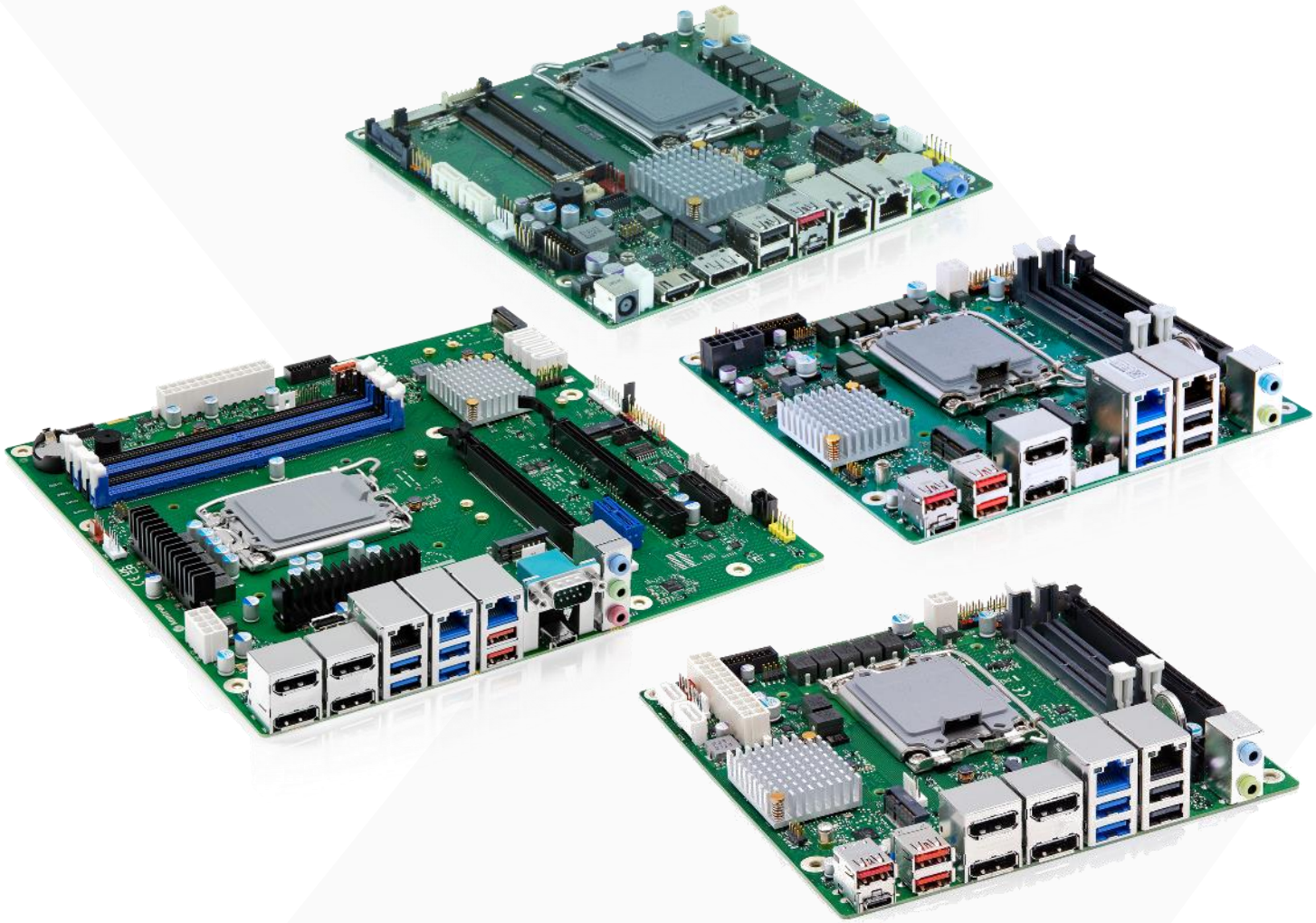
BIOS Release Notes

Intel® Core™ processors (12th/13th/14th Gen)



mITX and µATX Series (R2.*.0)

- K3831-H1 Thin-Mini ITX
- K3832-Q1 Mini-ITX (ATX12VO / 12VDC)
- K3833-Q1 Mini-ITX (ATX2.3 Multirail)
- K3841-Q1 µATX
- K3842-Q1, K3842-Q2 µATX
- K3843-B1, K3843-B2 µATX

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Revision History

Revision	Change description	Date
V1.0	First mass production release R2.4.0 for K3833-Q.	2023-03-07
V1.1	New BIOS Release R2.5.0 for K3833-Q	2023-06-01
V1.2	Updated Known Issues	2023-06-09
V1.3	Added note regarding RomLayout change during BIOS update First mass production release R2.6.0 for K384x-Q/B.	2023-07-17
V1.4	First mass production release R2.8.0 for K3832-Q	2023-09-05
V1.5	New BIOS Release R2.10.0	2023-11-23
V1.6	First mass production release R2.10.0 for K3831-H Updated “ec-update” section.	2024-02-07
V1.7	New BIOS Release R2.12.0 Add: Security Advisories section Add: CPU Support Matrix	2024-03-07
V1.8a V1.8b	Updated Known Issues and Info	2024-03-21 2024-04-17

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1 General Notes

1.1 Released OS versions

- MS Windows 10 (64bit, 21H2 LTSC)
- MS Windows 11 (64bit, 10.0.22000)
- Linux[1] (64bit, Kernel 5.15)[2]

1.2 Released drivers

An overview about released drivers for Alderlake-S / Raptorlake-S 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=62028f7091c35b1e4ff3c35c6a6e9565&realfilename=Drivers%5FADL%2Ehtml

1.3 CPU Support Matrix

BIOS Version	Intel® Core™ Processors (12th Gen)	Intel® Core™ Processors (13th Gen)	Intel® Core™ Processors (14th Gen)
Processor Name Schema	Core i3/i5/i7/i9-12xxx	Core i3/i5/i7/i9-13xxx	Core i3/i5/i7/i9-14xxx
R1.*.0	✓	--	--
R1.12.0[3] R2.*.0	✓	✓	--
≥ R2.12.0	✓	✓	✓

) Support for specific CPU valid for the complete BIOS family (R1. or R2.*).

[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.
[3] K384x only: Detailed information for update from R1.*.0 to R2.*.0 please check: BIOS update Info: AlderLake-S (R1.*.0) to RaptorLake-S (R2.*.0)

1.4 Datasheets

- K3831-H: https://www.kontron.com/downloads/datasheets/k/k3831-h-thin-mitx_datasheet_en.pdf?product=180408
- K3832-Q: https://www.kontron.com/downloads/datasheets/k/k3832-q-mitx_datasheet.pdf?product=176289
- K3833-Q: https://www.kontron.com/downloads/datasheets/k/k3833-q-mitx_datasheet.pdf?product=176291
- K3841-Q: https://www.kontron.com/downloads/datasheets/d/k3841-q_datasheet.pdf?product=172727
- K3842-Q: https://www.kontron.com/downloads/datasheets/k/k3842-q_datasheet.pdf?product=172726
- K3843-B: https://www.kontron.com/downloads/datasheets/k/k3843-b_datasheet.pdf?product=172725

1.5 Product change notification

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

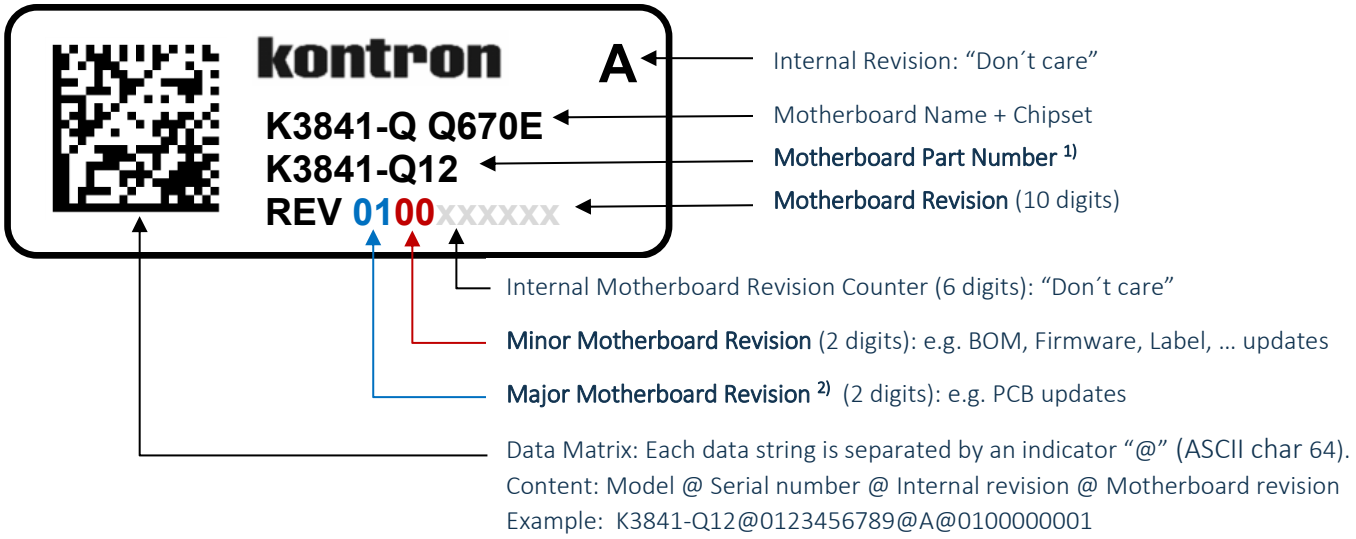
- K3831-H: https://ftp.kontron.com/main.html?download&weblink=b022f7933c5e5db6b844dbf8ba44f61a&subfolder=PCN
- K3832-Q / K3833-Q: https://ftp.kontron.com/main.html?download&weblink=62028f7091c35b1e4ff3c35c6a6e9565&subfolder=PCN
- K3841-Q: https://ftp.kontron.com/main.html?download&weblink=0ffe964f20bacafce3e7073303fbcf92&subfolder=PCN
- K3842-Q: https://ftp.kontron.com/main.html?download&weblink=f72971e3f33ecb2197a9045017689119&subfolder=PCN
- K3843-B: https://ftp.kontron.com/main.html?download&weblink=235f39e579e7a84e992a39ae010b17b4&subfolder=PCN

1.6 Kontron Security Advisories

Please find information about security vulnerabilities for our products here:

- https://customersection.kontron.com/security-vulnerabilites/ (after registration)

1.7 Motherboard labeling and revision scheme



1) Motherboard part number example:

- K3841-Q12:
  - **K38**41-Q12: Kontron boards family (technology based family)
  - K38**41**-Q12: Formfactor and board variant
  - K3841-Q**1**2: Number for derivate of board variant
  - K3841-Q1**2**: 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 K3841-Q1 motherboard: **0B**02xxxxxx
Initial released motherboard revision: **01**00xxxxxx

2 BIOS Update Options

NOTICE

Beginning with K38xx motherboards we switched to AMI AFU update utility. **Efiflash.efi** and **Deskflash** (Windows, Linux) are not supported by K38xx 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 *Kxxxx-Yzz.R1.*.0.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 *Kxxxx-Yzz.R1.*.0.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 BIOS Recovery

WARNING

All BIOS settings and some data 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.
5. Wait until "Updating main firmware" finished.
   - Do not interrupt power or press any key during update!
6. Set jumper back to its default position.
7. Press any key to reset the system. Check if system is working properly again.
8. Reconnect all drives and power on the system. Reconfigure BIOS with your requirements.

2.4 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.

2.5 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).

WARNING

On some very first mass production motherboards (K384x, K3833) the EC firmware update is not working due to wrong manufacturing settings. AMI AFU update tool unfortunately does not report an errorcode in this case.

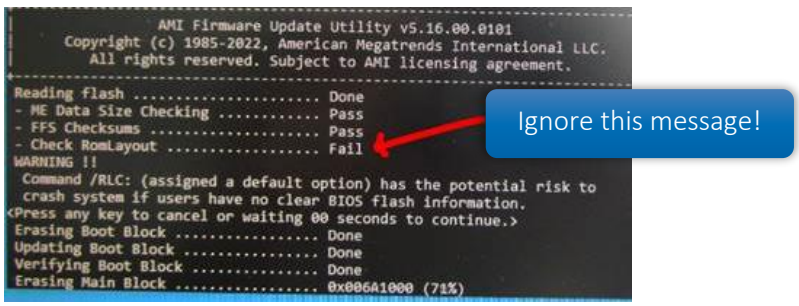
If the EC firmware after update did not change, you have to execute the EFI shell application “BiosServiceUpdater.efi” to fix the manufacturing settings.

Please extract the package to an USB stick and boot from it. Wait for the success message and execute `ec-update` again.

FTP Link: BiosServiceUpdater_V1.1.0.zip

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.



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

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 V5.0.0.27

3.2 BIOS Download

- K3831-H:
  https://ftp.kontron.com/main.html?download&weblink=b022f7933c5e5db6b844dbf8ba44f61a&subfolder=BIOS_K3831

- K3832-Q:
  https://ftp.kontron.com/main.html?download&weblink=62028f7091c35b1e4ff3c35c6a6e9565&subfolder=BIOS_K383x/BIOS_K3832

- K3833-Q:
  https://ftp.kontron.com/main.html?download&weblink=62028f7091c35b1e4ff3c35c6a6e9565&subfolder=BIOS%5FK383x/BIOS%5FK3833

- K3841-Q:
  https://ftp.kontron.com/main.html?download&weblink=0ffe964f20bacafce3e7073303fbcf92&subfolder=BIOS%5FK3841

- K3842-Q:
  https://ftp.kontron.com/main.html?download&weblink=f72971e3f33ecb2197a9045017689119&subfolder=BIOS%5FK3842

- K3843-B:
  https://ftp.kontron.com/main.html?download&weblink=235f39e579e7a84e992a39ae010b17b4&subfolder=BIOS%5FK3843

3.3 BIOS update Info: AlderLake-S (R1.*.0) to RaptorLake-S (R2.*.0)

There are two BIOS trees available for Kontron Alderlake-S based motherboards. The first released µATX motherboards K384x started with the "Alderlake-S only" BIOS tree (Version R1.*.0), while mini-ITX motherboards K383x were released already with the "Raptorlake-S" BIOS core version (R2.*.0).

Intel will end the support for the Alderlake BIOS project and only supports Raptorlake BIOS in the future. Therefore, we were forced to move forward to the Raptorlake BIOS branch, which unfortunately leads to some special BIOS update handling.

Update from R1.*.0 to R2.*.0 BIOS for µATX motherboards is possible with some restrictions.

Supported BIOS version updates:

Board family	First mass production BIOS version	Active BIOS on Board	BIOS update to R1.*.0	BIOS update to R2.*.0	CPU Support R1.*.0	CPU Support ≥ R2.*.0
K3831-H	R2.10.0	≥ R2.10.0	Not supported	Supported (≥ R2.10.0)	-	Intel 12th and 13th Gen
K3832-Q	R2.8.0	≥ R2.8.0	Not supported	Supported (≥ R2.8.0)	-	Intel 12th and 13th Gen
K3833-Q	R2.4.0	≥ R2.4.0	Not supported	Supported (≥ R2.4.0)	-	Intel 12th and 13th Gen
K384x-Q/B	Rev2: R1.1.0 Rev3: R2.6.0	R1.*.0	Supported	Supported	Intel 12th Gen	Intel 12th and 13th Gen
		R1.12.0 ("Jump" BIOS)	Not supported	Supported	Intel 12th Gen	Intel 12th and 13th Gen
		≥ R2.6.0	Not supported	Supported	-	Intel 12th and 13th Gen

K384x motherboards only:

For updating the BIOS from existing version R1.*.0 to R2.*.0 it is necessary to assemble an Intel 12th gen CPU.

There are two update methods available:

1) **Direct update from R1.4.0 to ≥ R2.6.0**:
   - All BIOS settings will reset to default values defined in R2.*.0 BIOS. Customers need to configure all BIOS default values, Boot logo, etc… again.
   - Preferred update method for manufacturing of new systems.

2) **Update using the "Jump" BIOS R1.12.0: From R1.4.0 to R1.12.0 and finally to ≥ R2.6.0**:
   - BIOS settings and boot logo are preserved during BIOS update. The first update step to R1.12.0 pre-configures some internal structures for final update to new BIOS core BIOS R2.*.0. The BIOS update step from R1.12.0 to R2.*.0 will merge related settings into new internal BIOS structure.
   - Preferred solution for systems, which were already running in the field.

NOTICE

BIOS downgrade from R2.*.0 to R1.*.0 BIOS is not supported and therefore blocked!

3.4 BIOS R2.4.0

First released mass production BIOS for K3833-Q boards.

Firmware Versions			
Microcode	AlderLake-S C0/K0 (90672): 0x2C AlderLake-S K0 (90675): 0x1E RaptorLake-S B0 (B0671): 0x112 RaptorLake-S C0 (B0672): 0x20 RaptorLake-S H0 (B0675): 0x20		
Memory RC	0.0.4.103	Intel CSME	16.1.25.2020
Intel GOP	17.0.1077	Emb. Controller (EC)	2.9.0
LAN i219	0.2.02	LAN i226	0.10.04

Changed items compared to previous version highlighted in light yellow.

- Several bug fixes compared to latest BIOS evaluation version.

3.5 BIOS R2.5.0

Only released for K3833-Q motherboard.

Firmware Versions			
Microcode	AlderLake-S C0/K0 (90672): 0x2C AlderLake-S K0 (90675): 0x1E RaptorLake-S B0 (B0671): 0x113 RaptorLake-S C0 (B0672): 0x20 RaptorLake-S H0 (B0675): 0x20		
Memory RC	0.0.4.103	Intel CSME	16.1.25.2020
Intel GOP	17.0.1077	Emb. Controller (EC)	2.10.0
LAN i219	0.2.02	LAN i226	0.10.04

Changed items compared to previous version highlighted in light yellow.

- Updated: CPU Microcode for RaptorLake-S Stepping B0.
- Updated: Embedded Controller Firmware. No functional change for K3833.
- Fixed: Interrupt signaling of PCIe or M.2 slots may fail if APIC mode is used.
- Fixed: Onboard LAN adapter not shown in Boot menu or BIOS setup
- Fixed: M.2 Key-M (SSD1) cannot be disabled from BIOS setup
- Fixed: M.2 Key-M (SSD1) wrong defaults for ASPM L1 sub states
- Fixed: Update script parameters corrected to prevent data loss of some SystemData items.
- Feature: New BIOS option [CPU Configuration > “Boot Performance Mode”] to limit the CPU startup power.
- Feature: Add “System Firmware Update” and “System Firmware Rollback” BIOS option to control the BIOS mechanism. Note: Downgrade to R1.*.0 BIOS is blocked by intention and cannot be omitted.
- Feature: Add EC firmware version reporting to SMBIOS structure Type 0, Offset 16/17.

3.6 BIOS R2.6.0

First released mass production BIOS for µATX K384x-Q/B boards.
Skipped for K3833-Q. No functional changes for K3833-Q board.

Firmware Versions			
Microcode	AlderLake-S C0/K0 (90672): 0x2C AlderLake-S K0 (90675): 0x1E RaptorLake-S B0 (B0671): 0x113 RaptorLake-S C0 (B0672): 0x20 RaptorLake-S H0 (B0675): 0x2C		
Memory RC	0.0.4.103	Intel CSME	16.1.25.2020
Intel GOP	17.0.1077	Emb. Controller (EC)	2.10.0
LAN i219	0.2.02	LAN i226 (K3832/33)	0.10.04
RTL8111H (K3831)	n/a	LAN i225 (K384x)	0.9.03

Changed items compared to previous version highlighted in light yellow.

- Updated: CPU Microcode for RaptorLake-S Stepping H0.

IMPORTANT

Please read chapter BIOS update Info: AlderLake-S (R1.*.0) to RaptorLake-S (R2.*.0) first before applying BIOS R2.6.0!

Fixes related to BIOS update from R1.4.0 to R2.6.0 for K384x-Q/B motherboards

- Info: Fixes mentioned in BIOS R2.5.0 are also applicable for K384x R2.6.0 BIOS.
- Feature: Add Intel RaptorLake-S CPU (13th gen) support for K384x boards.
- Feature: Enabled Recovery Update support for K384x boards again.
- Feature: Updated Silent boot logo to new Kontron logo 2023. The logo will not be replaced by standard BIOS update and is only available ex-factory on newly produced motherboards with this BIOS version. The logo for manual update is available on FTP server: Kontron_QuietBootBIOSLogo.zip

3.7 BIOS R2.8.0

First released mass production BIOS for mini-ITX K3832 12VO board.
Not released for K384x and K3833 motherboards!

Firmware Versions			
Microcode	AlderLake-S C0/K0 (90672): 0x32 AlderLake-S K0 (90675): 0x1E RaptorLake-S B0 (B0671): 0x119 RaptorLake-S C0 (B06F2): 0x20 RaptorLake-S H0 (B06F5): 0x20		
Memory RC	0.0.4.112	Intel CSME	16.1.25.2101
Intel GOP	17.0.1077	Emb. Controller (EC)	2.10.0
LAN i219	0.2.02	LAN i226 (K3832/33)	0.10.04
RTL8111H (K3831)	n/a	LAN i225 (K384x)	0.9.03

Changed items compared to previous version highlighted in light yellow.

- Updated: CPU Microcodes and Memory Reference Code.
- Updated: Internal AMI BIOS label revision.
- Fixed: COM1 disappears after S3 (standby)
- Fixed: Network boot not possible if “EC Update” option is enabled in BIOS.
- Fixed: Intel ARC750/770 graphics not working (black screen)
- Fixed: Blue Screen after waking the system from S3 (standby) with SSD password installed.
- Fixed: [K3832 only] LVDS “additional parameters” does not disappear after custom LVDS data deletion.
- Fixed: [K3832 only] Changing CPU TDP values not working.
- Fixed: BIOS options for PCIe Bifurcation not fully implemented
  - If PCIe (PEG) port bifurcation is enabled, there are additional PCIe ports visible in BIOS setup to configure upper and lower port separately. Please note, it is recommended to limit PCIe speed or to disable ASPM, depending on the Riser- and Endpoint-Design quality.
- Fixed: Some settings are not reverted to default after BIOS recovery update.
- Fixed: Serial-over-LAN not working
- Fixed: HDD user and master password is accessible with BIOS user rights.
- Fixed: COM2 port visible in OS after disabling in BIOS.
- Fixed: Unexpected power off by using “K”-Type CPUs. Optimized CPU power settings (internal)
- Fixed: Adjusted Internal Graphics options (“Internal Graphics”, “DVMT shared memory”) if “F”-Type CPU is installed (CPU without internal graphics).
- Feature: Option to select USB-C current added to BIOS > Power tab.
- Feature: Default value “SSD1 L1 Substates” changed to “L1.1 and L1.2” for M.2 SSD1 Key-M
- Feature: [K3832 only] Added “PSYS” feature. Option to configure the PSU output power in BIOS.

3.8 BIOS R2.10.0

First released mass production BIOS for K3831-H boards.

Firmware Versions			
Microcode	AlderLake-S C0/K0 (90672): 0x32 AlderLake-S K0 (90675): 0x1E RaptorLake-S B0 (B0671): 0x11A RaptorLake-S C0 (B06F2): 0x20 RaptorLake-S H0 (B06F5): 0x20		
Memory RC	0.0.4.112	Intel CSME	16.1.25.2101
Intel GOP	17.0.1077	Emb. Controller (EC)	2.11.0
LAN i219	0.2.02	LAN i226 (K3832/33)	0.10.04
RTL8111H (K3831)	n/a	LAN i225 (K384x)	0.9.03

Changed items compared to previous version highlighted in light yellow.

- Updated: CPU Microcodes
- Updated: Embedded Controller Firmware R2.11.0:
  - Fixed: RTC battery measurement not working.
- Fixed: BIOS POST halts with “CPU Replacement detected” message.
- Fixed: Fan Startup check not working.
- Fixed: [K3832 only] LVDS and LVDS backlight control not working properly.
  - Use BacklightApp ≥ V2.4 for backlight “OS controlled”.
- Fixed: PEG slot bifurcation not working correctly.
- Fixed: System doesn’t enter CStates lower than C6.
- Fixed: BIOS Eventlog entries cannot be resolved (“Unrecognized”)
- Fixed: Power Button not working if “S0 Idle” is enabled
- Feature: Add BIOS Option “Power Limit 4 Override” (PL4). The option is hidden per default and only available for SystemBuilder and –Integrators. Check the TechNotes document for further details.
- Feature: Option to enable/disable Wifi and Bluetooth separately.
  - Not for K384x Rev2 (-Q12/B12), K3851-R12. Only Rev3 (Q13/B13/R13) and later.

3.9 BIOS R2.12.0

Firmware Versions			
Microcode	AlderLake-S C0/K0 (90672): 0x34 AlderLake-S K0 (90675): 0x1E RaptorLake-S B0 (B0671): 0x11F RaptorLake-S C0 (B06F2): 0x20 RaptorLake-S H0 (B06F5): 0x20		
Memory RC	0.0.4.174	Intel CSME	16.1.30.2101
Intel GOP	17.0.1081	Emb. Controller (EC)	2.12.0
LAN i219	0.2.03	LAN i226 (K3832/33)	0.10.04
RTL8111H (K3831)	2.040	LAN i225 (K384x)	0.9.03

Changed items compared to previous version highlighted in light yellow.

- Updated: CPU Microcodes. Support for Raptorlake-S Refresh (14th Gen) added.
- Updated: Memory Reference Code to support DDR5 SODIMM up to 5200 MHz.
- Update: EC Firmware to R2.12.0
  - Fixed: Voltage sensor mapping wrong (12V and 3,3V sensors show wrong values)
  - Fixed: PS/2 keyboard hung up with special key-combination ALT+CTRL+SHIFT+S
- Security Fixes to address: BRLY-2023-021, CVE-2022-3676, CVE-2022-36763, CVE-2022-36763, CVE-2022-36764, CVE-2022-4303, CVE-2022-43505, CVE-2022-4450, CVE-2023-0215, CVE-2023-0286
- Security: KONTRON-SA-000001: BIOS password cleared when battery gets empty
- Fixed: [K3831 only]: LVDS backlight inversion feature not working.
- Fixed: Missing SetupItemIDs (“Slot 11 ASPM”, “Power Limit 4 Override”, “Power Limit 4”, several Intel TCC sub-menu items,
- Fixed: “Disable Block Sid” (Security page) can be changed with USER rights.
- Fixed: [K384x] Boot from USB devices still possible if “Boot Removable Media” is “Disabled”.
- Fixed: [K384x] “PCIe Slot 3” settings not working.
- Fixed: [K3843] USB Overcurrent message on unpopulated port #5.
- Fixed: Eventlog entries are not resolved into error text. Only “Unrecognized” appears.
- Fixed: Some M.2 NVMe modules disappears from BIOS boot options (observed with Micron 2450er series)
- Feature: Implement Serial Port Console Redirection BIOS menu.
- Feature: [K3831, K3832] Implement “Custom System Power Limit” BIOS option.
- Feature: Show “Power Limit 4 Override” option per default. Change of default option. SystemBuilder/-Integrators have to hide the option via BSOC mechanism to prevent end-user changes.
  - Note: Do not set the value below 120W, otherwise the maximum reachable TurboPower (PL2) is affected. This is an Intel limitation.
- Feature: Implement BIOS option "Modern Standby (S0 Idle)". See TechNotes for details.
- Feature: Cleanup of “Intel Time Coordinated Computing (Intel® TCC) BIOS setup. Added SetupItemIDs.

4 Known Limitations and Restrictions

4.1 Open

Found in	Type	Issue	Solved with
R2.12.0	Power	K3831-H only: If Power Limit 1 and 2 is manually changed in BIOS, the values could not be reached. Workaround: If necessary, configure Power Limit 2 (PL2) with an offset of 25W. PL2 BIOS value = Target PL2 + 25W.	open
R2.12.0	Non-Functional	EPS Info retrieval failed" message appears in upper left area during boot logo display. This appears only with K384x board, originally delivered with Alderlake BIOS R1.*.0 and which are updated to R2.12.0 BIOS.	open
R2.12.0	Functional	WOL from S5h (Fast Startup) not possible with Intel i226 controller.	open
R2.12.0	Memoy	Intel validated MRC to support 5600 Mhz DDR SODIMM (1DPC design) still pending. With BIOS R2.12.0 and Intel RC 0.0.4.174 max. 5200 Mhz possible on 1DPC systems. With 2DPC design (K384x) max. 4800 Mhz speed is supported per design.	≥ R2.13.0
R2.*.0	Functional	CPU CATERR possible with some specific M.2 NVMe drives (DRAM less) under specific circumstances: Recover from AC Fail + "Power Failure Recovery" = "Always Off" + "USB Power" = "Enabled" + M.2_CPU slot used.	≥ R2.13.0
K3831-H12 (Rev2)	Ethernet	Wake-on-LAN not working on Realtek RTL8111H port. Use WOL on Intel i219 instead.	K3831-H13 (Rev3)
K3831-H12 (Rev2)	Functional	Intrusion (Housing open) always detects "Housing open" if function is enabled in BIOS. Layout improvement implemented for next PCB revision.	K3831-H13 (Rev3)
K3831-H12 (Rev2)	Functional	External TPM module not detected. Need layout change – implemented with next PCB revision.	K3831-H13 (Rev3)
K3831-H12 (Rev2)	System Monitoring	Position of internal Ambient and Memory thermal sensor not optimized. Adjusted with next PCB revision.	K3831-H13 (Rev3)

Changed items compared to previous version highlighted in light yellow.

4.2 Info

Type	Issue	Solved with
Functional	Monitor audio sporadically not working after reboot. Known Issue reported by Intel on Windows 10. No fix planned from Intel/Microsoft for Windows 10.	Windows 11
Feature	Intel TCC and TSN not fully validated. BIOS options prepared.	Info
Functional	Setting Power Limit 4 values to low (<120W) can reduce the maximum Turbo Power. See Intel documentation or TechNotes for further details.	Info
Functional	BSOD with ADATA M.2 Module, if M.2 CPU is configured to PCIe Gen1 and ASPM is “on”	Info
Functional	Some devices are not working properly in upper slot in PEG port, if Bifurcation is activated (x8/x8)	Info
Driver	Device **ACPI\INT3472** in Windows device manager with exclamation mark after BIOS update. ➔ Remove this device by “Load Optimized Defaults” (F3) in BIOS setup.	Info
Functional	Transfer BIOS settings limited support (AFU dump function).	Info
Functional	“Internal Graphics” setting is not re-enabled automatically if no external graphics card is connected. Plug-In an external graphics card and enable “Internal Graphics” manually.	Info
Functional	During startup (BIOS or EFI shell) you may discover high CPU temperatures. This is caused by the default startup power settings of Intel CPU. CPU runs always with full turbo power. You can limit PL2 turbo power in CPU configuration page in this case.	Info
Feature	TXT not supported	Info

Changed items compared to previous version highlighted in light yellow.

4.3 Closed / Info

Found in	Type	Issue	Solved with
R2.4.0	Functional	DDR5-5600 Mhz Memory speed not yet validated by Intel. Currently max. 4800 Mhz is supported. Updated Intel MRC code necessary but not yet available. Note: K384x only supports 4800Mhz memory per design.	Part 1 (Support up to 5200 Mhz): R2.12.0
R2.4.0	Functional	BIOS not yet optimized for PowerState C10 and “Modern Standby” (S3 replacement)	R2.12.0
R2.4.0	Functional	Network boot device not available after changing “EC Update” to “Enabled”. (Only necessary during EC firmware update for one boot)	R2.8.0
R2.4.0	Functional	Intel ARC750/770 not working. Black screen on external graphics output.	R2.8.0
K384x Rev1/Rev2	Functional	BIOS/OS Watchdog not working with Rev. 01 boards.	K384x Rev**3** (e.g. K3841-Q1**3**)
K384x Rev1/Rev2	Functional	COM3/COM4 limited feature set (no DCD/DTR/DSR/RI)	K384x Rev**3** (e.g. K3841-Q1**3**)
K384x Rev1/Rev2	Functional	PEG slot (PCIe CPU x16) Bifurcation not supported	K384x Rev**3** (e.g. K3841-Q1**3**)

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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