



## BIOS Update Release Notes

### PRODUCTS: NUC6CAYS, NUC6CAYH

**BIOS Version 0069 - AYAPLCEL.86A.0069.2021.0602.1952**

#### About This Release:

- Date: June 03, 2021
- ROM Image Checksum: 0x184C
- TXE Firmware: 3.1.86.2538
- EC Firmware: 22.00
- Memory Reference Code: Based on 1.2.3
- Integrated Graphics:
  - Option ROM: Build 1016 PC 14.34
  - UEFI Driver: 10.0.1036
- LAN Option ROM: PXE-2.1 (build 083)
- Visual BIOS: 2.2.23
  
- Supported Flash Devices:

WinBond	W25Q128FWSIQ	16MB (1.8V)
MACRONIX	MX25U12873F	16MB
  
- Microcode Updates included in .ROM & .BIO Files:  
M03506C9\_00000044.PDB

#### New Fixes/Features:

- Updated TXE (ME) Firmware to 3.1.86.2538
- Fixed SMI handler vulnerabilities.
- Fixed issue where user was able to achieve arbitrary write in SMRAM save state region.
- Updated CPU Microcode to M03506C9\_00000044.PDB
- Added protection code for unauthorized write at controllable address in SMRAM.

**BIOS Version 0068 - AYAPLCEL.86A.0068.2021.0318.1138**

#### About This Release:

- Date: March 18, 2021
- ROM Image Checksum: 0xA8EF
- ME Firmware: 3.1.80.2400
- EC Firmware: 22.00
- Memory Reference Code: Based on 1.2.3
- Integrated Graphics:
  - Option ROM: Build 1016 PC 14.34
  - UEFI Driver: 10.0.1036
- LAN Option ROM: PXE-2.1 (build 083)
- Visual BIOS: 2.2.23
  
- Supported Flash Devices:

WinBond	W25Q128FWSIQ	16MB (1.8V)
MACRONIX	MX25U12873F	16MB

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

- Microcode Updates included in .ROM & .BIO Files:  
M03506C9\_00000040.PDB

**New Fixes/Features:**

- Updated CPU Microcode to M03506C9\_00000040
- Updated NTFS DXE driver when parsing NTFS file system partition.

**BIOS Version 0067 - AYAPLCEL.86A.0067.2020.1228.1519**

**About This Release:**

- Date: December 28, 2020
- ROM Image Checksum: 0xE3A3
- TXE Firmware: 3.1.80.2400
- EC Firmware: 22.00
- Memory Reference Code: Based on 1.2.3
- Integrated Graphics:
  - Option ROM: Build 1016 PC 14.34
  - UEFI Driver: 10.0.1036
- LAN Option ROM: PXE-2.1 (build 083)
- Visual BIOS: 2.2.23
- Supported Flash Devices:
 

WinBond	W25Q128FWSIQ	16MB (1.8V)
MACRONIX	MX25U12873F	16MB
- Microcode Updates included in .ROM & .BIO Files:  
M03506C9\_0000003C.PDB

**New Fixes/Features:**

- Updated TXE Firmware to 3.1.80.2400

**BIOS Version 0066 - AYAPLCEL.86A.0066.2020.0107.1027**

**About This Release:**

- Date: Jan 07, 2020
- ROM Image Checksum: 0x58F3
- ME Firmware: 3.1.70.2334
- EC Firmware: 22.00
- Memory Reference Code: Based on 1.2.3
- Integrated Graphics:
  - Option ROM: Build 1016 PC 14.34
  - UEFI Driver: 10.0.1036
- LAN Option ROM: PXE-2.1 (build 083)
- Visual BIOS: 2.2.23
- Supported Flash Devices:
  - WinBond W25Q128FWSIQ 16MB (1.8V)
  - MACRONIX MX25U12873F 16MB
- Microcode Updates included in .ROM & .BIO Files:
  - M03506C9\_0000003C.PDB
- .ROM & .BIO Files:
  - M03506C9\_0000003C.PDB

**New Fixes/Features:**

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

- Fixed issue when Intel® Dual Band Wireless-AC 8265 module disappears after reboot.
- Updated BIOS code for security fixes.

**Known Errata:**

- Due to the TXE firmware update in BIOS version 0066, you can't downgrade to version 0064 or earlier.

**BIOS Version 0065 - AYAPLCEL.86A.0065.2019.1217.1642**

**About This Release:**

- Date: December 17, 2019
- ROM Image Checksum: 0x9EB1
- TXE Firmware: 3.1.70.2334
- EC Firmware: 22.00
- Memory Reference Code: Based on 1.2.3
- Integrated Graphics:
  - Option ROM: Build 1016 PC 14.34
  - UEFI Driver: 10.0.1036
- LAN Option ROM: PXE-2.1 (build 083)
- Visual BIOS: 2.2.23
- Supported Flash Devices:
  - WinBond W25Q128FWSIQ 16MB (1.8V)
  - MACRONIX MX25U12873F 16MB
- Microcode Updates included in .ROM & .BIO Files:
  - M03506C9\_0000003C.PDB

**New Fixes/Features:**

- Fixed booting issue when LAN cable is connected and DHCP is turned off on router.
- Fixed issue where "Chassis value type changed during flash by BIO" for Microsoft request.
- Updated BIOS code for security fixes.
- Added EFI ERASE BLOCK Protocol support for Android support.
- Fixed issue where "SMBIOS Field update BIOS" for Microsoft request.

**BIOS Version 0064 - AYAPLCEL.86A.0064.2019.0910.1422**

**About This Release:**

- Date: September 10, 2019
- ROM Image Checksum: 0x3E69
- ME Firmware: 3.1.60.2280
- EC Firmware: 22.00
- Memory Reference Code: Based on 1.2.3
- Integrated Graphics:
  - Option ROM: Build 1016 PC 14.34
  - UEFI Driver: 10.0.1036
- LAN Option ROM: PXE-2.1 (build 083)
- Visual BIOS: 2.2.23
- Supported Flash Devices:
  - WinBond W25Q128FWSIQ 16MB (1.8V)

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

MACRONIX MX25U12873F 16MB

- Microcode Updates included in .ROM & .BIO Files:  
M03506C9\_0000003C.PDB

**New Fixes/Features:**

- Updated BIOS code for security fixes.
- Updated BIOS code for BIOS recovery with USB flash drive.
- Updated Chassis type default to 0x23.
- Updated CPU microcode.

**BIOS Version 0063 - AYAPLCEL.86A.0063.2019.0621.1450**

**About This Release:**

- Date: June 21, 2019
- ME Firmware: 3.1.60.2280
- EC Firmware: 22.00
- Memory Reference Code: Based on 1.2.3
- Integrated Graphics:
  - Option ROM: Build 1016 PC 14.34
  - UEFI Driver: 10.0.1036
- LAN Option ROM: PXE-2.1 (build 083)
- Visual BIOS: 2.2.23

**New Fixes/Features:**

- Updated BIOS code for security fixes.

**BIOS Version 0060 - AYAPLCEL.86A.0060.2019.0219.1527**

**About This Release:**

- Date: February 19, 2019
- ME Firmware: 3.1.55.2269
- EC Firmware: 21.00
- Memory Reference Code: Based on 1.2.3
- Integrated Graphics:
  - Option ROM: Build 1016 PC 14.34
  - UEFI Driver: 10.0.1036
- LAN Option ROM: PXE-2.1 (build 083)
- Visual BIOS: 2.2.23

**New Fixes/Features:**

- Updated BIOS code for security fixes.

**BIOS Version 0059 - AYAPLCEL.86A.0059.2018.1226.1422**

**About This Release:**

- Date: December 26, 2018
- ME Firmware: 3.1.55.2269
- EC Firmware: 21.00
- Memory Reference Code: Based on 1.2.3
- Integrated Graphics:
  - Option ROM: Build 1016 PC 14.34
  - UEFI Driver: 10.0.1036
- LAN Option ROM: PXE-2.1 (build 083)
- Visual BIOS: 2.2.23

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

**New Fixes/Features:**

- Added USB 3.0 Port Header Configuration item in BIOS Setup.

<b>BIOS Version 0057 - AYAPLCEL.86A.0057.2018.1105.1536</b>
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**About This Release:**

- Date: November 5, 2018
- ME Firmware: 3.1.55.2269
- EC Firmware: 21.00
- Memory Reference Code: Based on 1.2.3
- Integrated Graphics
  - Option ROM: Build 1016 PC 14.34
  - UEFI Driver: 10.0.1036
- LAN Option ROM: PXE-2.1 (build 083)
- Visual BIOS: 2.2.23

**New Fixes/Features:**

- Fixed issue with PXE operations in UEFI mode.

<b>BIOS Version 0056 - AYAPLCEL.86A.0056.2018.0926.1100</b>
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**About This Release:**

- Date: September 26, 2018
- ME Firmware: 3.1.55.2269
- EC Firmware: 21.00
- Memory Reference Code: Based on 1.2.3
- Integrated Graphics
  - o Option ROM: Build 1016 PC 14.34
  - o UEFI Driver: 10.0.1036
- LAN Option ROM: PXE-2.1 (build 083)
- Visual BIOS: 2.2.23

**New Fixes/Features:**

- BIOS functionality enhancements.

<b>BIOS Version 0055 - AYAPLCEL.86A.0055.2018.0821.1152</b>
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**About This Release:**

- Date: August 21, 2018
- ME Firmware: 3.1.50.2244
- EC Firmware: 21.00
- Memory Reference Code: Based on 1.2.3
- Integrated Graphics:
  - o Option ROM: Build 1016 PC 14.34
  - o UEFI Driver: 10.0.1036
- LAN Option ROM: PXE-2.1 (build 083)
- Visual BIOS: 2.2.23

**New Fixes/Features:**

- Updated TXE firmware to version 3.1.55.2269.

**Known Errata:**

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

- Due to the TXE firmware update in BIOS version 0055, you can't downgrade to version 0054 or earlier.

<b>BIOS Version 0054 - AYAPLCEL.86A.0054.2018.0809.1506</b>
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**About This Release:**

- Date: August 9, 2018
- ME Firmware: 3.1.50.2244
- EC Firmware: 21.00
- Memory Reference Code: Based on 1.2.3
- Integrated Graphics
  - Option ROM: Build 1016 PC 14.34
  - UEFI Driver: 10.0.1036
- LAN Option ROM: PXE-2.1 (build 083)
- Visual BIOS: 2.2.23

**New Fixes/Features:**

- Remove Ready Mode items/code in BIOS for Intel security fix.
- Set Consumer Infrared default to disabled for Windows RS4 support.

<b>BIOS Version 0053 - AYAPLCEL.86A.0053.2018.0727.1436</b>
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**About This Release:**

- Date: July 27, 2018
- ME Firmware: 3.1.50.2244
- EC Firmware: 21.00
- Memory Reference Code: Based on 1.2.3
- Integrated Graphics:
  - Option ROM: Build 1016 PC 14.34
  - UEFI Driver: 10.0.1036
- LAN Option ROM: PXE-2.1 (build 083)
- Visual BIOS: 2.2.23

**New Fixes/Features:**

- Removed Intel Ready Mode Technology setup item and set default to disabled for Intel PSIRT security fix.
- Fixed issue where while clearing the CMOS, system will boot into security jumper menu.
- Fixed issue where if remove and inject security jumper, system can't power on successfully
- Fixed issue where if press hotkey [1] in security jumper menu, it will hang on 0xFF.
- Fixed issue where if press hotkey [3] in security jumper menu, when reboot it will hang on 0xFF.

<b>BIOS Version 0052 - AYAPLCEL.86A.0052.2018.0627.1943</b>
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**About This Release:**

- Date: June 27, 2018
- ME Firmware: 3.1.50.2244
- EC Firmware: 21.00
- Integrated Graphics
  - Option ROM: Build 1016 PC 14.34

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

- o UEFI Driver: 10.0.1036
- LAN Option ROM: PXE-2.1 (build 083)
- Visual BIOS: 2.2.23

**New Fixes/Features:**

- Updated Intel TXE to version 3.1.50.2244.
- Updated CPU Microcode (Security Advisory-00115)

**BIOS Version 0051 - AYAPLCEL.86A.0051.2018.0607.1337**

**About This Release:**

- Date: June 07, 2018
- ME Firmware: 3.1.50.2222
- EC Firmware: 21.00
- Integrated Graphics:
  - o Option ROM: Build 1016 PC 14.34
  - o UEFI Driver: 10.0.1036
- LAN Option ROM: PXE-2.1 (build 083)
- Visual BIOS: 2.2.23

**New Fixes/Features:**

- Updated the EC Firmware.
- Fixed CEC not working correctly.

**BIOS Version 0050 - AYAPLCEL.86A.0050.2018.0521.1533**

**About This Release:**

- Date: May 21, 2018
- ME Firmware: 3.1.50.2222
- EC Firmware: 20.00
- Memory Reference Code: Based on 1.2.3
- Integrated Graphics:
  - Option ROM: Build 1016 PC 14.34
  - UEFI Driver: 10.0.1036
- LAN Option ROM: PXE-2.1 (build 083)
- Visual BIOS: 2.2.23

**New Fixes/Features:**

- Security enhancements.
- Fixed the issue where Bluetooth would become disabled when updating the BIOS via F7.

**BIOS Version 0049 - AYAPLCEL.86A.0049.2018.0508.1356**

**About This Release:**

- Date: May 08, 2018
- ME Firmware: 3.1.50.2222
- EC Firmware: 20.00
- Memory Reference Code: Based on 1.2.3
- Integrated Graphics
  - o Option ROM: Build 1016 PC 14.34
  - o UEFI Driver: 10.0.1036
- LAN Option ROM: PXE-2.1 (build 083)
- Visual BIOS: 2.2.23

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

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**New Fixes/Features:**

- Added a Bluetooth item in setup menu, and default value is enabled.
- Fixed the issue where entering the hard drive password wouldn't work.

**BIOS Version 0048 - AYAPLCEL.86A.0048.2018.0420.1555**

**About This Release:**

- Date: April 20, 2018
- ME Firmware: 3.1.50.2222
- EC Firmware: 20.00
- Memory Reference Code: Based on 1.2.3
- Integrated Graphics:
  - Option ROM: Build 1016 PC 14.34
  - UEFI Driver: 10.0.1036
- LAN Option ROM: PXE-2.1 (build 083)
- Visual BIOS: 2.2.23

**New Fixes/Features:**

- Security Enhancements

**BIOS Version 0047 - AYAPLCEL.86A.0047.2018.0108.1419**

**About This Release:**

- Date: January 08, 2018
- ME Firmware: 3.1.50.2222
- EC Firmware: 20.00
- Memory Reference Code: Based on 1.2.3
- Integrated Graphics
  - Option ROM: Build 1016 PC 14.34
  - UEFI Driver: 10.0.1036
- LAN Option ROM: PXE-2.1 (build 083)
- Visual BIOS: 2.2.23

**New Fixes/Features:**

- Updated CPU Microcode (Security Advisory-00088)
- Fixed issue where the USB 3.0 ports would run at USB 2.0 speeds.

**BIOS Version 0045 - AYAPLCEL.86A.0045.2017.1218.1433**

**About This Release:**

- Date: December 18, 2017
- ME Firmware: 3.1.50.2222
- EC Firmware: 20.00
- Memory Reference Code: Based on 1.2.3
- Integrated Graphics
  - Option ROM: Build 1016 PC 14.34
  - UEFI Driver: 10.0.1036
- LAN Option ROM: PXE-2.1 (build 083)
- Visual BIOS: 2.2.23

**New Fixes/Features:**

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



- Fixed Screen flashing issue.

**BIOS Version 0043 - AYAPLCEL.86A.0043.2017.1123.1559**

**About This Release:**

- Date: November 23, 2017
- TXE Firmware: 3.1.50.2222
- EC Firmware: 20.00
- Memory Reference Code: Based on 1.2.3
- Integrated Graphics:
  - Option ROM: Build 1016 PC 14.34
  - UEFI Driver: 10.0.1036
- LAN Option ROM: PXE-2.1 (build 083)
- Visual BIOS: 2.2.23

**New Fixes/Features:**

- Updated the EC version to version 20.
- Fixed the issue that when the power adapter is dis-connected and reconnected when the NUC was in S3, it would enter into "Deep S4/S5" mode.

**BIOS Version 0042 - AYAPLCEL.86A.0042.2017.1117.1918**

**About This Release:**

- Date: November 17, 2017
- TXE Firmware: 3.1.50.2222
- EC Firmware: 19.00
- PMC Firmware: 3.1a
- Framework Reference Code: Based on 1.2.3
- Integrated Graphics
  - Option ROM: Build 1016 PC 14.34
  - UEFI Driver: 10.0.1036
- LAN:
  - Option ROM: PXE-2.1 (build 083)
- Visual Bios: 2.2.23

**New Fixes/Features:**

- Updated Trusted Execution Engine Firmware to version: 3.1.50.2222 (Security Advisory-00086).
- Due to a security enhancement, it will not be possible to go to any BIOS earlier than BIOS 0042.
- Updated the EC version to fix an issue where the NUC couldn't be woken up with a XBOX One or XBOX 360 remote.

**BIOS Version 0041 - AYAPLCEL.86A.0041.2017.0825.1152**

**About This Release:**

- Date: August 25, 2017
- TXE Firmware: 3.0.13.1144
- EC Firmware: 18.00
- PMC Firmware: 3.1a
- Framework Reference Code: Based on 1.2.3
- Integrated Graphics
  - Option ROM: Build 1016 PC 14.34

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

- UEFI Driver: 10.0.1036
- LAN:
  - Option ROM: PXE-2.1 (build 083)
- Visual Bios: 2.2.23

**New Fixes/Features:**

- Security enhancements.
- Add setup item: "Allow UEFI 3rd party driver loaded".
- Fixed an issue where the system would not auto power on after a power failure and deep S4/S5 is enabled.

<b>BIOS Update 0040 - AYAPLCEL.86A.0040.2017.0619.1722</b>
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**About This Release:**

- Date: June 19, 2017
- TXE Firmware: 3.0.13.1144
- EC Firmware: 18.00
- PMC Firmware: 3.1a
- Framework Reference Code: Based on 1.2.3
- Integrated Graphics
  - Option ROM: Build 1016 PC 14.34
  - UEFI Driver: 10.0.1036
- LAN
  - Option ROM: PXE-2.1 (build 083)
- Visual Bios: 2.2.23

**New Fixes/Features:**

- Implemented BIOS recovery feature through EC initialization.
- Fixed the issue where the system would stop at POST code 9Ah if executing an EFI file over 300 MB.
- Fixed the issue where a USB wired mouse would move slowly after upgrading the BIOS to AY0024.
- Updated the EC version to version 18.0
- Fixed the LED effect when changing the always on mode to, low brightness slow fade mode.
- Implemented error message when trying to use the wrong BIOS.
- Fixed the issue where the LED button flashes abnormally while updating the BIOS.

<b>BIOS Version 0038 - AYAPLCEL.86A.0038.2017.0310.1633</b>
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**About This Release:**

- Date: March 10, 2017
- TXE Firmware: 3.0.13.1144
- EC Firmware: 16.00
- PMC Firmware: 3.1a
- Framework Reference Code: Based on 1.2.3
- Integrated Graphics
  - Option ROM: Build 1016 PC 14.34
  - UEFI Driver: 10.0.1036
- LAN
  - Option ROM: PXE-2.1 (build 083)
- Visual Bios: 2.2.23

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

**New Fixes/Features:**

- Changed RTD3 Setup item to be disabled on default.
- Changed the EC so that it cannot be downgraded.
- Updated the EC to version 16.0.
- Updated the GOP.
- Updated new LED items.
- Added CEC help strings in BIOS setup menu.
- Enabled LPC CLKRUN number.
- Fixed issue where waking on USB from S5 would fail.
- Updated Apollo Lake smart sound technology.
- Fixed an issue where the system wouldn't boot if the startup sound was enabled or disabled via the BIOS setup menu.
- Fixed an issue where the UEFI SD card boot item is incorrect when the BIOS is set to legacy and UEFI boot.
- Updated the TXE to version 3.0.13.1144.
- Added more compatibility for ITK tool
- Fixed an issue where the NUC will not boot if shift+F10 are pressed and the Expansion card text is set to "Hide All", when the BIOS is set to legacy and UEFI boot.
- Fixed an issue where the SD card reader subsystem will display incorrectly after resuming from S3
- Fixed an issue where the rear USB 3.0 port would still detect a USB flash device when set to "Disabled".
- Fixed an issue where the Secure Jump Menu couldn't be suppressed.
- Fixed an issue where the Expansion Card Text would not show anything.
- Fixed an issue where Intel Boot Agent GE setup menu would not show anything.
- Updated the Apollo Lake label.
- Updated the Apollo Lake Framework BIOS Reference Code.
- Updated the CPU microcode.
- Updated the PMC firmware.
- Fixed an issue where the system always booted to the UEFI shell first.
- Fixed an issue where there would be no error message if fast boot failed on the previous boot.
- Fixed an issue where the maximum temperature setting of the fan, in custom mode, would not fill in the EC register correctly.
- Fixed an issue where, "The fixed mode default duty cycle" was incorrect.
- Fixed an issue where "Type 10: Intel High Definition Audio Device" needed to say, "Realtek High Definition Audio".

<b>BIOS Version 0029 - AYAPLCEL.86A.0029.2016.1124.1625</b>
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**About This Release:**

- Date: November 24, 2016
- TXE Firmware: 3.0.11.1131
- Framework Reference Code: Based on 1.2.1
- Integrated Graphics
  - Option ROM: Build 1016 PC 14.34

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

- UEFI Driver: 10.0.1035
- LAN
  - Option ROM: PXE-2.1 (build 083)
- Visual Bios: 2.2.23
- PMC FW rev : 3.19
- EC FW rev : 14.00

**New Fixes/Features:**

- Fixed issue where the system would always first boot to UEFI shell in BIOS 0028.
- Fixed issue where no error message would occur if the previous fast boot failed. Added maximum temperature for fan custom mod.

<b>BIOS Version 0027 - AYAPLCEL.86A.0027.2016.1108.1529</b>
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**About This Release:**

- Date: November 08, 2016
- TXE Firmware: 3.0.11.1131
- Framework Reference Code: Based on 1.2.1
- Integrated Graphics
  - Option ROM: Build 1016 PC 14.34
  - UEFI Driver: 10.0.1035
- LAN
  - Option ROM: PXE-2.1 (build 083)
- Visual Bios: 2.2.23
- PMC FW rev : 3.19
- EC FW rev : 13.00

**New Fixes/Features:**

- Initial production BIOS release

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