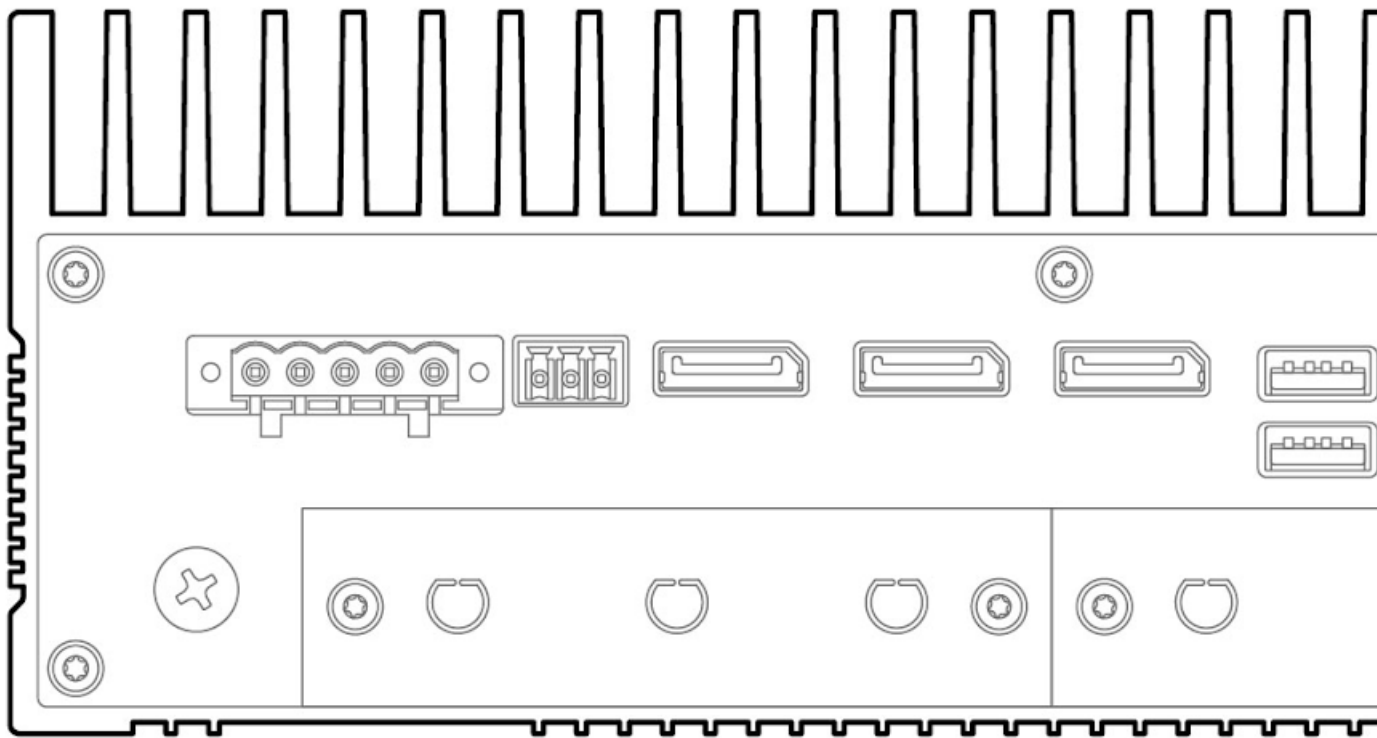


# Karbon 700 BIOS Manual



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**NOTE:** To enter the BIOS on Karbon 700 systems, hold the 'Delete' key on your keyboard during boot.

## 1 - Main Page

### InsydeH2O Version

<b>Type</b>	Information
<b>Found on BIOS Page</b>	Main Page
<b>Description</b>	Displays current InsydeH2O version

### BIOS Version

<b>Type</b>	Information
<b>Found on BIOS Page</b>	Main Page
<b>Description</b>	Displays current BIOS version

### Build Date

<b>Type</b>	Information
<b>Found on BIOS Page</b>	Main Page
<b>Description</b>	Displays the build date in MM/DD/YYYY

### Processor Type

<b>Type</b>	Information
<b>Found on BIOS Page</b>	Main Page
<b>Description</b>	Displays current processor

### CPU Speed

<b>Type</b>	Information
<b>Found on BIOS Page</b>	Main Page
<b>Description</b>	Displays CPU rated speed

### Number of Processors

<b>Type</b>	Information
<b>Found on BIOS Page</b>	Main Page
<b>Description</b>	Displays number of cores and threads

#### PCH SKU

<b>Type</b>	Information
<b>Found on BIOS Page</b>	Main Page
<b>Description</b>	Displays PCH SKU

#### Total Memory

<b>Type</b>	Information
<b>Found on BIOS Page</b>	Main Page
<b>Description</b>	Displays total memory installed in system

#### Channel A

<b>Type</b>	Information
<b>Found on BIOS Page</b>	Main Page
<b>Description</b>	Displays memory installed in Channel A

#### Channel B

<b>Type</b>	Information
<b>Found on BIOS Page</b>	Main Page
<b>Description</b>	Displays memory installed in Channel B

#### Memory Speed

<b>Type</b>	Information
<b>Found on BIOS Page</b>	Main Page
<b>Description</b>	Displays clock speed of memory

#### Language

<b>Type</b>	Information
<b>Found on BIOS Page</b>	Main Page

<b>Description</b>	Select the current default language used by the InsydeH2O
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#### System Time

<b>Type</b>	Information
<b>Found on BIOS Page</b>	Main Page
<b>Description</b>	Display the time in HH:MM:SS. Valid range is from 0 to 23, 0 to 59, 0 to 59. Use +/- to increase/reduce

#### System Date

<b>Type</b>	Information
<b>Found on BIOS Page</b>	Main Page
<b>Description</b>	Display the date in MM:DD:YYYY. Valid range is from 1 to 12, 1 to 31, 2000 to 2099. Use +/- to increase/reduce

## 2 - Advanced Page

#### Boot Configuration

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page
<b>Description</b>	Configures boot settings

### 2.1 - Boot Configuration

#### Numlock

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > Boot Configuration
<b>Description</b>	Selects Power-on state for numlock. Possible values: Off/On, default value: Off

#### SATA Configuration

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page

<b>Description</b>	Select the SATA controller and hard disk drive type installed in your system
--------------------	--

## 2.2 - SATA Configuration

### SATA ATA Port X

<b>Type</b>	Information
<b>Found on BIOS Page</b>	Advanced Page > SATA Configuration
<b>Description</b>	Displays SKU of device currently installed in SATA Port

### Chipset Configuration (Intel PTT)

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page
<b>Description</b>	Advanced chipset configuration options

## 2.3 Chipset Configuration (Intel PTT)

### Platform Trust Technology

<b>Type</b>	Information
<b>Found on BIOS Page</b>	Advanced Page > Chipset Configuration (Intel PTT)
<b>Description</b>	Enable/Disable Platform Trust Technology. Default value: Enabled

### ACPI Table/Features Control

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page
<b>Description</b>	Configure ACPI Table/Features settings

## 2.4 - ACPI Table/Features Control

### Enable Hibernation

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > ACPI Table/Features Control
<b>Description</b>	Enables or Disables system ability to hibernate (OS/S4 sleep state). This option may not be effective with some OSs. Default value: [X]

### ACPI S3 Support

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > ACPI Table/Features Control
<b>Description</b>	Enable or Disable ACPI S3 Support. Default value: Enabled

### Native PCIE Enable

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > ACPI Table/Features Control
<b>Description</b>	Enable or Disable Native PCIE. Default value: Enabled

### Native ASPM

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > ACPI Table/Features Control
<b>Description</b>	Enable or Disable Native ASPM. Enabled - OS controlled ASPM, Disabled - BIOS controlled ASPM. Default value: Auto

### Low Power S0 Idle Capability

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > ACPI Table/Features Control
<b>Description</b>	Enable or Disable ACPI Lower Power S0 Idle Capability (mutually exclusive with Smart Connect). While this is enabled, it also disables 8254 timer for SLP_S0 support. Default value: Disabled



## CPU Configuration

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page
<b>Description</b>	CPU configuration

## 2.5 - CPU Configuration

### Type

<b>Type</b>	Information
<b>Found on BIOS Page</b>	Advanced Page > CPU Configuration
<b>Description</b>	Lists CPU type

### ID

<b>Type</b>	Information
<b>Found on BIOS Page</b>	Advanced Page > CPU Configuration
<b>Description</b>	Lists CPU ID

### Speed

<b>Type</b>	Information
<b>Found on BIOS Page</b>	Advanced Page > CPU Configuration
<b>Description</b>	Lists CPU speed

### L1 Data Cache

<b>Type</b>	Information
<b>Found on BIOS Page</b>	Advanced Page > CPU Configuration
<b>Description</b>	Lists amount of L1 data cache

### L1 Instruction Cache

<b>Type</b>	Information
<b>Found on BIOS Page</b>	Advanced Page > CPU Configuration
<b>Description</b>	Lists amount of L1 instruction cache

#### L2 Data Cache

<b>Type</b>	Information
<b>Found on BIOS Page</b>	Advanced Page > CPU Configuration
<b>Description</b>	Lists amount of L2 data cache

#### L3 Data Cache

<b>Type</b>	Information
<b>Found on BIOS Page</b>	Advanced Page > CPU Configuration
<b>Description</b>	Lists amount of L3 Data Cache

#### L4 Data Cache

<b>Type</b>	Information
<b>Found on BIOS Page</b>	Advanced Page > CPU Configuration
<b>Description</b>	Lists amount of L4 Data Cache

#### VMX

<b>Type</b>	Information
<b>Found on BIOS Page</b>	Advanced Page > CPU Configuration
<b>Description</b>	Lists if VMX is supported

#### SMX/TXT

<b>Type</b>	Information
<b>Found on BIOS Page</b>	Advanced Page > CPU Configuration
<b>Description</b>	Lists if SMX/TXT is supported

#### Intel (VMX) Virtualization Technology

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > CPU Configuration
<b>Description</b>	Enable or Disable Intel VMX Virtualization Technology. When enabled, a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology. Default value: Enabled

#### Active Processor Cores

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > CPU Configuration
<b>Description</b>	Set number of cores to enable in each processor package

#### Hyper-Threading

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > CPU Configuration
<b>Description</b>	Enable or Disable Hyper-Threading. Default value: Enabled

#### AES

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > CPU Configuration
<b>Description</b>	Enable or Disable AES (Advanced Encryption Standard). Default value: Enabled

#### Power & Performance

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page
<b>Description</b>	Power and performance

#### Boot Performance Mode

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > Power & Performance
<b>Description</b>	Select the performance state that the BIOS will set starting from reset vector. Possible values: Max Non-Turbo Performance / Max Battery / Turbo Performance. Default value: Max Non-Turbo Performance

#### Intel(R) SpeedStep(tm)

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > Power & Performance
<b>Description</b>	Allows more than two frequency ranges to be supported. Default value: Enabled

### Intel(R) Speed Shift Technology

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > Power & Performance
<b>Description</b>	Enable or Disable Intel(R) Speed Shift Technology support. Enabling will expose the CPPC v2 interface to allow for hardware controlled P-states. Default value: Enabled

### Turbo Mode

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > Power & Performance
<b>Description</b>	Enable or Disable processor Turbo Mode (requires Intel Speed Step or Intel Speed Shift to be available and enabled). Default value: Enabled

### Configurable TDP Settings

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page
<b>Description</b>	Configurable TDP settings

### Configurable TDP Boot Mode

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > Configurable TDP Settings
<b>Description</b>	Configurable TDP Mode TDP selection. Deactivate option will set MSR to Nominal and MMIO to Zero. Possible values: Nominal / Down / Deactivate Default value: Nominal

### Configurable TDP Lock

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > Configurable TDP Settings
<b>Description</b>	Configurable TDP Mode Lock sets the Lock bits on TURBO_ACTIVATION_RATIO and CONFIG_TDP_CONTROL. Note: When CTDP Lock is enabled Custom ConfigTDP Count will be forced to 1 and Custom ConfigTDP Boot Index will be forced to 0. Default value: Disabled

#### CTDP BIOS Control

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > Configurable TDP Settings
<b>Description</b>	Enable or Disable CTDP control via runtime ACPI BIOS methods. This "BIOS only" feature does not require EC or driver support. Default value: Disabled

#### Memory Configuration

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page
<b>Description</b>	Memory Configuration Parameters

#### HOB Buffer Size

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > Memory Configuration
<b>Description</b>	Set HOB buffer size. Possible values: Auto / 1B / 1KB / Max (assuming 63KB total HOB size). Default value: Auto

#### ECC Support

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > Memory Configuration
<b>Description</b>	Enable or Disable ECC Support. Default value: Enabled

#### Max TOLUD

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > Memory Configuration
<b>Description</b>	Maximum value of TOLUD. Dynamic assignment would adjust TOLUD automatically based on largest MMIO length of installed graphic controller. Possible value: 1, 1.25, 1.5, 1.75, 2, 2.25, 2.5, 2.75, 3, 3.25, 3.5 (GB). Default value: Dynamic

## 2.6 - SA Configuration

### System Agent (SA) Configuration

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page
<b>Description</b>	System Agent (SA) Parameters

### SA PCIe Code Version

<b>Type</b>	Information
<b>Found on BIOS Page</b>	Advanced Page > System Agent (SA) Configuration
<b>Description</b>	Displays SA PCIe Code Version

### VT-d

<b>Type</b>	Information
<b>Found on BIOS Page</b>	Advanced Page > System Agent (SA) Configuration
<b>Description</b>	Lists VT-d support

### Graphics Configuration

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > System Agent (SA) Configuration
<b>Description</b>	Graphics configuration

### Stop Grant Configuration

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > System Agent (SA) Configuration
<b>Description</b>	Automatic/Manual stop grant configuration. Default value: Auto

### PCIe Spread Spectrum Clocking

<b>Type</b>	Configurable Setting
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<b>Found on BIOS Page</b>	Advanced Page > System Agent (SA) Configuration
<b>Description</b>	Allows disabling Spread Spectrum Clocking for compliance testing. Default value: Enabled

#### VT-d

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > System Agent (SA) Configuration
<b>Description</b>	Enable or Disable VT-d capability. Default value: Enabled

#### CHAP Device (B0:D7:F0)

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > System Agent (SA) Configuration
<b>Description</b>	Enable or Disable SA CHAP Device. Default value: Disabled

#### Thermal Device (B0:D4:F0)

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > System Agent (SA) Configuration
<b>Description</b>	Enable or Disable SA Thermal Device. Default value: Disabled

#### GNA Device (B0:D8:F0)

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > System Agent (SA) Configuration
<b>Description</b>	Enable or Disable SA GNA Device. Default value: Disabled

#### CRID Support

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > System Agent (SA) Configuration
<b>Description</b>	Enable or Disable CRID control for Intel SIPP. Default value: Disabled

#### Above 4GB MMIO BIOS assignment

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > System Agent (SA) Configuration
<b>Description</b>	Enable or Disable above 4GB MemoryMappedIO BIOS assignment. This is enabled automatically when Aperture Size is set to 2048MB. Default value: Disabled

#### X2APIC Opt Out

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > System Agent (SA) Configuration
<b>Description</b>	Enable or Disable X2APIC_OPT_OUT bit. Default value: Disabled

#### IPU Device (B0:D5:F0)

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > System Agent (SA) Configuration
<b>Description</b>	Enable or Disable SA IPU Device. Default value: Disabled

## 2.6.1 - Graphics Configuration

#### Skip Scanning of External Gfx Card

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > System Agent (SA) Configuration > Graphics Configuration
<b>Description</b>	If Enabled, it will not scan for External Gfx Card on PEG and PCH PCIE Ports. Default value: Disabled

#### Primary Display

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > System Agent (SA) Configuration > Graphics Configuration
<b>Description</b>	Select which of IGFX/PEG/PCI Graphics device should be Primary Display or select SG for Switchable Gfx. Possible values: Auto / IGFX / PEG / PCI / SG. Default value: Auto



### Internal Graphics

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > System Agent (SA) Configuration > Graphics Configuration
<b>Description</b>	Keep IGFX enabled based on the setup options. Possible values: Auto / Enabled / Disabled. Default value: Auto

### GTT Size

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > System Agent (SA) Configuration > Graphics Configuration
<b>Description</b>	Select the GTT Size. Possible values: 8MB / 2MB / 4MB. Default value: 8MB

### Aperture Size

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > System Agent (SA) Configuration > Graphics Configuration
<b>Description</b>	Select the Aperture Size. Note: Above 4GB MMIO BIOS assignment is automatically enabled when selecting 2048MB aperture. To use this feature, please disable CSM support. Possible values: 256MB / 128MB / 512MB / 1024MB / 2048MB. Default value: 256MB

### DVMT Pre-Allocated

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > System Agent (SA) Configuration > Graphics Configuration
<b>Description</b>	Select DVMT 5.0 Pre-Allocated (Fixed) graphics memory size used by the Internal Graphics Device. Possible values: 0, 64, 4, 8, 12, 16, 20, 24, 28, 32/F7, 36, 40, 44, 48, 52, 56, 60 (M) Default value: 32M

### DVMT Total Gfx Mem

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > System Agent (SA) Configuration > Graphics

	Configuration
<b>Description</b>	Select DVMT 5.0 Total Graphic Memory size used by the Internal Graphics Device. Possible values: 256M / 128M. Default value: 256M

## 2.7 PCH-IO Configuration

### PCH-IO Configuration

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page
<b>Description</b>	PCH Parameters

### PCI Express Configuration

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > PCH-IO Configuration
<b>Description</b>	PCI Express Configuration settings

### SATA and RST Configuration

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > PCH-IO Configuration
<b>Description</b>	SATA Device Options Settings

### HD Audio

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > PCH-IO Configuration
<b>Description</b>	HD Audio Subsystem Configuration Settings

### PCH LAN Controller

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > PCH-IO Configuration
<b>Description</b>	Enable or Disable the onboard NIC. Default value: Enabled

#### Wake on LAN Enable

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > PCH-IO Configuration
<b>Description</b>	Enable or Disable integrated LAN to wake the system. Default value: Enabled

#### SLP\_LAN# Low on DC Power

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > PCH-IO Configuration
<b>Description</b>	Enable or Disable SLP_LAN# Low on DC Power. Default value: Enabled

#### EFI Network

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > PCH-IO Configuration
<b>Description</b>	Enable or Disable EFI Network support for onboard LAN or WiFi module. Possible values: Disabled / Onboard NIC / WiFi / Onboard NIC & WiFi. Default value: Disabled

#### Wake on WLAN and BT Enable

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > PCH-IO Configuration
<b>Description</b>	Enable or Disable PCI Express Wireless LAN and Bluetooth to wake the system. Default value: Disabled

#### PXE ROM

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > PCH-IO Configuration
<b>Description</b>	Enable or Disable PXE Option ROM execution. Default value: Disabled

#### Auto Power-On

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > PCH-IO Configuration
<b>Description</b>	Specify what state to go to when power is reapplied after a power failure (G3 state). Enable: System will boot directly as soon as power is applied. Disable: System will remain in power-off state until the power button is pressed. Default value: Disabled

## 2.7.1 - PCI Express Configuration

#### PCI Express Clock Gating

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > PCH-IO Configuration
<b>Description</b>	Enable or Disable PCI Express Clock Gating. Default value: Enabled

#### PCI Express Root Port

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > PCH-IO Configuration > PCI Express Configuration
<b>Description</b>	PCIE Root Port Settings

#### PCI Express Root Port

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > PCH-IO Configuration > PCI Express Configuration
<b>Description</b>	PCIE Root Port Settings

## 2.7.1.1 - PCI Express Root Port Settings

### PCI Express Root Port

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > PCH-IO Configuration > PCI Express Configuration > PCI Express Root Port Settings
<b>Description</b>	Enable or disable the PCI Express Root Port. Default value: Enabled

### ASPM

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > PCH-IO Configuration > PCI Express Configuration > PCI Express Root Port Settings
<b>Description</b>	PCI Express Active State Power Management setting. Possible values: Auto, Disabled, L0s, L1, L0sL1. Default value: Auto

### PCIe Speed

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > PCH-IO Configuration > PCI Express Configuration > PCI Express Root Port Settings
<b>Description</b>	Configure PCIe Speed. Possible values: Auto, Gen1, Gen2, Gen3. Default value: Auto

### Detect Timeout

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > PCH-IO Configuration > PCI Express Configuration > PCI Express Root Port Settings
<b>Description</b>	The number of milliseconds reference code will wait for link to exit detect state for enabled ports before assuming there is no device and potentially disabling the port.

## 2.7.2 - SATA and RST Configuration

### SATA Controllers

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > PCH-IO Configuration > SATA and RST Configuration
<b>Description</b>	Enable or Disable SATA Device. Default value: Enabled

### SATA Mode Selection

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > PCH-IO Configuration > SATA and RST Configuration
<b>Description</b>	Determines how SATA controller(s) operate. Possible values: AHCI / RAID / Intel RST Premium With Intel Optane System Acceleration. Default value: AHCI

### Serial ATA Port X

<b>Type</b>	Information
<b>Found on BIOS Page</b>	Advanced Page > PCH-IO Configuration > SATA and RST Configuration
<b>Description</b>	Displays current population state of SATA port

### Software Preserve

<b>Type</b>	Information
<b>Found on BIOS Page</b>	Advanced Page > PCH-IO Configuration > SATA and RST Configuration
<b>Description</b>	Displays if Software Preserve is supported

#### Port X

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > PCH-IO Configuration > SATA and RST Configuration
<b>Description</b>	Enable or Disable SATA Port. Default value: Enabled

#### Hot Plug

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > PCH-IO Configuration > SATA and RST Configuration
<b>Description</b>	Designates this port as Hot Pluggable. Default value: Disabled

#### Configured as eSATA

<b>Type</b>	Information
<b>Found on BIOS Page</b>	Advanced Page > PCH-IO Configuration > SATA and RST Configuration
<b>Description</b>	Displays configured as eSATA

#### External

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > PCH-IO Configuration > SATA and RST Configuration
<b>Description</b>	Marks this port as external. Default value: Disabled

#### Spin Up Device

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > PCH-IO Configuration > SATA and RST Configuration
<b>Description</b>	If enabled for any port, Staggered Spin Up will be performed and only the drives which have this option enabled will spin up at boot. Default value: Disabled

### SATA Device Type

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > PCH-IO Configuration > SATA and RST Configuration
<b>Description</b>	Identify if SATA port is connected to Solid State Drive or Hard Disk Drive. Possible values: Hard Disk Drive / Solid State Drive. Default value: Hard Disk Drive

### Topology

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > PCH-IO Configuration > SATA and RST Configuration
<b>Description</b>	Identify the SATA Topology if it is Default or ISATA or Flex or DirectConnect or M2.

## 2.7.3 - HD Audio

### HD Audio

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > PCH-IO Configuration > HD Audio
<b>Description</b>	Control Detection of the HD-Audio Device. Disabled = HDA will be unconditionally disabled. Enabled = HDA will be unconditionally enabled. Default value: Enabled

## 2.8 - PCH-FW Configuration

### ME Firmware Version

<b>Type</b>	Information
<b>Found on BIOS Page</b>	Advanced Page > PCH-FW Configuration
<b>Description</b>	Displays ME firmware version

### ME Firmware Mode

<b>Type</b>	Information
<b>Found on BIOS Page</b>	Advanced Page > PCH-FW Configuration



<b>Description</b>	Displays ME firmware mode
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#### ME Firmware SKU

<b>Type</b>	Information
<b>Found on BIOS Page</b>	Advanced Page > PCH-FW Configuration
<b>Description</b>	Displays ME firmware SKU

#### ME Firmware Status 1

<b>Type</b>	Information
<b>Found on BIOS Page</b>	Advanced Page > PCH-FW Configuration
<b>Description</b>	Displays ME firmware status 1

#### ME Firmware Status 2

<b>Type</b>	Information
<b>Found on BIOS Page</b>	Advanced Page > PCH-FW Configuration
<b>Description</b>	Displays ME firmware status 2

#### ME State

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > PCH-FW Configuration
<b>Description</b>	When Disabled ME will be put into ME Temporarily Disabled Mode. Default value: Enabled

#### Manageability Features State

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > PCH-FW Configuration
<b>Description</b>	Enable or Disable Intel(R) Manageability features. Note: This option disables/enables Manageability Features support in FW. Platform must be in an unprovisioned state before disabling ME support. Default value: Enabled

#### AMT BIOS Features

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > PCH-FW Configuration

<b>Description</b>	When disabled AMT BIOS Features are no longer supported and user is no longer able to access MEBx Setup. Note: This option does not disable Manageability Features in FW. Default value: Enabled
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#### AMT Configuration

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > PCH-FW Configuration
<b>Description</b>	Configure Intel(R) Active Management Technology Parameters

#### ME Unconfig on RTC Clear

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > PCH-FW Configuration
<b>Description</b>	When Disabled ME will not be unconfigured on RTC Clear. Default value: Enabled

#### Comms Hub Support

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > PCH-FW Configuration
<b>Description</b>	Enable or Disable support for Comms Hub. Default value: Disabled

#### JHI Support

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > PCH-FW Configuration
<b>Description</b>	Enable or Disable Intel(R) DAL Host Interface Service (JHI). Default value: Disabled

#### Core BIOS Done Message

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > PCH-FW Configuration
<b>Description</b>	Enable or Disable sending Core BIOS Done Message to ME. Default value: Enabled

### Firmware Update Configuration

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > PCH-FW Configuration
<b>Description</b>	Configure Management Engine Technology Parameters

### PTT Configuration

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > PCH-FW Configuration
<b>Description</b>	Configure PTT

## 2.8.1 - AMT Configuration

### ASF Support

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > PCH-FW Configuration > ASF Support
<b>Description</b>	Enable or Disable Alert Standard Format support. Default value: Enabled

### USB Provisioning of AMT

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > PCH-FW Configuration > ASF Support
<b>Description</b>	Enable or Disable AMT USB Provisioning. Default value: Disabled

### CIRA Configuration

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > PCH-FW Configuration > ASF Support
<b>Description</b>	Configure Remote Assistance Process parameters

### ASF Configuration

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > PCH-FW Configuration > ASF Support
<b>Description</b>	Configure Alert Standard Format parameters

### Secure Erase Configuration

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > PCH-FW Configuration > ASF Support
<b>Description</b>	Secure Erase Configuration menu

### MEBx Resolution Settings

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > PCH-FW Configuration > ASF Support
<b>Description</b>	Resolution settings for MEBx display modes

## 2.8.1.1 - ASF Support > CIRA Configuration

### Activate Remote Assistance Process

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > PCH-FW Configuration > ASF Support > CIRA Configuration
<b>Description</b>	Trigger CIRA boot Note: Network Access must first be activated from MEBx Setup. Possible values :[ ] / [X]. Default value: [ ]

### CIRA Timeout

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > PCH-FW Configuration > ASF Support > CIRA Configuration
<b>Description</b>	OEM defined timeout for MPS connection to be established. 0 - use the default timeout value of 60 seconds 255 - MEBx waits until the connection succeeds Default value: 0 (Grayed out unless Activate Remote Assistance Process enabled)

## 2.8.1.2 - ASF Support > ASF Configuration

### PET Progress

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > PCH-FW Configuration > ASF Support > ASF Configuration
<b>Description</b>	Enable or Disable PET Events Progress to receive PET Events. Default value: Enabled

### WatchDog

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > PCH-FW Configuration > ASF Support > ASF Configuration
<b>Description</b>	Enable or Disable the WatchDog Timer. Default value: Disabled

### OS Timer

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > PCH-FW Configuration > ASF Support > ASF Configuration
<b>Description</b>	Set OS watchdog timer. Default value: 0 (Grayed out unless watchdog enabled)

### BIOS Timer

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > PCH-FW Configuration > ASF Support > ASF Configuration
<b>Description</b>	Set BIOS watchdog timer. Default value: 0 (Grayed out unless watchdog enabled)

### ASF Sensors Table

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > PCH-FW Configuration > ASF Support > ASF Configuration
<b>Description</b>	Adds ASF Sensor Table into ASF ACPI Table. Default value: Disabled

### 2.8.1.3 - ASF Support > Secure Erase Configuration

#### Secure Erase Mode

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > PCH-FW Configuration > ASF Support > Secure Erase Configuration
<b>Description</b>	Change Secure Erase module behavior: Simulated: Performs SE flow without erasing SSD Real: Erase SSD Default value: Simulated

#### Force Secure Erase

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > PCH-FW Configuration > ASF Support > Secure Erase Configuration
<b>Description</b>	Force Secure Erase on next boot. Default value: Disabled

### 2.8.1.4 - ASF Support > MEBx Resolution Settings

#### Non-UI Mode Resolution

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > PCH-FW Configuration > ASF Support > MEBx Resolution Settings
<b>Description</b>	Resolution for non-UI text mode. Possible values: Auto / 80x25 / 100x31. Default value: Auto

#### UI Mode Resolution

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > PCH-FW Configuration > ASF Support > MEBx Resolution Settings
<b>Description</b>	Resolution for UI text mode. Possible values: Auto / 80x25 / 100x31. Default value: Auto

#### Graphics Mode Resolution

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > PCH-FW Configuration > ASF Support > MEBx Resolution Settings

<b>Description</b>	Resolution for graphics mode. Possible values: Auto / 640x480 / 800x600 / 1024x768. Default value: Auto
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## 2.8.2 - Firmware Update Configuration

### ME Firmware Re-Flash

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > PCH-FW Configuration > Firmware Update Configuration
<b>Description</b>	Enable or Disable ME FW Image Re-Flash function. Default value: Disabled

## 2.9 - Thermal Configuration

### Automatic Thermal Reporting

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > Thermal Configuration
<b>Description</b>	Configure _CRT, _PSV and _AC0 automatically based on values recommended in BWG's Thermal Reporting for Thermal Management settings. Set to Disabled for manual configuration. Default value: Disabled

### Critical Trip Point

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > Thermal Configuration
<b>Description</b>	This value controls the temperature of the ACPI Critical Trip Point - the point at which the OS will shut the system off. Note: 119C is the Plan Of Record (POR) for all Intel mobile processors. Possible values: 15, 23, 31, 39, 47, 55, 63, 71, 79, 87, 95, 100, 103, 111, 127 C Default value: 119 C (POR)

### Active Trip Point 0

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > Thermal Configuration
<b>Description</b>	This value controls the temperature of the ACPI Active Trip Point 0 - the point at which the OS will set the processor fan to Active Trip Point 0 Fan Speed. Possible values: 15, 23, 31, 39, 47, 55, 63, 71, 79, 87, 95, 100, 111, 127 C Default value: 71 C

### Active Trip Point 0 Fan Speed

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > Thermal Configuration
<b>Description</b>	Active Trip Point 0 Fan Speed in percentage. Value must be between 0 (Fan off) - 100 (Max fan speed). This is the speed at which the fan will run when Active Trip Point 0 is crossed. Possible values: 0 - 100 Default value: 100

### Active Trip Point 1

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > Thermal Configuration
<b>Description</b>	This controls the temperature of the ACPI Active Trip Point 1 - the point at which the OS will set the processor fan to Active Trip Point 1 Fan Speed. Possible values: 15, 23, 31, 39, 47, 63, 71, 79, 87, 95, 100, 103, 111, 119 (POR), 127 C Default value: 55 C

### Active Trip Point 1 Fan Speed

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > Thermal Configuration
<b>Description</b>	Active Trip Point 1 Fan Speed in percentage. Value must be between 0 (Fan off) - 100 (Max fan speed). This value must be less than Active Trip Point 0 Fan Speed. This is the speed at which the fan will run when Active Trip 1 is crossed. Possible values: 0 - 100 Default value: 75



### Passive Trip Point

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > Thermal Configuration
<b>Description</b>	This value controls the temperature of the ACPI Passive Trip Point - the point in which the OS will begin throttling the processor. Possible values: 15, 23, 31, 39, 47, 55, 63, 71, 79, 87, 100, 103, 111, 119 (POR), 127 C Default value: 95 C

### Passive TC1 Value

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > Thermal Configuration
<b>Description</b>	This value sets the TC1 value for the ACPI Passive Cooling Formula. Range 1-16. Default value: 1

### Passive TC2 Value

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > Thermal Configuration
<b>Description</b>	This value sets the TC2 value for the ACPI Passive Cooling Formula. Range 1-16. Default value: 5

### Passive TSP Value

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > Thermal Configuration
<b>Description</b>	This item sets the TSP value for the ACPI Passive Cooling Formula. It represents in tenths of a second how often the OS will read the temperature when passive cooling is enabled. Range 2-32. Default value: 10

### Active Trip Points

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > Thermal Configuration
<b>Description</b>	Enable or Disable Active Trip Points. Default value: Enabled

#### Passive Trip Points

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > Thermal Configuration
<b>Description</b>	Enable or Disable Passive Trip Points. Default value: Disabled

#### Critical Trip Points

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > Thermal Configuration
<b>Description</b>	Enable or Disable Critical Trip Points. Default value: Enabled

#### Active Trip Points

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > Thermal Configuration
<b>Description</b>	Enable or Disable Active Trip Points. Default value: Enabled

#### PCH Temp Read

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > Thermal Configuration
<b>Description</b>	PCH Temperature Read Enable

#### CPU Energy Read

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > Thermal Configuration
<b>Description</b>	CPU Energy Read Enable

#### CPU Temp Read

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > Thermal Configuration
<b>Description</b>	CPU Temperature Read Enable

#### Alert Enable Lock

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > Thermal Configuration

<b>Description</b>	Lock all Alert Enable Settings. Default value: Disabled
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#### CPU Temp

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > Thermal Configuration
<b>Description</b>	Fail Safe temp that EC will use if OS is hung. Default value: 75

#### CPU Fan Speed

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > Thermal Configuration
<b>Description</b>	Fan speed that EC will use if OS is hung. Default value: 65

## 2.10 - SIO NCT5524D

#### UART Port 1 Configuration

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > SIO NCT5524D Chip
<b>Description</b>	UART configuration

#### UART Port 2 Configuration

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > SIO NCT5524D Chip
<b>Description</b>	UART configuration

#### Fan Control

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > SIO NCT5524D Chip
<b>Description</b>	Fan control configuration

#### Hardware Monitor

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > SIO NCT5524D Chip

<b>Description</b>	Monitor all hardware sensors like voltage/temperature/fan speed
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## 2.10.1 - UART Port X Configuration

### UART Port X

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > SIO NCT5524D Chip > UART Port X Configuration
<b>Description</b>	Configure UART Port using options: [Disabled] Disable device [Enabled] Enable device and use below settings Default value: Enabled

### Power Over Cable

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > SIO NCT5524D Chip > UART Port X Configuration
<b>Description</b>	COM port power over cable enable. Default value: Disabled

### Power Source Select

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > SIO NCT5524D Chip > UART Port X Configuration
<b>Description</b>	COM port power source select. Possible values: 5V / 12V. Default value: 5V

### Mode Select

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > SIO NCT5524D Chip > UART Port X Configuration
<b>Description</b>	COM port mode select. Possible values: Pure RS-232, RS-422 Full Duplex, RS-485 Half Duplex (TX ENABLE Low Active), RS-485 Half Duplex (TX ENABLE High Active), RS-422 Full Duplex (with termination resistor and bias resistor), Pure RS-232 (co-exists with RS485), RS-485 Half Duplex (with termination resistor and bias resistor), Low Power Shutdown Default value: Pure RS-232

## 2.10.2 Fan Control (Manual)

### SYSFANIN

<b>Type</b>	Information
<b>Found on BIOS Page</b>	Advanced Page > SIO NCT5524D Chip > Fan Control (Manual)
<b>Description</b>	Displays current Fan RPM

### CPUTIN

<b>Type</b>	Information
<b>Found on BIOS Page</b>	Advanced Page > SIO NCT5524D Chip > Fan Control (Manual)
<b>Description</b>	Displays current CPU temperature

### Mode

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > SIO NCT5524D Chip > Fan Control (Manual)
<b>Description</b>	Choose Control Mode. Possible values: Manual, Thermal Cruise, Speed Cruise, Smart Fan IV. Default value: Manual

### PWM/DC Output

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > SIO NCT5524D Chip > Fan Control (Manual)
<b>Description</b>	Select fan output signal. Possible values: PWM Duty Cycle (%), DC Voltage (%). Default value: PWM Duty Cycle (%)

### Output Buffer Type

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > SIO NCT5524D Chip > Fan Control (Manual)
<b>Description</b>	Select output buffer type. Possible values: Open-Drain, Push-Pull. Default value: Open-Drain

### PWM Duty Cycle (%) / DC Voltage (%) (Changes based on selected output mode)

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > SIO NCT5524D Chip > Fan Control (Manual)
<b>Description</b>	Manually adjust PWM duty cycle [0-100]% / Manually adjust

	DC Voltage [0-100]%. Default value: 100
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### 2.10.3 - Fan Control (Thermal Cruise)

#### SYSFANIN

<b>Type</b>	Information
<b>Found on BIOS Page</b>	Advanced Page > SIO NCT5524D Chip > Fan Control (Thermal Cruise)
<b>Description</b>	Displays current Fan RPM

#### CPUTIN

<b>Type</b>	Information
<b>Found on BIOS Page</b>	Advanced Page > SIO NCT5524D Chip > Fan Control (Thermal Cruise)
<b>Description</b>	Displays current CPU temperature

#### Mode

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > SIO NCT5524D Chip > Fan Control (Thermal Cruise)
<b>Description</b>	Choose Control Mode. Possible values: Manual, Thermal Cruise, Speed Cruise, Smart Fan IV. Default value: Manual

#### PWM/DC Output

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > SIO NCT5524D Chip > Fan Control (Thermal Cruise)
<b>Description</b>	Select fan output signal. Possible values: PWM Duty Cycle (%), DC Voltage (%). Default value: PWM Duty Cycle (%)

#### Output Buffer Type

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > SIO NCT5524D Chip > Fan Control (Thermal Cruise)
<b>Description</b>	Select output buffer type. Possible values: Open-Drain,

	Push-Pull. Default value: Open-Drain
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#### Target Temperature (°C)

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > SIO NCT5524D Chip > Fan Control (Thermal Cruise)
<b>Description</b>	The fan will try to maintain a temperature within Target Temperature ± Tolerance. Default value: 0

#### Tolerance (°C)

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > SIO NCT5524D Chip > Fan Control (Thermal Cruise)
<b>Description</b>	Temperature tolerance. Default value: 0

### 2.10.4 - Fan Control (Speed Cruise)

#### SYSFANIN

<b>Type</b>	Information
<b>Found on BIOS Page</b>	Advanced Page > SIO NCT5524D Chip > Fan Control (Speed Cruise)
<b>Description</b>	Displays current Fan RPM

#### CPUTIN

<b>Type</b>	Information
<b>Found on BIOS Page</b>	Advanced Page > SIO NCT5524D Chip > Fan Control (Speed Cruise)
<b>Description</b>	Displays current CPU temperature

#### Mode

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > SIO NCT5524D Chip > Fan Control (Speed Cruise)
<b>Description</b>	Choose Control Mode. Possible values: Manual, Thermal Cruise, Speed Cruise, Smart Fan IV. Default value: Manual

#### PWM/DC Output

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > SIO NCT5524D Chip > Fan Control (Speed Cruise)
<b>Description</b>	Select fan output signal. Possible values: PWM Duty Cycle (%), DC Voltage (%). Default value: PWM Duty Cycle (%)

#### Output Buffer Type

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > SIO NCT5524D Chip > Fan Control (Speed Cruise)
<b>Description</b>	Select output buffer type. Possible values: Open-Drain, Push-Pull. Default value: Open-Drain

#### Target Fan Speed

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > SIO NCT5524D Chip > Fan Control (Speed Cruise)
<b>Description</b>	The fan will try to keep the fan speed within Target Fan Speed $\pm$ Tolerance. When the fan speed is in this range, fan speed won't change. If the fan speed is outside of this range, the fan will speed up or slow down toward the range. Default value: 0

#### Tolerance

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > SIO NCT5524D Chip > Fan Control (Speed Cruise)
<b>Description</b>	Fan Speed Tolerance. Default value: 0



## 2.10.5 Fan Control (Smart Fan IV)

### SYSFANIN

<b>Type</b>	Information
<b>Found on BIOS Page</b>	Advanced Page > SIO NCT5524D Chip > Fan Control (Smart Fan IV)
<b>Description</b>	Displays current Fan RPM

### CPUTIN

<b>Type</b>	Information
<b>Found on BIOS Page</b>	Advanced Page > SIO NCT5524D Chip > Fan Control (Smart Fan IV)
<b>Description</b>	Displays current CPU temperature

### Mode

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > SIO NCT5524D Chip > Fan Control (Smart Fan IV)
<b>Description</b>	Choose Control Mode. Possible values: Manual, Thermal Cruise, Speed Cruise, Smart Fan IV. Default value: Manual

### PWM/DC Output

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > SIO NCT5524D Chip > Fan Control (Smart Fan IV)
<b>Description</b>	Select fan output signal. Possible values: PWM Duty Cycle (%), DC Voltage (%). Default value: PWM Duty Cycle (%)

#### Output Buffer Type

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > SIO NCT5524D Chip > Fan Control (Smart Fan IV)
<b>Description</b>	Select output buffer type. Possible values: Open-Drain, Push-Pull. Default value: Open-Drain

#### Boundary 0 (°C)

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > SIO NCT5524D Chip > Fan Control (Smart Fan IV)
<b>Description</b>	This value controls the temperature at which the fan speed will be set to Output 0. Default value: 30

#### Output 0 (%)

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > SIO NCT5524D Chip > Fan Control (Smart Fan IV)
<b>Description</b>	Output 0 fan speed. Value must be between 0 (Fan off) - 100 (Max fan speed). This is the speed at which the fan will run when Boundary 0 is crossed. Default value: 25

#### Boundary 1 (°C)

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > SIO NCT5524D Chip > Fan Control (Smart Fan IV)
<b>Description</b>	This value controls the temperature at which the fan speed will be set to Output 1. Default value: 40

#### Output 1 (%)

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > SIO NCT5524D Chip > Fan Control (Smart Fan IV)

<b>Description</b>	Output 1 fan speed. Value must be between 0 (Fan off) - 100 (Max fan speed). This is the speed at which the fan will run when Boundary 1 is crossed. Default value: 50
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#### Boundary 2 (°C)

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > SIO NCT5524D Chip > Fan Control (Smart Fan IV)
<b>Description</b>	This value controls the temperature at which the fan speed will be set to Output 2. Default value: 50

#### Output 2 (%)

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > SIO NCT5524D Chip > Fan Control (Smart Fan IV)
<b>Description</b>	Output 2 fan speed. Value must be between 0 (Fan off) - 100 (Max fan speed). This is the speed at which the fan will run when Boundary 2 is crossed. Default value: 75

#### Boundary 3 (°C)

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > SIO NCT5524D Chip > Fan Control (Smart Fan IV)
<b>Description</b>	This value controls the temperature at which the fan speed will be set to Output 3. Default value: 60

#### Output 3 (%)

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > SIO NCT5524D Chip > Fan Control (Smart Fan IV)
<b>Description</b>	Output 3 fan speed. Value must be between 0 (Fan off) - 100 (Max fan speed). This is the speed at which the fan will run when Boundary 3 is crossed. Default value: 100

## 2.10.6 - Hardware Monitor

#### Refresh Cycle

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Advanced Page > SIO NCT5524D Chip > Hardware Monitor
<b>Description</b>	0: Stop updating 1-15: Seconds between sensor refresh Default value: 1

### 3 - Security Page

#### Current TPM Device

<b>Type</b>	Information
<b>Found on BIOS Page</b>	Security Page
<b>Description</b>	Displays current TPM device

#### TPM State

<b>Type</b>	Information
<b>Found on BIOS Page</b>	Security Page
<b>Description</b>	Displays current TPM state

#### TPM Active PCR Hash Algorithm

<b>Type</b>	Information
<b>Found on BIOS Page</b>	Security Page
<b>Description</b>	Displays active PCR hash algorithm

#### TPM Hardware Supported Hash Algorithm

<b>Type</b>	Information
<b>Found on BIOS Page</b>	Security Page
<b>Description</b>	Displays hardware supported hash algorithm

#### BIOS Supported Hash Algorithm

<b>Type</b>	Information
<b>Found on BIOS Page</b>	Security Page
<b>Description</b>	Displays BIOS supported hash algorithm

TrEE Protocol Version

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Security Page
<b>Description</b>	Select TrEE Protocol Version: 1.0 or 1.1. Possible values: 1.1, 1.0. Default value: 1.1

TPM Availability

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Security Page
<b>Description</b>	When Hidden, don't exposes TPM to 0. Possible values: Available/Hidden. Default value: Available

TPM Operation

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Security Page
<b>Description</b>	Select one of the supported operation to change TPM2 state. Possible values: Enable, SetPCRBanks(Algorithm), LogAllDigests, SetPPRequiredForClear_True, SetPPRequiredForClear_False, SetPPRequiredForTurnOn_False, SetPPRequiredForTurnOn_True, SetPPRequiredForTurnOff_False, SetPPRequiredForTurnOff_True, SetPPRequiredForChangePCRs_False, SetPPRequiredForChangePCRs_True, SetPPRequiredForChangeEPS_False, SetPPRequiredForChangeEPS_True, ChangeEPS Default value: No Operation

Clear TPM

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Security Page
<b>Description</b>	Remove all TPM context associated with a specific owner.

Set Supervisor Password

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Security Page
<b>Description</b>	Install or Change the supervisor password. Note: The password must be more than one character in length.

## 4 - Boot Page

### Boot Type

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Boot Page
<b>Description</b>	Select Dual boot type, Legacy boot type or UEFI boot type. Possible values: UEFI Boot Type, Dual Boot Type, Legacy Boot Type. Default value: UEFI Boot Type

### Network Stack

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Boot Page
<b>Description</b>	Network Stack Support: Windows 8 BitLocker Unlock UEFI IPv4/IPv6 PXE Legacy PXE OPRON Default value: Disabled

### PXE Boot Capability

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Boot Page
<b>Description</b>	Disabled: Support Network Stack UEFI PXE: IPv4/IPv6 Possible values: Disabled, UEFI: IPv4, UEFI: IPv6, UEFI: IPv4/IPv6. Default value: Disabled (Grayed out and Disabled unless Network Stack is Enabled)

### Add Boot Options

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Boot Page

<b>Description</b>	Position in Boot Order for Shell, Network, and Removables. Possible values: First, Last. Default value: First
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#### USB Boot

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Boot Page
<b>Description</b>	Disables or enables booting to USB boot devices. Default value: Enabled

#### UEFI OS Fast Boot

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Boot Page
<b>Description</b>	If enabled the system firmware does not initialize keyboard and check for firmware menu key. Default value: Enabled

#### EFI

<b>Type</b>	Configurable Setting
<b>Found on BIOS Page</b>	Boot Page
<b>Description</b>	EFI Boot Order Settings

## 5 - Exit Page

#### Exit Saving Changes

<b>Type</b>	Selectable
<b>Found on BIOS Page</b>	Exit Page
<b>Description</b>	Exit system setup and save your changes

#### Save Change Without Exit

<b>Type</b>	Selectable
<b>Found on BIOS Page</b>	Exit Page
<b>Description</b>	Save your changes without exiting setup

#### Exit Discarding Changes

<b>Type</b>	Selectable
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<b>Found on BIOS Page</b>	Exit Page
<b>Description</b>	Exit system setup without saving your changes

#### Load Optimal Defaults

<b>Type</b>	Selectable
<b>Found on BIOS Page</b>	Exit Page
<b>Description</b>	Load optimal defaults

#### Load Custom Defaults

<b>Type</b>	Selectable
<b>Found on BIOS Page</b>	Exit Page
<b>Description</b>	Load custom defaults

#### Save Custom Defaults

<b>Type</b>	Selectable
<b>Found on BIOS Page</b>	Exit Page
<b>Description</b>	Save custom defaults

#### Discard Changes

<b>Type</b>	Selectable
<b>Found on BIOS Page</b>	Exit Page
<b>Description</b>	Discard changes

## 6 - BIOS Updates

The latest BIOS Updates are available [from the OnLogic support site.](#)