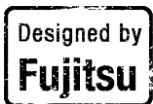


# Skylake Industrial

## BIOS Release Document

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- ▶ D3433-S1
- ▶ D3434-S1
- ▶ D3441-S1
- ▶ D3445-S1
- ▶ D3446-S1

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Revision History:

Date	BIOS Version	Notes
16.03.2020	R1.26.0	Added new BIOS version Changed whole document to Kontron design Reordered some chapters
16.08.2019	R1.24.0	Added new BIOS version (R1.24.0), , Links adjusted
18.09.2018	R1.23.0	V2: Corrected ME version for BIOS R1.23.0
06.09.2018	R1.23.0	Added new BIOS version (R1.23.0)
02.03.2018	R1.21.0	Note regarding ME driver clarified
27.02.2018	R1.21.0	Added hint regarding ME driver
19.01.2018	R1.21.0	Added new BIOS version (R1.21.0)
22.08.2017	R1.20.0	Updated Known Issues and Limitations for BIOS 1.19.0 & R1.20.0 Updated BIOS info for BIOS R1.19.0
14.08.2017	R1.20.0	Added new BIOS version (R1.20.0)
01.06.2017	R1.19.0	Updated content table
30.05.2017	R1.19.0	Added new BIOS version (R1.19.0) Added additional information in chapter 1.2
16.11.2016	R1.16.0	Updated Known Issues and Limitations to BIOS 1.16.0
21.10.2016	R1.16.0	Updated Known Issues and Limitations to BIOS 1.16.0
10.10.2016	R1.16.0	Added new BIOS version (R1.16.0) Updated information regarding Auto BIOS Update
03.06.2016	R1.15.0	Added new BIOS version (R1.15.0)
19.04.2016	R1.14.0	Added new BIOS version (R1.14.0)
23.03.2016	R1.13.0	Initial mass production release (only D343x-S)
17.03.2016	R1.11.0	Added Known Issues and Limitations to BIOS 1.11.0 Updated information regarding Auto BIOS Update
02.03.2016	R1.11.0	Initial mass production release (only D344x-S)

# 1. General Notes

- ▶ AMI Aptio V5.0.0.11

## 1.1 Released OS Versions

- ▶ MS Windows 7 (32/64bit)
- ▶ MS Windows 8.1 (64bit)
- ▶ MS Windows 10 (64bit)

## 1.2 BIOS Update Options

### DOS Flash Update

Use ZIP-files for DOS-based BIOS Update

→ Copy related files (folder "DOS") to a DOS-bootable device and run <DosFlash.BAT>

Please see the BIOS-Flash-Tools documentation for more information:

[ftp://ftp.kontron.com/Services/Software\\_Tools/BIOS-Flash-Tools/](ftp://ftp.kontron.com/Services/Software_Tools/BIOS-Flash-Tools/)

### Windows Flash Update

Use Dxxx-xyz.DFI.\$xe for Windows-based BIOS update

→ Rename file to \*.exe after download and run exe-file from MS Windows

### Auto BIOS Update

With Auto BIOS Update it is possible to check a Fujitsu server automatically to see if there is a new BIOS version for the system. For the update, no operating system or external storage medium is required. This feature must be enabled in BIOS Setup first.

For details on the Auto BIOS Update function please see the BIOS manual.

### BIOS Recovery

Please see the BIOS-Flash-Tools documentation for more information:

[ftp://ftp.kontron.com/Services/Software\\_Tools/BIOS-Flash-Tools/](ftp://ftp.kontron.com/Services/Software_Tools/BIOS-Flash-Tools/)

### *Additional information*

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

### 1.3 FTP BIOS Folder

The released BIOS version is available here:

D3433 / D3434:

[ftp://ftp.kontron.com/Products/Motherboards/Industrial/D343x-S\\_Mini-ITX/BIOS\\_D343x-S/](ftp://ftp.kontron.com/Products/Motherboards/Industrial/D343x-S_Mini-ITX/BIOS_D343x-S/)

D3441 / D3446:

[ftp://ftp.kontron.com/Products/Motherboards/Industrial/D344x-S/BIOS\\_D344x-S/](ftp://ftp.kontron.com/Products/Motherboards/Industrial/D344x-S/BIOS_D344x-S/)

### 1.4 How to create a DOS bootable USB stick?

You can use the Fujitsu tool FTS\_Basic-BootStick.EXE to easily create a Free-DOS bootable Stick:

[ftp://ftp.kontron.com/Services/Software\\_Tools/Common-Mainboard-Tools/USB-FreeDOS-Bootstick/](ftp://ftp.kontron.com/Services/Software_Tools/Common-Mainboard-Tools/USB-FreeDOS-Bootstick/)

Rename file from \*. $\$$ xe to \*.exe and run tool in Windows.

### 1.5 Modify BIOS Setup Settings and Defaults (Tool EditCMOS / BIOSSET) [updated]

The file D34\*\*-\*\*\*.R1.x.0.SetupItemId.txt provides the list of BIOS Setup items that this BIOS version allows to be modified by the DOS tool EditCMOS (Modify BIOS Setup Settings and Defaults).

See EditCMOS tool for further details:

[ftp://ftp.kontron.com/Services/Software\\_Tools/Common-Mainboard-Tools/EditCMOS\\_UEFI/](ftp://ftp.kontron.com/Services/Software_Tools/Common-Mainboard-Tools/EditCMOS_UEFI/)

For Windows/Linux the Tool BIOSSET can be used instead, it is part of this package:

[ftp://ftp.kontron.com/Services/Software\\_Tools/Common-Mainboard-Tools/BiosSet/](ftp://ftp.kontron.com/Services/Software_Tools/Common-Mainboard-Tools/BiosSet/)

Both tools are also described in our Manufacturing-Tools HowTo document:

[ftp://ftp.kontron.com/Services/Software\\_Tools/Common-Mainboard-Tools/](ftp://ftp.kontron.com/Services/Software_Tools/Common-Mainboard-Tools/)

### 1.6 Note: 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 available via OEM FTP only and they are not pre-installed ex factory.

## 2. BIOS R1.11.0

First released mass production BIOS only for D344x-S

### Known Issues and Limitations:

- ▶ Wake on LAN via I210 onboard LAN controller from ACPI S3 doesn't work
- ▶ Wake on LAN via plugged PCIe or PCI LAN adapter from ACPI S3 doesn't work
- ▶ Wake on LAN via I219LM onboard LAN controller from ACPI S3/S4 is possible even when the I219LM is disabled in device manager
- ▶ Auto BIOS Update Feature not useable yet

## 3. BIOS R1.13.0

First released mass production BIOS only for D343x-S

### Known Issues and Limitations:

- ▶ Wake on LAN via I210 onboard LAN controller from ACPI S3 doesn't work
- ▶ Wake on LAN via plugged PCIe or PCI LAN adapter from ACPI S3 doesn't work
- ▶ Wake on LAN via I219LM onboard LAN controller from ACPI S3/S4 is possible even when the I219LM is disabled in device manager
- ▶ Auto BIOS Update Feature not useable yet

## 4. BIOS R1.14.0

### Changes vs. previous released BIOS

- ▶ Fixed and improved command to setup wakeup for USB devices
- ▶ Fixed (D3446-S1 only): PCIe Slot 3 Links speed description was wrong
- ▶ Fixed (D3445-S1 only): PCIe Frame Grabber card did not work properly in PCIe slot 3 due to wrong IRQ Slot description
- ▶ Fixed (D344x-S1 only): System didn't boot if many PCI busses were created
- ▶ Fixed: System Management Setup page was not updating sensor values
- ▶ Fixed: Issue that Windows 10 enters recovery mode in case SecureBoot is enabled, BootFromRemovableDevice is disabled and a USB stick is plugged
- ▶ Fixed: BIOS setting "Restore User Defaults" was showing a wrong dialog box
- ▶ Fixed (D3445-S1 only): PCH temperature fail reporting on S3 resume
- ▶ Fixed: Allow usage of a USB keyboard during POST if USB security is set to "DISABLE ALL PORTS"
- ▶ Fixed: Sporadic H110 PCH temperature reading issues after S3 resume
- ▶ Fixed: Fan, sensor and voltage names were not displayed correctly in BIOS Event log
- ▶ Fixed: Prevent access to BIOS setup item "Check Controllers Health status" with USER access rights
- ▶ Updated to CPU Microcode Patch 0x84
- ▶ Updated Erase Disk feature
- ▶ Feature: Wakeup on any key is now disabled on keyboards with power button (KBPC PX K341 / KB521)
- ▶ Feature (D344x-S1 only): Prevent (Disable) PCIe Root Port swapping
- ▶ Feature: Grey out TPM Disable in BIOS setup if TXT is enabled
- ▶ Reduced runtime SMIs to improve realtime performance
- ▶ Add WOL support for Broadcom NetXtrem Gigabit Ethernet Controller (e.g. D2907)
- ▶ Added Option ROM Enable / Disable function into BIOS setup: Advanced / Option ROM Configuration
- ▶ Added Option to set PCIe Link speed into BIOS Setup: Advanced / PCI Subsystem
- ▶ Added setup option "Logo Resolution" to the BIOS Boot menu. Allows to switch between native monitor resolution or static (fixed) resolution of 800x600 pixels during BIOS POST

### Known Issues and Limitations:

- ▶ Wake on LAN via I210 onboard LAN controller from ACPI S3 doesn't work
- ▶ Wake on LAN via plugged PCIe or PCI LAN adapter from ACPI S3 doesn't work
- ▶ Wake on LAN via I219LM onboard LAN controller from ACPI S3/S4 is possible even when the I219LM is disabled in device manager
- ▶ Auto BIOS Update Feature not useable yet



## 5. BIOS R1.15.0

### Changes vs. previous released BIOS

- ▶ Fixed: Allow PCIe LAN adapter cards and onboard soldered i210 / i350 LAN wakeup from ACPI S3
- ▶ Fixed: Prevent boot menu re-ordering of temporary disconnected HDD in UEFI mode.
- ▶ Fixed: Boot order changed with SATA mode = RAID and a disconnected monitor
- ▶ Fixed: Empty SATA ports will be removed from Acoustic Management Configuration
- ▶ Fixed: TPM 2.0 SHA2 setting did not work
- ▶ Added: TPM 2.0 Physical Presence Query Skip support
- ▶ Feature: Print a user friendly error message to the POST screen in case of wrong TXT/TPM configuration
- ▶ Updated to CPU Microcode Patch 0x8A
- ▶ Fixed (D343x-S1 only): BIOS Setup backlight control of the embedded Display port (eDP).

### Known Issues and Limitations:

- ▶ Wake on LAN via I219LM onboard LAN controller from ACPI S3/S4 is possible even when the I219LM is disabled in device manager
- ▶ Auto BIOS Update Feature not useable yet

## 6. BIOS R1.16.0

### Changes vs. previous released BIOS

- ▶ Updated to Management Engine Firmware version 11.0.18.1002
- ▶ Updated to CPU Microcode Patch 0xA6
- ▶ Feature: Added “Legacy I/O Low Latency” support
- ▶ Feature: Added beep code in case Secure Boot is enabled and no graphics card or monitor is attached
- ▶ Feature: Added support for PEG Slot Mode configuration via EditCMOS/BIOSSET
- ▶ Fixed: URL to the Fujitsu Open Source Software License Information in BIOS Setup
- ▶ Fixed: Unexpected behavior of “Power Failure Recovery” = [Disabled] if “Power-on Source” = [ACPI Controlled]
- ▶ Fixed: CSM Option ROM defaults were loaded after an unsuccessful boot attempt, including e.g. by pressing “Power Button” during POST
- ▶ Fixed: Some PCIe cards did not work properly. Added enhanced PCIe support
- ▶ Fixed: Sometimes 'Force LAN Boot' was not working
- ▶ Fixed: If TXT was enabled on a platform with an unprovisioned TPM, the system continuously rebooted in POST
- ▶ Fixed: Removed double identical entries in boot priority list
- ▶ Fixed: Auto BIOS Online Update did not work
- ▶ Fixed: With TXT enabled and a discrete TPM1.2 (in state unowned) a POST error message will be shown
- ▶ Fixed: Even if no protected Master boot Record (MBR) was found the Grasscarry partition was searched
- ▶ Fixed: Removed duplicative entries of the Embedded Display Port (eDP) setup item
- ▶ Fixed: Allow PCIe LAN adapter cards and onboard soldered i210 / i350 LAN wakeup from ACPI S3
- ▶ Fixed: Prevent boot menu re-ordering of temporary disconnected HDD in UEFI mode
- ▶ Removed automatic setup call feature with long power button press

### Known Issues and Limitations:

- ▶ Wake on LAN via I219LM onboard LAN controller from ACPI S3/S4 is possible even when the I219LM is disabled in device manager
- ▶ “Advanced > USB Configuration” menu is missing
- ▶ “Open Source Software License Information” missing link:  
[http://support.ts.fujitsu.com/content/3rdparty\\_license\\_info.asp](http://support.ts.fujitsu.com/content/3rdparty_license_info.asp)

## 7. BIOS R1.19.0

### Changes vs. previous released BIOS

- ▶ Updated to Management Engine Firmware version 11.0.22.1000.
- ▶ Updated to CPU Microcode Patch 0xB2.
- ▶ Updated to System Management Controller (Teutates) Firmware 46.
- ▶ Updated Intel PXE Oprom to V.0.1.10 and UEFI driver E0014X7.
- ▶ Updated: Fan characteristics (SMCS). Fixes that the BIOS setup sporadically recognizes an attached FAN3, although there is no fan plugged on FAN3 connector.
- ▶ Feature: SATA speed is now configurable.
- ▶ Feature: Setup option "Detect Non-Compliance Devices" added for every PCIe Slot.
- ▶ Fixed: Missing "USB Configuration" menu in "Advanced" page restored.
- ▶ Fixed: URL to the Fujitsu Open Source Software License Information was missing.
- ▶ Fixed: Removed unwanted page "Memory Configuration" from "Advanced".
- ▶ Fixed: Confirmation of detected intrusion ("Housing monitoring: Enabled") via Administrator password was not working properly.
- ▶ Fixed: System did start Windows 10 Recovery Mode when system boot with "Boot Removable Media" = "Disabled" and connected USB Memory.
- ▶ Fixed: UEFI PXE boot devices were visible in Setup even if "Launch PXE OpROM Policy" was set to "Do not launch" or "Legacy only".
- ▶ Fixed: Sporadic speaker beep while power button was pressed quite long (e.g. 2 seconds) to resume from sleep (S3).
- ▶ Fixed: Adjustment of watchdog operation during F12 Boot Menu display.
- ▶ Fixed: Setup option "HDD Password on Boot" = "Disabled" was ignored in case of NVMe drives.
- ▶ Fixed: Fan, sensor and voltage names will be displayed correctly at BIOS Event Log.
- ▶ Fixed: Intel display audio device disappeared after resume from S3.
- ▶ Fixed: System hang occurred if Hyper V is enabled.
- ▶ Fixed: Changes of Package C State limits were not effective.
- ▶ Fixed: Message "Internal error" was shown when updating BIOS via WinFlash.BAT or \*DFI.EXE.
- ▶ Fixed: TPM PPI Clear failed with BiosSet.
- ▶ Fixed (D343x-S1 only): SetupItemID for "LVDS Support" (0x13A) and "LVDS Panel Config Select" (0xC7) did not exist.
- ▶ Fixed: Missing/Erroneous ACPI DMAR table entries
- ▶ Fixed: When using USB keyboard and starting some programs at FreeDOS installation, Enter key is auto-repeated.
- ▶ Fixed: PCIe IRQ initialization optimized, especially for PCIe slot bifurcation.
- ▶ Fixed: If TXT is enabled with provisioned Infinion TPM2.0 the board hangs at POST code 78h.

### Known Issues and Limitations:

- ▶ Wake on LAN via I219LM onboard LAN controller from ACPI S3/S4 is possible even when the I219LM is disabled in device manager
- ▶ FAN3 label is shown as “n/a” in BIOS setup page [Advanced > System Monitoring]. No functional restriction to FAN3! SystemGuard and BMCAP! are not affected.

## 8. BIOS R1.20.0

### Changes vs. previous released BIOS

- ▶ Updated to Management Engine Firmware version 11.0.25.3001.
  - Fix for INTEL-SA-00075 / CVE-2017-5689
- ▶ Updated to CPU Microcode Patch 0xBA.
- ▶ Feature: Added Setup Settings: (May be used for Real-time improvements)
  - Advanced [?](#) CSM Configuration [?](#) Port 61h Bit-4 Emulation
  - Advanced [?](#) CSM Configuration [?](#) Legacy IO Low Latency
  - Advanced [?](#) USB Configuration [?](#) Port 60 / 64 Emulation
  - Advanced [?](#) Graphics Configuration [?](#) PM Support
- ▶ Feature: Setup option “Detect Non-Compliance Devices” added for Mini PCIe Slot.
- ▶ Feature: Setup option “PCIe Link speed” added for Mini PCIe Slot.

### Known Issues and Limitations:

- ▶ Wake on LAN via I219LM onboard LAN controller from ACPI S3/S4 is possible even when the I219LM is disabled in device manager
- ▶ FAN3 label is shown as “n/a” in BIOS setup page [Advanced > System Monitoring]. No functional restriction to FAN3! SystemGuard and BMC-API are not affected.

## 9. BIOS R1.21.0

### Changes vs. previous released BIOS

- ▶ Updated CPU Microcode (0xC2) for Skylake R0/S0. (INTEL-SA-00088, CVE2017-5715)
- ▶ Updated Management Engine Firmware version 11.8.50.3425 (INTEL-SA-00086)
  - For further BIOS updates Windows driver version  $\geq$  11.7.0.1052 is required
- ▶ Updated Intel Reference Code (CVE-2017-5703)
- ▶ Updated to System Management Controller (Teutates) Firmware 50.
- ▶ Updated GOP/VBT and legacy VBIOS with activated “KVM headless” and “DOS Hot-Plug” functionality.
- ▶ Updated “Auto BIOS Update” functionality.
- ▶ Updated BIOS flash interface (Gabi).
  - Added SetupItemID for “MiniCard Mode”: 0x01F5
  - Added SetupItemID for “Intel® Speed Shift Technology”: 0x025B
  - Added SetupItemID for “High Precision Event Timer”: 0x025C
  - Fixed: SettingID 0xC2 (“Adjusted Parameters”) cannot be set for SetupItemID 0xC7 (“Panel Config Select”)
- ▶ Feature: Added Setup Settings:
  - Advanced  Onboard Devices Configuration  High Precision Event Timer  
**Note:** If “High Precision Event Timer” is disabled, BIOS flash update is not possible anymore.
  - Advanced  CPU Configuration  Intel® Speed Shift Technology
- ▶ Feature: Allow beep at end of POST.
- ▶ Fixed: Some PCIe cards do not work properly after BIOS update < R1.16.0 to newer BIOS version.
- ▶ Fixed: Some PCIe card not recognized on PCIe Slot 5 (only D3445-S1).
- ▶ Fixed: Sporadic hang at POST code 0x55 if “CPU Hyper Threading” is disabled and “PCIe Detect Non-Compliance” is enabled for the PEG slot (Slot 1).
- ▶ Fixed: TPM update not possible due to missing BIOS capsule update component.
- ▶ Fixed: PXE boot failures with IPv6 occurred.

### Known Issues and Limitations:

- ▶ Wake on LAN via I219LM onboard LAN controller from ACPI S3/S4 is possible even when the I219LM is disabled in device manager

# 10. BIOS R1.23.0

## Changes vs. previous released BIOS

- ▶ Updated CPU Microcode (0xC6) for Skylake R0/S0. (INTEL-SA-00115, CVE-2018-3639, CVE-2018-3640)
- ▶ Updated Management Engine Firmware version 11.8.55.3510 CVE-2018-3655, CVE-2018-3657, CVE-2018-3658, CVE-2018-3659, CVE-2018-3616, CVE-2018-3643, CVE-2018-3644)
- ▶ Feature (D343x-S1 only): "Never Off" implemented.
- ▶ Fixed: WOL did not work with PCI LAN card Intel Pro/1000 GT.

## Known Issues and Limitations:

- ▶ Wake on LAN via I219LM onboard LAN controller from ACPI S3/S4 is possible even when the I219LM is disabled in device manager

# 11. BIOS R1.24.0

## Changes vs. previous released BIOS

- ▶ Updated CPU Microcode (0xCC) for Skylake R0/S0 and (0x200005E) for Skylake XEON (INTEL-SA-00115, CVE-2018-12126, CVE-2018-12127, CVE-2018-12130)
- ▶ Updated Management Engine Firmware version 11.8.65.3590 (INTEL-SA-00185, PSIRT-TA-201810-004, PSIRT-TA-201901-002, CVE-2018-12188, CVE-2018-12189, CVE-2018-12190, CVE-2018-12191, CVE-2018-12192, CVE-2018-12199, CVE-2018-12198, CVE-2018-12200, CVE-2018-12187, CVE-2018-12196, CVE-2018-12185, CVE-2019-0089, CVE-2019-0090, CVE-2019-0086, CVE-2019-0091, CVE-2019-0092, CVE-2019-0093, CVE-2019-0094, CVE-2019-0096, CVE-2019-0097, CVE-2019-0098, CVE-2019-0099)
- ▶ Fixed: Increased resources accessible for PCIe devices
- ▶ Fixed: Linux Deskflash update problems occurred
- ▶ Feature: Improve AutoBiosUpdate
- ▶ Feature: BIOS option “Alternative PCIe Reset” added [Advanced > PCI Subsystem Settings]
  - Added SetupItemID 0x02A6
  - [Disabled] PCIe Reset behavior is identical to BIOS <= 1.23.0.
- ▶ Feature: BIOS option “Maximum Payload Size” added [Advanced > PCI Subsystem Settings]
  - Added SetupItemID 0x02A5

## Known Issues and Limitations:

- ▶ Wake on LAN via I219LM onboard LAN controller from ACPI S3/S4 is possible even when the I219LM is disabled in device manager



## 12. BIOS R1.26.0 [new]

### Changes vs. previous released BIOS

- ▶ Intel IPU 2019 Q2 Security Update - Integrated Fixes for CVE-2019-0117, CVE-2019-0123, CVE-2019-0124, CVE-2019-0131, CVE-2019-0151, CVE-2019-0166, CVE-2019-0168, CVE-2019-0169, CVE-2019-0184, CVE-2019-11087, CVE-2019-11088, CVE-2019-11090, CVE-2019-11097, CVE-2019-11100, CVE-2019-11100, CVE-2019-11101, CVE-2019-11102, CVE-2019-11104, CVE-2019-11106, CVE-2019-11157, CVE-2019-11157
- ▶ Updated CPU Microcode for Skylake R0/S0 (0xD6) and for Skylake Xeon (0x65)
- ▶ Updated to Management Engine Firmware version 11.8.71.3630
- ▶ Updated to System Management Controller (Teutates) Firmware v61. (AC Power Cycle necessary to activate new firmware.)
  - Solved: FAN fail not logged to eventlog, if FAN setting in BIOS is "Full Speed". "Auto" and "Enhanced" are working correctly.

### Known Issues and Limitations:

- ▶ Wake on LAN via I219LM onboard LAN controller from ACPI S3/S4 is possible even when the I219LM is disabled in device manager



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