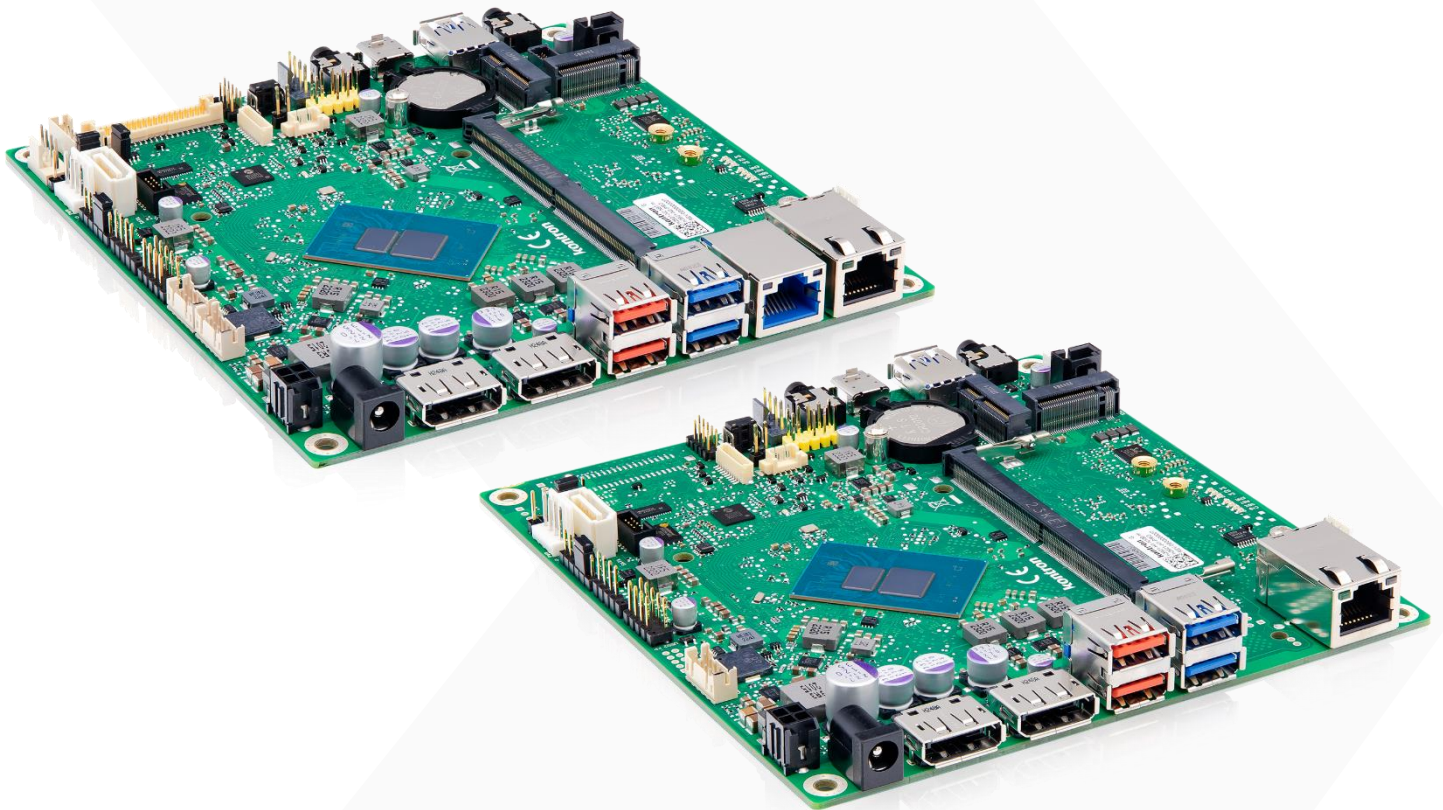


BIOS Release Notes

Intel® Alderlake-N SoC



Mini-STX series

- K3921-N mini-STX
- K3921-H mini-STX

Revision History

Doc. Revision	Change description	Date
V1.0	First mass production release R1.2.0 for K3921-N/H.	2024-04-22

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1 General Notes

1.1 Released OS versions

- MS Windows 10 (64bit, 22H2, planned: LTSC 21H2)
- MS Windows 11 (64bit, 22H2)
- Planned: Linux¹ (64bit, Kernel 5.15)²

1.2 Released drivers

An overview about released drivers for Alderlake-N platform is available on FTP server. Just click on the links in the HTML file to download the driver packages.

- <https://ftp.kontron.com/main.html?download&weblink=f422cc8b7bdb7ef1e65cd55aafa4e368&realfilename=Drivers%5FADL%2DN%2Ehtml>

1.3 Datasheets

- K3921-N: https://www.kontron.com/downloads/datasheets/k/k3921-n_mstx.pdf?product=180695
- K3921-H: https://www.kontron.com/downloads/datasheets/k/k3921-h_mstx.pdf?product=180693

1.4 Product change notification

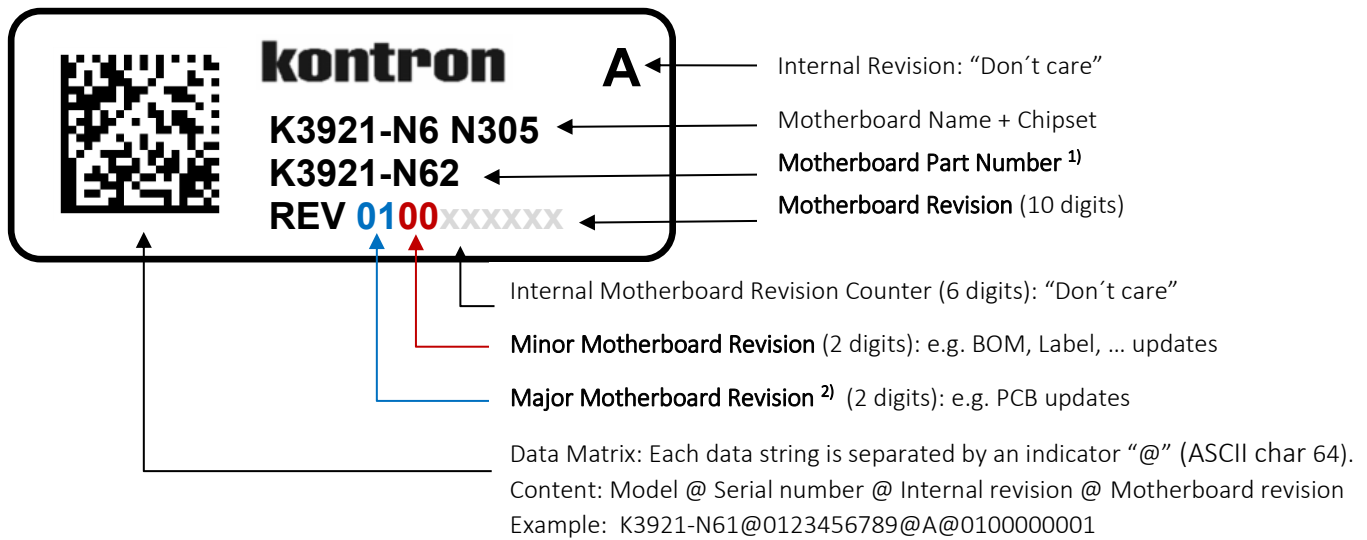
Product related changes communicated through “Product Change Notification” (PCN) on FTP server:

- <https://ftp.kontron.com/main.html?download&weblink=f422cc8b7bdb7ef1e65cd55aafa4e368&subfolder=PCN>

¹ Running test only – no full approval!

² Tested with Ubuntu 22.04 LTS. Ubuntu is a trademark of Canonical Limited. For specific support, please contact Canonical.

1.5 Motherboard labeling and revision scheme



1) Motherboard part number example:

- K3921-N61:
 - **K3921**-N62: Kontron boards family (technology based family)
 - **K3921**-N62: Formfactor and board variant
 - K3921-N**62**: Number for derivate of board variant (different SoC SKUs)
 - K3921-N**62**: PCB version

2) Major revision is always "01" for first release to manufacturing, even "PCB version" on the revision label (Q1**2**) indicates that this is already the second PCB version.

For evaluation/pre-production motherboards the major revision is marked with alphabetic letters (0A, 0B, ...).

Example:

Development revision of K3931-N6 motherboard: **0B04**xxxxxx

Initial released motherboard revision: **0100**xxxxxx

2 BIOS Update Options

NOTICE

Beginning with K38xx motherboards AMI AFU update utility is used. **Eflash.efi** and **Deskflash** (Windows, Linux) are not supported by K38xx or later motherboards.

Kontron provides ready-to-run update script files for EFI shell and Windows batch. Please follow the screen instructions carefully.

WARNING

Using other AFU parameters as defined in update script file may result in data loss in UEFI BIOS!

2.1 EFI based update

Use ZIP-file for EFI-based BIOS Update

1. Copy all content of *Kxxx-Yzz.R1.*.O.zip* to the root folder of a FAT32 formatted USB drive/stick.
2. Switch on system and boot to UEFI shell. The EFI autostart script (**startup.nsh**) find and selects the BIOS update stick and starts the update process by calling **update-efi.nsh**.
3. Carefully read and follow the screen instructions.

2.2 Windows based update

Use ZIP-file for Windows-based BIOS Update

1. Extract all content of *Kxxx-Yzz.R1.*.O.zip* to any folder on your local drive.
2. Start the BIOS update with included script "**update-win.bat**" (run as administrator)
3. Carefully read and follow the screen instructions.

2.3 Updating Intel ME and Kontron Embedded Controller (EC)

ME and EC Firmware are placed in protected areas of BIOS and therefore additional (manual or semi-automated) steps to enable update capability may be required.

ME firmware update is part of the standard BIOS update script (**update-efi** / **update-win**) via FWUpdLcl tool.

For updating EC firmware please use the dedicated update script:

- EFI: **ec-update-efi.nsh**
- Windows: **ec-update-win.bat**

Follow the steps mentioned in "EFI/Windows based update" and execute the ec-update script in a separate step. Follow the screen instructions.

NOTICE

Downgrade of Intel ME firmware is blocked due to security policy of Intel. Kontron does not validate nor guarantee the function of BIOS/ME-Firmware combinations caused by a BIOS downgrade (e.g. old BIOS with latest ME firmware).

2.4 BIOS Recovery

WARNING

All BIOS settings and some data³ get lost during recovery process!

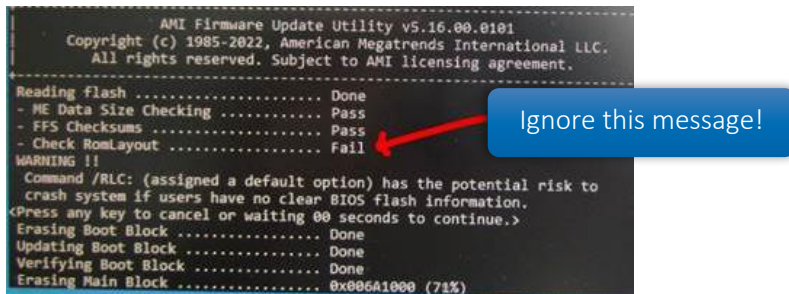
1. Copy the complete content of BIOS ZIP package (especially K*.ROM file) to a FAT32 formatted drive.
2. Connect prepared drive to the system and change the recovery jumper (on front panel header) to "Recovery" (orange) position (see [BIOS FlashTools HowTo](#) or TechNotes for details)
3. Disconnect all other drives. Power On the system. Instead of loading the BIOS code from NVRAM chip, system boots from ROM file content.
4. System enters a "BIOS setup"-like user interface. Confirm "Proceed with flash update" message.
 - **Do not interrupt power or press any key during update!**
5. Wait until "Updating main firmware" finished.
 - **Set recovery jumper back to its default position.**
6. Press any key to reset the system. Check if system is working properly again.
7. Reconnect all drives and power on the system. Reconfigure BIOS with your requirements.

2.5 BIOS update error handling

If you discover any problems after a BIOS flash, please try if "Load Optimized Default Values" (F3) in BIOS Setup solves the problem.

2.6 Message "Check ROMLayout ... Fail"

If you encounter a message during BIOS update batch run with "Check RomLayout Fail" please treat this message only as information. AfuUpdate report this message if there is a ROM layout change in BIOS NVRAM, but the BIOS code can handle this change. **Do not interrupt or interact in this state with the console or shell.**



```

AMI Firmware Update Utility v5.16.00.0101
Copyright (c) 1985-2022, American Megatrends International LLC.
All rights reserved. Subject to AMI licensing agreement.

Reading flash ..... Done
- ME Data Size Checking ..... Pass
- FFS Checksums ..... Pass
- Check RomLayout ..... Fail
WARNING !!
Command /RLC: (assigned a default option) has the potential risk to
crash system if users have no clear BIOS flash information.
(Press any key to cancel or waiting 00 seconds to continue.)
Erasing Boot Block ..... Done
Updating Boot Block ..... Done
Verifying Boot Block ..... Done
Erasing Main Block ..... 0x00641000 (71%)
  
```

2.7 Customer Service Release BIOS

Besides the released BIOS versions there may be additional BIOS versions (Customer Service Release BIOS = CSR BIOS) that solve specific customer problems or provide important interims bug fixes.

Please note: These versions are not pre-installed ex factory.

³ SystemData item „BSOC“ not affected by BIOS recovery.

2.8 Modify BIOS Setup Settings and Defaults (GabiSettings.efi, Biosset)

BIOS settings can be modified by the Windows and Linux tool “Biosset” (Modify BIOS Setup Settings and Defaults). See Biosset tool help (parameter -h) for further details.

For EFI shell environment, you can use GabiSettings.efi tool.

For more details about these tools, please have a look in our *Manufacturing-Tools HowTo* document. To see, which tools are supported by each motherboard, check “PCMB Toolsupport Matrix”.

Both documents are available on FTP server:

https://ftp.kontron.com/main.html?download&weblink=3cb83a90a99c51160d2aa1f1f34cc340&subfolder=Services/Software_Tools/Common-Mainboard-Tools

Access to these tools is restricted to direct customers, distributors and system builder.

2.9 What's about DOS support and where are the DOS tools?

There is no “Legacy” OS support (CSM mode) implemented. Only UEFI based operating systems are supported. We provide tools and documentation for Windows, Linux and EFI:

https://ftp.kontron.com/main.html?download&weblink=3cb83a90a99c51160d2aa1f1f34cc340&subfolder=Services/Software_Tools/Common-Mainboard-Tools

3 Released BIOS versions

3.1 UEFI core version

- AMI Aptio V5.0.0.26

3.2 BIOS Download

- K3921-N:
<https://ftp.kontron.com/main.html?download&weblink=f422cc8b7bdb7ef1e65cd55aafa4e368&subfolder=BIOS>
- K3921-H:
<https://ftp.kontron.com/main.html?download&weblink=04907b66261e24453842b47cf34d2856&subfolder=BIOS>

3.3 BIOS R1.2.0

First released mass production BIOS for K3921-N and K3921-H.

Firmware Versions			
Microcode	AlderLake-N A0 (B06E0):	0x17	
Memory RC	0.0.4.73	Intel Consumer CSME	16.50.5.1303
Intel GOP	21.0.1063	Emb. Controller (EC)	2.12.0
LAN1 RT8111	2.063	LAN2 RT8111	2.063

Changed items compared to previous version highlighted in light yellow.

- Several bug fixes compared to latest BIOS evaluation version.

4 Known Limitations and Restrictions

4.1 Open

Found in	Type	Issue	Solved with
Rev. 0100	Cosmetic	Onboard PowerLED brightness is very high on the first mass production batch. Will be reduced with upcoming revision update by reduction of LED current.	open
R1.2.0	Cosmetic	Audio ports in Realtek audio console show wrong location. Front IO ports shown as "Back Panel" HD Audio Header shown as "Front Panel".	open
R1.2.0	Functional	Disabling USB HUB1 in BIOS has no effect	open
R1.2.0 Rev. 0100	Functional	System can't be powered on after AC-Fail if the board is powered via external power supply and a Power Delivery capable monitor is connected at the same time. Recommendation: Disable PowerDelivery function of connected monitors, if the system is powered via external power supply.	open

Changed items compared to previous version highlighted in light yellow.

4.2 Info

Found in	Type	Issue	Solved with

Changed items compared to previous version highlighted in light yellow.

4.3 Closed

Found in	Type	Issue	Solved with

Changed items compared to previous version highlighted in light yellow.



About Kontron

Kontron is a global leader in IoT/Embedded Computing Technology (ECT). Kontron offers individual solutions in the areas of Internet of Things (IoT) and Industry 4.0 through a combined portfolio of hardware, software and services. With its standard and customized products based on highly reliable state-of-the-art technologies, Kontron provides secure and innovative applications for a wide variety of industries. As a result, customers benefit from accelerated time-to-market, lower total cost of ownership, extended product lifecycles and the best fully integrated applications.

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