Intel® NUC Compute Element
Aptio V BIOS Glossary
Revision 1.0 – September 2021

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Introduction

The BIOS Setup program can be used to view and change the BIOS settings for the Intel® NUC. BIOS Setup is accessed by pressing **F2** after the Power-On Self-Test (POST) memory test begins and before the operating system boot begins.

The presence of menus and BIOS settings are dependent on your Intel NUC model, hardware components installed, and the BIOS version.

If any problems occur (poor performance, intermittent issues) after making BIOS settings changes, reset the BIOS to default values:

1. Press **F2** during boot to enter the BIOS Setup.
2. Press **F9** to set defaults.
3. Press **F10** to save and exit.

If the system locks or won't boot after making BIOS settings changes, perform a BIOS Recovery.

How to Read this Glossary

Type	Indicates the type of BIOS setting. • **Action:** BIOS takes a specific action when this is selected. There may be a confirmation prompt before the action is taken. • **Checkbox:** BIOS displays a checkbox that can be set or cleared. • **Information:** BIOS displays non-selectable text. • **Numeric:** BIOS displays a number that can be incremented, decremented, manually entered, or set with a slider bar. • **One-of:** BIOS displays a list of options and allows one to be selected. • **Ordered List:** BIOS displays a list of options that can be reordered. • **Password:** BIOS displays a window for the user to enter text. Each character entered is displayed as an asterisk character (*). If an invalid character is entered, the BIOS will beep and will not display an additional asterisk.
Range	Minimum and Maximum values that can be set (for Numeric questions).
Help	Help text that appears in the standard Help section of the Setup screen.
Advanced Help	Help text that appears in the Advanced Help pop-up window.
Requires	Lists requirements for this question to appear in BIOS Setup.
Aptio V BIOS Page	Indicates the BIOS page or menu where the setting is found.

Setup Hotkeys

F1	Opens the Advanced Help pop-up window for the selected question.
F7	Initiates a BIOS update process.
F9	Invokes a confirmation dialog to load default settings.
F10	Invokes a confirmation dialog to Exit and Save Changes.
Ctrl + Alt + Del	Restarts the system.
Arrow Left Arrow Right Arrow Up Arrow Down Tab Shift + Tab	Moves the cursor left/right/up/down one question. Will wrap if already at first or last question on the page. When selecting an option from a drop-down list, moves the cursor up/down one option.
Esc	**When selecting an option for a One-Of/Ordered List question:** Close option selection box and cancel changes. **When selecting a value for a Numeric question:** Cancel changes. **When viewing a Setup sub-screen page**: Return to parent Setup page. **When viewing a top-level Setup page:** Invoke confirmation dialog box to Exit Discarding Changes. **When viewing a confirmation dialog box:** Close confirmation dialog box without taking action. **When entering text into a Password/Text Entry window**: Close window and cancel changes.

Main

System Information

Manufacturer	System Manufacturer string from SMBIOS Type 1 structure.
Product Name	System Product Name string from SMBIOS Type 1 structure.
Version	System Version string from SMBIOS Type 1 structure.
Serial Number	System Serial Number string from SMBIOS Type 1 structure.
UUID	System UUID/GUID from SMBIOS Type 1 structure.
SKU Number	System SKU Number string from SMBIOS Type 1 structure.
Family	System Family string from SMBIOS Type 1 structure.

Board Information

Manufacturer	System Manufacturer string from SMBIOS Type 2 structure.
Product Name	System Product Name string from SMBIOS Type 2 structure.
Version	System Version string from SMBIOS Type 2 structure.
Serial Number	System Serial Number string from SMBIOS Type 2 structure.
Asset Tag	Board Asset Tag string from SMBIOS Type 2 structure.

Chassis Information

Manufacturer	System Manufacturer string from SMBIOS Type 3 structure.
Product Name	System Product Name string from SMBIOS Type 3 structure.
Version	System Version string from SMBIOS Type 3 structure.
Serial Number	System Serial Number string from SMBIOS Type 3 structure.
Asset Tag	Board Asset Tag string from SMBIOS Type 3 structure.

BIOS Version:

Type	BIOS identification Information
Aptio V BIOS Page	Main

Processor Type:

Type	Information
Aptio V BIOS Page	Main

- Displays the processor brand.

Max Processor Turbo Frequency

Type	Information
Aptio V BIOS Page	Main

- Displays the max processor turbo frequency.

Max Processor Non Turbo Frequency

Type	Information
Aptio V BIOS Page	Main

- Displays the max processor non-turbo frequency.

Host Clock Frequency

Type	Information
Aptio V BIOS Page	Main

- Displays the default Host Clock Frequency.

L2 Cache RAM

Type	Information
Aptio V BIOS Page	Main

- Displays the total L2 cache memory of the installed processor in megabytes. If the installed processor is multi- core, it is displayed as number of cores x L2 cache per core.

L3 Cache RAM

Type	Information
Aptio V BIOS Page	Main

- Displays the total L3 cache memory of the installed processor in megabytes.

CPUID

Type	Information
Aptio V BIOS Page	Main

- Displays the processor CPUID in hexadecimal.

Microcode Update Revision

Type	Information
Aptio V BIOS Page	Main

- 32-bit processor microcode update revision in hexadecimal.

Total Memory Installed

Type	Information
Aptio V BIOS Page	Main

- Displays the total installed system memory size in gigabytes.

Memory Speed

Type	Information
Aptio V BIOS Page	Main

- Displays the current memory speed. Defined as Current Host Clock Frequency x Memory Reference Multiplier x Memory Multiplier.

Intel® ME FW Version

Type	Information
Requires	ME is present and running
Aptio V BIOS Page	Main

- Displays ME Firmware Version.

EC FW Version

Type	Information
Requires	EC is present on the system
Aptio V BIOS Page	Main

Element Configuration Data Version

Type	Information
Requires	ECD is present on the system
Aptio V BIOS Page	Main

Bluetooth

Type	Information
Aptio V BIOS Page	Main

Intel® Wireless-AC MAC address

Type	Information
Aptio V BIOS Page	Main

- MAC Address of onboard LAN device(s) in hexadecimal.

Onboard LAN MAC Address / Secondary LAN MAC Address

Type	Information
Aptio V BIOS Page	Main

- MAC Address of onboard LAN device(s) in hexadecimal.

System Language

Type	Information
Aptio V BIOS Page	Main

- Displays the system BIOS default language. Currently, only English.

System Date and Time:

- Displays the current time and date in format: MM/DD/YYYY HH:MM:SS XM

Advanced > Storage

SMART Self Test

Type	One-of
Enabled	Enables or Disables S.M.A.R.T - Self-Monitoring, Analysis, and Reporting Technology.

Help	RUN SMART self test on all HDDs during POST.
Disabled	Disables the SMART Self Test
Aptio V BIOS Page	Advanced > Storage

M.2 Slot 2:

Type	One-of
Enabled	Enables M.2 Port.
Disabled	Disables M.2 Port.
Aptio V BIOS Page	Advanced > Storage

M.2 Slot 1:

Type	One-of
Enabled	Enables M.2 Port.
Disabled	Disables M.2 Port.
Aptio V BIOS Page	Advanced > Storage

M.2 Port sl

Type	Checkbox
Help	Enables or Disables M.2 Port.
Aptio V BIOS Page	Advanced > Storage

Hard Disk Pre-Delay

Type	Numeric
Help	Delay (in seconds) before hard drives are initialized. This can be used to increase the amount of time that the BIOS Splash Screen displays.
Aptio V BIOS Page	Advanced > Storage

Enable VMD controller (Enable for RAID and Optane Memory)

Type	One-of
Enabled	Enables VMD controller.
Disabled	Disables VMD controller.
Aptio V BIOS Page	Advanced > Storage
Caution	OS may not boot if this setting is changed after OS install.

Advanced > Onboard Devices

HD Audio

Type	One-of
Help	Control detection of the HD-Audio device.
Disabled	Disables HD audio.
Enabled	Enables HD audio.
Auto	
Aptio V BIOS Page	Advanced > Onboard Devices

LAN1

Type	One-of
Disabled	Disables the onboard Ethernet LAN controller.
Enabled	Enables the onboard Ethernet LAN controller.
Aptio V BIOS Page	Advanced > Onboard Devices

LAN2

Type	Checkbox
Help	Enables or Disables the secondary Ethernet LAN Controller, if one is present.
Aptio V BIOS Page	Advanced > Onboard Devices

Thunderbolt™ Controller Support

Type	One-of
Disabled	Disables the onboard Thunderbolt controller
Enabled	Enables the onboard Thunderbolt controller
Aptio V BIOS Page	Advanced > Onboard Devices

Trusted Platform Module 2.0 Presence

Type	One-of
Help	Controls exposure of the onboard Trusted Platform Module (TPM) device to the operating system.
Disabled	Disables the TPM 2.0.
Enabled	Enables the TPM 2.0.
Aptio V BIOS Page	Advanced > Onboard Devices

WLAN

Type	One-of
Disabled	Disables the WLAN controller.
Enabled	Enables the WLAN controller.
Aptio V BIOS Page	Advanced > Onboard Devices

Bluetooth

Type	One-of
Disabled	Disables the Bluetooth controller.
Enabled	Enables the Bluetooth controller.
Aptio V BIOS Page	Advanced > Onboard Devices

Gaussian Mixture Models and Neural Networks Accelerator (GNA)

Type	One-of
Disabled	Disables the GNA function.
Enabled	Enables the GNA function.
Aptio V BIOS Page	Advanced > Onboard Devices

Serial Port

Type	One-of
Disabled	Disables the Serial Port.
Enabled	Enables the Serial Port.
Aptio V BIOS Page	Advanced > Onboard Devices

Serial Port 2

Type	One-of
Disabled	Disables the Serial Port 2.
Enabled	Enables the Serial Port 2.
Aptio V BIOS Page	Advanced > Onboard Devices

HDMI CEC Control

Type	One-of
Help	Enables or disables onboard HDMI CEC Control. This must be set to Disable to allow external CEC adaptor for CEC header.
Disabled	Disables the HDMI CEC control.
Enabled	Enables the HDMI CEC control.
Aptio V BIOS Page	Advanced > Onboard Devices

Auto Turn On Display

Type	One-of
Help	If enabled, the system will turn on Display when system boot or resume from configured power state.
Disabled	Disables Auto Turn On display function.
From Sleep/S4/S5 Boot	Display turn on when system boot or resume from sleep, S4 or S5.
From Sleep resume	Display turn on when system boot or resume from sleep
From S4/S5 Boot	Display turn on when system boot or resume from S4 or S5.
Help	Selects preference for the system turn on display when boot or resume from selected power states.
Aptio V BIOS Page	Advanced > Onboard Devices

Auto Turn Off Display

Type	One-of
Help	If enabled, the system will turn off Display when system go to sleep or shutdown.
Disabled	Disables the function to turn off display when the system enter sleep or shutdown
Enabled	Enables the function to turn off display when the system enter sleep or shutdown
Aptio V BIOS Page	Advanced > Onboard Devices

Wake on Display

Type	One-of

Help	If enabled, the system will wake from configured power state when Display turning on.
Disabled	Disables the function to wake the system from configured power state when the display turn on
Enabled	Enables the function to wake the system from configured power state when the display
Aptio V BIOS Page	Advanced > Onboard Devices

Standby by Display

Type	One-of
Help	If enabled, the system will toggle Operating System Power button or sleep button when display turning off.
Off	Off the Keyboard NumLock at bootup.
On	On the Keyboard NumLock at bootup.
Aptio V BIOS Page	Advanced > Onboard Devices

Bootup NumLock State

Type	One-of
Help	Select the keyboard Numlock state.
Disabled	Disables the failsafe Watchdog function.
Enabled	Enables the failsafe Watchdog function.
Aptio V BIOS Page	Advanced > Onboard Devices
Help	After a boot failure, system boot into BIOS setup and retain the last used BIOS setup values set by the user.

Failsafe Watchdog

Type	One-of
Help	After a boot failure, uses BIOS defaults to boot back into BIOS setup while retaining the last used BIOS setup values set by the user.
Disabled	Disables the failsafe Watchdog function.
Enabled	Enables the failsafe Watchdog function.
Aptio V BIOS Page	Advanced > Onboard Devices
Help	After a boot failure, system boot into BIOS setup and retain the last used BIOS setup values set by the user.

Advanced > USB

Type A Port

Type	One-of
Help	Enable/Disable front left USB 3 Type A port.
Disabled	USB keyboard/mouse will be available to BIOS. All devices on this port will be unavailable to OS
Enabled	All devices on this port will be available to OS.
No Detect	No devices on this port will be detected by BIOS, but all will be available to OS.

	Use this option to speed up BIOS boot.
Aptio V BIOS Page	Advanced > USB

USB 3.0 Header Connector

Type	One-of
Help	Enable/Disable front left USB 3 internal header connector.
Disabled	USB keyboard/mouse will be available to BIOS. All devices on this port will be unavailable to OS
Enabled	All devices on this port will be available to OS.
No Detect	No devices on this port will be detected by BIOS, but all will be available to OS. Use this option to speed up BIOS boot.
Aptio V BIOS Page	Advanced > USB

Retain USB power during System Reset

Type	One-of
Help	Provide USB 5V power during a system reset or warm reboot to prevent attached USB devices going through a reset.
Aptio V BIOS Page	Advanced > USB

USB 3.0 Header Connector Power

Type	One-of
Help	Determines if USB power shall be provided by the USB port. Power on/off setting only applicable when port operates as USB host port (power always disabled when port operates as a USB device port)
Aptio V BIOS Page	Advanced > USB

USB Port Host/Devices Mode

Type	One-of
Force Host Mode	Force the USB3 port 0 to host mode
Force Device Mode	Force the USB3 port 0 to device mode, and USB port power is disabled
Aptio V BIOS Page	Advanced > USB

Advanced > Video

IGD Minimum Memory

Type	One-of
32 MB	
64 MB	
128 MB	Note: Kaby Lake platform does not support 128 MB option.
256 MB	Note: Kaby Lake platform does not support 256 MB option.
512 MB	Note: Kaby Lake platform does not support 512 MB option.
1 GB	Note: Broadwell and Kaby Lake platforms do not support 1GB option. Platform memory address space resource dependent. BIOS shall hide this option if memory address space is not enough.
1.5 GB	Note: Broadwell and Kaby Lake platforms do not support 1.5GB option. Platform memory address space resource dependent. BIOS shall hide this option if memory address space is not enough.
Help	Selects the minimum amount of system memory allocated to the Integrated Graphics Device (IGD). The maximum amount of memory allocated is determined by the operating system and video driver.
Aptio V BIOS Page	Advanced > Video

- The 64 and 128 MB options are not selectable if the system has less than 1 GB of memory installed.
- The 512 MB option is not selectable if the system has less than 1.5 GB of memory installed.
- The 1 GB option is not selectable if the system has less than 2 GB of memory installed.

IGD Aperture Size

Type	One-of
128 MB	
256 MB	
512 MB	
1024 MB	Platform memory address space resource dependent. BIOS shall hide this option if memory address space is not enough.
2048 MB	UEFI mode only. Platform memory address space resource dependent. BIOS shall hide this option if memory address space is not enough.
4096 MB	Note: Kaby Lake platform does not support 4096MB option UEFI mode only. Platform memory address space resource dependent. BIOS shall hide this option if memory address space is not enough.
Help	Selects the aperture size for the Integrated Graphics Device (IGD). Requires motherboard supports at least one video port tied to IGD.
Aptio V BIOS Page	Advanced > Video

Display Emulation

Type	One-of
Help	Allows emulation of display monitors for one or both HDMI ports when not attached to the system (headless and virtual 2nd display options) or temporarily disconnected from the system (persistent display option)
No emulation	
Virtual display	Allow emulation of display monitors for one or both HDMI ports when not attached to the system. (Headless)
Persistent display	Allow emulation of display monitors for one or both HDMI ports when temporarily disconnected from the system.
Aptio V BIOS Page	Advanced > Video

Internal Graphics

Type	One-of
Help	Selects if Integrated Graphics Device (IGD) is enabled when a PCI-E graphics card is plugged on the motherboard.
Aptio V BIOS Page	Advanced > Video

Advanced > Add-In Config

iSCSI Configuration

Type	Sequence
Help	Change the priority using +/- keys. Use arrow keys to select the attempt then press +/- to move the attempt up/down in the attempt order list. Select commit changes and exit to save the settings.
Options	Host Attempt, Redfish attempt, Rsd attempt
Aptio V BIOS Page	Advanced >iSCSI Configuration > Attempt Priority

iPv4 Network Configuration

Type	Information
Help	Indicate whether network address configured successfully or not.
Aptio V BIOS Page	Advanced >iPv4 Network Configuration

iPv6 Network Configuration

Type	Sequence
Help	Configure menu for IPv6 configuration.
Aptio V BIOS Page	Advanced >iPv6 Network Configuration

Advanced > Event Log

SMBIOS Event Log

Type	One-of
Enabled	
Disabled	
Help	Change this to enable or disable all features of SMBIOS Event Logging during boot.
Aptio V BIOS Page	Advanced > Event Logs > Change SMBIOS Event Log Settings > Enabling/Disabling

Erase Event Log

Type	One-of
No	
Yes, Next reset	
Yes, Every reset	
Help	Choose option for erasing SMBIOS event logs. Erasing is done prior to any logging activation during reset.
Aptio V BIOS Page	Advanced > Event Logs > Change SMBIOS Event Log Settings > Erasing setting

When Log is Full

Type	One-of
Do nothing	
Erase immediately	
Help	Choose option for reactions to a full event log.
Aptio V BIOS Page	Advanced > Event Logs > Change SMBIOS Event Log Settings > Erasing Settings

Log system boot event

Type	Information
Help	Choose option to enable/disable logging of system boot event
Aptio V BIOS Page	Advanced > Event Logs > Change SMBIOS event log settings > SMBIOS Event Log standard settings

MECI

Type	One-of
Help	Multiple Event Count Increment: The number of occurrences of a duplicate event that must pass before the multiple-event counter of log entry is updated. The value ranges from 1 to 255.
Aptio V BIOS Page	Advanced > Event Logs > Change SMBIOS event log settings > SMBIOS Event Log standard settings

METW

Type	One-of
Help	Multiple Event Time Window: The number of minutes which must pass between duplicate log entries which utilize a multiple-event counter. The value ranges from 0 to 99 minutes.
Aptio V BIOS Page	Advanced > Event Logs > Change SMBIOS event log settings > SMBIOS Event Log standard settings

Log EFI status code

Type	One-of
Help	Enable or disable the logging of EFI status codes as OEM reserved type E0 (if not already converted to legacy)
Aptio V BIOS Page	Advanced > Event Logs > Change SMBIOS event log settings > Custom Options

View SMBIOS Event Log

Type	One-of
Help	View the SMBIOS event log records
Aptio V BIOS Page	Advanced > Event Logs

Auto RTC Reset

Type	One-of
Help	Enable auto RTC reset
Aptio V BIOS Page	Advanced

Performance & Cooling

System FAN Header

Type	Information
Aptio V BIOS Page	Performance and Cooling

Fan Control Mode

Type	One-of
Manual Mode/Fixed Duty Cycle	Selects static duty cycle for the fan.
Smart FAN	Selects a preconfigured automatic fan control profile.
Fanless	Disables the fan
Help	Select how the system fan is to be controlled.
Aptio V BIOS Page	Performance and Cooling

Primary Temperature Sensor

Type	One-of
CPU Temperature	Processor Temperature.
PCH	PCH Temperature.
Help	Select the Primary Temperature Input for automatic fan control
Requires	Hidden if **Fan Control Mode** is set to **Fixed** or **Fanless**.
Aptio V BIOS Page	Performance and Cooling

Fan Off Capability

Type	One-of
Help	Enables or Disables Fan Off Capability. If Enabled, fan control will turn off the fan if temperature falls below fan off temperature.

Aptio V BIOS Page	Performance and Cooling

Fan off Temperature (°C)

Type	Numeric
Range	0-127
Help	Defines temperature that the fan control subsystem attempts to maintain for this device.
Requires	Hidden if **Fan Control Mode** is set to **Fixed** or **Fanless**.
Aptio V BIOS Page	Performance and Cooling

Minimum Temperature (°C)

Type	Numeric
Range	0-127
Help	Defines temperature that the fan control subsystem attempts to maintain for this device.
Requires	Hidden if **Fan Control Mode** is set to **Fixed** or **Fanless**.
Aptio V BIOS Page	Performance and Cooling

Minimum Duty Cycle (%)

Type	Numeric
Range	0-100
Help	Selects the minimum duty cycle that the fan will never go below if Fan Off Capability is disabled.
Requires	Hidden if **Fan Control Mode** is set to **Fixed** or **Fanless**.
Aptio V BIOS Page	Performance and Cooling

Duty Cycle Increment (%/°C)

Type	Numeric
Range	1-20
Help	Fan control will increase fan duty cycle by this % for each degree Primary Temperature Sensor is over Minimum Temperature.
Advanced Help	If Primary Temperature Sensor's temperature exceeds the Minimum Temperature, then the fan duty cycle is set to: Minimum Duty Cycle + (Duty Cycle Increment x (Current Temperature – Minimum Temperature))
Requires	Hidden if **Fan Control Mode** is set to **Fixed** or **Fanless.**
Aptio V BIOS Page	Performance and Cooling

Secondary Temperature Sensor

Type	One-of
CPU Temperature	Processor Temperature
PCH Temperature	PCH Temperature
None	No Secondary Temperature Sensor.
Help	Select the Primary Temperature Input for automatic fan control
Requires	Hidden if **Fan Control Mode** is set to **Fixed** or **Fanless**.
Aptio V BIOS Page	Performance and Cooling

Intel® Turbo Boost Technology

Type	One-of
Help	Enable to automatically allow processor cores to run faster than the base operating frequency when running below power, current, and temperature limits.
Advanced Help	Enable to automatically allow processor cores to run faster than the base operating frequency when running below power, current, and temperature limits. Disable to limit processor speed based on Maximum Non-Turbo Ratio. Enabling Intel® Turbo Boost Technology will also Enable Enhanced Intel SpeedStep® Technology.
Requires	Hidden if processor does not support Intel® Turbo Boost Technology
Aptio V BIOS Page	Performance and Cooling

Active Processor Cores

Type	One-of
ALL	Enables all available Cores in the Processor.
1	Enables only 1 Core in the Processor.
2	Enables 2 Cores in a multi-core Processor.
3	Enables 3 Cores in a multi-core Processor.
Help	Number of cores to enable in each processor package
Requires	Set to **ALL** and grayed-out if **Intel® Trusted Execution Technology** is set to **Enable**
Aptio V BIOS Page	Performance and Cooling

Debug Interface

Type	One-of
Enabled	
Disabled	
Help	Enables or Disables IA32 silicon debug features.
Aptio V BIOS Page	Performance and Cooling

Enhanced Intel SpeedStep® Technology

Type	One-of
Enabled	
Disabled	
Help	When enabled allows the system to dynamically adjust processor voltage and core frequency, which can result in decreased average power consumption, decreased average heat production, and a quieter systems.
Aptio V BIOS Page	Performance and Cooling

Intel® Speed Shift Technology

Type	One-of
Enabled	
Disabled	
Help	Enable/Disable Intel® Speed Shift Technology support. Enabling will expose the CPPC V2 interface to allow for hardware controlled P-states.

Aptio V BIOS Page	Performance and Cooling

Security

- Valid length for passwords is 2 to 20 characters.
- Valid characters for passwords are case-sensitive alpha-numeric: 0-9, A-Z, a-z.

Supervisor Password

Type	Information
Aptio V BIOS Page	Security

- Displays whether or not a supervisor password has been set.

User Password

Type	Information
Aptio V BIOS Page	Security

- Displays whether or not a user password has been set.

Set Supervisor Password

Type	Password
Text Entry Prompt	Please type in your password
Text Entry Prompt	Please type in your new password
Text Entry Prompt	Please confirm your new password
Help	Passwords must be between 2 and 20 characters and are case sensitive.
Advanced Help	Fast Boot will be disabled if a User Password is installed.
Aptio V BIOS Page	Security

- The first Text Entry Prompt is only used when attempting to change a password that is already installed.
- To delete an existing Supervisor password, enter a blank password after entering the existing Supervisor password.

Set User Password

Type	Password
Text Entry Prompt	Please type in your password
Text Entry Prompt	Please type in your new password
Text Entry Prompt	Please confirm your new password
Help	Passwords must be between 2 and 20 characters and are case sensitive. If a User Password is created, it must be entered each boot before OS access.
Advanced Help	Fast Boot will be disabled if a User Password is installed.
Aptio V BIOS Page	Security

- The first Text Entry Prompt is only used when attempting to change a password that is already installed.
- To delete an existing User password, enter a blank password after entering the existing User password.

HDD Security Configuration

Type	Information
Aptio V BIOS Page	Security > HDD Password Configuration

- Allow access to set, modify and clear hard disk user password and master password. User password is mandatory to enable HDD security. If Master password is installed (optional), it can also be used to unlock the HDD. If the “set user password” option is hidden, do power cycle to enable the option again.

Set User Password

Type	Password
Text Entry Prompt	Please type in your password
Text Entry Prompt	Please type in your new password
Text Entry Prompt	Please confirm your new password
Confirmation Prompt	Hard Drive Passwords are not recoverable and cannot be removed without an original password. The drive will remain inaccessible unless the User or Master Hard Drive
Help	Passwords must be between 2 and 19 case-sensitive alpha-numeric characters. If a User Hard Drive Password is created, it must be entered each boot before OS access.
Advanced Help	Advisable to power cycle system after setting hard disk passwords. Discard or save changes options in setup does not have any impact on HDD when password is set or removed. If the “set HDD user password” option is hidden, do power cycle to enable the option again.
Aptio V BIOS Page	Security > HDD Security Configuration

Set Master Password

Type	Password
Text Entry Prompt	Please type in your password
Text Entry Prompt	Please type in your new password
Text Entry Prompt	Please confirm your new password
Confirmation Prompt	Hard Drive Passwords are not recoverable and cannot be removed without an original password. The drive will remain inaccessible unless the User or Master Hard Drive
Help	Passwords must be between 2 and 19 case-sensitive alpha-numeric characters. The Master Hard Drive password is only used to unlock a drive if the User Hard Drive password is forgotten.
Advanced Help	The Master Hard Drive password does not lock a drive by itself. The drive must be attached to Chipset SATA Port 0 and in either IDE or ACHI Mode.
Requires	Hidden if there is not a Hard Drive attached to Chipset SATA Port 0 or Chipset SATA Mode is not IDE or AHCI.
Aptio V BIOS Page	Security > HDD Password Configuration

- The first Text Entry Prompt is only used when attempting to change a password that is already installed.
- To delete an existing Master Hard Drive password, enter a blank password after entering the existing Master Hard Drive password.

Allow UEFI 3rd Party Driver Loaded

Type	One-of
Help	**Enable**: Allow UEFI 3rd party driver to be loaded during Boot Device Selection (BDS) stage. **Disable**: Prohibit UEFI 3rd party driver to be loaded during BDS stage.

Aptio V BIOS Page	Security > Security Features

Intel® Virtualization Technology

Type	One-of
Help	Enables or Disables features that provide hardware support for virtualization. Requires power cycling and specific hardware/software installed to take effect.
Requires	Processor supports VT. Enabled and grayed-out if Intel® Trusted Execution Technology is set to Enable.
Aptio V BIOS Page	Security > Security Features

Intel® Trusted Execution Technology

Type	One-of
Help	Intel® TXT provides hardware-based mechanisms that may help to protect against software-based attached and protect the confidentiality and integrity of data. If Intel TXT is enabled, then Intel® VT, Intel® VT-d, Intel® HT Technology, all processor cores, and the onboard TPM will also be enabled. Once Intel TXT is enabled, it must be disabled before disabling any of these required features.
Aptio V BIOS Page	Security > Security Features

Intel® VT for Directed I/O (VT-d)

Type	One-of
Help	Enables or Disables Intel® VT for Directed I/O (VT-d) which provides additional hardware support for managing I/O virtualization. If Enabled, BIOS will publish a DMA Remapping ACPI table.
Requires	Processor and chipset combination support VT-d. Enabled and grayed-out if Intel® Trusted Execution Technology is set to Enable
Aptio V BIOS Page	Security > Security Features

iSetupCfg Password Check

Type	One-of
Enabled	
Bypass	
Temporarily Bypass	
Help	Configuring the BIOS Setup via Intel SCE tool requires BIOS Admin/Supervisor password for access. **Enable**: Actual BIOS Admin/Supervisor password is required. **Bypass or Temporarily Bypass**: a ‘dummy’ Admin password is accepted.
Aptio V BIOS Page	Security > Security Features

USB Provisioning of AMT

Type	One-of
Help	Enables or disables Intel® AMT USB auto provisioning.
Aptio V BIOS Page	Security > Security Features

Power

S0 Indicator Blinking

Type	One-of
Options	**OFF** – Power LED off **0.25Hz** – LED blinking frequency **1Hz** – LED blinking frequency **Always On**
Help	S0 indicator LED options
Aptio V BIOS Page	Power > Power LED

MS (Modern Standby) Indicator Blinking

Type	One-of
Options	**OFF** – Power LED off **0.25Hz** – LED blinking frequency **1Hz** – LED blinking frequency **Always On**
Help	S0 indicator LED options
Aptio V BIOS Page	Power > Power LED

S0 Indicator Color

Type	One-of
Options	**Primary** **Secondary** Note: Used for Dual color LED implementation.
Help	S0 indicator color options
Aptio V BIOS Page	Power > Front panel LED header

S0 Indicator Blinking

Type	One-of
Options	**OFF** – Power LED off **0.25Hz** – LED blinking frequency **1Hz** – LED blinking frequency **Always On**
Help	S0 indicator blinking options
Aptio V BIOS Page	Power > Front panel LED header

MS (Modern Standby) Indicator Color

Type	One-of
Options	**Primary** **Secondary** Note: Used for Dual color LED implementation.
Help	S0 indicator color options
Aptio V BIOS Page	Power > Front panel LED header

MS (Modern Standby) Indicator Blinking

Type	One-of
Options	**OFF** – Power LED off **0.25Hz** – LED blinking frequency **1Hz** – LED blinking frequency **Always On**
Help	S0 indicator blinking options
Aptio V BIOS Page	Power > Front panel LED header

After Power Failure

Type	One-of
Stay Off	System will stay in power-off state after AC power restore.
Last State	System will return to last power state before AC power lost.
Power On	System will automatically power-on after AC power is restored.
Help	Configures system behavior after AC power is lost.
Advanced Help	If set to Stay Off, the System will stay in a power-off state after AC power is restored. If set to Last State, the System will return to the last power state before AC power was lost. If set to Power On, the System will automatically power-on after AC power is restored.
Aptio V BIOS Page	Power

Deep S4/S5

Type	One-of
Options	Enable deep S4/S4 Disable deep S4/S5
Help	If Enabled, the system will use less power while turned off but still plugged into AC power (the wall power outlet). The system can only be turned on by power button. Other wake methods are disabled.
Aptio V BIOS Page	Power

Wake on LAN from S4/S5

Type	One-of
Stay Off	System will not wake from S4/S5 power state if Wake on LAN packet is received.
Power On – Normal Boot	System will wake from S4/S5 power state if Wake on LAN packet is received. BIOS will follow normal boot order.
Power On – PXE Boot	System will wake from S4/S5 power state if Wake on LAN packet is received. BIOS will attempt to boot to PXE. If PXE boot fails, BIOS will attempt to boot to other devices according to normal boot order.

Help	Configures behavior when Wake on LAN packet is received during S4/S5. Wake on LAN must also be enabled in OS LAN driver.
Advanced Help	**Stay Off -** System will not wake. **Power On - Normal Boot:** System will wake and use normal boot order. **Power On - PXE Boot**: System will wake and attempt boot to PXE.
Aptio V BIOS Page	**Power**

Wake System from S5

Type	One-of
Help	Enables or Disables Wake System from S5. If Enabled, system will wake at the selected date/time via RTC alarm.
Aptio V BIOS Page	Power

USB S4/S5 Power

Type	One-of
Help	Enables or Disables the USB Port power in S4/S5 state. This does not affect USB charging ports.
Requires	Board hardware support USB power in S4/S5 state. Hidden and Disabled if **Deep S4/S5** is set to **Enabled**
Aptio V BIOS Page	Power

Wake from Thunderbolt Device

Type	Checkbox
Help	Enable or Disable system wake from Thunderbolt devices.
Aptio V BIOS Page	Power > Secondary Power Settings

PCIe ASPM Support

Type	Checkbox
Help	Configures PCI Express (PCIe) Active State Power Management (ASPM). Tradeoffs involve power usage, performance, and device/driver compatibility.
Advanced Help	If set to Disable, ASPM support is disabled for all PCIe devices. If set to Enable, ASPM support is enabled for all PCIe devices.
Aptio V BIOS Page	Power > Secondary Power Settings

Native ACPI OS PCIe Support

Type	Checkbox
Help	Enable for power savings and performance improvements. Note: Not all PCIe devices are compatible with this feature.
Aptio V BIOS Page	Power > Secondary Power Settings

Boot

Secure Boot

Type	Information
Aptio V BIOS Page	Boot

UEFI Boot

Type	Information
Aptio V BIOS Page	Boot > Secure Boot

Secure Boot

Type	One-of
Enabled	
Disabled	
Help	If Enabled, BIOS will only boot to trusted operating system images. Secure Boot is supported only via UEFI Boot.
Advanced Help	Enabling Secure Boot will allow boot only to trusted operating system installations. Enabling Secure Boot will also enable UEFI Boot and disable Legacy Boot.
Requires	Disabled if **UEFI Boot** is Disabled. Disabled if Legacy Boot is Enabled.
Aptio V BIOS Page	Boot > Secure Boot

Secure Boot Mode

Type	One-of
Standard	
Custom	
Help	In Custom mode, Secure Boot policy variables can be configured by a physically present user without full authentication.
Aptio V BIOS Page	Boot > Secure Boot

Restore Factory Keys

Type	Action
Help	Force system to User Mode. Installs factory default secure Boot key databases.
Requires	Secure Boot Mode is set to **Custom**.
Aptio V BIOS Page	Boot > Secure Boot

Reset To Setup Mode

Type	Action
Help	Deletes all Secure Boot key databases from NVRAM
Requires	Secure Boot Mode is set to **Custom**.

Aptio V BIOS Page	Boot > Secure Boot

Key Management

Type	Action
Help	Enables expert users to modify secure boot policy variables without full authentication
Requires	Secure Boot Mode is set to **Custom**.
Aptio V BIOS Page	Boot > Secure Boot

UEFI Boot

Type	One-of
Help	If Enabled, BIOS will attempt to boot via UEFI before using the legacy boot sequence. UEFI Boot must be enabled in order to boot to a drive larger than 2 TB (terabytes).
Advanced Help	If both UEFI Boot and Legacy Boot are enabled, BIOS will attempt to boot via UEFI before using the legacy boot sequence. Enabling Secure Boot will also enable UEFI Boot and disable Legacy Boot.
Requires	Enabled if **Legacy Boot** is Disabled. Enabled if Secure Boot is Enabled.
Aptio V BIOS Page	Boot > Boot Priority

Boot Option

Type	Ordered List
Help	Select the boot order for all detected bootable devices.
Requires	Hidden if **UEFI Boot** is Disabled
Aptio V BIOS Page	Boot > Boot Priority

- All detected UEFI boot options will be included in the list.
- The user can change the order of boot options within the list.
- The BIOS will attempt to boot to each option in the order of this list.

Fast Boot

Type	One-of
Help	If Enabled, Boot from Network/Optical/Removable Devices and RAID configuration will be disabled. In addition, Video and USB devices (keyboards and drives) will not be available until after OS boot.
Advanced Help	This feature cannot be enabled while a User Password or Hard Disk Drive Password is installed, and when Chipset SATA Mode set to Intel RST Premium With Intel Optane System Acceleration. This feature does not affect USB and video capabilities after OS boot. In order to disable Fast Boot without entering BIOS Setup: Power down the system, then hold down the power button until the system beeps.
Requires	Fast Boot will be Grayed-out and Disabled if Chipset SATA Mode set to Intel RST Premium With Intel Optane System Acceleration.
Aptio V BIOS Page	Boot > Boot Priority

Boot USB Devices First

Type	One-of
Help	If Enabled, the BIOS will attempt to boot to supported USB devices before any other devices. If Disabled, the normal boot order will be used.
Requires	Grayed-out and set to **Disable** if **Fast Boot** is set to **Enable**
Aptio V BIOS Page	Boot > Boot Priority

Boot Network Devices Last

Type	One-of
Help	If Enabled, Network devices will always be placed after non-Network devices in the boot priority. If Disabled, Network devices can be placed at any position in the boot priority but will default to last.
Aptio V BIOS Page	Boot > Boot Priority

Unlimited Boot to Network Attempts

Type	One-of
Help	If Enabled, network devices will receive unlimited boot attempts after the normal boot order has been exhausted. If Disabled, each boot device will only receive a single boot attempt.
Aptio V BIOS Page	Boot > Boot Priority

BIOS Setup Auto-Entry

Type	One-of
Help	If set to Enable, BIOS will halt and prompt to boot normally or enter Setup. This must be set to Disable to allow OS boot without user intervention.
Advanced Help	This feature is not available while Fast Boot USB Optimization is set to Enable.
Requires	Grayed-out and set to **Disable** if **Fast Boot** is set to **Enable**.
Aptio V BIOS Page	Boot > Boot Priority

Internal UEFI Shell

Type	One-of
Help	Enables or Disables the Internal UEFI Shell.
Requires	Grayed-out and Disabled if **Secure Boot** is **Enabled**
Aptio V BIOS Page	Boot > Boot Priority

USB

Type	One-of
Help	Enables or Disables the ability to boot from supported USB devices.
Requires	Grayed-out and Disabled if **Fast Boot** is **Enabled**
Aptio V BIOS Page	Boot > Boot Priority

Thunderbolt Boot

Type	One-of
Help	Enables or Disables the ability to boot from Thunderbolt devices.

Requires	Grayed-out and Disabled if **Fast Boot** is **Enabled**
Aptio V BIOS Page	Boot > Boot Priority

Ignore Thunderbolt Option ROM

Type	Checkbox
Help	Determines if BIOS runs the Option ROM on the device behind the Thunderbolt.
Requires	Grayed-out and Disabled if **Fast Boot** is **Enabled**
Aptio V BIOS Page	Boot > Boot Priority

Optical

Type	Checkbox
Help	Enables or Disables the ability to boot to Optical devices.
Requires	Grayed-out and Disabled if **Fast Boo**t is **Enabled**
Aptio V BIOS Page	Boot > Boot Priority

Network Boot

Type	One-of
Disable	Disable network boot.
Legacy PXE	Enable PXE boot in legacy boot.
Legacy iSCSI	Enable iSCSI boot in legacy boot.
UEFI PXE & iSCSI	Enable iSCSI and PXE boot in UEFI boot for platform supports both UEFI PXE and iSCSI boot.
UEFI PXE	Enable PXE boot in UEFI boot for platform does not support UEFI iSCSI boot.
Help	Enables or Disables the ability to boot from the network. Note: UEFI network boot option is automatically disabled if Legacy Boot setting is enabled.
Requires	Hide Legacy PXE option if Legacy Boot is set to Disabled. Hide Legacy iSCSI option if Legacy Boot is set to Disabled. Hide UEFI PXE & iSCSI option if Legacy Boot is set to Enabled or UEFI Boot is set to Disabled. Legacy PXE and Legacy iSCSI options in current value must switch to UEFI PXE & iSCSI option automatically if switching from Legacy Boot to UEFI Boot. UEFI PXE & iSCSI option in current value must switch to Legacy PXE option if Legacy Boot is enabled.
Aptio V BIOS Page	Boot > Boot Priority

BIOS Self Recovery

Type	One-of
Help	BIOS Self recovery happens once Failsafe Watchdog is triggered. BIO file is required.
Requires	Grayed-out and disabled if **Failsafe Watchdog** is disabled.
Aptio V BIOS Page	Boot > Boot Display Configuration

Suppress Alert Messages At Boot

Type	One-of
Help	If enabled, BIOS will display POST error messages for five seconds without requiring user action (keyboard input) before continuing to boot. Subsequent error messages of the same type will be suppressed from the display but recorded in the Event Log.
Aptio V BIOS Page	Boot > Boot Display Configuration

POST Function Hotkeys Displayed

Type	One-of
Help	If set to Enable, BIOS will display Function key prompts during POST. Function key input will still be accepted even if prompts are disabled.
Aptio V BIOS Page	Boot > Boot Display Configuration

Display F2 to Enter Setup

Type	One-of
Help	If set to Enable, BIOS will display “F2 to Enter Setup” prompt. F2 key input will still be accepted if this prompt is disabled.
Requires	**POST Function Hotkeys Displayed** is set to **Enable**
Aptio V BIOS Page	Boot > Boot Display Configuration

Display F7 to Update BIOS

Type	One-of
Help	If set to Enable, BIOS will display “F7 to Update BIOS” prompt. F7 key input will still be accepted if this prompt is disabled.
Requires	**POST Function Hotkeys Displayed** is set to **Enable**
Aptio V BIOS Page	Boot > Boot Display Configuration

Display F8 to Activate Windows Recovery Mode

Type	One-of
Help	If set to Enable, BIOS will display “F8 to Activate Windows Recovery Mode” prompt. F8 key input will still be accepted if this prompt is disabled.
Requires	**POST Function Hotkeys Displayed** is set to **Enable**
Aptio V BIOS Page	Boot > Boot Display Configuration

Display F9 for Remote Assistance

Type	One-of
Help	If set to Enable, BIOS will display “F9 for Remote Assistance” prompt. F9 key input will still be accepted if this prompt is disabled.
Requires	**POST Function Hotkeys Displayed** is set to **Enable**
Aptio V BIOS Page	Boot > Boot Display Configuration

Display F10 to Enter Boot Menu

Type	One-of
Help	If set to Enable, BIOS will display “F10 to Enter Boot Menu” prompt. F10 key input will still be accepted if this prompt is disabled.

Requires	**POST Function Hotkeys Displayed** is set to **Enable**
Aptio V BIOS Page	Boot > Boot Display Configuration

Display F12 for Network Boot

Type	One-of
Help	If set to Enable, BIOS will display “F12 for Network Boot” prompt. F12 key input will still be accepted if this prompt is disabled.
Requires	**POST Function Hotkeys Displayed** is set to **Enable**
Aptio V BIOS Page	Boot > Boot Display Configuration

Display CTRL-P for Intel® MEBX

Type	One-of
Help	If set to Enable, BIOS will display “CTRL-P for Intel® MEBX” prompt. CTRL-P input will still be accepted if this prompt is disabled.
Requires	**POST Function Hotkeys Displayed** is set to **Enable**
Aptio V BIOS Page	Boot > Boot Display Configuration

POST Logo

Type	One-of
Help	If set to Disable, BIOS will not display logo during POST
Aptio V BIOS Page	Boot > Boot Display Configuration