Intel® NUC
BIOS Settings Glossary

The BIOS Setup program can be used to view and change the BIOS settings for the computer. 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. During boot, enter the BIOS setup by pressing **F2**.
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 as described at http://support.intel.com/support/motherboards/desktop/sb/CS-034524.htm.

Find BIOS settings (Ctrl+Click)

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BIOS Setting	Appears on BIOS Screen…	Options	Description / Purpose
1-Core Turbo Ratio	Performance	Numeric	Maximum processor multiplier used by Intel Turbo Boost Technology when 1 core is active.
2-Core Turbo Ratio	Performance	Numeric	Maximum processor multiplier used by Intel Turbo Boost Technology when 2 cores are active.
+3.3V	Cooling	Information only	Displays the voltage of the power supply +3.3V rail.
+3.3v Standby	Cooling	Information only	Displays the voltage of the power supply +3.3V Standby rail.
+5v	Cooling	Information only	Displays the voltage of the power supply +5V rail.

A

BIOS Setting	Appears on BIOS Screen…	Options	Description / Purpose
Active Processor Cores	Performance	• All • 1	Allows you to select the number of cores to enable in each processor package.
Additional Timing Support	Performance	Checkbox	**Enabled:** Apply the additional timing override values along with the memory manual mode configuration. **Disabled:** Use MRC Value.
After Power Failure	Power	• Stay Off • Last State • Power On	Determines the mode of operation after power is restored if a power loss occurs. **Stay Off:** after power is restored, the system stays off until the power button is pressed. **Last State:** after power is restored, the system returns to the last power state before power was lost. **Power On:** after power is restored, the system automatically powers on.
All-On Temperature (°C)	Cooling	Numeric	Defines temperature that the fan control subsystem takes fan(s) to full speed.
Analog I/O (V)	Performance	Numeric	Primarily used for overclocking.
Audio	Devices	Checkbox	Enables or disables onboard audio.

B

BIOS Setting	Appears on BIOS Screen…	Options	Description / Purpose
Backlight-Off to Power-Down Delay Time (ms)	Devices	Numeric	Specifies the delay from backlight-off to panel power-down.
Balance Enabled	Power	Checkbox	Sets pre-defined power options to balanc power efficiency vs. performance.
BIOS Setup Auto-Entry	Boot	Checkbox	If set to Enable, the BIOS will halt and prompt to boot normally or enter Setup. This must be set to Disable to allow OS boot without user intervention. This feature cannot be enabled if Fast Boot USB Optimization is enabled.
BIOS Version	Home	Information only	Displays the version of the BIOS currently installed.

Blacklisted Signature Database (dbx)	Boot	Information only	Displays **Installed** or **Not Installed** based on the presence of the UEFI dbx variable.
Blink LEDs	Devices	Range 0 - 15 seconds	Blink LEDs for the specified duration (in seconds)
Bluetooth	Devices	Checkbox	Enables or disables the onboard Bluetooth device.
Board Information	Home	Information only	Displays SMBIOS information for: • Manufacturer • Product Name • Version • Serial Number • Asset Tag
Boot Drive Order	Boot	Dependent on installed bootable devices	Allows you to specify the boot sequence from the available types of boot devices. All detected bootable devices will be included in the list. The user can change the order of devices. The BIOS will attempt to boot to each device in the order of this list.
Boot Priority	Boot	Dependent on installed bootable devices	Allows you to specify the boot sequence from the available types of boot devices. All detected bootable devices will be included in the list. The user can change the order of devices. The BIOS will attempt to boot to each device in the order of this list.
Boot to Network	Boot	Checkbox	Enables or disables the ability to boot from network devices.
Boot Network Devices Last	Boot	Checkbox	**Enabled:** network devices will always be placed after non-network devices in the boot priority. **Disabled:** network devices can be placed at any position in the boot priority but will default to last.
Boot to Optical Devices	Boot	Checkbox	Enables or disables booting from optical devices (CD/DVD).
Boot USB Devices First	Boot	Checkbox	**Enabled:** the BIOS will attempt to boot to supported USB devices before any other devices. **+D45**: the normal boot order will be used.
Burst Mode Power Limit	Performance	Checkbox	Intel Turbo Boost Technology will use this power limit for a very short duration. After that, the Sustained Mode Power Limit will be used.
Burst Mode Power Limit (Watts)	Performance	Numeric	Intel Turbo Boost Technology will use this power limit for a very short duration. After that, the Sustained Mode Power Limit will be used.

C

BIOS Setting	Appears on BIOS Screen…	Options	Description / Purpose
C9/C10 C-State	Power	Checkbox	Allows the CPU to enter lowest power idle settings. When enabled some power supplies might not properly regulate at this low level.

Chassis Information	Home	Information only	Displays SMBIOS information for: • Manufacturer • Version • Serial Number • Asset Tag • SKU Number
Chipset SATA	Devices	Checkbox	Enables or disables the internal SATA controller.
Chipset SATA Mode	Devices	• IDE • AHCI	**IDE:** Compatibility mode disables AHCI support. **AHCI:** Supports advanced SATA features such as Native Command Queuing. Warning: operating system may not boot if this setting is changed after the operating system installation.
Clear BIOS Passwords	Maintenance	Continue? (Y/N)	When selected, the BIOS Supervisor Password and User Password will be cleared. The hard disk drive password, if set, will remain intact.
Clear Event Log	Main	Checkbox	**Enable** to clear the Event Log at next boot.
Clear Secure Boot Data	Boot	Checkbox	Clears Secure Boot databases (Pkpub, KEK, db, and dbx) during the next boot, placing the system in Custom Mode. Required to install a trusted operating system not supported by the factory default Secure Boot database.
Clear Trusted Platform Module	Maintenance	• No • Yes	Erases all stored encryption keys and clears the TPM owner. Used to clear the TPM if you are transferring ownership of the platform to a new owner. *This BIOS setting is present only on systems that include support for Trusted Platform Module (TPM) and have TPM enabled.*
Clear User Password	Security	Continue? (Y/N)	Clears the user password. *This BIOS setting is present only if a user password has been set.*
Clock PLL	Performance	• LC-PLL • SB-PLL	Switching to SB-PLL may improve stability at high processor base clock frequencies.
Color Depth	Devices	• 18-bpp • 24-bpp (VESA) • 24-bpp (JEIDA)	Sets flat panel display color depth in bits per pixel (bpp) and data mapping. *Note: 24-bpp (VESA) is displayed as "24-bpp" if there is no JEIDA support.*
Command Rate	Performance	Numeric	2T is usually more stable.
Control Mode	Cooling	• Auto • Manual	Select how the CPU fan is to be controlled. **Auto**: sets a minimum duty cycle that the fan will never go below. **Manual:** specifies an exact duty cycle.
Control Temperature (°C)	Cooling	Numeric	Defines temperature that the fan control subsystem attempts to maintain for the processor, memory, motherboard, or PCH.
CPU Core Temp	Cooling	Information only	Displays the processor's core temperature.
CPU Fan	Cooling	Information only	Displays the processor fan speed
CPU1 Input	Cooling	Information only	Displays the voltage at or below which run-time applications can generate an alert.

D

BIOS Setting	Appears on BIOS Screen…	Options	Description / Purpose
Damping	Cooling	• High • Normal • Low	Helps to reduce oscillation in fan speed response. Higher settings will produce fewer changes, but could slow temperature response.
Dec-WRD	Performance	Checkbox	When this bit is set, there is one cycle decrement of WR command to data delay, without affecting tCWL for other purposes.
Deep S4/S5	Power	Checkbox	Enable or disable deep S4/S5. Enabling this setting will use less power in S4/S5 sleep states, but will only wake from S4/S5 via the power button or RTC alarm.
Default Visual BIOS Start Page	Main	• Home Page 1 • Home Page 2 • Home Page 2 *Additional options, depending on model*	Allows you to select the Visual BIOS page you want to appear first when entering BIOS Setup.
Desktop Board Information	Home	Information only	Displays SMBIOS information for: • Manufacturer • Product Name • Version • Serial Number • Asset Tag
Digital I/O (V)	Performance	Numeric	Primarily used for overclocking.
Digital Microphone	Devices	Checkbox	Enable or disable digital microphone support that is part of the Custom Solutions Header on the board.
DIMM1 DIMM2	Main	Information only	Displays the installed system memory size in SO-DIMM slot 1 (lower) and SO-DIMM slot 2 (upper), in Gigabytes.
Display F2 to Enter Setup	Boot	Checkbox	If enabled, BIOS will display “F2 to Enter Setup” prompt. F2 key input will still be accepted if this prompt is disabled.
Display F7 to Update BIOS	Boot	Checkbox	If enabled, BIOS will display “F7 to Update BIOS” prompt. F7 key input will still be accepted if this prompt is disabled.
Display F10 to Enter Boot Menu	Boot	Checkbox	If enabled, BIOS will display “F10 to Enter Boot Menu” prompt. F10 key input will still be accepted if this prompt is disabled.
Display F12 for Network Boot	Boot > Boot Display	Checkbox	If enabled, BIOS will display “F12 for Network Boot” prompt. F12 key input will still be accepted if this prompt is disabled.
Duty cycle increment (%/°C)	Cooling	Numeric	Fan control will increase fan duty cycle by this % for each degree Primary or Secondary Temperature Sensor is over Minimum Temperature.

E

BIOS Setting	Appears on BIOS Screen…	Options	Description / Purpose
EDID Data Source	Devices	• Flat Panel Display • Custom Payload • Pre-Defined	Flat panel display parameters will be read from the selected source.
eDP Data Rate	Devices	• 1.62 Gbps • 2.70 Gbps	Sets the data rate for the Embedded DisplayPort (eDP)link. This will be used if the sink indicates that no aux handshake is required during link training.
eDP Interface Type	Devices	• Single-Lane • Dual-Lane	Sets the Embedded DisplayPort (eDP) connectivity.
Enhanced Consumer IR	Devices	Checkbox	Enables or disables Enhanced Consumer Infrared (CIR).
Enhanced Intel SpeedStep® Technology	Power	Checkbox	**Enabled:** Enhanced Intel SpeedStep® Technology (EIST) 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 system. **Disabled**: Will also disable Intel Turbo Boost Technology and Processor Idle State. *For information on SpeedStep, refer to http://en.wikipedia.org/wiki/Speedstep*
Event Logging	Main	Checkbox	Enable or disable event logging. If enabled, BIOS will log POST errors in NVRAM.
Event Type	Main	Information only	Displays list of logged events with the date and time of occurrence.
Execute Disable Bit	Security	Checkbox	Enable to implement Execute Disable Technology. *For more information, refer to http://en.wikipedia.org/wiki/NX_bit*
Expansion Card Text	Boot > Boot Display	• Disabled • Enabled • Hide all	**Disabled:** BIOS will display text only from mass-storage PCI option ROMs during POST. **Enabled:** BIOS will display text from any PCI option ROMs during POST. **Hide All:** BIOS will display no text from PCI option ROMs during POST.

F

BIOS Setting	Appears on BIOS Screen…	Options	Description / Purpose
Failsafe Watchdog	Performance	Checkbox	Enables or disables Failsafe Watchdog. When the failsafe watchdog is enabled, after a boot failure, the system will reboot back into BIOS Setup with the last values set by the user.
Family x Model y Stepping z	Main	Information only	Displays the processor family, mode and stepping (including extended family/model) in hexadecimal.

Fan Control Mode	Cooling	• Fixed • Custom • Cool • Balanced • Quiet	**Fixed:** the System Fan Speed will be fixed. **Custom:** Allows you to manually set temperature and duty cycle options. **Cool:** Preloads specific settings for cool operation. **Balanced:** Preloads specific settings to blend cool and quiet operation. **Quiet:** Preloads specific settings for quiet operation.
Fan Usage	Cooling	• System	Specifies how the fan connected to the CPU Fan Header is used
Fast Boot	Boot	Checkbox	Enable or disable Fast Boot features. In order to disable Fast Boot without entering BIOS setup, power down the system for 5 seconds, then power it back on while holding the power button for 2 seconds (the system will beep).
Filter PLL	Performance	• Low Speed • High Speed	Switching to High Speed may improve stability at high processor base clock frequencies.
Fixed Disk Boot Sector	Maintenance	• Normal • Write Protect	**Write Protect** provides some Master Boot Record protection. Set to **Normal** while installing an operating system. Only applicable to Legacy IDE Mode.
Flash Update Sleep Delay	Power	Checkbox	If enabled, the system will sleep for 20 seconds during the flash update power cycle. Enabling this feature may increase compatibility with power supplies.
Flat Panel Configuration Changes	Devices	• Unlocked • Locked	Once locked, can only be unlocked by Intel® Integrator Toolkit.
Force Secure Boot Defaults	Boot	Checkbox	Restores factory default Secure Boot databases during the next boot, placing the system in Standard Mode.

G

BIOS Setting	Appears on BIOS Screen…	Options	Description / Purpose
General Optimization	Boot	Checkbox	If enabled, BIOS will boot faster, however the following features will be disabled: Boot to Network, Boot to Optical Devices, and Boot to Removable Devices.
GPIO Lockdown	Devices	Checkbox	Locks PCH GPIO configuration registers for security purposes. If enabled, BIOS will lock the PCH GPIO configuration registers prior to the end of POST. Use of GPIO signals from the Custom Solutions header requires this option to be disabled.
Graphics Max Multiplier	Performance	Numeric	Selects Graphics Dynamic Frequency: Host Clock Frequency x 0.5 x Graphics Max Multiplier = Graphics Dynamic Frequency

Graphics Voltage Mode	Performance	• Offset Only • Interpolated + Offset • Static + Offset	**Offset Only:** hides Voltage Target question, sets Voltage Target Mode (Bit 20) to 0 (Adaptive), sets Voltage Target (Bits 19:8) to 0 **Interpolated + Offset:** displays Voltage Target question, sets Voltage Target Mode (Bit 20) to 0 (Adaptive) **Static + Offset:** displays Voltage Target question, sets Voltage Target Mode (Bit 20) to 1 (Static)
Graphics Voltage Offset (V)	Performance	Numeric	Primarily used for overclocking.

H

BIOS Setting	Appears on BIOS Screen…	Options	Description / Purpose
Hard Disk Drive Password	Security	Information only	Reports if there is a hard disk drive password set.
Hard Disk Drive Password Prompt	Security	Checkbox	**Enabled:** BIOS will always prompt for a hard disk drive password if a User HDD Password is installed. **Disabled:** BIOS will never prompt for a hard disk drive password unless attempting to boot to a drive with a User HDD Password installed.
Hard Disk Pre-Delay	Devices	Adjustable: 0 to 30 seconds	Delay (in seconds) before hard drives are initialized. This can be used to increase the amount of time that the BIOS Splash Screen displays.
HDMI/DisplayPort Audio	Devices	Checkbox	**Enabled:** HDMI/DisplayPort output includes both audio and video. **Disabled:** HDMI/DisplayPort output is video only.
Hibernation Timer	Power	• Immediate • 1 minute • 2 minutes • 5 minutes • 10 minutes • 15 minutes • 1 hour • 2 hours	When the system is put to sleep, it will temporarily wake up when the timer expires, and then hibernate to an SSD.
High Precision Event Timers	Devices	Checkbox	High precision event timers are integrated into chipset hardware and are available for use by operating systems. They can be disabled if incompatible with an OS or application.
Host Clock Frequency	Main	Information only	Displays the default host clock frequency (in MHz)

I

BIOS Setting	Appears on BIOS Screen…	Options	Description / Purpose
IGD Aperture Size	Devices	Various options in MB	Selects the aperture size for the Integrated Graphics Device (IGD)
IGD Current Limit (Amps)	Performance	Numeric	Integrated Graphics Dynamic Frequency will be controlled based on this current limit.
IGD Flat Panel	Devices	• Disable • LVDS • eDP	**Disable**: disables Video BIOS LVDS and eDP output. The BIOS will use “IGD Primary Video Port” for multi-monitor support configuration.
IGD Minimum Memory	Devices	• 32 MB • 64 MB • 128 MB • 256 MB • 512 MB • 1 GB	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.
IGD Primary Video Port	Devices	• Auto • HDMI • HDMI 1 • HDMI 2 • DisplayPort • Mini DisplayPort	Allows you to select your preference for the Integrated Graphics Device (IGD) display interface used when system boots. **Auto:** attempts to detect connected monitors, and will display video on a maximum of two ports. *The options available can vary, depending on system model.*
Install Intel Platform Key	Boot	Checkbox	Generates a new Secure Boot Platform Key during next boot. The private half of the Platform Key is discarded.
Integrated Graphics Device	Devices	• Enable if Primary • Always Enable • Always Disable	**Enable if Primary:** Integrated Graphics Device (IGD) is disabled if not selected as the Primary Video Adaptor **Always Enabled:** IGD is always enabled, even if not selected as the Primary Video Adaptor. **Always Disabled**: IGD is always disabled, even if there are no other video devices installed.
Intel x Gigabit Network Connection	Devices	Opens sub-menu for LAN settings	Displays the MAC Address of the onboard LAN device in hexadecimal.
Intel® Anti-Theft Technology	Security	Information only	Displays the status of Intel Anti-Theft Technology *For information on Intel® Anti-Theft Technology, refer to http://antitheft.intel.com/welcome.aspx*

Intel® Dynamic Power Technology	Power	• Energy Efficient Performance • Off • Custom	Configures processor power management features. **Energy Efficient Performance:** Sets these options: • Enhanced Intel SpeedStep® Technology = Enabled • OS ACPI C2 Report = Enabled • PCIe ASPM Support = Enabled **Off:** Disables these options: • Enhanced Intel SpeedStep® Technology • Intel Turbo Boost Technology **Custom:** Unhides these options: • Enhanced Intel SpeedStep® Technology • OS ACPI C2 Report
Intel® Graphics Performance Analyzers	Devices	Checkbox	This feature is intended only for software developers. If GPA support is enabled, hardware acceleration of Blu-ray Disc playback may be disabled.
Intel® Hyper-Threading Technology	Performance	Checkbox	Enables or disables Hyper-Threading Technology. When disabled, only one thread per active core will be available. *For information on Hyper-Threading, refer to http://en.wikipedia.org/wiki/Hyperthreading*
Intel® Platform Trust Technology	Security	• Disable • Enable	Enables or disables the Intel Platform Trust Technology, required for Microsoft Windows 8.1 security features..
Intel® Rapid Start Technology	Power	Checkbox	If enabled, the system will wake up faster. Requires a correctly configured SSD. *For more information on Intel Rapid Start Technology, refer to http://www.intel.com/support/motherboards/desktop/sb/CS-033913.htm*
Intel® Ready Mode Technology	Power	Checkbox	If enabled, Intel Ready Mode Technology software can be configured to optimize the system power plan. Windows menu options transition into Intel Ready Mode instead of S3 sleep.
Intel® Smart Connect Technology	Power	Checkbox	When enabled, Intel® Smart Connect technology can be configured to periodically wake up the system briefly to retrieve data from the network (email, etc.) *For more information on Intel Smart Connect Technology, refer to http://www.intel.com/support/motherboards/desktop/sb/CS-033913.htm*
Intel® Turbo Boost Technology	Performance	Checkbox	**Enabled:** Allows processor cores to run faster than the base operating frequency when running below power, current, and temperature limits. **Disabled:** Uses Maximum Non-Turbo Ratio

Intel® Virtualization Technology	Security	Checkbox	Enables or disables Virtualization Technology. Takes affect only after power cycling. *For more information refer to http://www.intel.com/technology/virtualization/index.htm*
Intel® Visual Boot Manager	Boot	Checkbox	Enables or disables the Intel Visual Boot Manager, a feature that provides a visual interface for selection of operating system boot and installation.
Intel® VT for Directed I/O (VT-d)	Security	Checkbox	Enables or d+D126isables 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. *For information on Intel® VT, refer to http://www.intel.com/technology/virtualization/index.htm*
Internal UEFI Shell	Boot	Checkbox	Enabled or disables the internal UEFI shell.
Inverter Frequency (Hz)	Devices	Numeric	Consult inverter board and monitor specifications for proper value. Warning: Unsupported values may cause hardware damage.
Inverter Polarity	Devices	• Normal • Inverted	**Normal**: PWM = 0% (Dim) **Inverted**: PWM = 0% (Bright) Consult inverter board specifications for proper value.

J

There currently are no BIOS settings that begin with the letter J.

K

BIOS Setting	Appears on BIOS Screen…	Options	Description / Purpose
Keyboard Ready Beep	Boot	Checkbox	If enabled, BIOS will beep once during POST when ready for keyboard input. BIOS will beep only if both keyboard and video are detected. Beep is played via onboard audio.
Key Exchange Key (KEK)	Boot	Information only	Displays **Installed** or **Not Installed** based on the presence of the UEFI KEK variable.

L

BIOS Setting	Appears on BIOS Screen…	Options	Description / Purpose
L2 Cache RAM	Main	Information only	Displays the total L2 cache memory of the installed processor in megabytes.
L3 Cache RAM	Main	Information only	Displays the total L3 cache memory of the installed processor in megabytes.
LAN	Devices	Checkbox	Enables or disables the onboard LAN controller.
Legacy Boot	Boot	Checkbox	If enabled, BIOS will attempt to boot via the legacy (non-UEFI) boot sequence.

Link Speed	Devices	• AutoNeg • 10 Mbps Half • 10 Mbps Full • 100 Mbps Half • 100 Mbps Full	Changes the link speed and duplex for the LAN port.

M

BIOS Setting	Appears on BIOS Screen…	Options	Description / Purpose
M.2 SATA	Devices	Information only	Displays the information of the device connected to the M.2 slot.
M.2-PCIe Slot	Devices	Information only	Displays the information of the device connected to the M.2 slot.
M.2-PCIe Slot Vendor ID	Devices	Information only	Displays the PCI vendor and device ID of the device connected to the M.2 slot.
Master Hard Disk Drive Password	Security	Information only	Reports if there is a master hard disk drive password set.
Max Inverter Current Limit (%)	Devices	Numeric	Sets the maximum PWM acceptable to drive the inverter board, which serves as an upper boundary for the amount of current powering the monitor's backlight lamp. Consult inverter board and monitor specifications for proper value. Warning: Unsupported values may cause hardware damage.
Max Performance Enabled	Power	Checkbox	Sets pre-defined power options to balanc power efficiency vs. performance.
Max Processor Speed	Main	Information only	Displays the maximum processor speed at current settings.
Maximum Duty Cycle (%)	Cooling	Numeric	Selects the maximum duty cycle that the fan will never go above during normal usage.
Maximum Non-Turbo Ratio	Performance	Numeric	Maximum Non-Turbo Processor Speed = Maximum Non-Turbo Ratio x Host Clock Frequency This parameter along with Host Clock Frequency determines the maximum processor speed when Intel® Turbo Boost Technology is not engaged.
Memory Speed	Main	Information only	Displays the current memory speed. Defined as current host clock frequency x memory multiplier.
Memory Temp	Cooling	Information only	
Microcode Update Revision	Main	Information only	Displays the processor microcode version currently installed.
Min Inverter Current Limit (%)	Devices	Numeric	Sets the minimum PWM acceptable to drive the inverter board, which serves as a lower boundary for the amount of current powering the monitor's backlight lamp. Consult inverter board and monitor specifications for proper value. Warning: Unsupported values may cause hardware damage.
Minimum Duty Cycle (%)	Cooling	Numeric	Selects the minimum duty cycle that the fan will never go below.

Minimum Temperature (°C)	Cooling	Information only	Fan speed increases if the processor temperature exceeds this value. The value is calculated by Tcontrol minus a fixed value.
Motherboard Ambient	Cooling	Information only	Displays the current system ambient temperature.
mSATA Port	Devices	Information only	Displays the device identification string, capacity in gigabytes, and negotiated speed (1.5 Gb/s, 3.0 Gb/s, or 6.0 Gb/s) for the device attached to the mSATA port. If no device is attached, the string [Not Installed] is displayed.

N

BIOS Setting	Appears on BIOS Screen…	Options	Description / Purpose
Native ACPI OS PCIe Support	Power	Checkbox	Enable for power savings and performance improvements. Note: not all PCIe devices are compatible with this feature.
Near Field Communication (NFC)	Devices	Checkbox	Enables or disables the NFC module that is connected to the NFC header.
No Video Detected Error Beeps	Devices	Checkbox	Enables or disables motherboard speaker beeps when video is not detected.
Numlock	Devices	Checkbox	If Numlock is enabled, the keypad defaults to numeric functionality.

O

BIOS Setting	Appears on BIOS Screen…	Options	Description / Purpose
OS ACPI C2 Report	Power	Checkbox	Enable or disable OS ACPI C2 Report. If enabled, BIOS will report ACPI C2 State (mapped to processor C3 state).
OS ACPI C3 Report	Power	Checkbox	Enable or disable OS ACPI C3 Report. If enabled, BIOS will report ACPI C3 State (mapped to processor C6 state).
OS Selection	Boot	• Windows 8.X • Windows 7	Select **Windows 8.x** if you plan to install Windows 8, Windows 8.1, or a Linux distribution Select **Windows 7** if you plan to install Windows 7 or other Legacy-based operating systems Additional information: Legacy operating systems need CSM (Compatibility Support Module) in BIOS to support INT calls such as INT10, INT 19, etc. EFI compliant operating systems follow the EFI spec in both BIOS and operating system, so do not need CSM support in BIOS.
Over-Temperature Threshold (°C)	Cooling	Numeric	Defines the temperature at or above which run-time applications can generate an alert.
Over-Voltage Threshold (V)	Cooling	Numeric	Defines the voltage at or above which run-time applications can generate an alert.

P

BIOS Setting	Appears on BIOS Screen…	Options	Description / Purpose
Package Power Limit 1 (Sustained)	Power	Numeric range 0 - 30	Intel Turbo Boost Technology will control processor power usage to the Sustained Mode Power Limit over a moving average time window.
Package Power Limit 2 (Burst Mode)	Power	Numeric range 0 - 30	Intel Turbo Boost Technology will use this power limit for a very short duration. After that, the Sustained Mode Power Limit will be used.
Package Power Time Window	Power	Numeric range 1 - 32	Intel Turbo Boost Technology will control processor power usage to the Sustained Mode Power Limit over a moving average time window.
Panel Power Cycle Delay Time (ms)	Devices	Numeric	Specifies the delay for panel power cycling.
Panel Power-Down Delay Time (ms)	Devices	Numeric	Specifies the delay for panel power-down.
Panel Power-On Delay Time (ms)	Devices	Numeric	Specifies the delay from system power-on to panel power-on.
PCH Temp	Cooling	Information only	Displays the PCH temperature.
PCI Latency Timer	Devices	• 32 • 64 • 96 • 128 • 160 • 192 • 224 • 248	Sets PCI Latency Timer for Bus Mastering. Limits the time in clock cycles that a PCI device can hold the PCI bus. Only applies to conventional PCI devices.
PCIe ASPM Support	Power	• Disabled • Enabled • PEG Only	**Disabled:** ASPM support is disabled for all PCIe devices. **Enabled:** ASPM support is enabled for all PCIe devices. **PEG Only:** ASPM is only enabled for devices installed in PCI Express Graphics (PEG) slots.
PEG-DMI Ratio	Performance	5/5	PEG-DMI Ratio can be manually configured, but be warned that PEG and DMI clocks are less tolerant of overclocking than the Host Clock.
Performance Memory Profiles	Performance	• Automatic • Manual – User Defined	Use default memory settings from DIMM SPD or manually override memory settings. **Automatic**: BIOS configures all memory parameters automatically **Manual – User Defined:** Allows user to have full control over the memory parameters
Pins 13/14	Devices	• GPIO5/4 • I2C0_SCL / I2C0_SDA	Pin function select for Custom Solutions header: Selects between generic GPIO or I2C interface.
Pins 15/16	Devices	• GPIO7/6 • I2C1_SCL / I2C1_SDA	Pin function select for Custom Solutions header: Selects between generic GPIO or I2C interface.
Platform Key (PKpub)	Boot	Information only	Displays **Installed** or **Not Installed** based on the presence of the UEFI PKpub variable.

Port Configuration Information	Devices	Information only	Displays information for: • UEFI Driver • Adapter PBA • Chip Type • PCI Device ID • PCI Bus:Device:Function • Link Status • Factory MAC Address
Portable Device Charging Mode	Devices	• Off • Charging in S3/S4/S5 • Charging Only	USB ports that are colored yellow support a Portable Device Charging Mode with higher maximum current.
POST Function Hotkeys Displayed	Boot	Checkbox	If enabled, BIOS will display function key prompts during POST. Function key input will still be accepted even if prompts are disabled.
Power Sense	Power	Checkbox	When enabled, the Power Sense will monitor the input power from the power supply and will assert PROCHOT# to the CPU if the power is high enough that is risks causing the power adapter to shut down.
Power Supervisor Shutdown	Power	Checkbox	The system will always light an LED and update the BIOS Event Log if power supply voltages are outside safe ranges. This can be triggered by problems with the system power supply or the power grid. If Shutdown is enabled, the system will immediately power down to help protect the system from damage, and the BIOS will pause to display a notification during the next boot.
Power-On to Backlight Enable Delay Time (ms)	Devices	Numeric	Specifies the delay from panel power-on to backlight enable.
Pre-Defined EDID Configuration	Devices	Multiple flat panel types	Allows you to select a pre-defined EDID configuration from a list embedded in the Video BIOS.
Primary Temperature Input or Primary Temperature Sensor	Cooling	• Processor • PCH • Memory • Motherboard	Selects the primary temperature input for the fan controller.
Processor Core Voltage Mode	Performance	• Offset Only • Interpolated + Offset • Static + Offset	**Offset Only:** hides Voltage Target question, sets Voltage Target Mode (Bit 20) to 0 (Adaptive), sets Voltage Target (Bits 19:8) to 0 **Interpolated + Offset:** displays Voltage Target question, sets Voltage Target Mode (Bit 20) to 0 (Adaptive) **Static + Offset:** displays Voltage Target question, sets Voltage Target Mode (Bit 20) to 1 (Static)
Processor Current Limit (Amps)	Performance	Numeric	Intel Turbo Boost Technology will be disengaged if the processor is operating beyond this current limit.

Processor Idle State	Performance	• High Performance • Low Power	**High Performance** forces the operating system to use the Maximum Multiplier at all times. **Low Power** allows the operating system to adjust the multiplier down.
Processor Power Efficiency Policy	Power	• High Performance • Balanced • Low Power	Configures processor bias for power efficiency vs. performance. **High Performance**: Set MSR 1B0h Bits 3:0 to 0h **Balanced**: Set MSR 1B0h Bits 3:0 to 5h **Low Power:** Set MSR 1B0h Bits 3:0 to 7h
Processor Ring Min Multiplier	Performance	Numeric	Host Clock Frequency x Ring Min Multiplier = Processor Ring Min Frequency
Processor Ring Voltage Mode	Performance	• Offset Only • Interpolated + Offset • Static + Offset	**Offset Only:** hides Voltage Target question, sets Voltage Target Mode (Bit 20) to 0 (Adaptive), sets Voltage Target (Bits 19:8) to 0 **Interpolated + Offset:** displays Voltage Target question, sets Voltage Target Mode (Bit 20) to 0 (Adaptive) **Static + Offset:** displays Voltage Target question, sets Voltage Target Mode (Bit 20) to 1 (Static)
Processor Ring Voltage Offset (V)	Performance	Numeric	Primarily used for overclocking.
Processor Ring Voltage Target (V)	Performance	Numeric	Primarily used for overclocking.
Processor Signature	Main	Information only	Displays the 32-bit processor signature in hexadecimal; copied from EAX register output from the CPUID instruction when EAX is set to 1.
Processor Temperature	Cooling	Information only	Displays the current processor temperature.
Processor Type	Main	Information only	Displays the processor brand string obtained from the CPUID instruction.
Processor Uncore Frequency	Performance	Information only	Displays the process uncore frequency.
Processor VR Efficiency Management	Performance	Checkbox	When disabled, processor power usage and heat will increase in exchange for improved power delivery control. This may be useful at higher processor base clock frequencies.
Processor VR Faults	Performance	Checkbox	When disabled, processor over-voltage and over-current protection is disabled. This may be useful at very high frequencies, but significantly increases the risk of processor damage.

Q

There currently are no BIOS settings that begin with the letter Q.

R

BIOS Setting	Appears on BIOS Screen…	Options	Description / Purpose
Real-Time Performance Tuning	Performance	Checkbox	Enabled: OS-present software can update most performance tuning features without requiring a restart to take affect. Disabled: only BIOS can update most performance tuning features. This is the more secure configuration.
Remote Controller Type	Devices	• Generic Remote Controller • RC6 Remote Controller • XBOX Remote Controller	Selects the type of Consumer Infrared (CIR) remote controller used with the Intel NUC.
Reset Intel® AMT to default factory settings	Maintenance	Continue? (Y/N)	Resets all Intel® AMT configuration settings to their factory defaults. When selected, the BIOS will unprovision AMT and load default Intel® ME settings.
Responsiveness	Cooling	• Fast • Normal • Slow	Defines how quickly fan speed will change based upon changes in temperature.

S

BIOS Setting	Appears on BIOS Screen…	Options	Description / Purpose
S3 State Indicator	Power	• Off • Blink • On • Alternate Color	Determines power LED behavior during S3 system power state.
SATA Port 0	Devices	Information only	Displays the device identification string, capacity in gigabytes, and negotiated speed (1.5 Gb/s, 3.0 Gb/s, or 6.0 Gb/s) for the device attached to the SATA port. If no device is attached, the string [Not Installed] is displayed.
SATA Port 0 Hot Plug Capability	Devices	Checkbox	If enabled, SATA port will be reported as Hot Plug capable.
Screen Brightness	Devices	• Dimmest • Dimmer • Dim • Neutral • Bright • Brighter • Brightest	Sets the amount of panel backlight illumination
SDRAM	Cooling	Information only	Displays the voltage of the memory modules installed
Secondary Temperature Input or Secondary Temperature Sensor	Cooling	• Processor • PCH • Memory • Motherboard • None	Selects the secondary temperature input for the fan controller.

Secure Boot	Boot	Checkbox	If enabled, BIOS will only boot to trusted operating system images. Secure Boot is supported only via UEFI Boot. When UEFI Secure Boot is enabled, attempts to boot non-UEFI OS will fail.
Secure Boot Mode	Boot	Information only	Displays the Secure Boot Mode based on the SecureBootCustomMode Boolean UEFI variable. Displays **Standard** if the value is false. Displays **Custom** if the value is true.
Serial Port	Devices	Checkbox	Enables or disables the onboard serial port.
Set Hard Disk Drive Password	Security	User defined	Sets the Hard Disk Drive password If a HDD Password is created, it must be entered each boot before operating system access. HDD Passwords are not recoverable and cannot be removed without the original password. The drive will remain inaccessible unless the HDD or Master Key HDD password is entered.
Set Master Hard Disk Drive Password	Security	User defined	Sets the Master Hard Disk Drive password The Master HDD password is only used to unlock a drive if the HDD password is forgotten. It does not lock a drive by itself. HDD Passwords are not recoverable and cannot be removed without the original password. The drive will remain inaccessible unless the HDD or Master HDD password is entered.
Set Supervisor Password	Security	User defined	Sets the Supervisor password. The supervisor password gives unrestricted access to view and change all Setup options. If only the supervisor password is set, pressing <Enter> at the password prompt of Setup gives the user restricted access to Setup. If both the supervisor and user passwords are set, you must enter either the supervisor password or the user password to access Setup. Setup options are then available for viewing and changing depending on whether the supervisor or user password was entered.
Set User Password	Security	User defined	Sets the User password. Setting a user password restricts who can boot the computer. The password prompt is displayed before the computer is booted. If only the supervisor password is set, the computer boots without asking for a password. If both passwords are set, you can enter either password to boot the computer.
Signature Database (db)	Boot	Information only	Displays **Installed** or **Not Installed** based on the presence of the UEFI db variable.
Slot 1 PCIe x1	Devices	Information only	Displays device information for a PCIe device installed in the bottom Half MiniCard slot. Shows **Not Populated** if the slot is empty.

Slot 2 PCIe x1	Devices	Information only	Displays device information for a PCIe device installed in the top Full MiniCard slot. Shows **Not Populated** if and mSATA drive is installed or if the slot is empty.
Startup Sound	Boot	Checkbox	If enabled, BIOS will play the Intel sound mark (about 3 seconds long) via onboard audio during each boot. BIOS may extend boot time slightly if necessary to finish playing the sound.
Supervisor Password	Security	Information only	Reports if there is a supervisor password set.
Suspend	Security	Checkbox	Suspend Intel® Anti-Theft Technology starting on the next boot.
Sustained Mode Power Limit (Watts)	Performance	Numeric	Intel Turbo Boost Technology will control processor power usage to the Sustained Mode Power Limit over a moving average time window.
Sustained Mode Time (Seconds)	Performance	1 - 32 seconds	Intel Turbo Boost Technology will control processor power usage to the Sustained Mode Power Limit over a moving average time window.
System Agent (V)	Performance	Numeric	Primarily used for overclocking.
System Date	Main	Month, day, year	Displays and changes the System Date from the Real-Time Clock. The RTC Date is displayed in the format [MM/DD/YYYY]. Each field is selectable with the Tab key. The + and – keys are used to increment/decrement the selected field. When changed, values are immediately committed to the RTC instead of waiting for Save & Exit Setup/F10 key. The default date is only loaded when the RTC reports an invalid date, or a battery or CMOS checksum failure. The default date is not loaded when other Setup defaults are loaded (F9 key, etc.)
System Fan Control	Cooling	• Fixed • Custom • Cool • Blended • Quiet	**Fixed:** the System Fan Speed will be fixed. **Custom:** Allows you to manually set temperature and duty cycle options. **Cool:** Preloads specific settings for cool operation. **Blended:** Preloads specific settings to blend cool and quiet operation. **Quiet:** Preloads specific settings for quiet operation.
System Fan Speed	Cooling	Information only	Displays the current processor fan speed.
System Information	Main	Information only	Displays SMBIOS information for: • Manufacturer • Product Name • Version • Serial Number • UUID • SKU Number • Family

System Time	Main	Hours, minutes, seconds	Displays and changes the System Time from the Real-Time Clock. The RTC Time is displayed in the 24-hour format [HH:MM:SS]. Each field is selectable with the Tab key. The + and – keys are used to increment/decrement the selected field. When changed, values are immediately committed to the RTC instead of waiting for Save & Exit Setup/F10 key. The default time is only loaded when the RTC reports an invalid time, or a battery or CMOS checksum failure. The default time is not loaded when other Setup defaults are loaded (F9 key, etc.)

T

BIOS Setting	Appears on BIOS Screen…	Options	Description / Purpose
tCL	Performance	Numeric	CAS Latency: # cycles between request for data and data read.
tCWL	Performance	Numeric	CAS Write Latency
TDC Current Limit Override (Amps)	Performance	Numeric	Intel Turbo Boost Technology will be disengaged if the processor is operating beyond this current limit.
tFAW	Performance	Numeric	Four Active Window: period of time before the 5th successive Active command to a new bank can be issued.
Thunderbolt™ Controller	Devices	Checkbox	Enables or disables the onboard Thunderbolt™ Controller. *This BIOS setting is present only on systems that include Thunderbolt.*
Total Memory	Main	Information only	Displays the total installed system memory size in gigabytes.
tRASmin	Performance	Numeric	Minimum RAS Active Time: # cycles between precharge and bank activation.
tRC	Performance	Numeric	Row Cycle Delay: minimum interval between successive ACTIVE commands to the same bank
tRCD	Performance	Numeric	RAS-to-CAS Delay: # of cycles between activating and read/write
tREFI	Performance	Numeric	Average Periodic Refresh Interval:
tRFC	Performance	Numeric	RAS Refresh: # cycles from refresh to activation of a row
tRP	Performance	Numeric	RAS Pre-Charge: # cycles between closing one row and opening the next.
tRRD	Performance	Numeric	RAS to RAS Delay: # cycles to activate next bank in the same rank
tRRDD	Performance	Numeric	Minimum time between Read-CAS to Read-CAS to different DIMMs in DCLKs
tRRDR	Performance	Numeric	Minimum time between Read-CAS to Read-CAS to different ranks on the same DIMMs in DCLKs
tRRSR	Performance	Numeric	Minimum time between Read-CAS to Read-CAS to different banks on the same ranks in DCLKs
tRTP	Performance	Numeric	Read to Precharge Delay: # cycles between read and precharge command to same rank
Trusted Platform Module Presence	Devices	Checkbox	Controls the exposure of the onboard Trusted Platform Module (TPM) device to the operating system.

Trusted Platform Module	Devices	Checkbox	Enables or disables Trusted Platform Module (TPM). *This BIOS setting is present only on systems that include support for Trusted Platform Module (TPM).* *For information on TPM, refer to http://en.wikipedia.org/wiki/Trusted_Platform_Module*
tRWDD	Performance	Numeric	Minimum time between Read-CAS to Write-CAS to different DIMMs in DCLKs
tRWDR	Performance	Numeric	Minimum time between Read-CAS to Write-CAS to different ranks on the same DIMMs in DCLKs
tRWSR	Performance	Numeric	Minimum time between Read-CAS to Write-CAS to different banks on the same ranks in DCLKs
tWR	Performance	Numeric	Write Recovery: # cycles between write and precharge.
tWRDD	Performance	Numeric	Minimum time between Write-CAS to Read-CAS to different DIMMs in DCLKs
tWRDR	Performance	Numeric	Minimum time between Write-CAS to Read-CAS to different ranks on the same DIMMs in DCLKs
tWRSR	Performance	Numeric	Minimum time between Write-CAS to Read-CAS to different banks on the same ranks in DCLKs
tWTR	Performance	Numeric	Write to Read: # cycles between write and next read commands.
tWWDD	Performance	Numeric	Minimum time between Write-CAS to Write-CAS to different DIMMs in DCLKs
tWWDR	Performance	Numeric	Minimum time between Write-CAS to Write-CAS to different ranks on the same DIMMs in DCLKs
tWWSR	Performance	Numeric	Minimum time between Write-CAS to Write-CAS to different banks on the same ranks in DCLKs

U

BIOS Setting	Appears on BIOS Screen…	Options	Description / Purpose
UEFI Boot	Boot	Checkbox	Enables or disables Unified Extended Firmware Interface (UEFI) Boot. UEFI Boot must be enabled in order to boot to a drive larger than 2 TB (terabytes). **Enabled:** BIOS will attempt to boot via UEFI before using the legacy boot sequence. **Disabled**: BIOS will use the legacy boot sequence. For information on UEFI, refer to http://www.uefi.org/home
Unattended BIOS Configuration	Security	• Always Prompt • Lock • Temporarily Skip Prompt • Never Prompt	Configuring the BIOS via Intel® Integrator Toolkit normally requires physical presence via a keyboard response prompt. This prompt can be disabled temporarily or permanently, or unattended BIOS configuration can be locked out entirely.
Under-Speed Threshold (RPM)	Cooling	Numeric	Sets a threshold to allow an alert to be generated if speed in RPM goes below the set value. A monitoring utility is required to see this alert.
Under-Voltage Threshold (V)	Cooling	Numeric	Defines the voltage at or below which run-time applications can generate an alert.

Unlimited Boot to Network Attempts	Boot	Checkbox	**Enabled:** network devices will receive unlimited boot attempts after the normal boot order has been exhausted. **Disabled:** each boot device will only receive a single boot attempt.
Unlock Extreme Voltages	Performance	Checkbox	**Warning:** Overriding voltages of the processor and other system components will shorten their life. Selecting higher voltages will more noticeably shorten their life.
USB Boot	Boot	Checkbox	Enables or disables booting from USB boot devices.
USB Legacy	Devices	Checkbox	Enables or disables USB Legacy support. USB Legacy allows USB support under non-USB-aware operating systems. Disabling USB Legacy will not disable USB keyboards during BIOS POST, including BIOS SETUP and Option ROMs.
USB Optimization	Boot	Checkbox	**Enabled**: all USB devices will be unavailable until after the operating system boots, but BIOS will boot faster. **Disabled:** USB devices will be available before the operating system boots, but BIOS will boot slower. This feature cannot be enabled while a User Password or Hard Drive Password is installed.
USB Port x	Devices	• Enabled • Disabled • No Detect	Allows you to enable or disable individual USB ports. If a USB keyboard is attached to a USB port that has been disabled in BIOS, it will be enabled during POST and Setup, but will be disabled before the operating system boot. All non-keyboard devices will be disabled during POST, Setup and in the operating system. This means that drives attached to disabled USB ports will not appear in the BIOS boot order in Setup. **No Detect**: skips the USB device detection on selected ports during POST. The operating system is still able to detect and use all USB devices plugged into the system. This gives the advantage of a faster boot while still having all USB devices available in the operating system.
USB 2.0 (EHCI) Support	Devices	• Enabled • Disabled	Enables or disables EHCI support. One EHCI controller must always be enabled.
USB 3.0 (XHCI mode) Support	Devices	• Enabled • Disabled	Enables or disables XHCI support to all USB ports.

User access Level	Security	• Full • Limited • View Only • No Access	User Access Level determines the level of BIOS Setup access granted when the User Password is entered. **Full:** User Password grants access to all questions except User Access Level. **Limited:** User Password grants access to Time/Date/Language/User Password questions. **View Only:** User Password grants access only to Language question and changes cannot be saved. **No Access:** User Password cannot be used to access Setup. *This BIOS setting is present only if a supervisor password has been set.*
User Password	Security	Information only	Reports if there is a user password set.

V

BIOS Setting	Appears on BIOS Screen…	Options	Description / Purpose
Video Optimization	Boot	Checkbox	**Enabled:** BIOS will display text only but will boot faster. **Disabled:** BIOS will display the logo but will boot slower. This feature does not affect video capabilities after the operating system boots.
VR Current Limits (ICCmax)	Power	Numeric range 1 - 40	Intel Turbo Boost Technology will be disengaged if the processor is operating beyond this current limit.

W

BIOS Setting	Appears on BIOS Screen…	Options	Description / Purpose
Wake from S3 via CIR	Power	Checkbox	Enables or disables Wake on Enhanced Consumer Infrared (CIR) from S3 sleep mode.
Wake from S4 and S5 via CIR	Power	Checkbox	Enables or disables Wake on Enhanced Consumer Infrared (CIR) from S4 and S5 system off state.
Wake on LAN	Devices	Checkbox	Enable this option to wake the system with a magic packet.
Wake on LAN from S4/S5	Power	• Stay off • Power On – Normal Boot • Power On – PXE Boot	Configures behavior when a Wake on LAN packet is received during S4/S5. **Stay off**: the system will not wake from S4/S5 power state when a Wake on LAN packet is received. **Power On-Normal Boot**: the system will wake from S4/S5 power state when a Wake on LAN packet is received and will follow normal boot order. **Power On-PXE Boot:** the system will wake from S4/S5 power state when a Wake on LAN packet is received and will attempt boot to PXE. Wake on LAN must also be enabled in the operating system LAN driver and is disabled if Deep S4/S5 is enabled.

Wake system from S5	Power	Checkbox	Enable or disable system wake on alarm event. When enabled, system will wake on the day/hour/minute/second specified.
Wakeup Date	Power	Numeric range 0 - 31	Select day of each month to wake the system. Select 0 for daily wakeup.
Wakeup Hour	Power	Numeric range 0 - 23	Select wakeup hour in 24-hour format. For example, 15 means 3 PM.
Wakeup Minute	Power	Numeric range 0 - 59	Select wakeup minute.
Wakeup Second	Power	Numeric range 0 - 59	Select wakeup second.
WLAN	Devices	Checkbox	Enables or disables the onboard wireless adaptger.

X

BIOS Setting	Appears on BIOS Screen…	Options	Description / Purpose
xHCI Mode	Devices	• Smart Auto • Auto • Enabled • Disabled	**Disabled:** Forces only USB 2.0 to be supported in the OS. USB ports are always routed to the EHCI contrtoller. **Enabled:** The USB 3.0 ports are always routed to the xHCI contoller. **Auto:** This mode uses the ACPI protocol to provide an option that enables the xHCI controller and reroutes USB ports via the _OSC ACPI method call. **Smart Auto:** Similar to Auto, but it adds the capability to route the ports to xHCI or EHCI according to seeting used in previous boots in the pre-boot environment.

Y

There currently are no BIOS settings that begin with the letter Y.

Z

There currently are no BIOS settings that begin with the letter Z.