



## BIOS Update Release Notes

**PRODUCTS: D54250WYB, D54250WYK, D54250WYKH, D34010WYB, D34010WYK, D34010WYKH (Standard BIOS)**

**BIOS Version 0050 - WYLPT10H.86A.0050.2018.1115.1730**

### About This Release:

- Date: November 15, 2018
- ME Firmware: 9.5.40.1892
- Memory Reference Code: Based on 1.9.1
- Integrated Graphics
  - Option ROM: Build 2180 PC 14.34
  - UEFI Driver: 5.0.1037
- SATA RAID Option ROM: 12.7.0.1936
- SATA non-RAID Option ROM: 12.7.0.1936
- AHCI Code: Based on 4.6.3\_AhciSrc\_022
- LAN Option ROM: v1543 PXE 2.1 Build 092
- Visual BIOS: 2.2.23

### New Fixes/Features:

- Added BIOS write protection for security enhancement.
- Added the setup item "Allow UEFI 3rd party driver loaded" and set default as disabled.

### Known Errata:

- Due to security enhancements in BIOS version 0050, you can't downgrade to version 0049 or earlier.

**BIOS Version 0049 - WYLPT10H.86A.0049.2018.0718.2208**

### About This Release:

- Date: July 18, 2018
- ME Firmware: 9.5.40.1892
- Memory Reference Code: Based on 1.9.1
- Integrated Graphics
  - Option ROM: Build 2180 PC 14.34
  - UEFI Driver: 5.0.1037
- SATA RAID Option ROM: 12.7.0.1936
- SATA non-RAID Option ROM: 12.7.0.1936
- AHCI Code: Based on 4.6.3\_AhciSrc\_022
- LAN Option ROM: v1543 PXE 2.1 Build 092
- Visual BIOS: 2.2.23

### New Fixes/Features:

- Updated CPU Microcode (Security Advisory-00115).
- Removed the Intel® Ready Mode Technology/Intel Ready Mode Indicator code/items in BIOS for Intel security fix.

**BIOS Version 0048 - WYLPT10H.86A.0048.2018.0606.1248****About This Release:**

- Date: June 6, 2018
- ME Firmware: 9.5.40.1892
- Memory Reference Code: Based on 1.9.1
- Integrated Graphics
  - Option ROM: Build 2180 PC 14.34
  - UEFI Driver: 5.0.1037
- SATA RAID Option ROM: 12.7.0.1936
- SATA non-RAID Option ROM: 12.7.0.1936
- AHCI Code: Based on 4.6.3\_AhciSrc\_022
- LAN Option ROM: v1543 PXE 2.1 Build 092
- Visual BIOS: 2.2.23

**New Fixes/Features:**

- Security enhancements.

**BIOS Version 0047 - WYLPT10H.86A.0047.2018.0303.1725****About This Release:**

- Date: March 3, 2018
- ME Firmware: 9.5.40.1892
- Memory Reference Code: Based on 1.9.1
- Integrated Graphics
  - Option ROM: Build 2180 PC 14.34
  - UEFI Driver: 5.0.1037
- SATA RAID Option ROM: 12.7.0.1936
- SATA non-RAID Option ROM: 12.7.0.1936
- AHCI Code: Based on 4.6.3\_AhciSrc\_022
- LAN Option ROM: v1543 PXE 2.1 Build 092
- Visual BIOS: 2.2.23

**New Fixes/Features:**

- Updated CPU Microcode (Security Advisory-00088)

**BIOS Version 0045 - WYLPT10H.86A.0045.2017.0302.2108****About This Release:**

- Date: March 2, 2017
- ME Firmware: 9.5.40.1892
- Memory Reference Code: Based on 1.9.1
- Integrated Graphics
  - Option ROM: Build 2180 PC 14.34
  - UEFI Driver: 5.0.1037
- SATA RAID Option ROM: 12.7.0.1936
- SATA non-RAID Option ROM: 12.7.0.1936
- AHCI Code: Based on 4.6.3\_AhciSrc\_022
- LAN Option ROM: v1543 PXE 2.1 Build 092
- Visual BIOS: 2.2.23

**New Fixes/Features:**

- Security Enhancements.

## BIOS Version 0044 - WYLPT10H.86A.0044.2016.1214.1710

### About This Release:

- Date: December 14, 2016
- ME Firmware: 9.5.40.1892
- Memory Reference Code: Based on 1.9.1
- Integrated Graphics
  - Option ROM: Build 2180 PC 14.34
  - UEFI Driver: 5.0.1037
- LAN Option ROM: v1543 PXE 2.1 Build 092
- SATA RAID Option ROM: 12.7.0.1936
- Haswell EFI driver (GOP): 5.0.1037
- Visual BIOS: 2.2.23

### New Fixes/Features:

- Security Enhancements.
- Updated the UEFI Network Stack.

## BIOS Versions 0043 - WYLPT10H.86A.0043.2016.1116.1449

### About This Release:

- Date: November 16, 2016
- ME Firmware: 9.5.40.1892
- Memory Reference Code: Based on 1.9.1
- Integrated Graphics
  - Option ROM: Build 2180 PC 14.34
  - UEFI Driver: 5.0.1037
- LAN Option ROM: v1543 PXE 2.1 Build 092
- SATA RAID Option ROM: 12.7.0.1936
- Haswell EFI driver (GOP): 5.0.1037
- Visual BIOS: 2.2.23

### New Fixes/Features:

Added function with Programmable Custom Solution Header.

## BIOS Version 0042 - WYLPT10H.86A.0042.2016.0704.1441

### About This Release:

- Date: July 04, 2016
- ME Firmware: 9.5.40.1892
- Memory Reference Code: Based on 1.9.1
- Integrated Graphics
  - Option ROM: Build 2180 PC 14.34
  - UEFI Driver: 5.0.1037
- LAN Option ROM: v1543 PXE 2.1 Build 092
- SATA RAID Option ROM: 12.7.0.1936
- Haswell EFI driver (GOP): 5.0.1037
- Visual BIOS: 2.2.20

### New Fixes/Features:

- Enhanced Secure boot and PXE security.
- Improved the BIOS update process by disabling the keyboard and power button during the flash/recovery process when using the power button recovery.

- Fixed an issue where the NUC can't wake up from S3 by pressing the power button in Linux.
- Fixed issue where the CIR remote controller would still power on the NUC when CIR was disabled.

**Updated Visual BIOS to version 2.2.20. Fixes include:**

- Hotfix to remove download driver and automatic BIOS update feature.
- Hotfix to remove performance page accessibility from Atom-based NUC products.

<b>BIOS Version 0041 - WYLPT10H.86A.0041.2015.0720.1108</b>
---

**About This Release:**

- Date: July 20, 2015
- ME Firmware: 9.5.40.1892
- Integrated Graphics
  - Option ROM: Build 2180 PC 14.34
  - UEFI Driver: 5.0.1037
- LAN Option ROM: v1543 PXE 2.1 Build 092
- SATA RAID Option ROM: 12.7.0.1936
- EFI driver (GOP): 5.0.1037
- Visual BIOS: 2.2.17

**New Fixes/Features:**

- Updated Visual BIOS to version 2.2.17. Fixes include:
  - Refactored graphics resolution algorithm to find closest supported resolution to 1024x768. This should correct scaling issues with 4K monitors.
  - Removed unused assets from Performance and Mainstream themes to reduce the overall size of Visual BIOS. Size savings should be around 300KB.
- Fixed issue where system does not boot to USB flash drive when Boot USB Devices First is enabled.
- Fixed issue where S4 stress test fails in Windows 7 EFI mode.
- Fixed issue where infrared remote does not wake the system.

<b>BIOS Version 0040 - WYLPT10H.86A.0040.2015.0612.1400</b>
---

**About This Release:**

- Date: June 12, 2015
- ME Firmware: 9.5.40.1892
- Integrated Graphics
  - Option ROM: Build 2180 PC 14.34
  - UEFI Driver: 5.0.1037
- LAN Option ROM: v1543 PXE 2.1 Build 092
- SATA RAID Option ROM: 12.7.0.1936
- EFI driver (GOP): 5.0.1037
- Visual BIOS: 2.2.16

**New Fixes/Features:**

- Added S3 module for security enhancement.
- Fixed issue where xHCI Mode isn't set to "Smart Auto" as default after updating BIOS.

<b>BIOS Version 0038 - WYLPT10H.86A.0038.2015.0410.1634</b>
---

**About This Release:**

- Date: April 13, 2015
- ME Firmware: 9.5.40.1892
- Integrated Graphics
  - Option ROM: Build 2180 PC 14.34
  - UEFI Driver: 5.0.1037
- LAN Option ROM: v1543 PXE 2.1 Build 092
- SATA RAID Option ROM: 12.7.0.1936
- EFI driver (GOP): 5.0.1037
- Visual BIOS: 2.2.16

**New Fixes/Features:**

- Fixed issue where system with Linux Ubuntu\* cannot resume from sleep.
- Fixed issue where USB 3.0 devices are not recognized at boot.
- Added xHCI Mode setting to USB Configuration page in BIOS.
- Updated Intel® Visual BIOS to version 2.2.16. Fixes include:
  - Fixed issue in Download Drivers feature where certain drivers were not visible if multiple attachments exist in the same record.

<b>BIOS Version 0037 - WYLPT10H.86A.0037.2015.0324.2147</b>
---

**About This Release:**

- Date: March 24, 2015
- ME Firmware: 9.5.40.1892
- Integrated Graphics
  - Option ROM: Build 2180 PC 14.34
  - UEFI Driver: 5.0.1037
- LAN Option ROM: v1543 PXE 2.1 Build 092
- SATA RAID Option ROM: 12.7.0.1936
- EFI driver (GOP): 5.0.1037
- Visual BIOS: 2.2.15

**New Fixes/Features:**

- Added BIOS options on the Secondary Power Settings page to enable or disable Wake from S3 via CIR and Wake from S4 and S5 via CIR.
- Added BIOS option on the Legacy Device Config page to select the CIR Remote Controller Type.
- Updated processor support.

<b>BIOS Version 0035 - WYLPT10H.86A.0035.2015.0126.1814</b>
---

**About This Release:**

- Date: January 26, 2015
- ME Firmware: 9.5.40.1892
- Integrated Graphics
  - Option ROM: Build 2180 PC 14.34
  - UEFI Driver: 5.0.1037
- LAN Option ROM: v1543 PXE 2.1 Build 092
- SATA RAID Option ROM: 12.7.0.1936
- EFI driver (GOP): 5.0.1037
- Visual BIOS: 2.2.15

**New Fixes/Features:**

\*Other names and brands may be claimed as the property of others.

- Add Setup option "Suppress Alert Messages At Boot.
- Set "IGD Minimum Memory" to 64 MB as default.
- Fixed issue where CIR remote still wakes the NUC when CIR is disabled in BIOS.
- Updated Intel® Visual BIOS to version 2.2.15. Fixes include:
  - Fixed issue in Download Drivers feature where incorrect drivers would display if product was not found in database.
  - Fixed issue in Performance page that prevented additional workspaces from showing up (i.e. Memory Timings, etc.)
  - Fixed touch monitors not working correctly when display adapter supports greater than 1024x768 resolution.
  - Fixed AMT USB-R issue where absolute mouse position would not scale correctly in Visual BIOS.
  - Fixed password input so that only A-Z, a-z, and 0-9 characters are accepted.
  - Fixed issue in screenshot function that caused final bitmap to be tinted blue.
  - Fixed issue in double-click boot feature that did not allow BIOS to boot to the correct device.
  - Fixed issue graphical error in dropdown box.
  - Fixed hang on NUC Home Page 1 and Cooling Page when temp or voltage form contained no questions.
  - Added variable check to determine whether or not to perform OS check before starting Visual Boot Manager.
  - Fixed logic that caused beta opt-in request to keep popping up.
  - Fixed various GUI issues.
  - Fixed missing temperatures and voltages in cooling performance monitor.
  - Fixed variable flags for OsIndications and BootNext to conform to strict UEFI 2.4 requirements.

<b>BIOS Version 0033 - WYLPT10H.86A.0033.2014.1201.0940</b>
---

**About This Release:**

- Date: December 1, 2014
- ME Firmware: 9.5.40.1892
- Integrated Graphics
  - Option ROM: Build 2180 PC 14.34
  - UEFI Driver: 5.0.1037
- LAN Option ROM: v1543 PXE 2.1 Build 092
- SATA RAID Option ROM: 12.7.0.1936
- EFI driver (GOP): 5.0.1037
- Visual BIOS: 2.2.8

**New Fixes/Features:**

- Fixed issue where Intel® Integrator Toolkit and OA3 fail.

<b>BIOS Version 0032 - WYLPT10H.86A.0032.2014.1119.1552</b>
---

**About This Release:**

- Date: November 19, 2014
- ME Firmware: 9.5.40.1892
- Integrated Graphics
  - Option ROM: Build 2180 PC 14.34
  - UEFI Driver: 5.0.1037
- LAN Option ROM: v1543 PXE 2.1 Build 092

\*Other names and brands may be claimed as the property of others.

- SATA RAID Option ROM: 12.7.0.1936
- EFI driver (GOP): 5.0.1037
- Visual BIOS: 2.2.8

**New Fixes/Features:**

- Fixed UQI of "C9/C10 C-State" and "OS ACPI C2 Report".
- Added support for Windows Recovery Environment (Windows RE) by pressing the F5 function key.

<b>BIOS Version 0030 - WYLPT10H.86A.0030.2014.0919.1139</b>
---

**About This Release:**

- Date: September 19, 2014
- ME Firmware: 9.5.40.1892
- Integrated Graphics
  - Option ROM: Build 2180 PC 14.34
  - UEFI Driver: 5.0.1037
- LAN Option ROM: v1543 PXE 2.1 Build 092
- SATA RAID Option ROM: 12.7.0.1936
- EFI driver (GOP): 5.0.1037
- Visual BIOS: 2.2.8

**New Fixes/Features:**

- Updated Intel® ME Firmware to version 9.5.40.1892.

<b>BIOS Version 0028 - WYLPT10H.86A.0028.2014.0814.1906</b>
---

**About This Release:**

- Date: August 14, 2014
- ME Firmware: 9.5.13.1706
- Integrated Graphics
  - Option ROM: Build 2180 PC 14.34
  - UEFI Driver: 5.0.1037
- LAN Option ROM: v1543 PXE 2.1 Build 092
- SATA RAID Option ROM: 12.7.0.1936
- EFI driver (GOP): 5.0.1037
- Visual BIOS: 2.2.8

**New Fixes/Features:**

- Updated Visual BIOS to version 2.2.8. Fixes include:
  - Fixed issue where Default BIOS Start Page would not show properly when selecting home pages.
  - Fixed hang when saving file using screenshot feature.
  - Fixed erroneous notification text when file save feature failed.
  - Fixed issue that caused startup hang when Default Start Page was set to Main Page.
  - Re-architected HTTP client in Visual BIOS to support network behind an HTTP proxy (i.e. corporate firewall) and handle network instability issues.
  - Updated performance pages to support simplified needs of NUC products going forward.
  - Fixed issue on settings page where NUC Atom theme was not an available option.
  - Fixed issue where default theme was not NUC theme if theme could not be determined.

- Fixed issue where driver download feature could not be used after closing the modal and re-entering the modal.
- Fixed issue where add-in config forms were unable to post changes to the setup browser.
- Fixed issue with touch input that ignored the first touch state upon starting the application.
- Fixed issue with BIOS password lengths.
- Fixed issue where master password cannot be cleared.
- Added feature to disable Watchdog Timer after entering and incorrect password three times.
- Added feature to disable Watchdog Timer when pressing Power Button to shut down.
- Modified options of Intel Ready Mode Technology and S3 state in Visual BIOS.
- Fixed issue where BIOS setup does not display the event log of "CMOS Battery Failure".
- Fixed issue where Product name shows ERROR when BIOS security jumper removed.

<b>BIOS Version 0027 - WYLPT10H.86A.0027.2014.0710.1904</b>
---

**About This Release:**

- Date: July 10, 2014
- ME Firmware: 9.5.13.1706
- Integrated Graphics
  - Option ROM: Build 2180 PC 14.34
  - UEFI Driver: 5.0.1037
- LAN Option ROM: v1543 PXE 2.1 Build 092
- SATA RAID Option ROM: 12.7.0.1936
- EFI driver (GOP): 5.0.1037
- Visual BIOS: 2.2.4

**New Fixes/Features:**

- Updated processor support.
- Fixed issue where certain mini-PCIe devices are not detected.
- Fixed issue where infrared remotes do not power on the system with OpenElec\*.
- Added support for Intel® Ready Mode Technology.

<b>BIOS Version 0026 - WYLPT10H.86A.0026.2014.0514.1714</b>
---

**About This Release:**

- Date: May 14, 2014
- ME Firmware: 9.5.13.1706
- Integrated Graphics
  - Option ROM: Build 2180 PC 14.34
  - UEFI Driver: 5.0.1037
- LAN Option ROM: v1543 PXE 2.1 Build 092
- SATA RAID Option ROM: 12.7.0.1936
- EFI driver (GOP): 5.0.1037
- Visual BIOS: 2.2.4

**New Fixes/Features:**

- Fixed issue where pressing F2 to access BIOS does not work when connected to certain 4K monitor.
- Updated Integrated Graphics:

\*Other names and brands may be claimed as the property of others.



- Option ROM: Build 2180 PC 14.34
  - UEFI Driver: 5.0.1037
- Fixed issue where Intel wireless adapters lose connectivity.
- Fixed issue where system restarts instead of shutting down with Linux.

<b>BIOS Version 0025 - WYLP10H.86A.0025.2014.0303.1008</b>
--

#### **About This Release:**

- Date: March 4, 2014
- ME Firmware: 9.5.13.1706
- Integrated Graphics
  - Option ROM: Build 2179 PC 14.34
  - UEFI Driver: 5.0.1036
- LAN Option ROM: v1543 PXE 2.1 Build 092
- SATA RAID Option ROM: 12.7.0.1936
- EFI driver (GOP): 5.0.1036
- Visual BIOS: 2.2.4

#### **New Fixes/Features:**

- Improved EFI variable protection for Setup variable.
- Fixed issue where UEFI operating system fails to install.
- Updated Visual BIOS to version 2.2.4. Fixes include:
  - Fixed mapping issue for CPU Fan on NUC theme.
  - Added support for PSU Output Voltage to Performance Monitor.
  - Fixed video graphics display failure when display device did not support 1024x768 resolution.
  - Fixed video corruption that sometimes occurred when entering Visual Boot Manager.
  - Fixed cooling labels becoming selectable on Home Page for NUC theme.
  - Fixed issue where F9 and Load Defaults could be used when admin password was set and User Access Level was not Full Access.
  - Fixed issue where F10 and Save Changes were available when admin password was set and User Access Level was not Full Access.
  - Added support for Enable Countdown Timer and Countdown Timer value in Visual Boot Manager.
  - Fixed missing voltages in Cooling Page.
  - Fixed inactive Home Page 3 and Performance links.
  - Added support for loading data from file for platform (e.g. EDID, Secure Boot, etc).
  - Fixed issue where unsupported keys could be entered in password.
  - Fixed hang when using keyboard to configure a drop down control.
  - Added support for legacy boot options to Visual Boot Manager.
  - Added support for booting to multiple partitions on the same device from Visual Boot Manager.
  - Added support to Visual Boot Manager for booting to operating systems that do not support EFI default boot path.
  - Revised Visual Boot Manager (VBM) GUI to support more descriptive icons.
  - Added Network BIOS Update feature.

\*Other names and brands may be claimed as the property of others.

- o Also added auto update feature that can be enabled or disabled in the Visual BIOS settings section.
  - o Added Driver Download feature.
  - o Added Intel® Visual Boot Manager feature (requires additional launcher application).
- Updated message when no bootable device is found.

<b>BIOS Version 0024 - WYLPT10H.86A.0024.2014.0210.1909</b>
---

**About This Release:**

- Date: February 10, 2014
- ME Firmware: 9.5.13.1706
- Integrated Graphics
  - Option ROM: Build 2179 PC 14.34
  - UEFI Driver: 5.0.1036
- LAN Option ROM: v1543 PXE 2.1 Build 092
- SATA RAID Option ROM: 12.7.0.1936
- EFI driver (GOP): 5.0.1036
- Visual BIOS: 2.1.5

**New Fixes/Features:**

- Updated fan speed control module.
- Fixed issue that prevented booting and installing some operating systems, such as SteamOS\*.
- Fixed issue where Hard Disk Drive Password length did not match the specification.
- Fixed issue where system hangs if certain USB thumb drives are connected.
- Updated Integrated Graphics:
  - o Option ROM: Build 2179 PC 14.34
  - o UEFI Driver: 5.0.1036
- Updated Visual BIOS strings:
  - o Memory Information\Bank Locator modified to "Channel A/B slot 0"
  - o Intel Dynamic Power Technology\If enabled, BIOS will report ACPI C2 State (mapped to processor C7 state).

<b>BIOS Version 0023 - WYLPT10H.86A.0023.2013.1224.0941</b>
---

**About This Release:**

- Date: December 24, 2013
- ME Firmware: 9.5.13.1706
- Integrated Graphics
  - Option ROM: Build 2177 PC 14.34
  - UEFI Driver: 5.0.1034
- LAN Option ROM: v1543 PXE 2.1 Build 092
- SATA RAID Option ROM: 12.7.0.1936
- EFI driver (GOP): 5.0.1034
- Visual BIOS: 2.1.5

**New Fixes/Features:**

- Fixed issue with random USB loss.
- Fixed issue where the Event count does not match the number of times the event occurred.
- Reduced POST time.
- Updated help information in Visual BIOS.

\*Other names and brands may be claimed as the property of others.

- Fixed issue where system won't boot to Linux Mint.

**BIOS Version 0022 - WYLPT10H.86A.0022.2013.1121.1757**

**About This Release:**

- Date: November 21, 2013
- ME Firmware: 9.5.13.1706
- Integrated Graphics
  - Option ROM: Build 2177 PC 14.34
  - UEFI Driver: 5.0.1034
- LAN Option ROM: v1543 PXE 2.1 Build 092
- SATA RAID Option ROM: 12.7.0.1936
- EFI driver (GOP): 5.0.1034
- Visual BIOS: 2.1.5

**New Fixes/Features:**

- Added Hard Disk Boot Delay feature in SATA pane in Visual BIOS.
- Updated Visual BIOS version to 2.1.5. Fixes include:
  - Fixed graphical error when toggling "eye" in Cooling section.
  - Size reduction of Intel® bitmap on upper right corner.
  - Fixed graphical error on shortcut menu with NUC theme.
  - Updated display strings for Temp and Voltages on Cooling page.
  - Fixed issue where home page left/right arrows did not hide correctly.
  - Fixed graphical issue when theme switching in Visual BIOS.
  - Added text to indicate that screenshots are saved in bitmap format.
  - Fixed cooling page graph colors.
  - Fixed checkboxes moving when modified.
  - Fixed graphical issue in hidden panes on Cooling page.
  - Removed performance page for THEME\_TYPE\_NUC\_ATOM (e.g. BYT products).
- Updated LAN PXE ROM version to 1.5.43.
- Fixed issue where certain 3TB external hard drive is not detected.
- Fixed PCH +5v value on Cooling page.
- Set Digital Microphone to disabled by default.

**BIOS Version 0021 - WYLPT10H.86A.0021.2013.1017.1606**

**About This Release:**

- Date: October 17, 2013
- ME Firmware: 9.5.13.1706
- Integrated Graphics
  - Option ROM: Build 2177 PC 14.34
  - UEFI Driver: 5.0.1034
- LAN Option ROM: v1504 PXE 2.1 Build 092
- SATA RAID Option ROM: 12.7.0.1936
- EFI driver (GOP): 5.0.1034
- Visual BIOS: 2.1.2

**New Fixes/Features:**

- Fixed Fast Boot issue.

\*Other names and brands may be claimed as the property of others.

- Changed default values for Over-Temperature Threshold, Control Temperature (°C), All-On Temperature (°C).
- Fixed issues with Windows 8.1\* WHCK tests: Hardware Reserved Memory Test, Secure Boot Logo Test, and Secure Boot Manual Logo Test.

<b>BIOS Version 0018 - WYLPT10H.86A.0018.2013.0918.2135</b>
---

**About This Release:**

- Date: September 18, 2013
- ME Firmware: 9.5.13.1706
- Integrated Graphics
  - Option ROM: Build 2177 PC 14.34
  - UEFI Driver: 5.0.1034
- LAN Option ROM: v1504 PXE 2.1 Build 092
- SATA RAID Option ROM: 12.7.0.1936
- EFI driver (GOP): 5.0.1034
- Visual BIOS: 2.1.2

**New Fixes/Features:**

- Initial production BIOS release

---

---

**LEGAL INFORMATION**

---

---

**Information in this document is provided in connection with Intel Products and for the purpose of supporting Intel developed server/desktop boards and systems.**

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document. Except as provided in Intel's Terms and Conditions of Sale for such products, Intel assumes no liability whatsoever, and Intel disclaims any express or implied warranty, relating to sale and/or use of Intel products including liability or warranties relating to fitness for a particular purpose, merchantability, or infringement of any patent, copyright or other intellectual property right. Intel Corporation may have patents or pending patent applications, trademarks, copyrights, or other intellectual property rights that relate to the presented subject matter. The furnishing of documents and other materials and information does not provide any license, express or implied, by estoppel or otherwise, to any such patents, trademarks, copyrights, or other intellectual property rights. Intel products are not intended for use in medical, life saving, or life sustaining applications. Intel may make changes to specifications and product descriptions at any time, without notice.

Intel is a trademark of Intel Corporation in the US and other countries.  
Copyright (c) 2015 Intel Corporation.

\*Other names and brands may be claimed as the property of others.