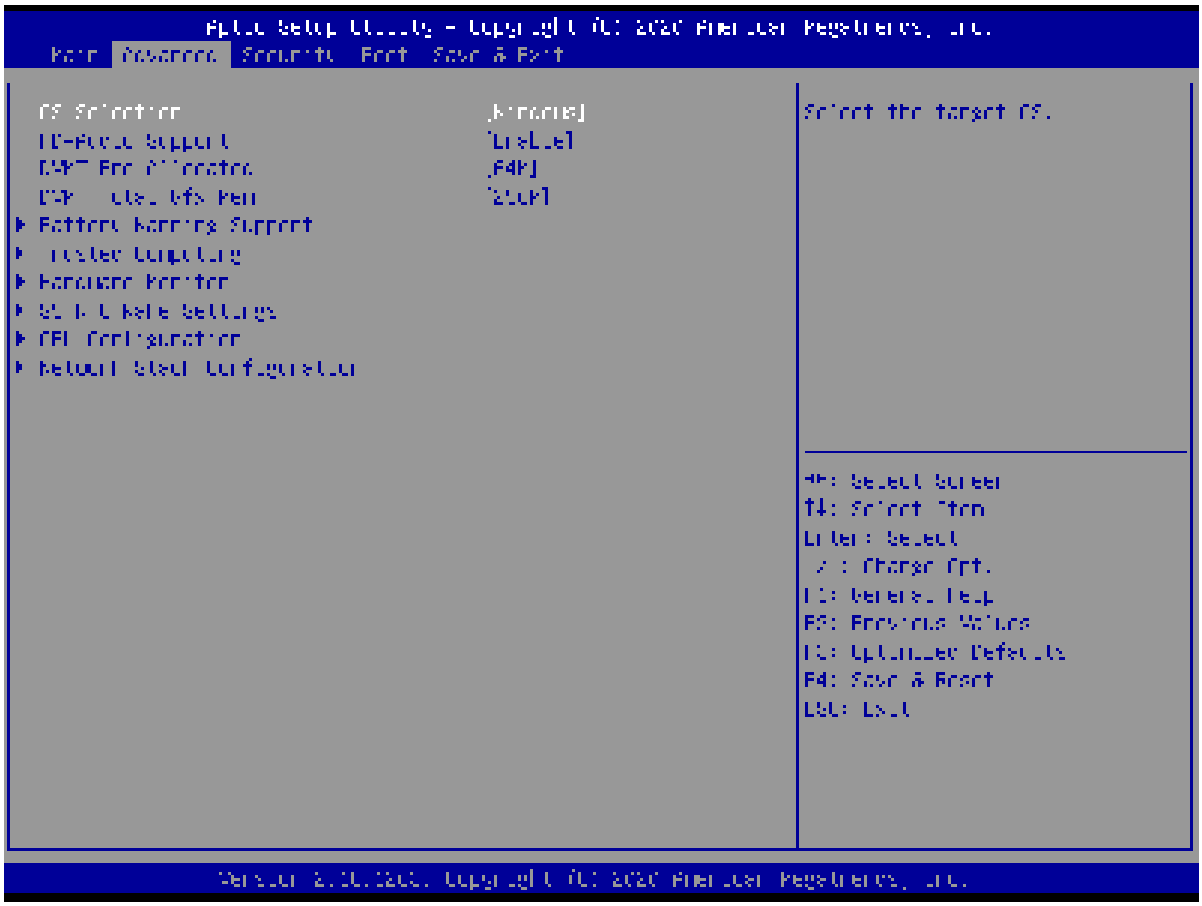
BIOS Specification

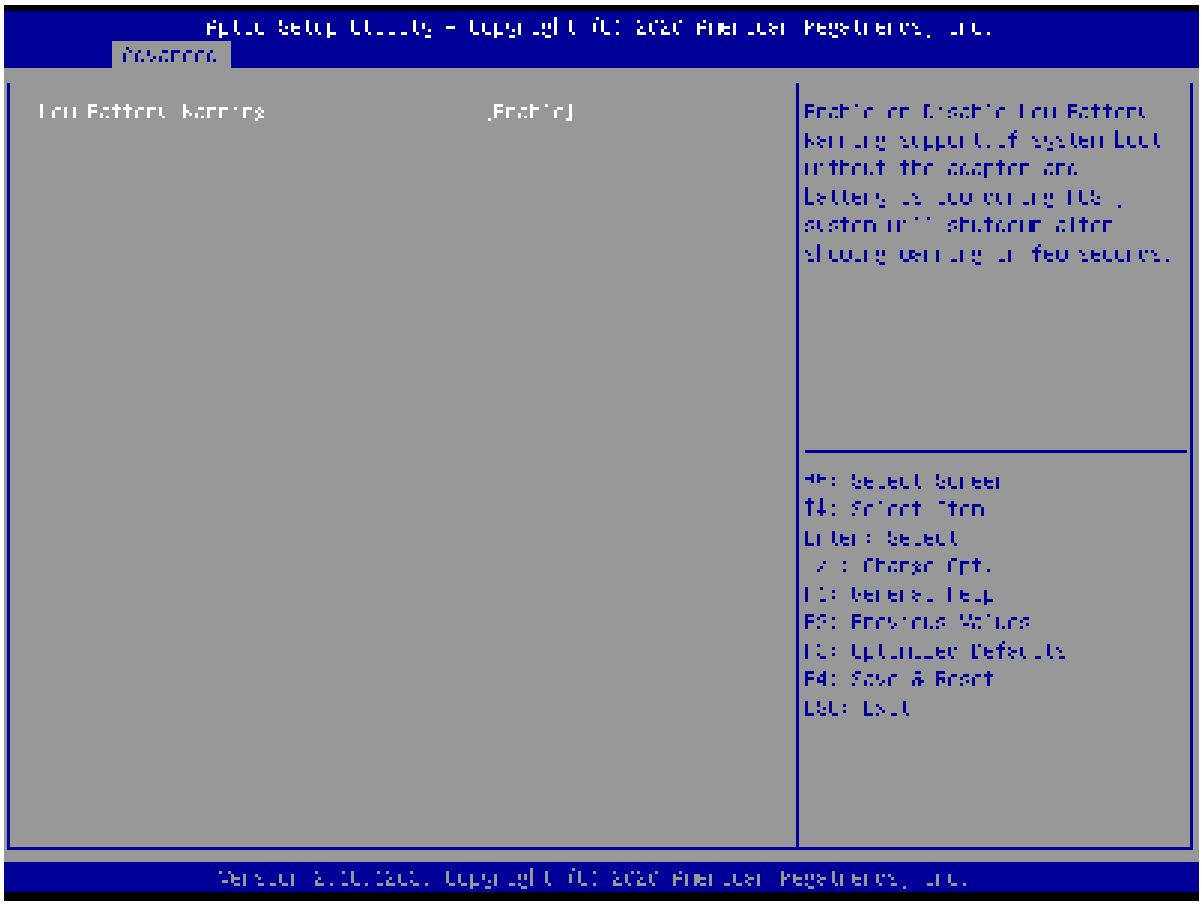
1. **MAIN PAGE**

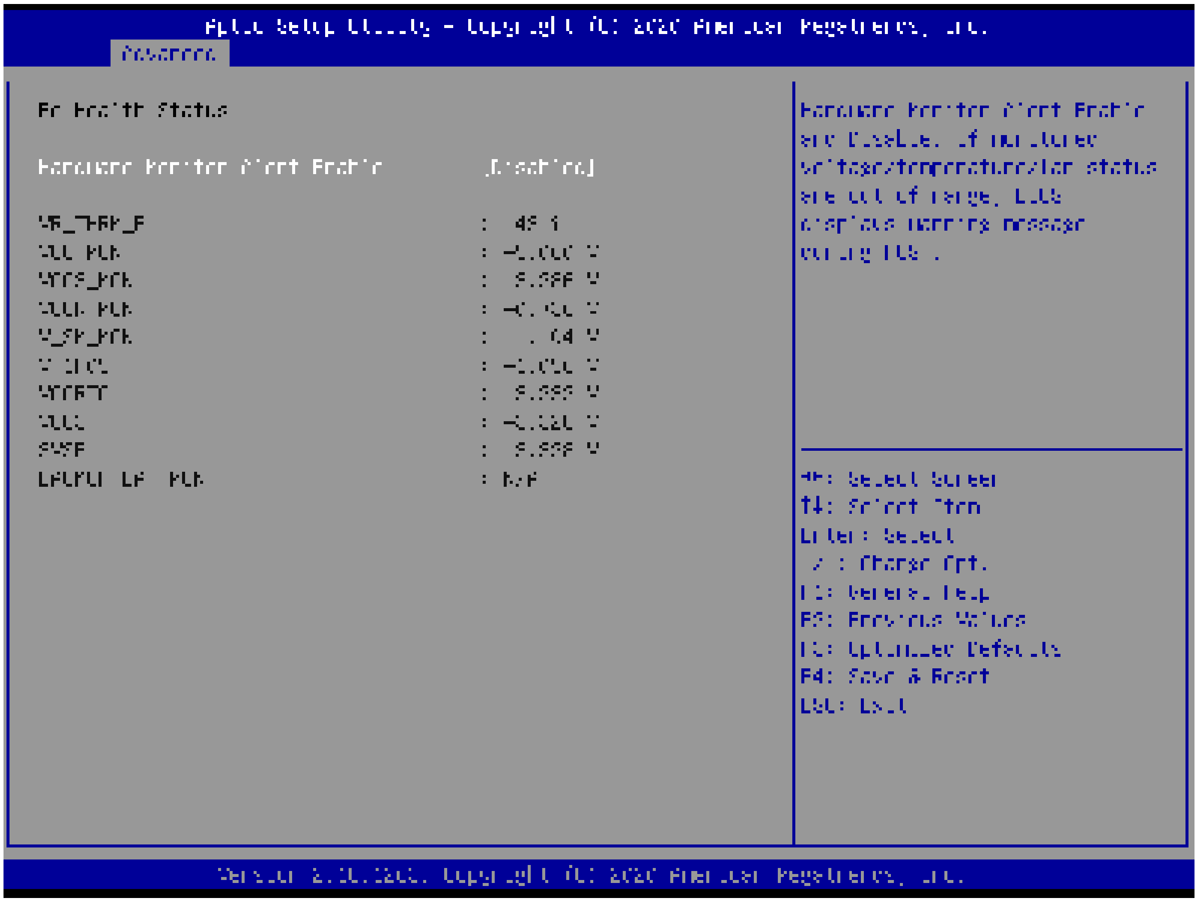


BIOS Setup option name	Type	[Default] / Select Value	Show	Help string
Main	Page		Yes	
BIOS Information	Header			
BIOS Vendor	Information string	American Megatrends	Yes	
BIOS Version	Information string	D8080X0x	Yes	
Build Date and Time	Information string	xx/xx/2019 hh:mm:ss	Yes	
	Line separator			
Processor Information	Header			
Processor Type	Information string	Intel® Pentium® CPU N4200 @1.10Ghz	Yes	
MRC Version	Information string	0.56	Yes	
TXE FW	Information string	3.1.70.2334	Yes	
	Line separator			
Memory Information	Header			
Total Memory	Board Infromation	4096 MB	Yes	
Memory Solt0	Board Infromation	2048 MB (LPDDR4)	No	
Memory Solt1	Board Infromation	2048 MB (LPDDR4)	No	
Memory Speed	Board Infromation	1600 MHz	Yes	
SATA Devices	Line separator			
SATA Port 1	Board Infromation	SATA SSD (64.0 GB)	Yes	
Serial ATA Port 2	Board Infromation	xxxx xxxx xxxx	No	
Serial ATA Port 3	Board Infromation	xxxx xxxx xxxx	No	
Serial ATA Port 4	Board Infromation	xxxx xxxx xxxx	No	
	Line separator			
System Date	Changeable	[xxx xx/xx/xxx]	Yes	Set the Date. Use Tab to switch between Date elements. Default Ranges: Year: 2005-2099 Months: 1-12 Days: dependent on month
System Time	Changeable	[xx:xx:xx]	Yes	Set the Time. Use Tab to switch between Time elements.

2. ADVANCED PAGE



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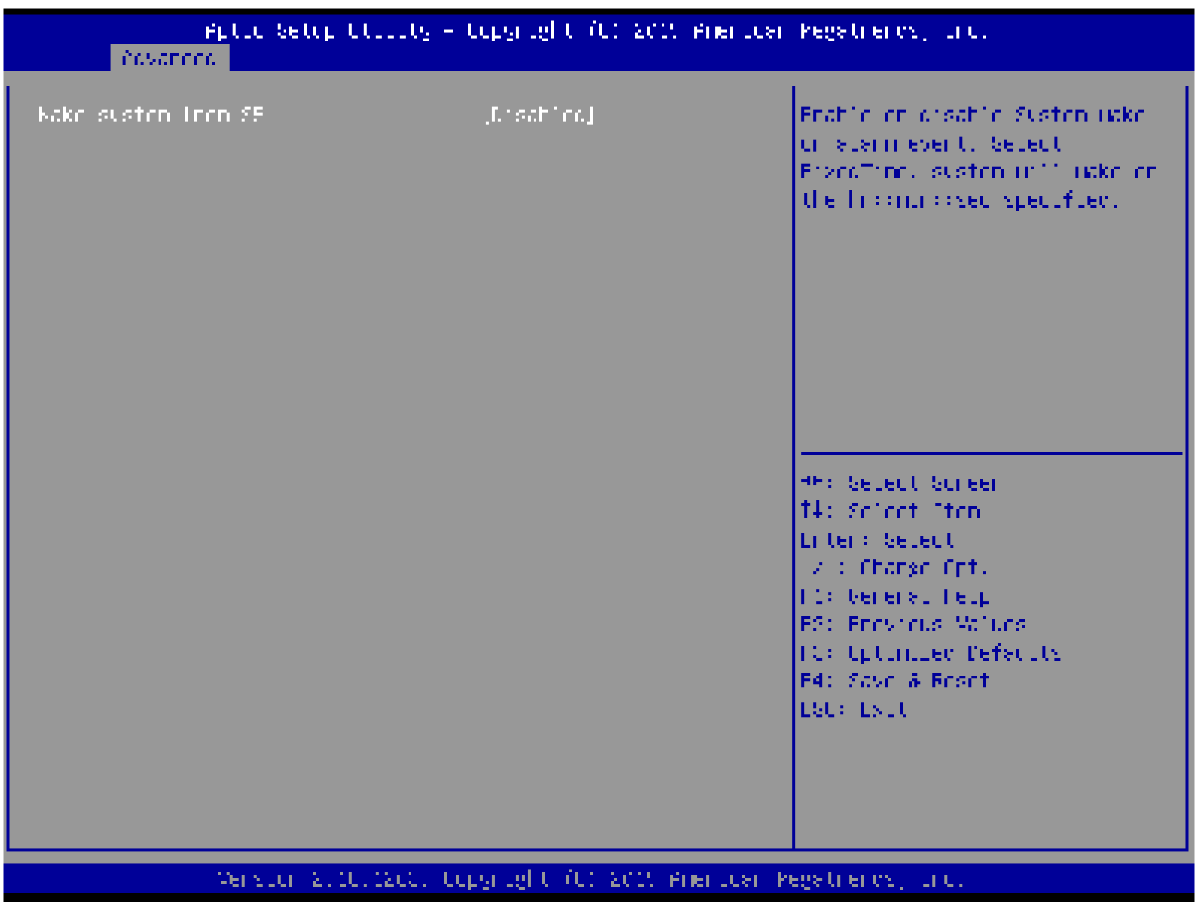
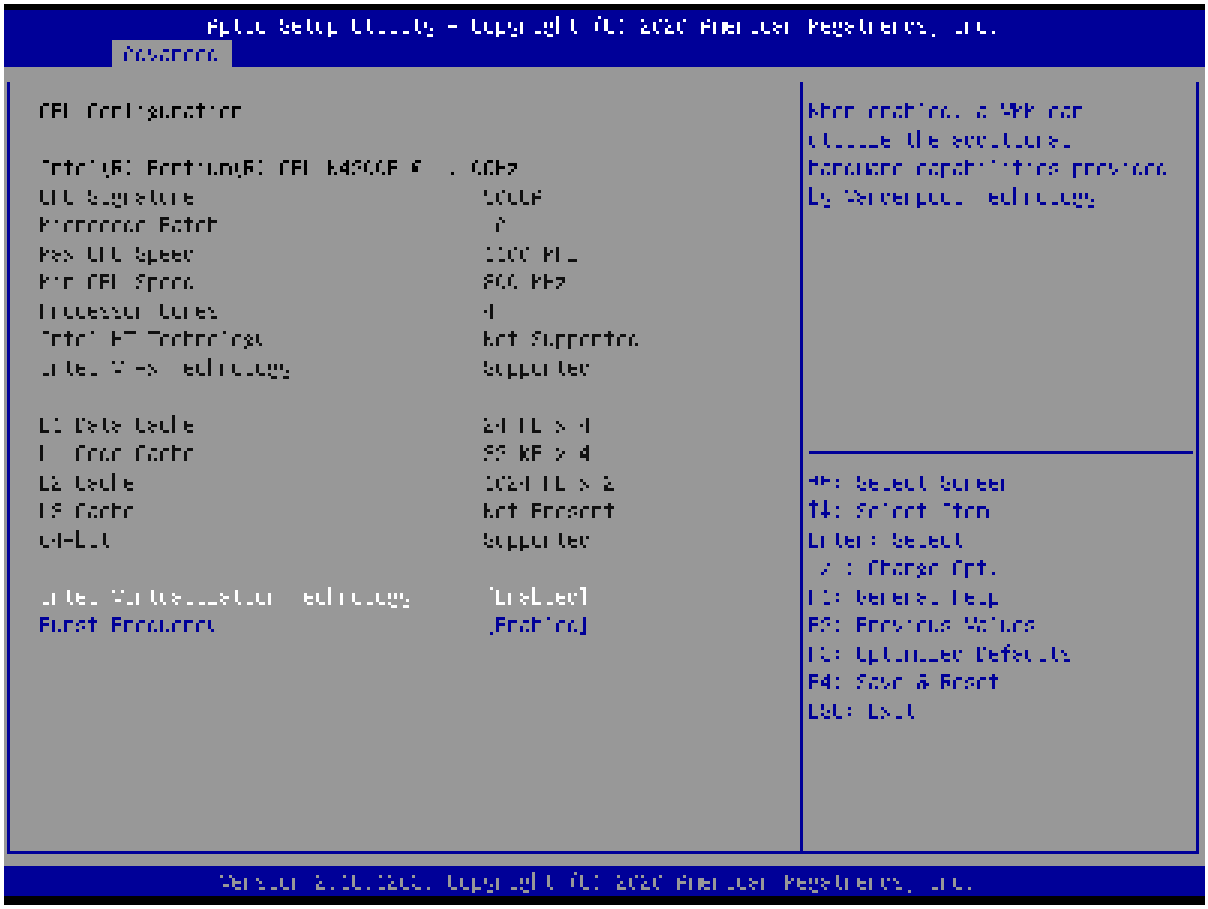
[Disabled]
Enter: Select
F4: Save & Reset
ESC: Exit

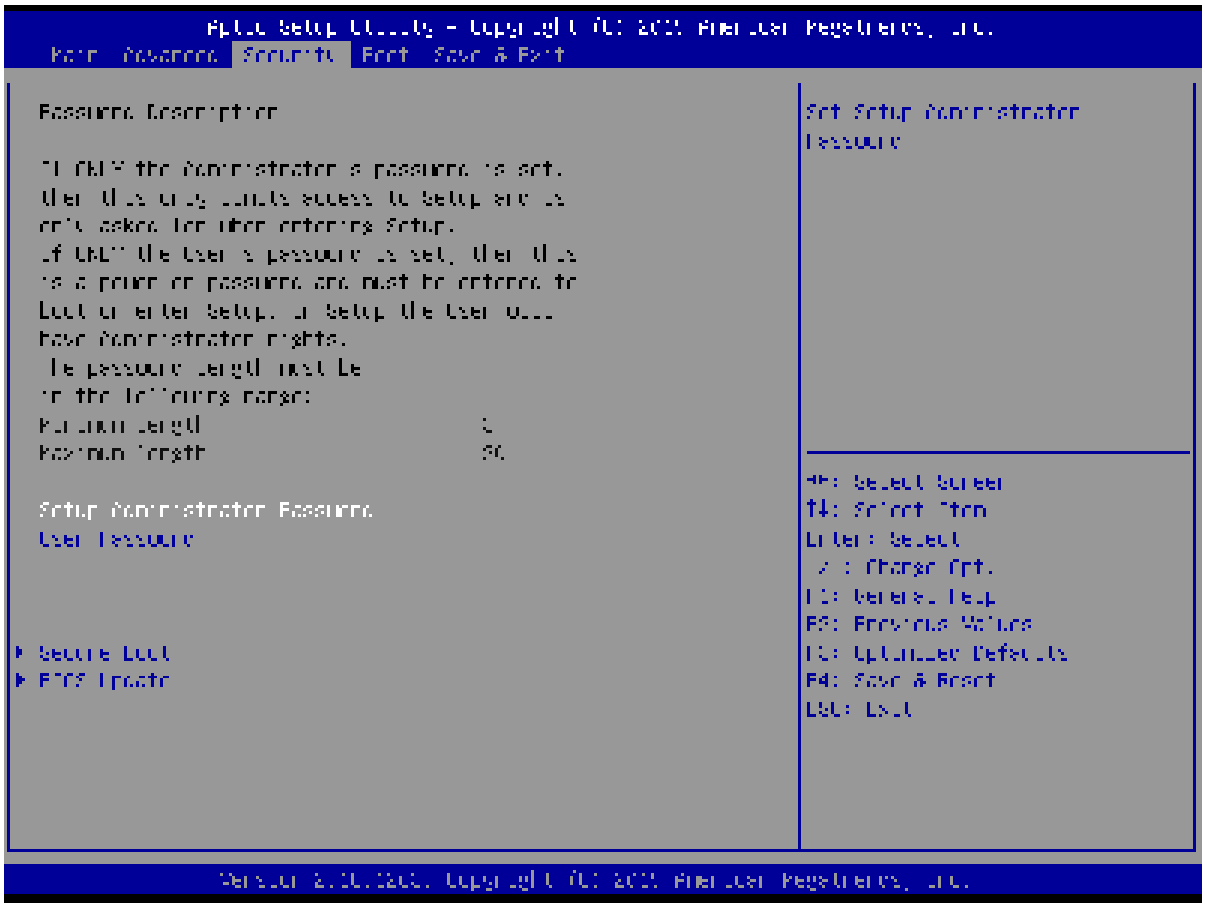

[Disabled]
Enter: Select
F4: Save & Reset
ESC: Exit

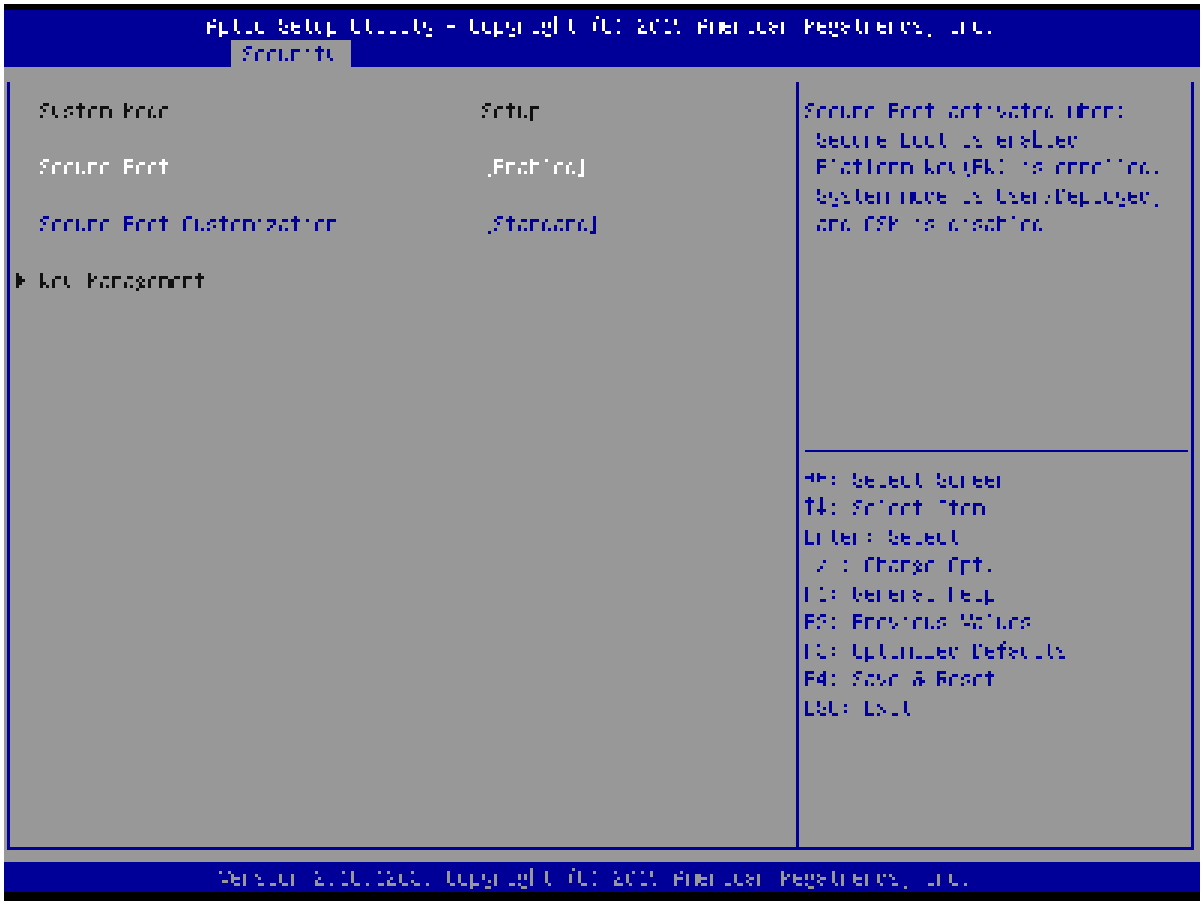


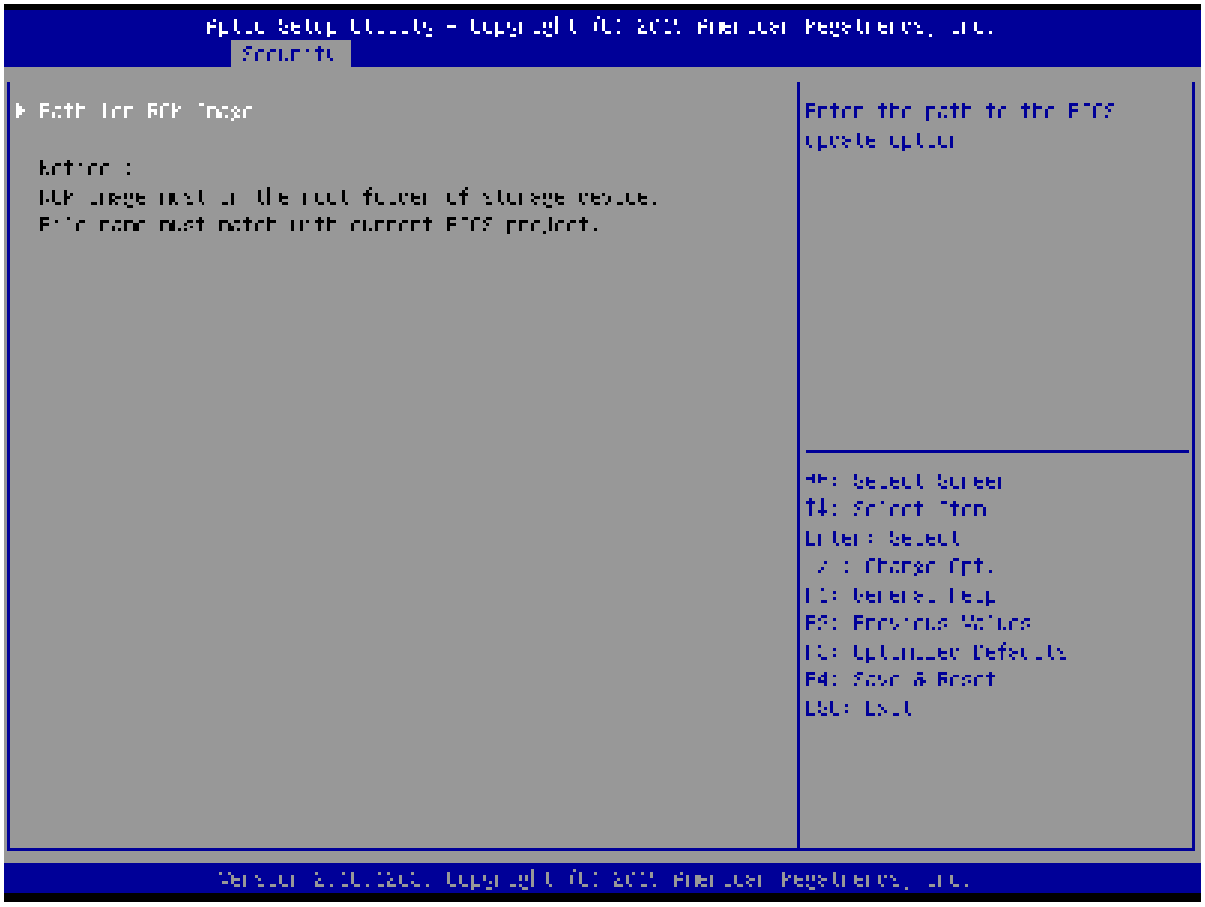
BIOS Setup option name	Type	[Default] / Select Value	Show	Help string
Advanced	Page		Yes	
LAN 1	Select item	[Disabled] / Enabled	Yes	Enable/Disable LAN1
LAN 2	Select item	[Disabled] / Enabled	Yes	Enable/Disable LAN2
LAN 3	Select item	[Disabled] / Enabled	Yes	Enable/Disable LAN3
MSATA	Select item	[Disabled] / Enabled	Yes	Enable/Disable MSATA
Wireless LAN RF	Select item	[Disabled] / Enabled	Depend	Enable/Disable Wireless Lan RF
Restore AC Power Loss	Select item	Turn on / Turn off / [Last state]	Yes	Select AC power state when power is re-applied after a power failure.
DeepSx Power Policies	Select item	[Disabled] / Enabled	Yes	Configure the DeepSx Mode configuration.
OS Selection	Select item	[Windows]/Intel Linux	Yes	Select the target OS
SCC SD Card Support (D27:F0)	Select item	[Disable] / Enable	No	Enable/Disable SCC SD Card Support
HD-Audio Support	Select item	Disable / [Enable]		Enable/Disable HD-Audio Support
DVMT Pre-Allocated	Select item	[64M]/ 128M / 256M / 512M	Yes	Select DVMT 5.0 Pre-Allocated (Fixed) Graphics Memory size used by the Internal Graphics Device.
DVMT Total Gfx Mem	Select item	128MB/ [256MB] / Max	Yes	Select DVMT 5.0 Total Graphic Memory size used by the Internal Graphics Device.
▸ Intel(R) I210 Gigabit Network Conection - ……..			Yes	Configure Gigabit Ethernet device parameters
▸ NIC Configuration			Yes	
Link Speed	Select item	[Auto] / 10 Mbps Half / 10 Mbps Full / 100 Mbps Half /100 Mbps Full	Yes	
Wake On LAN	Select item	[Enabled] / Disabled	Yes	
▸ NIC Configuration			Yes	
Link Speed	Select item	[Auto] / 10 Mbps Half / 10 Mbps Full / 100 Mbps Half /100 Mbps Full	Yes	
Wake On LAN	Select item	[Enabled] / Disabled	Yes	
▸ Battery Warning Support			Yes	Battery Warning Support
Low Battery Warning	Select item	[Disable] / Enable	Yes	Enable or Disable Low Battery Warning support.If system boot without the adaptor and battery is low during POST, system will shutdown after showing warning in few seconds.
▸ Trusted Computing			Yes	Select fTPM/dTPM
TPM2.0 Device Found	Board Infromation			
Firmware Version:	Board Infromation	7.2/301.9		
Vendor :	Board Infromation	NTC/INTC		
	Line separator			
Security Device Support	Select item	Disabled / [Enabled]	Yes	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.
TPM Select	Select item	fTPM / [dTPM]	Yes	Select fTPM/dTPM

BIOS Setup option name	Type	[Default] / Select Value	Show	Help string
Advanced	Page		Yes	
▸ NCT6683D Super IO Configuration			Yes	System Super IO Chip Parameters.
Super IO Chip	Information string	NCT6683D	Yes	
▸ Serial Port 1 Configuration			Yes	Set Parameters of Serial Port 1 (COMA)
Serial Port	Select item	[Enabled] / Disabled	Yes	Enable or Disable Serial Port (COM)
Device Settings	Board Infromation	IO=3F8h; IRQ=4	Yes	
	Line separator			
Serial Port Mode	Select item	1T/1R RS-422 / [3T/5R RS-232] / 1T/1R RS-485 TX ENABLE Low Active / 1T/1R RS-422 with termination resister / 1T/1R RS-485 with termination resister TX ENABLE Low Active / Disable	Yes	Select Serial Port Mode
▸ Serial Port 2 Configuration			Yes	Set Parameters of Serial Port 2 (COMC)
Serial Port	Select item	[Enabled] / Disabled	Yes	Enable or Disable Serial Port (COM)
Device Settings	Board Infromation	IO=2F8h; IRQ=3	Yes	
	Line separator			
Serial Port Mode	Select item	1T/1R RS-422 / [3T/5R RS-232] / 1T/1R RS-485 TX ENABLE Low Active / 1T/1R RS-422 with termination resister / 1T/1R RS-485 with termination resister TX ENABLE Low Active / Disable	Yes	Select Serial Port Mode
▸ Serial Port 3 Configuration			Yes	Set Parameters of Serial Port 3 (COMD)
Serial Port	Select item	[Enabled] / Disabled	Yes	Enable or Disable Serial Port (COM)
Device Settings	Board Infromation	IO=2F8h; IRQ=3	Yes	
▸ Serial Port 4 Configuration			Yes	Set Parameters of Serial Port 4 (COME)
Serial Port	Select item	[Enabled] / Disabled	Yes	Enable or Disable Serial Port (COM)
Device Settings	Board Infromation	IO=2F8h; IRQ=3	Yes	
▸ Hardware Monitor			Yes	Monitor hardware status
Pc Health Status	Header			
	Line separator			
Hardware Monitor Alert Enable	Select item	Disabled / [Enabled]	Yes	Hardware Monitor Alert Enable and Disable. If monitored voltage/temperature/fan status are out of range, BIOS displays warning message during POST.
	Line separator			
VR_THRM_P1	Board Infromation	+ xx C	Yes	
System temperature2	Board Infromation	+ xx C	Yes	
AVSB	Board Infromation	+3.135~3.465 V	Yes	
VCC_MON	Board Infromation	+4.75~5.25 V	Yes	
VCC3_MON	Board Infromation	+3.135~3.465 V	Yes	
VCORE_MON	Board Infromation	+0.45~1.3 V	Yes	
V_SM_MON	Board Infromation	+1.045~1.155 V	Yes	
V_1P05	Board Infromation	+0.099~1.103 V	Yes	
VCCRTC	Board Infromation	+3.135~3.465 V	Yes	
VCC3	Board Infromation	+3.135~3.465 V	Yes	
3VSB	Board Infromation	+3.135~3.465 V	Yes	
BACKUP_BAT_MON	Board Infromation	+3.0~4.2 V	Yes	
▸ S5 RTC Wake Setting			Yes	Enable system to wake from S5 using RTC alarm
Wake System from S5	Information string	[Disabled] / Fixed Time	Yes	Enabler or disable System wake on alarm event, Select FixedTime, system will wake on the hr::min::sec specified.
Wake up hour	Text input	[0] ~ 23	Depend	Select 0-23 For example enter 3 for 3am and 15 for 3pm
Wake up minute	Text input	[0] ~ 59	Depend	select 0 - 59 for Minute
Wake up second	Text input	[0] ~ 59	Depend	select 0 - 59 for Second
▸ CPU Configuration			Yes	CPU Configuration Parameters
Intel® Pentium® CPU N4200 @1.10Ghz	Information string		Yes	
CPU Signature	Board Infromation	506CA	Yes	
Microcode Patch	Board Infromation	1A	Yes	
Max CPU Speed	Board Infromation	1100 MHz	Yes	
Min CPU Speed	Board Infromation	800 MHz	Yes	
Processor Cores	Board Infromation	4	Yes	
Intel HT Technology	Board Infromation	Supported / **Not Supported**	Yes	
Intel VT-x Technology	Board Infromation	**Supported** / Not Supported	Yes	
	Line separator			
L1 Data Cache	Board Infromation	24 KB x 4	Yes	
L1 Code Cache	Board Infromation	32 KB x 4	Yes	
L2 Cache	Board Infromation	1024 KB x 2	Yes	
L3 Cache	Board Infromation	Supported / **Not Present**	Yes	
64-bit	Board Infromation	**Supported** / Not Supported	Yes	
	Line separator		Yes	
Intel Virtualization Technology	Select item	Disabled / [Enabled]	Yes	When enabled, a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology
Burst Frequency	Select item	Disabled / [Enabled]	Yes	Burst Frequency.
▸ Network Stack Configuration			Yes	Network Stack Settings
Network Stack	Select item	[Disabled] / Enabled	Yes	Enable/Disable UEFI Network Stack
Ipv4 PXE Support	Text input	[Disabled] / Enabled	Depend	Enable Ipv4 PXE Boot Support. If disabled IPV4 PXE boot option will not be created
Ipv6 PXE Support	Text input	[Disabled] / Enabled	Depend	Enable Ipv4 PXE Boot Support. If disabled IPV6 PXE boot option will not be created

3. SECURITY



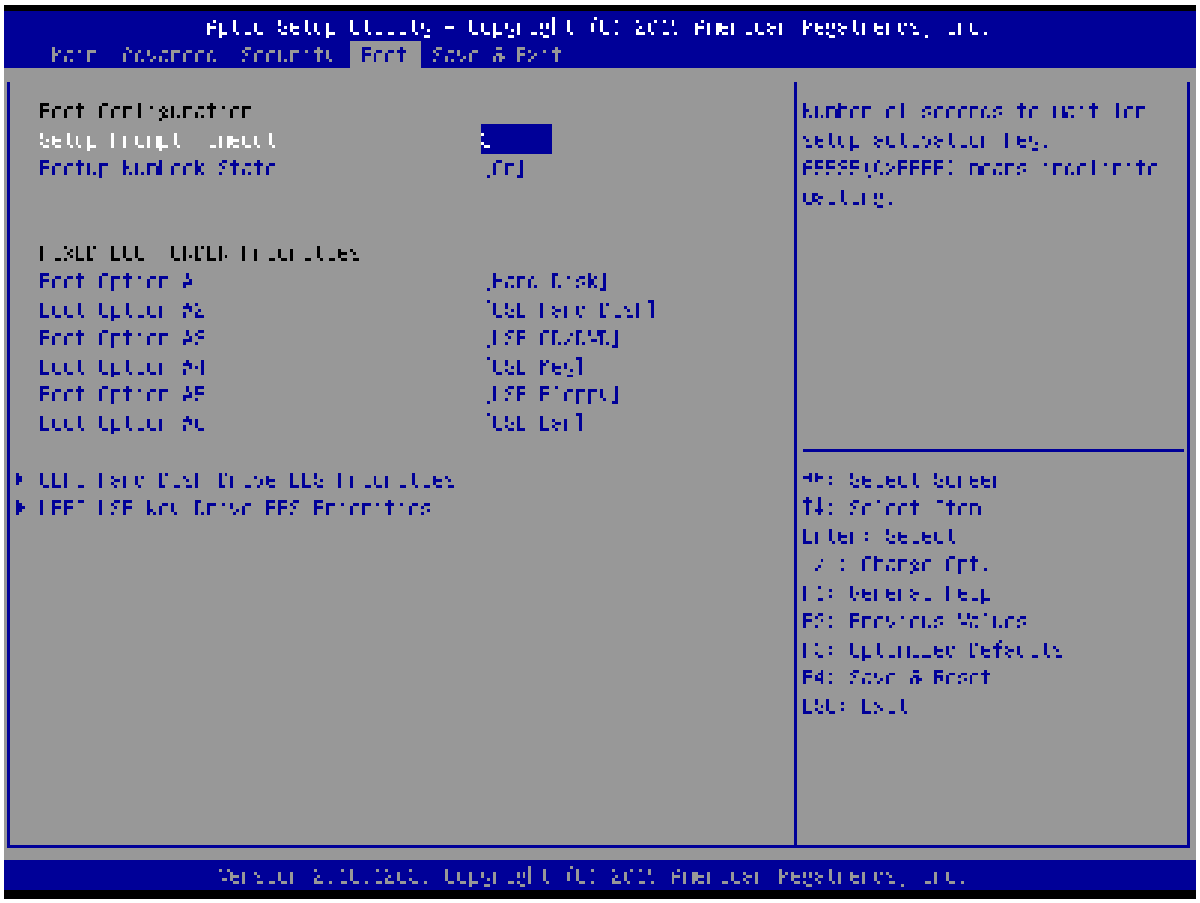


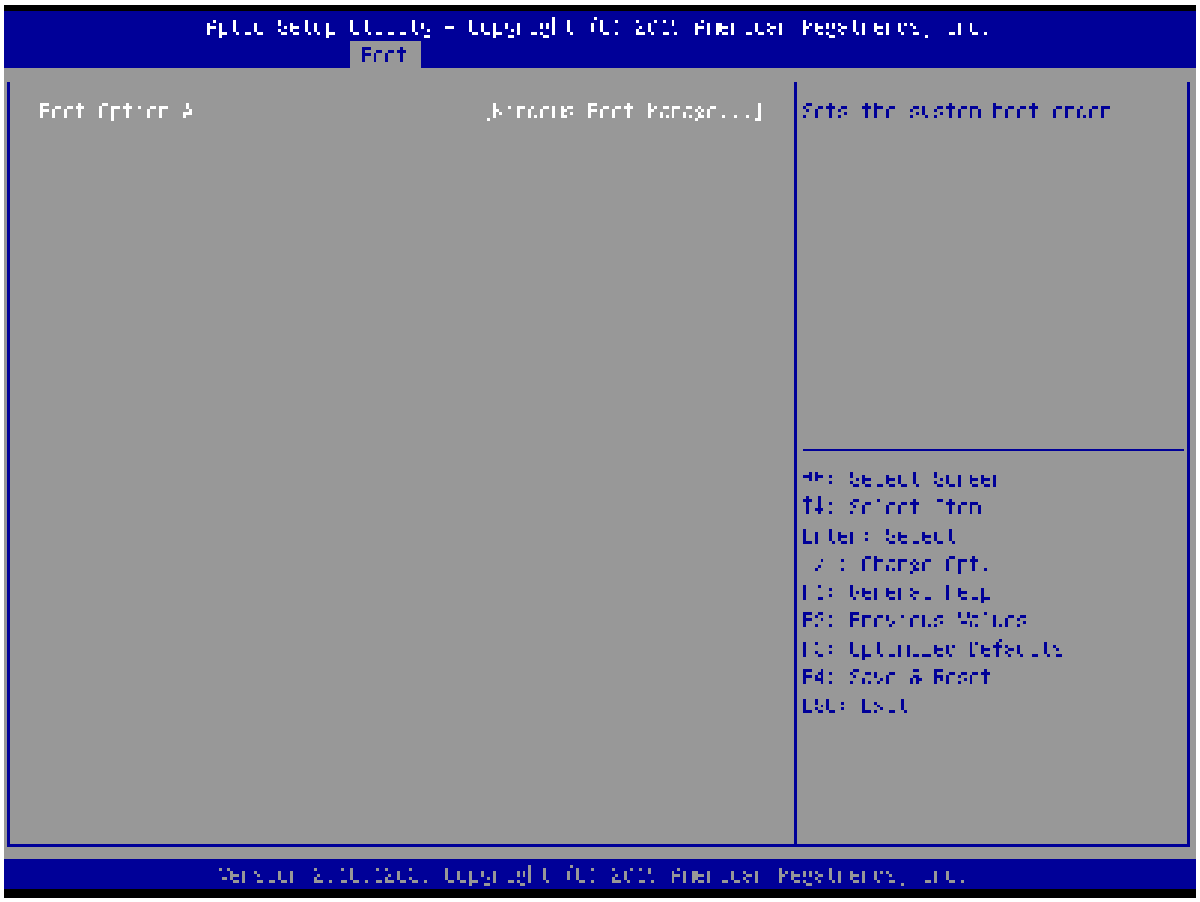


BIOS Setup option name	Type	[Default] / Select Value	Show	Help string
Security	Page		Yes	
Password Description	Information string		Yes	If Only the Administrator's password is set then this only limits access to Setup and is only asked for when entering Setup If ONLY the User's password is set, then this Is a power on password and must be entered to boot or enter Setup. In Setup the User will. have Administrator rights. The password length must be in the following range:□
	Line separator		Yes	
Setup Administrator Password	Input value	xxxx	Yes	Set Setup Administrator Password
User Password	Input value	xxxx	Yes	Set User Password.
	Line separator		Yes	
▸ Secure Boot			Yes	Customizable Secure Boot settings.
System Mode	Board Information	xxxx	Yes	
	Line separator		Yes	
Secure Boot	Select item	Disabled / [Enabled]	Yes	Secure Boot activated when: Secure Boot is enabled Platform Key(PK) is enrolled, System mode is User/Deployed, and CSM is disabled
	Line separator		Yes	
Secure Boot Customization	Select item	[Standard] / Customer	Yes	Secure Boot Mode - Custom & Standard, Set UEFI Secure Boot Mode to STANDARD mode or CUSTOM mode, this change is effect after save. And after reset, the mode will return to STANDARD mode
	Line separator		Yes	

BIOS Setup option name	Type	[Default] / Select Value	Show	Help string
Security	Page		Yes	
▸ Key Management			Yes	Enables experienced users to modify Secure Boot variables without full authentication.
Factory Key Provision	Select item	[Disabled] / Enabled	Depend	Provision factory default keys on next re-boot only when System in Setup Mode
	Line separator		Depend	
► Restore Factory Keys	Dialog	[Yes] / No	Depend	Force System to User Mode. Configure NVRAM to contain OEM-defined factory default Secure Boot keys.
► Reset To Setup Mode	Dialog	[Yes] / No	Depend	Delete NVRAM content of all UEFI Secure Boot key databases.
► Export Secure Boot variables	Dialog	Drive: \Path	Depend	Copy NVRAM content of Secure Boot variables to files in a root folder on a file system device
	Line separator		Depend	
Secure Boot variables | Size | Keys | Key Source	Information string		Depend	
► Platform Key(PK)	Select item	[Details] / Export / Update / Delete	Depend	Enroll Factory Defaults or load keys from a file: 1.Public Key Certificate in: a)EFI_SIGNATURE_LIST, b)EFI_CERT_X509 (DER encoded), c)EFI_CERT_RSA2048 (bin), d)EFI_CERT_SHA256,384,512 2.Authenticated UEFI Variable 3. EFI PE/COFF Image(SHA256) Key Source: Factory, External, Mixed
► Key Exchange Keys	Select item	[Details] / Export / Update / Append / Delete	Depend	Enroll Factory Defaults or load keys from a file: 1.Public Key Certificate in: a)EFI_SIGNATURE_LIST, b)EFI_CERT_X509 (DER encoded), c)EFI_CERT_RSA2048 (bin), d)EFI_CERT_SHA256,384,512 2.Authenticated UEFI Variable 3. EFI PE/COFF Image(SHA256) Key Source: Factory, External, Mixed
► Authorized Signatures	Select item	[Details] / Export / Update / Append / Delete	Depend	Enroll Factory Defaults or load keys from a file: 1.Public Key Certificate in: a)EFI_SIGNATURE_LIST, b)EFI_CERT_X509 (DER encoded), c)EFI_CERT_RSA2048 (bin), d)EFI_CERT_SHA256,384,512 2.Authenticated UEFI Variable 3. EFI PE/COFF Image(SHA256) Key Source: Factory, External, Mixed
► Forbidden Signatures	Select item	[Details] / Export / Update / Append / Delete	Depend	Enroll Factory Defaults or load keys from a file: 1.Public Key Certificate in: a)EFI_SIGNATURE_LIST, b)EFI_CERT_X509 (DER encoded), c)EFI_CERT_RSA2048 (bin), d)EFI_CERT_SHA256,384,512 2.Authenticated UEFI Variable 3. EFI PE/COFF Image(SHA256) Key Source: Factory, External, Mixed
► Authorized TimeStamps	Select item	[Details] / Export / Update / Append / Delete	Depend	Enroll Factory Defaults or load keys from a file: 1.Public Key Certificate in: a)EFI_SIGNATURE_LIST, b)EFI_CERT_X509 (DER encoded), c)EFI_CERT_RSA2048 (bin), d)EFI_CERT_SHA256,384,512 2.Authenticated UEFI Variable 3. EFI PE/COFF Image(SHA256) Key Source: Factory, External, Mixed
► OsRecovery Signatures	Select item	[Details] / Export / Update / Append / Delete	Depend	Enroll Factory Defaults or load keys from a file: 1.Public Key Certificate in: a)EFI_SIGNATURE_LIST, b)EFI_CERT_X509 (DER encoded), c)EFI_CERT_RSA2048 (bin), d)EFI_CERT_SHA256,384,512 2.Authenticated UEFI Variable 3. EFI PE/COFF Image(SHA256) Key Source: Factory, External, Mixed
▸ BIOS Update			Yes	BIOS Update support
► Path for ROM Image	Dialog	Drive: \Path	Yes	Enter the path to the BIOS update option
	Line separator		Yes	
Notice :	Information string		Yes	ROM Image must in the root folder of storage device. File name must match with current BIOS project.

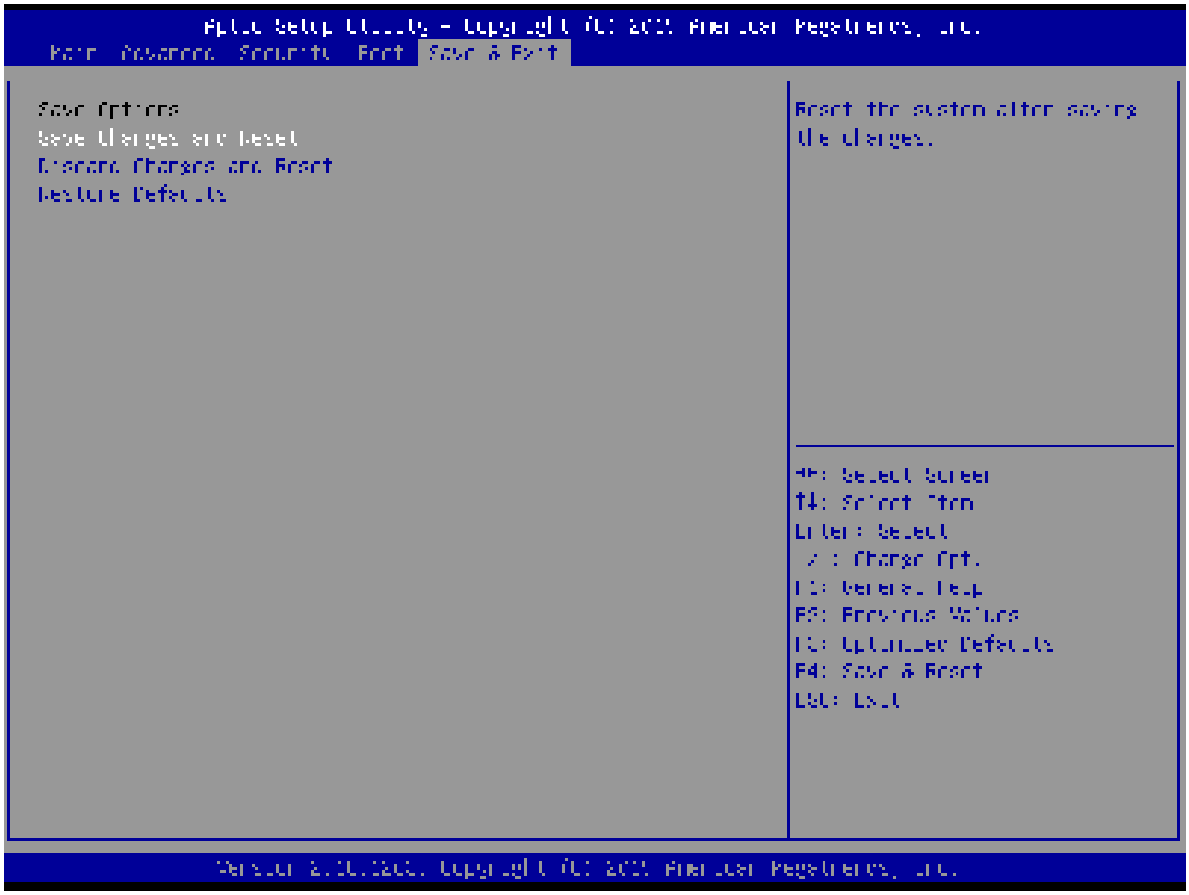
4. **BOOT**





BIOS Setup option name	Type	[Default] / Select Value	Show	Help string
Boot	Page		Yes	
Boot Configuration	Information string			
Setup Prompt Timeout	Input value	3	Yes	Number of seconds to wait for setup activation key. 65535(0xFFFF) means indefinite waiting.
Bootup NumLock State	Select item	[On] / Off	Yes	Select the keyboard NumLock state
	Line separator			
FIXED BOOT ORDER Priorities	Information string			
Boot Optoin #1	Select item	Hard Disk	Yes	Set the system boot order
Boot Optoin #2	Select item	CD/DVD	No	Set the system boot order
Boot Optoin #3	Select item	SD	No	Set the system boot order
Boot Optoin #2	Select item	USB Hard Disk	Yes	Set the system boot order
Boot Optoin #3	Select item	USB CD/DVD	Yes	Set the system boot order
Boot Optoin #4	Select item	USB Key:UEFI: xxxx	Yes	Set the system boot order
Boot Optoin #5	Select item	USB Floppy	Yes	Set the system boot order
Boot Optoin #6	Select item	USB LAN	Yes	Set the system boot order
Boot Optoin #9	Select item	Network:UEFI: PXE xxxx	No	Set the system boot order
	Line separator			
▸ UEFI Hard Disk Drive BBS Priorities			Depend	Specifies the Boot Device Priority sequence from available UEFI Hard Disk Drives.
Boot Option #1	Select item		Depend	Sets the system boot order
Boot Option #2	Select item		Depend	Sets the system boot order
Boot Option #3	Select item		Depend	Sets the system boot order
Boot Option #4	Select item		Depend	Sets the system boot order
▸ UEFI USB Key Drive BBS Priorities			Depend	Specifies the Boot Device Priority sequence from available UEFI USB Key Drives.
Boot Option #1	Select item	[UEFI: Generic Flash....] / Disable	Depend	Sets the system boot order
Boot Option #2	Select item	[UEFI: Generic Flash....] / Disable	Depend	Sets the system boot order
Boot Option #3	Select item	[UEFI: Generic Flash....] / Disable	Depend	Sets the system boot order
Boot Option #4	Select item	[UEFI: Generic Flash....] / Disable	Depend	Sets the system boot order
▸ UEFI NETWORK Drive BBS Priorities			Depend	Specifies the Boot Device Priority sequence from available UEFI NETWORK Drives.
Boot Option #1	Select item	[UEFI: PXE IPx ....] / Disable	Depend	Sets the system boot order
Boot Option #2	Select item	[UEFI: PXE IPx ....] / Disable	Depend	Sets the system boot order
Boot Option #3	Select item	[UEFI: PXE IPx ....] / Disable	Depend	Sets the system boot order
Boot Option #4	Select item	[UEFI: PXE IPx ....] / Disable	Depend	Sets the system boot order

5. SAVE & EXIT



BIOS Setup option name	Type	[Default] / Select Value	Show	Help string
Save & Exit	Page		Yes	
Save Options	Information string			
Save Changes and Reset	Dialog	[Yes] / No	Yes	Reset the system after saving the changes.
Discard Changes and Reset	Dialog	[Yes] / No	Yes	Reset system setup without saving any changes.
Restore Defaults	Dialog	[Yes] / No	Yes	Restore/Load Default values for all the setup options.