

Kontron Motherboards

BIOS Flash Tools

Update

Recovery

Linux

Transfer

EFI

Windows



HowTo Manual for BIOS Flash tools

- Fujitsu Flash Update BIOS interface (D35xx and prior)
- Fujitsu GABI BIOS Update Interface (D36xx, D37xx)
- Kontron AMI AFU BIOS Update Interface (Kxxxx)

Version 2.1

BIOS Flash Tools

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Revision History

Date	Version	Notes
15.03.2024	2.1	Updated information regarding BIOS archive update and restored data Updated System requirements for Linux Add AFU Flash tool description Add Kontron FTP link section Add preliminary information for archive workflow with AFU tool.
26.04.2022	2.0	Added information about ProductName in Deskflash archive file
03.12.2021	1.9	Moved and updated some information from chapter "Technical Background" to "General Notes and Infos", Moved "Download Location of Tools to "Upgrading/Downgrading"
14.10.2021	1.8	Added chapter "Download locations", Updated Linux driver and tool installation chapters. Added "Content of typical BIOS update package"
13.09.2021	1.7	Updated chapter "Recovery" – Added typical pin outs for recovery jumper.
09.08.2021	1.6	Renamed chapter "EfiFlash for EFI (D35xx or newer) to "BIOS Update Utility in Bootmenu". Adjusted chapter order. Updated description. New section "System Requirements".
29.06.2021	1.5	Updated first page
19.01.2021	1.4	Updated section 5.4.3 and 5.5.3 – Commandline option /O
15.04.2020	1.3	Updated section 5.2.1 – creating a FreeDOS bootable device
06.03.2020	1.2c	Updated section 6: Moved the red marked hint from chapt.6 to 6.2
29.01.2020	1.2b	Updated Eflash.efi section – Location of the tool
24.01.2020	1.2a	Updated section 1 and 5.5 – driver FUJ04x0 necessary for Deskflash
22.01.2020	1.2	Re-Ordered file extension table, Updated Eflash for EFI section, Added Eflash in EFI Shell chapter. Updated "Transfer BIOS settings" with Eflash in EFI shell. Updated FTP links and changed design to Kontron. Moved Version-Information from Filename to Fileheader.
31.08.2018	1.1	Added chapter Deskflash for Windows (CoffeLake) and updated Archive chapter.
22.06.2018	1.0	First released version (some content based on "Eflash HowTo 1.2")

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1 *General Notes and Warnings* [updated V2.1]

- **Never** use third-party (Intel, AMI, ...) tools to update or modify your Kontron motherboard's BIOS, it's settings or DMI data!
 - **Only use Kontron provided tools!**
- Please always check for [updated available version](#) of the flash tools.
- Please check [System Requirements](#) and [General Notes and Information](#) chapter first!
- Deskflash: In the latest Deskflash version > V6.81 there are two Deskflash versions included. V6.76 for boards ≤ D35xx and V6.81 (and newer) for D36xx and D37xx motherboards. Please check both Deskflash chapters in this HowTo document.

2 *Technical background* [new/updated v1.9]

- Strictly speaking, all recent (since the D3003/D306x series) Kontron motherboards use an UEFI firmware, not a Legacy "BIOS".
- Still, since the term BIOS is well established, it is generally used to refer to the UEFI firmware, and both terms are used interchangeably.
- On Legacy BIOS systems, BIOS Setup settings used to be saved in a battery buffered memory region of the main chipset commonly referred to as "CMOS". With UEFI, these Setup settings are saved in the same flash memory chip as the main BIOS, in an area called NVRAM. Thus, on many UEFI systems, clearing the CMOS, for example by removing the CMOS Battery for a while, will not reset the Setup settings. Please refer to the BIOS Recovery procedure description for how to reset the Setup settings on those systems.

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3 Supported Operating Systems

There are flash tools for **DOS** (efiflash.exe), **Windows** (dskflash.exe), **Linux** (deskflash) and **EFI environment** (efiflash.efi) available. With these toolset you are able to:

- Upgrade/downgrade (“flash”) the BIOS-Firmware
- Recover a corrupted BIOS
- Transfer BIOS Setup settings, defaults and other BIOS customizations (Archive)
- Exchange the BIOS Boot Logo
- Read information about which BIOS updates have been done on a motherboard previously

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4 Flash file types [updated v2.1]

In general (except for the recovery files) it is possible to rename the files, both name and extension. The function of the files is embedded in the contents, not dependent on the file name or extension.

Kontron Motherboards Kxxxx

File extension	Type	Operating system (tool)	Comment
*.bin	BIOS update file	Windows: AFUWINx64.exe EFI shell: AfEfix64.efi	Also used for boot logo update.
*.rom	BIOS recovery file		See chapter "BIOS Recovery"

Formerly known "Fujitsu" motherboards (Dxxxx)

File extension	Type	Operating system (tool)	Comment
*.upd	BIOS update file	DOS: Efiflash.exe EFI shell: EfiFlash.efi	Also used for the logo file flash. Also used for Archive.
*.bup		Windows: DskFlash.exe Linux: deskflash	
*.upc	Compressed UPD file		For use with BIOS update over LAN/Internet.
*.arc	Archive file	DOS (EfiFlash.exe)	See chapter " Transferring BIOS Setup settings "
*.dmp	Dump file	EFI shell (Efiflash.efi)	
*.scd	BIOS config file	EFI shell (Efiflash.efi)	
*.nvux	BIOS configuration archive	Windows / Linux (DskFlash.exe / deskflash)	
.rom or numbers e.g. ".*.101"	BIOS recovery file		See chapter "BIOS Recovery"
*.DFI.exe	Standalone Updater	Windows	Self-extracting and self-executing update package, based on Dskflash.exe

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5 System requirements [new v1.6]

5.1 Windows [updated v2.1]

Most of motherboard tools mentioned in this document requires access to BIOS NVRAM.

To access BIOS from OS level you have to install the provided Kontron motherboard interface driver **GabiACPI** (FUJ0430/FUJ0420).

Possible tool error messages if driver is missing:

- *“No Support Module for this hardware found”*
- *“Hardware not supported”*
- *“Did not find GABI service”*

Download FUJ0430 from FTP server: [#Kontron FTP Weblinks](#) (“Motherboard Drivers”)

➔ “Motherboard_Fujitsu_FUJ0420_FUJ0430_3.0.0.3.zip”

Unlike the GabiACPI device (which is always visible to the OS due to its ACPI implementation) the actual BIOS API driver for Fujitsu/Kontron GABI BIOS interface will be installed by the tools if required “on-the-fly”.

Please note, that this driver automatically gets added to MS Windows driver store*.

For **D37xx** and **Kxxxx** motherboards a driver installation kit** is available, which installs all Kontron specific motherboard drivers (e.g. FUJ0430, FscGabi, SystemMonitoring) at once.

Download it from FTP server: [#Kontron FTP Weblinks](#) (“Motherboard Drivers”)

➔ “SMS Driver Installer_V5.x.zip”**

Requirements for “SMS Driver Installer:

- ➔ Latest Microsoft Visual C++ Redistributable (x86) package.
 - Get it from Microsoft download site: <https://learn.microsoft.com/en-us/cpp/windows/latest-supported-vc-redist?view=msvc-170>
- ➔ .Net Framework 4.8 or higher

SMS (“System Management Suite”) driver kit** is **only released for D37xx** and **Kxxxx** boards. It may work with CoffeeLake or earlier, but was not tested with them!

*) May effect WU testing. Remove the driver manually in this case before executing WU testing.

***) SMS Driver installer requires latest Microsoft Visual C++ Redistributable (x64) package. Get it from Microsoft download site: <https://learn.microsoft.com/en-us/cpp/windows/latest-supported-vc-redist?view=msvc-170>

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5.2 Linux [updated v2.1]

Download "DeskFlash_V2.xx-00xx_Linux64bit.zip" from the FTP and extract to any user folder:

[#Kontron FTP Weblinks](#) ("Flash Tools")

There is the necessary driver packages included:

➔ *driver_src-xxx.tar.gz*: BIOS driver source packages to compile the driver by yourself

Compile the driver sources for any other distribution:

1) Install build environment for kernel modules:

a. Ubuntu/Debian derivatives:

```
$ sudo apt update && apt upgrade
```

```
$ sudo apt install build-essential
```

b. Redhat/CentOS/Fedora derivatives:

```
$ sudo dnf update -y
```

```
$ sudo dnf groupinstall "Development Tools" -y
```

c. for RHEL/CentOS with Rev <7 please use:

```
$ sudo yum update -y
```

```
$ sudo yum groupinstall "Development Tools" -y
```

2) You may need to install kernel-headers too. Check your distribution documentation for details.

a. Debian/Ubuntu:

```
$ sudo apt install linux-headers-$(uname -r)
```

b. RHEL/CentOS/Fedora:

```
$ sudo dnf install kernel-devel kernel-headers
```

c. RHEL/CentOS with Rev <7:

```
$ sudo yum install kernel-devel kernel-headers
```

3) Install kernel modules sources and build modules

```
$ mkdir /opt/deskview/deskflash/drivers
```

```
$ cp <driver_src*.tar.gz>
```

```
    /opt/deskview/deskflash/drivers
```

```
$ cd /opt/deskview/deskflash/drivers
```

```
$ tar -xvzf <driver_src*.tar.gz>
```

```
$ cd drivers
```

```
$ sudo ./modules_installer.sh -ib ./
```

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Start drivers:

- ➔ It is necessary, to load the driver modules by hand. Use `sobcontrol start`.
- ➔ Sobcontrol script is located in `/opt/deskview/[deskflash|biosset]/device/` path if Biosset or DeskFlash RPM package was installed before. Otherwise copy sobcontrol from `driver_src-xxxx.tar.gz`.

Install deskflash (biosset) to your system

- 1) Install RPM package via package manager.
`$ rpm -ivh <deskflash-1.*.deb>.rpm`
- 2) Install DEB package via package manager
`$ sudo dpkg -i <deskflash-1.*>.deb`
- 3) Uninstall RPM package:
`$ rpm -e deskflash`

Info: Deskflash/Biosset executable will be located in `/opt/deskview/bin`

To install Biosset change the package name respectively.

If you don't want to use a package manager, you can extract RPM package and copy the content to `/opt/deskview`.

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6 Upgrading / Downgrading the BIOS

6.1 General notes and information [updated V2.1]

- When downgrading the BIOS, the **Intel CSME firmware** will **not** be downgraded. If there already was running a newer ME firmware version it will remain!
- During a BIOS upgrade or downgrade, all BIOS Setup settings, as well as all customizations (like custom boot logo, MS licensing data, ...) are kept. It is not necessary to load setup defaults afterwards. But may be suggested in some specific circumstances. Check BIOS Release Notes for dedicated information.
- All mentioned BIOS update tools are only preparing the BIOS update process, e.g. writing the BIOS content to memory and set the flag for BIOS Capsule update ready. The actual BIOS update process will be executed during POST with the “Capsule Update” mechanism of UEFI BIOS (standard for Dxxxx numbered motherboards).
- BIOS updates for Kxxxx-numbered motherboards are executed during runtime. Please ensure that you do not power down the system or disconnect the power supply while the BIOS update is in progress. Otherwise, there is a risk of BIOS flash content corruption.
- In very rare cases it could be necessary to load default values after BIOS flash, e.g. if you have problems after BIOS flash or some internal BIOS settings have changed. They will only take effect after loading BIOS default values manually. If you have customized the BIOS settings with EditCMOS/Gabisettings/Biosset, these settings will be loaded.
- The most recent BIOS contains all previous modifications and fixes. It is unnecessary to update through intermediate versions (cumulative BIOS update).
- In very rare cases, a new BIOS version might require a certain **minimum BIOS version** to be present. Occasionally the changes in new BIOS versions are so huge that downgrading to very old BIOS versions is not possible any more. The BIOS Update's description text file will explain such requirements and limitations. The flash tool will give a warning and will not flash the BIOS in such cases.
- After upgrading / downgrading the BIOS, the motherboard **MUST** be restarted before additional BIOS changes or settings can be applied. EFIFlash / DskFlash / deskflash will automatically issue a reset or power cycle at the end of the flash procedure. For boards with BIOS Capsule Update mechanism the reboot will be initiated automatically.
- For Deskflash Archive restore it is mandatory, that the archive is created on a system with the same “Product Name” as the target system. An archive with ProductName “Example1” cannot be flashed to a system with ProductName “Example2”. Error message of Deskflash in this case: “**Invalid or missing File – Return code 8**”

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6.2 Download location BIOS flash tools [updated v1.9]

All tools can be downloaded from FTP server separately:

[#Kontron FTP Weblinks](#) (“Flash Tools”)

- ➔ DeskFlash (Windows): DeskFlash_V6.xx.yyyy_Win64.zip
- ➔ DeskFlash (Linux): DeskFlash_V1.xx.yyyy_Linux64.zip
- ➔ EfiFlash + EfiShell Minimal: EfiFlash_EfiShell_202x.yy.zip
- ➔ AfuWinX64 / AfuEfix64: Kxxxx_AFU-Update_WIN_EFI_202x-yy.zip

6.3 Download BIOS update package

Download latest BIOS update package from our FTP server:

[#Kontron FTP Weblinks](#) (“FTP Home”)

- “FTP Home”/Products/Motherboards/[Type]/[Dxxx]/BIOS/[Variant]/*.ZIP
- Standalone update for Windows is available too (Dxxxx only):
 - “FTP Home”/Products/Motherboards/[Type]/[Dxxx]/BIOS/[Variant]/*.DFI.\$XE
 - The tool must be renamed after download: *. \$XE -> *.EXE

Info: [Type] could either be “Industrial” or “ExtendedLifeCycle”.

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6.4 Content of typical BIOS update package [new v1.8]

D3633-S1.ROM	Recovery BIOS file
D3633-S1.UPD	Standard BIOS update file (for EFI and DOS)
EfiFlashEfiUsage.txt	Help file for Eflash.efi tool
+---EFI	
\---FUJITSU	
EfiFlash.efi	BIOS update utility (for EFI shell or Boot Menu)
+---TFTP	Optional: Needed for custom "Auto BIOS update" server
D3633-S1-1-12-0.UPC	Compressed BIOS update file
D3633-S1.csv	Control file for Auto BIOS update
\---Windows	
D3633-S1x.R1.12.0.UPD.bup	Standard BIOS update file (for WIN and Linux)
DeskFlash64Bit_UPD.bat	Batch file: Start BIOS update (WIN)
\---DeskFlash64Bit	Tool directory for WIN Deskflash.
DeskView.ini	
DskFlash.dat	
DskFlash.exe	BIOS update utility launcher. See DskFlash for Win chapter.
License.txt	
ThirdPartyLicenseReadme.txt	
WinFlash.bat	BAT will be called from DeskFlash64Bit_UPD.bat
\---DATA	
DF_COFF.exe	Core application of Deskflash update utility.

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6.5 Content of typical BIOS update package Kxxxx [new v2.1]

```
| ec-update-efi.nsh           Embedded Controller (EC) Update script EFI shell
| ec-update-win.cmd          Embedded Controller (EC) Update script Windows
| K3841-Q1.R2.12.0.BIN       Standard BIOS update file (for EFI and WIN)
| K3841-Q1.ROM               Recovery BIOS file
| MEFW_K3841-Q1.R2.12.0.BIN CSME Firmware update file
| update-efi.nsh             BIOS/CSME Update script EFI shell
| update-win.cmd             BIOS/CSME Update script Windows
+---afu                      AMI AFU BIOS update utility and supporting files
|   AfuEfix64.efi            BIOS update utility EFI shell
|   AFUWINGUIx64.EXE         Graphical BIOS utility - do not use!
|   AFUWINx64.exe            BIOS update utility Windows
|   amigendrv64.sys
|   AMI_Aptio_5.x_AFU_User_Guide_PUB.pdf
+---efi
|   | findstr.efi            Helper tool to manage EFI shell update process
|   |
|   \---boot
|       bootx64.efi          EFI shell application
|       startup.nsh         EFI shell autostart script
\---FwUpdLc1                 Intel CSME update utility and supporting files
|   FwUpdLc1.efi
|   FwUpdLc164.exe
|   heci.cat
|   heci.inf
\---x64
    TEEDriverW10x64.sys
```

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6.6 EfiFlash for DOS

6.6.1 Preparing the DOS bootable USB stick

EfiFlash is meant to be used with FreeDOS, but most recent Legacy MS-DOS versions should work fine most of the time.

Note: DOS memory managers like HIMEM or EMM386 might interfere with EfiFlash.

Please use plain DOS without such programs.

- 1) The Fujitsu tool "FTS_Basic-BootStick.EXE" is not available anymore.
For creating a FreeDOS bootable USB device you can use 3rd party tools, e.g. Rufus.
Just use your preferred search engine for searching a suitable tool / procedure.
- 2) Copy the files from the BIOS admin pack's DOS directory to any directory on the USB stick. You may omit the *.UPC file.
- 3) In case you want to use the USB stick for BIOS recovery, please copy all *.ROM and *.<Number> files into the USB stick root directory.

6.6.2 Flash procedure

**Do not restart, turn off or remove power during flash process
unless the tool requests any restart action!**

To flash the BIOS using the provided batch file:

- 1) Boot DOS from the USB stick
- 2) Run `dosflash.bat`
- 3) Check the BIOS version information shown and start the flash procedure by pressing the "Y" key to confirm.
- 4) Wait until the flash update is completely done. It may take up to a few minutes, in certain cases even without visible progress.

To flash the BIOS manually:

- 1) Boot DOS from the USB stick
- 2) Run `efiflash.exe /AUTO`
- 3) Check the BIOS version information shown and start the flash procedure by pressing the "Y" key to confirm.
- 4) Wait until the flash update is completely done. It may take up to a few minutes, in certain cases even without visible progress.

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6.6.3 Command line options

The command line for EfiFlash is: `efiflash.exe filename <options>`.

Here are explanations for the most commonly used EfiFlash command line options:

<code>/?</code>	Display possible options. The possible options will also be shown when calling <code>efiflash.exe</code> without any option.
<code>/AUTO</code>	Automatically choose a file name based on the currently running motherboard. Don't give a file name in the command line. For example on a D3433-S22 GS3 motherboard it would look for a file called D3433-S2.UPD and flash it.
<code>/U</code>	Update only if file contains a newer BIOS version than the one that is currently active.
<code>/D</code>	Update only if file contains a different BIOS version than the one that is currently active.
<code>/Y</code>	This makes EfiFlash not ask for confirmation, but automatically assume an answer "Yes" for all user prompts.
<code>/LAST_CAP_STATUS</code>	Returns Capsule Flash update status from the previous attempt.
<code>/LOG</code>	Displays the history of previous BIOS flash operations, listing the BIOS version used, the type of flash update, and the date/time of these BIOSes' creation. Please note that the date/time when the BIOS was flashed is NOT shown because it is not logged. The type of flash update can be one of the following: TOTAL = This BIOS had been programmed at the Kontron factory UPDATE = normal flash update ARCHIVE = Archive flash update
<code>/ARCHIVE</code>	This creates a BIOS archive file (*.arc). Please see the chapter "Transferring BIOS Setup settings, defaults and other BIOS customizations (Archive)" for details.

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6.6.4 Errorlevels (Return codes)

Errorlevel	Meaning
0	Terminated normally, everything went OK
1	EfiFlash.exe generated error
2	BIOS generated error
3	Hardware error detected
4	Service not supported
5	File read/write error
6	Error parsing User Options
55	Bios Interface not found (not an Kontron motherboard with UEFI firmware)

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6.7 EfiFlash for EFI Shell [updated v1.6]

6.7.1 Preparing the USB stick with an EFI shell environment [updated v1.8]

EfiFlash.efi can be used in two modes: As Boot menu utility (see chapter “BIOS Update Utility in Bootmenu”) or as a stand-alone EFI shell tool. In stand-alone mode, you are able to script your workflow.

- 1) Format any USB stick with FAT32.
- 2) Download EfiFlash_EfiShell_202x.yy.zip package from [#Kontron FTP Weblinks](#) (“Flash Tools”). This package does already contain an EFI minimal shell, Eflash.efi tool and an appropriate startup script. See [download chapter](#) for link.
- 3) Copy all other necessary files (update file, settings file, ...) into the same directory which contains Eflash.efi tool.

6.7.2 Flash procedure

Do not restart, turn off or remove power during flash process unless the tool requests any restart action!

To flash the BIOS manually:

- 1) Boot EFI shell from the USB stick
- 2) Choose the correct EFI volume from volumes list (e.g. fs0:, fs1:).
- 3) Navigate to the directory which contains the flash files and tool itself.
- 4) Run `efiflash.efi /AUTO` or `efiflash.efi Dxxxx.Yz.UPD`
- 5) Check the BIOS version information shown and start the flash procedure by pressing the “Y” key to confirm.
- 6) Wait until the flash update is completely prepared. Afterwards the system will do one reboot to execute the flash process during POST boot (“Secure Capsule flash”).
- 7) It may take up to a few minutes, in certain cases even without visible progress.

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6.7.4 Command line options

The command line for EfiFlash is: `efiflash.efi filename <options>`.

Here are explanations for the most commonly used EFIFlash command line options*:

<code>/?</code> <code>/HELP</code>	Display possible options. The possible options will also be shown when calling <code>efiflash.efi</code> without any option.
<code>/AUTO</code>	Automatically choose a file name based on the currently running motherboard. Don't give a file name in the command line. For example on a D3633-S1 motherboard the tool searches the file "D3633-S1.UPD" and flash it.
<code>/DUMP <file></code>	Create dump file (.DMP) of an installed BIOS Image. *.DMP file is only for debugging purpose within BIOS development. Cannot be flashed by customers.
<code>/DUMPUPD</code>	Same as Dump + Flash Update from File or in Auto Mode
<code>/INFO</code>	Display system and installed BIOS Information
<code>/LOG</code>	Display Flash Update History
<code>/U</code>	Update only if file contains newer version
<code>/D</code>	Update only if file contains different version
<code>/Y</code>	Answer 'YES' in advance to any prompt
<code>/S</code>	Silent. No display output
<code>/LCS</code> <code>/LAST_CAP_STATUS</code>	Returns last capsule update/restore status
<code>/PWD:<password></code>	Provides BIOS Password required to Enter Flash Update API

***Note:** The mentioned commands are available since D36xx (CoffeeLake)! The function set of `Efiflash.efi` for D35xx and prior motherboards (D34xx) is similar to the DOS version. So please refer to the DOS section of `Efiflash.exe` in that case.

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6.7.5 Command line options for save and restore

The following parameters are relevant for BIOS settings archive and restore:

<code>/SAVE <file.SCD></code>	Save System Configuration Data of installed BIOS Image
<code>/RESTORE [<file.SCD>]</code>	Restore System Configuration Data to system. If no filename is provided, the tool searches for a file, named to the currently running motherboard (similar to <code>/AUTO</code>) -> <code>Dxxxx-Yy.SCD</code> . By default only BIOS boot logo, BIOS settings and System Data are restored. Please see the chapter "Transferring BIOS Setup settings, defaults and other BIOS customizations (Archive)" for details.
<code>/PL:<level></code>	Requested privilege level for Flash Update API. Level "2" is mandatory for <code>/RESTORE</code> command. Note: always append <code>/pwd:</code> additionally if accessing Level "2" via <code>/PL:2</code> even no BIOS password is set!
The following parameters allowed only with <code>/RESTORE</code> command. If you want to restore more possible customizations, you can control the restore behaviour in detail with the following (hidden) parameters:	
<code>/RLO</code>	Restore customized BIOS boot logo.
<code>/RSE</code>	Restore BIOS settings
<code>/RSD</code>	Restore system data (e.g. SMCO, LVDS)
<code>/RPA</code>	Restore password
<code>/RBO</code>	Restore Boot Order Variables

Examples for archive and restore:

Save BIOS settings archive:

➤ `Efiflash.efi /save [example.scd]`

Restore in AUTO mode:

➤ `Efiflash.efi /restore /pl:2 /pwd:`

Restore data from provided SCD file:

➤ `Efiflash.efi /restore example.scd /pl:2 /pwd:`

Restore BIOS logo only:

➤ `Efiflash.efi /restore example.scd /rlo /pl:2 /pwd:`

Restore logo and settings:

➤ `Efiflash.efi /restore /rlo /rse /pl:2 /pwd:`

Restore settings, logo, password and update BIOS (`Dxxxx-Yz.upd` and `Dxxxx-Yz.scd` in same dir):

➤ `Efiflash.efi /auto /restore /rlo /rse /rpa /pl:2 /pwd:`

BIOS Flash Tools

6.7.6 Errorlevels (Return codes)

Errorlevel	Meaning
0	Terminated normally, everything went OK
1	EfiFlash.exe generated error
2	BIOS generated error
3	Hardware error detected
4	Service not supported
5	File read/write error
6	Error parsing User Options
55	Bios Interface not found (not an Kontron motherboard with UEFI firmware)

BIOS Flash Tools

6.8 BIOS Update Utility in Bootmenu (D354x and D36xx) [updated v1.6]

6.8.1 Preparing the FAT32 USB stick

EfiFlash.efi is a flash image update utility located in the BIOS boot menu (F12). Boot menu option "FUJITSU Update Utility" is available for D354x (GeminiLake) and D36xx (CoffeeLake) motherboards.

- 1) Copy content of the BIOS update package from FTP server to any FAT32 formatted USB drive/stick:
 - a. EfiFlash.efi -> \EFI\FUJITSU
 - b. BIOS flash update file (*.UPD) in root directory of USB stick.
 - c. Optional: BIOS config file (*.SCD) in root directory of USB stick.

6.8.2 Flash procedure

Do not restart, turn off or remove power during flash process unless the tool requests any restart action!

- 1) Plug the prepared USB stick to any USB port on the target system
- 2) Power on system and hit F12 to open boot menu.
- 3) Choose "FUJITSU Update Utility".
- 4) EfiFlash.EFI initializes flash update process automatically.
- 5) Confirm update or decline it to choose another operation. See "Additional functions".
- 6) Wait until the flash update is completely done. It may take up to a few minutes, in certain cases even without visible progress.

BIOS Flash Tools

6.8.3 Additional functions

- 1) If another operation was chosen, supported options will be shown.
- 2) Choose desired option by typing corresponding number/letter.

Here are explanations for the additional EFiFlash.efi* commands:

1	[DEFAULT] Update flash in automatic mode
2	Create dump file (*.DMP) of installed flash image. Please see the chapter "Transferring BIOS Setup settings, defaults and other BIOS customizations (Archive)" for details.
3	Create dump file (*.DMP) and afterwards update the BIOS flash (same as option 2 + 1)
4	Display system and installed BIOS information
5	Save BIOS config data to .SCD file (replaces /Archive-Dump of older platforms)
6	Restore BIOS config data from .SCD file. No full BIOS-update necessary, (compared to Archive-flash procedure)
7	Restore BIOS config data from .SCD file and afterwards update the BIOS flash (same as option 6 + 1). Replaces Archive-BIOS flash. It is possible to restore your specific BIOS settings and update the BIOS in one step.
8	Returns Capsule Flash update status from the previous attempt.
Q	Quit application

***Note:** The mentioned commands are available since D36xx (CoffeeLake)! The function set of EfiFlash.efi for D354x motherboards is similar to the DOS version.

BIOS Flash Tools

6.9 DskFlash for Windows (D36xx and D37xx)

Since our CoffeeLake based motherboards (D36xx and newer) we changed our BIOS API interface. Therefore it was necessary to split Deskflash into two versions. Both versions are included in the latest ZIP package. Use dskflash.exe from the root directory. The tool itself will choose the correct sub-version.

- ➔ FUNC1 = "old" API / Motherboards
- ➔ FUNC2 = For CoffeeLake motherboards and newer. (Driver FUJ0420 / FUJ0430 necessary!)

Some parameters and functionalities differ between the two versions.

This chapter describes the new **DskFlash version 6.81** and newer.

6.9.1 Preparing the Windows flash procedure

Extract the files from the BIOS admin pack's WINDOWS directory to any directory on your system.

6.9.2 Flash procedure

Do not restart, turn off or remove power during flash process unless the tool requests any restart action!

To flash the BIOS using the provided batch file:

- 1) Run WinFlash.bat / DeskFlash[32Bit|64Bit]_UPD.bat
- 2) Check the BIOS version information shown and start the flash procedure by pressing the "Y" key to confirm.
- 3) Wait until the flash update preparation is completely done. It may take up to a few minutes, in certain cases even without visible progress.
- 4) After BIOS flash preparation is done, the system will restart automatically to perform the flash process during BIOS POST ("BIOS capsule update")

To flash the BIOS using the BIOS instant flash package:

- 1) Run Dxxxx-B/Syy.R1.zz.0.DFI.EXE and follow the instructions.
- 2) Wait until the flash update preparation is completely done. It may take up to a few minutes, in certain cases even without visible progress.
- 3) After BIOS flash preparation is done, the system will restart automatically to perform the flash process during BIOS POST ("BIOS capsule update").

BIOS Flash Tools

To flash the BIOS manually (“AUTO” mode also possible, see parameter /UPD in table below):

- 1) Open command line with administrator rights and navigate to the extracted BIOS admin package WINDOWS folder
- 2) Run `DskFlash.exe /UPD /FRB /WD=<path-to-BUP-file> /O=<filename>`
- 3) Check the message box content and press the OK button.
- 4) Wait until the flash update preparation is completely done. It may take up to a few minutes, in certain cases even without visible progress.
- 5) After BIOS flash preparation is done, the system will restart automatically to perform the flash process during BIOS POST (“BIOS capsule update”).

BIOS Flash Tools

6.9.3 Command line options

The command line for DskFlash is: `DskFlash.exe /UPD [Parameters]`

Here are explanations for the most commonly used DskFlash command line options:

<code>/UPD</code>	Update motherboard BIOS. Without the parameter <code>/O</code> it automatically searches for the latest available update file in the tool directory, suitable for the installed motherboard.
<code>/ARC</code>	Save the system configuration data (*.ARCHIVE.NVUX). Please see chapter "Transferring BIOS Setup settings" for details.
<code>/BUPINFO</code>	Display detail information about the provided BIOS update (.BUP) or configuration file (.NVUX)
<code>/WD</code>	Set the current working directory for loading and saving files and for storing the logfile too.
<code>/O</code>	Name the object file or file pattern for loading and saving. Note: Only file-names allowed. Use <code>/WD</code> to set the correct source path of the object file!
<code>/OV</code>	Allow DeskFlash to overwrite a current BIOS or an existing file. Only needed, if installed BIOS is newer than the BIOS you want to flash. Take care about the BIOS setup option "Allow System Firmware Rollback", too.
<code>/ARB</code>	Allow DeskFlash to reboot the system if required.
<code>/NRB</code>	Suppress required reboot of DeskFlash to perform the reboot on an alternate way.
<code>/FRB</code>	Force DeskFlash to reboot the system after finishing the job.
<code>/S</code>	Hide control dialog and display warning dialog.
<code>/W</code>	Hide warning dialog too.
<code>/LF</code>	Enable logfile output and name the logfile.
<code>/?</code>	Show full help of DskFlash tool
<code>/AST</code>	Show last action status (not documented in the tool help)

BIOS Flash Tools

6.9.4 Errorlevels (Return codes)

A full list of error codes can be shown with `DskFlash.exe /E`

Errorlevel	Meaning
0	Success
1	Warning
2	General error
4	Syntax error in command line
8	Valid BIOS file missing
64	Insufficient privileges
400	BIOS successfully prepared for POST update action
401	POST update action failed
402	POST update action pending

BIOS Flash Tools

6.10 DskFlash for Windows (≤ D35xx)

Since our CoffeeLake based motherboards (D36xx and newer) we changed our BIOS API interface. Therefore it was necessary to split Deskflash into two versions. Both versions are included in the latest ZIP package. Use dskflash.exe from the root directory. The tool itself will choose the correct sub-version.

- ➔ FUNC1 = “old” API / Motherboards
- ➔ FUNC2 = For CoffeeLake motherboards and newer.

Some parameters and functionalities differ between the two versions.

This chapter describes the “old” **DskFlash version 6.76**.

6.10.1 Preparing the Windows flash procedure

Extract the files from the BIOS admin pack's WINDOWS directory to any directory on your system.

6.10.2 Flash procedure

Do not restart, turn off or remove power during flash process unless the tool requests any restart action!

To flash the BIOS using the provided batch file:

- 1) Run WinFlash.bat / DeskFlash[32Bit|64Bit]_UPD.bat
- 2) Check the BIOS version information shown and start the flash procedure by pressing the “Y” key to confirm.
- 3) Wait until the flash update preparation is completely done. It may take up to a few minutes, in certain cases even without visible progress.
- 4) After BIOS flash preparation is done, the system will restart automatically to perform the flash process during BIOS POST (“BIOS capsule update”)

To flash the BIOS using the BIOS instant flash package:

- 1) Run Dxxxx-B/Syy.R1.zz.0.DFI.EXE and follow the instructions.
- 2) Wait until the flash update preparation is completely done. It may take up to a few minutes, in certain cases even without visible progress.
- 3) After BIOS flash preparation is done, the system will restart automatically to perform the flash process during BIOS POST (“BIOS capsule update”).

BIOS Flash Tools

To flash the BIOS manually (“AUTO” mode also possible, see parameter /UPD in table below):

- 1) Open command line with administrator rights and navigate to the extracted BIOS admin package WINDOWS folder
- 2) Run `DskFlash.exe /UPD /FRB /WD=<path-to-BUP-file> /O=<filename>`
- 3) Check the message box content and press the OK button.
- 4) Wait until the flash update preparation is completely done. It may take up to a few minutes, in certain cases even without visible progress.
- 5) After BIOS flash preparation is done, the system will restart automatically to perform the flash process during BIOS POST (“BIOS capsule update”).

BIOS Flash Tools

6.10.3 Command line options [updated V2.0]

The command line for DskFlash is: `DskFlash.exe /UPD [Parameters]`

Here are explanations for the most commonly used DskFlash command line options:

/UPD	Update motherboard BIOS. Without the parameter /O it automatically searches for the latest available update file in the tool directory, suitable for the installed motherboard.
/AR	Creates an Archive BIOS and NVRAM settings file (*.ARCHIVE.BUP). Please see chapter " Transferring BIOS Setup settings" for details. <i>Please note, that the current "ProductName" is included in archive file and restore is only possible on systems with the same ProductName.</i>
/WD	Set the current working directory for loading and saving files and for storing the logfile too.
/O	Name the object file or file pattern for loading and saving. Note: Only file-names allowed. Use /WD to set the correct source path of the object file!
/OV	Allow DeskFlash to overwrite a current BIOS or an existing file. Only needed, if installed BIOS is newer than the BIOS you want to flash.
/ARB	Allow DeskFlash to reboot the system if required.
/NRB	Suppress required reboot of DeskFlash to perform the reboot on an alternate way.
/FRB	Force DeskFlash to reboot the system after finishing the job.
/S	Hide control dialog and display warning dialog.
/W	Hide warning dialog too.
/LF	Enable logfile output and name the logfile.
/?	Show full help of DskFlash tool
/AST	Show last action status (not documented in the tool help)

BIOS Flash Tools

6.10.4 Errorlevels (Return codes)

A full list of error codes can be shown with `DskFlash.exe /E`

Errorlevel	Meaning
0	Success
1	Warning
2	General error
4	Syntax error in command line
8	Valid BIOS file missing; Wrong ProductName found in archive file.
64	Insufficient privileges
400	BIOS successfully prepared for POST update action
401	POST update action failed
402	POST update action pending

BIOS Flash Tools

6.11 deskflash for Linux

6.11.1 Installing Linux driver for deskflash and the tool itself [updated v1.10]

- 1) Download "Deskflash_V1.xx-00xx_Linux64.zip" from the FTP server:
 - a. [#Kontron FTP Weblinks](#) ("Flash Tools")
- 2) Extract the package on your Linux system to any user folder.
- 3) There are several packages included:
 - a. precompiled_drv-xxxx.tar.gz: Precompiled BIOS driver for RHEL and SLES (**only V1 pkg**)
 - b. driver_src-xxxx.tar.gz: BIOS driver source packages to compile the driver by yourself
 - c. deskflash-xxxx.rpm: RPM package of the BIOS flash tool "deskflash"
 - d. deskflash-xxxx.deb: DEB package of BIOS flash tool "deskflash"

Installing necessary drivers:

- 1) See chapter "[System Requirements](#)"

Install deskflash to your system

- 1) Install RPM package via package manager.

```
$ rpm -ivh <deskflash-1.*.deb>.rpm
```

- 2) Install DEB package via package manager

```
$ sudo dpkg -i <deskflash-1.*>.deb
```

- 3) Uninstall RPM package:

```
$ rpm -e deskflash
```

Info: Deskflash executable will be located in /opt/deskview/bin

If you don't want to use a package manager, you can extract RPM package and copy the content to /opt/deskview

BIOS Flash Tools

6.11.2 Flash procedure

Do not restart, turn off or remove power during flash process unless the tool requests any restart action!

To flash the BIOS using the provided shell script file:

- 1) Copy `biosflash.sh` and the *.BUP file together in one folder and run `./biosflash.sh`
- 2) Wait until the flash update preparation is completely done. It may take up to a few minutes, in certain cases even without visible progress.
- 3) After BIOS flash preparation is successfully done, the system will restart automatically to perform the flash process during BIOS POST ("BIOS capsule update")

To flash the BIOS manually:

- 1) Run `deskflash -arb -d <path-to-BUP-file> -o <filename>`
- 2) Wait until the flash update preparation is completely done. It may take up to a few minutes, in certain cases even without visible progress.
- 3) After BIOS flash preparation is done, the system will restart automatically after one minute to perform the flash process during BIOS POST ("BIOS capsule update").

To flash the BIOS in AUTO mode:

- 1) Run `deskflash -arb -at [-d <path-to-BUP-file>]`
 - a. Parameter `-d` not necessary, if *.BUP file is stored in the same location as from the tool will be called. Just navigate to the folder containing the BUP file and execute the command above.
- 2) Wait until the flash update preparation is completely done. It may take up to a few minutes, in certain cases even without visible progress.
- 3) After BIOS flash preparation is done, the system will restart automatically after one minute to perform the flash process during BIOS POST ("BIOS capsule update").

BIOS Flash Tools

6.11.3 Command line options

The command line for deskflash is: `deskflash [Parameters]`

Here are explanations for the most commonly used DskFlash command line options:

-at	Automatically searches for the latest available update file in the active location, suitable for the installed motherboard.
-ar	Creates an Archive BIOS and NVRAM settings file (*.archive.bup). Please see chapter "Transferring BIOS Setup settings" for details
-d	Set the current working directory for loading and saving files and for storing the logfile too.
-o	Name the object file or file pattern for loading and saving.
-ov	Allow deskflash to overwrite a current BIOS or an existing file. Only needed, if installed BIOS is newer than the BIOS you want to flash.
-arb	Allow deskflash to reboot the system if required.
-narb	Suppress required reboot of deskflash to perform the reboot on an alternate way.
-lf	Enable logfile output and name the logfile.
-i	Display system and BIOS information
-h	Show full help of deskflash tool
-ast	Show last action status (not documented in the tool help)

BIOS Flash Tools

6.11.4 Errorlevels (Return codes)

A full list of error codes can be shown with `deskflash -e`

Errorlevel	Meaning
0	No error
1	General error occurred, check protocol
2	Syntax error in command line
16	Provided file is not valid
64	Missing confirmations (-arb, -ov, -fcu) for action
128	Insufficient privileges for action
129	The BIOS version in the file is not update compatible with the version installed.
130	Downgrading to this BIOS version is prohibited.
140	BIOS successfully prepared for POST update action
141	POST update action failed
142	POST update action pending
240	No support module for this hardware found

BIOS Flash Tools

6.12 AFU based BIOS update (Kxxxx motherboards) [new V2.1]

Beginning with the new motherboard generation Alderlake, developed by Kontron Motherboards team (formerly working for Fujitsu), the AMI update interface is implemented.

No further support for the proprietary Fujitsu GABI BIOS Update interface and therefore no support for DskFlash and Eflash tool.

Instead we now use the AMI AFU update utility and created comprehensive update scripts and internal BIOS update handler to keep the update experience on the known level.

To find the right tooling, there is a simple rule:

- All motherboards which are named “Dxxxx-Yz” had implemented the Fujitsu GABI interface (Deskflash, Eflash).
- All new motherboards, beginning with “Kxxxx-Yz” now use the AMI Update interface (AFU tools).

Important: Always use the provided update script for BIOS, CSME and EC update, which are included in the specific BIOS update package. There are some special parameters and execution orders mandatory in order to update the BIOS the right way.

6.12.1 Preparing the Windows flash procedure

Extract the files from the BIOS update pack to any directory on your system. Keep the directory path as flat as possible. Take care that you remove any whitespace character from the folders within this path.

6.12.2 Preparing the EFI flash procedure

Extract the files from the BIOS update pack to a FAT32 formatted USB drive root directory. Connect it to the system you want to update and boot into EFI shell.

BIOS Flash Tools

6.12.3 Flash procedure

**Do not restart, turn off or remove power during flash process
unless the tool requests any restart action!**

To flash the BIOS using the provided batch file:

- 1) **Windows:** Run `update-win.cmd` per right click > “run as administrator” or open a command line shell with elevated rights and run to the update script from within this shell.
EFI Shell: Boot from prepared USB drive and follow the screen instructions. Update script is called automatically by the autostart (`startup.nsh`) script. You can also execute the update script manually, if the update package content is placed on a different path on the USB drive (not recommended): `update.efi.nsh`
- 2) Check the BIOS version information shown and start the flash procedure by pressing the “Y” key to confirm.
- 3) Wait until the flash process is completely done. It may take up to a few minutes, in certain cases even without visible progress. Please do not press any key during the BIOS update process. Check the BIOS Release Notes for further update guidance comments.
- 4) After BIOS flash update is done, the system must be restarted.

It is not recommended to use the AFU update utility without the provided update scripts to prevent any unwanted data loss.

If it is necessary for system manufacturing process to implement the AFU tool into the own process landscape you have to take care to exactly use the given parameters in the update script files, especially the GUID is important for correct BIOS update execution.

BIOS Flash Tools

6.12.1 Command line options

The command line for AfuWin/Efi is:

```
AFUWINx64.exe <FlashFile.bin> /B /P /N /K:A4FB2BAACD9847ca86A1C333225764DC /RLC:F  
AfuEfix64.efi <FlashFile.bin> /B /P /N /K:A4FB2BAACD9847ca86A1C333225764DC /RLC:F
```

Do not change the parameter list, except the “FlashFile” depending on the motherboard model.

Here are explanations for the default AFU update tool command line options:

/B	Programs the boot block.
/P	Programs the BIOS main block.
/N	Programs the NVRAM area (BIOS settings)
/K:<GUID>	Programs specific BIOS areas. Do not change the GUID.
/RLC:F	Force update of NVRAM layout changes. No data loss due to internal merge functions.

Further (untested and not officially supported) parameters:

/O	Save the current BIOS image into file: AFUWINx64.exe <OutFile.bin> /O or AfuEfix64.efi <OutFile.bin> /O The exported image contains adjusted BIOS default values, the Boot logo and the BIOS area. CSME firmware is not included.
/S	This command line gets and displays the ROM ID of the current BIOS in the system.
/U	Get and display ROM ID from BIOS ROM file
/D	Verification test of given ROM File without flashing BIOS

6.12.2 Errorlevels (Return codes)

A full list of error codes can be found in [AMI_Aptio_5.x_AFU_User_Guide_PUB.pdf](#) within the update package.

BIOS Flash Tools

7 Transferring BIOS Setup settings, defaults and other BIOS customizations (Archive) [updated V2.1]

The Archive function the flash tools can be used to transfer several customizations from a source motherboard to target motherboards.

This is useful for example for setting up each motherboard during system mass production, instead of applying all customization one by one on each system.

The following Items are transferred if they are different from the target motherboard:

- The whole NVRAM
(this contains the BIOS Setup Defaults, current BIOS Setup settings, Boot order, BIOS passwords)
- The BIOS Boot Logo
(created with UEFIModL and applied via Flash tool or direct uploaded Logo via Flash tool.)
- Customized fan control and temperature limits data
(created with SilentFanConfig and applied with SMCO)
- Customized EDID data for LVDS attached flat panel displays
(created with Phoenix and applied with LVDS)
- Customized DMI data „System Manufacturer“ = DMI Type 1 Offset 4 and Type 3 Offset 4
(set with OEMIDENT)
- Some parts of the main system BIOS (only for ARC files)

The following Items are **not** transferred [updated V2.1]

- Customized DMI data except for „System Manufacturer“ (see above)
- Customized SystemData flags (set with OEMIDENT)
- Microsoft SLP and OA Data (Windows activation data, set with OEMIDENT)
- MAC Addresses of the LAN chips (set at factory, not editable)
- Management Engine (ME) Firmware (can only be updated during normal BIOS flash)
- Several other parts of the BIOS like Ethernet controller firmware, flash descriptor, etc. (can only be updated during normal BIOS flash)

BIOS Flash Tools

7.1 Archive workflow (Kxxxx) - Preliminary [new V2.1]

With the change to AFU update utility the way how the archive workflow works, changed a little. We are currently evaluating all the options and add appropriate information to a later time.

The following information is preliminary and untested. No guarantee for full feature set or any data loss which may happen. Use on your own risk.

Creating a BIOS configuration file from a source motherboard

- 1) Apply all customizations that you wish to use (Defaults, settings, logo, ...).
- 2) Create a BIOS configuration file. The commands are:

```
EFI: AfuEfix64.efi <outfile.bin> /O  
WIN: AfuWinX64.exe <outfile.bin> /O
```

Applying a BIOS archive file to a target motherboard

- 1) Use the standard BIOS update script and provide the <outfile.bin> as input file or use the parameters, mentioned in AFU update chapter.
- 2) To restore the Boot logo, check the ManufacturingTools HowTo document (available for SystemBuilder, -Integrators and partner only).

BIOS Flash Tools

7.2 Archive workflow (D36xx and D37xx)

With our CoffeeLake based motherboards (D36xx) we changed our BIOS API interface. Therefore syntax and some functionalities has been changed.

Creating a BIOS configuration file from a source motherboard

Note: BIOS configuration file is now independent of the motherboard BIOS version. No need to use exactly the same BIOS version to create and apply the configuration file.

- 3) Apply all customizations that you wish to use (Defaults, settings, logo, ...).
- 4) Create a BIOS configuration file. The commands are:

EFI: `efiflash.efi /save (*.SCD)`

Windows: `dskflash /arc (*.NVUX)`

Linux: `deskflash -arc (*.NVUX)`

The created file will be named automatically according to the motherboard version and with DeskFlash additionally to the BIOS version.

Applying a BIOS archive file to a target motherboard

- 1) EFIFlash.efi as Boot Menu utility:
 - a. Move the *.SCD file to the root directory of the EFI-USB Stick and boot the “Fujitsu Update Utility”
 - b. Decline Auto update and go to the “Additional Functions” menu.
 - c. Choose Option “6” to restore the BIOS configuration data
 - d. Optional: You can choose option “7” to update the BIOS version and activate the settings in one step. Therefore you must place the corresponding *.UPD and *.SCD file in the root directory of your USB stick. Please make sure, the naming of the files is “Dxxx-Yy.UPD/SCD”.
- 2) EFIFlash.efi in an UEFI shell environment:
 - a. Copy the *.SCD file to the same directory like efiflash.efi on your USB stick.
 - b. Restore command: `efiflash.efi /restore file.scd /pl:2 /pwd:`
 - i. `/pl:2` is needed for write access to BIOS
 - ii. `/pwd:` also at least an empty password parameter is needed. If you have set up an admin password, please add this password to the parameter.
 - c. To recover settings and flash BIOS in one step, you have to put the *.SCD and *.UPD file with the correct naming (see 1.d. above) into the same directory as efiflash.efi.
 - i. `Efiflash.efi /auto /restore /pl:2 /pwd:`
 - d. It is also possible to control which section will be restored from *.SCD file. For details about the parameters see the table in section “Efiflash.efi usage in EFI Shell”

BIOS Flash Tools

3) For Deskflash (Windows)

For applying the NVUX config file via Deskflash there are some special parameters:

/NVU	Restore the system configuration data from a .nvux file DskFlash /NVU /O=<config.nvux> [/PWD=<password>] [/BOOTORDER]
/NVRAM	Restore only the NVRAM (BIOS setup settings) from a .nvux file DskFlash /NVRAM /O=<config.nvux>
/PASSWORDS	Restore only the passwords (BIOS setup settings) from a .nvux file DskFlash /PASSWORDS /O=<config_archive.nvux>
/BOOTORDER	Restore only the boot order (BIOS setup settings) from a .nvux file or from combined.bup DskFlash /BOOTORDER /O=<config_archive.nvux>

Details and examples can be found in the tool integrated help.

You can also combine a BIOS update file (.bup) and a configuration file (.nvux) to update the system BIOS and activate your settings in one step:

/MAKE	Create a combined archive from a .nvux file and a .bup file DskFlash /MAKE /O=<output_combined.bup> /CINP=<config_archive.nvux> /BINP=<original_bios.bup>
-------	---

Apply the combined image in the same way like flashing a standard BIOS file (see chapter “Upgrading / Downgrading the BIOS”).

4) For Deskflash (Linux)

For applying the NVUX config file via Deskflash there is a special:

-nvu	Restore the system configuration data from a .nvux or combined.bup file: deskflash -arb -nvu -o <config.nvux> deskflash -arb -nvu -o <combined.bup>
------	---

Details and examples can be found in the tool integrated help.

You can also combine a BIOS update file (.bup) and a configuration file (.nvux) to update the system BIOS and activate your settings in one step:

--make	Create a combined archive from a .nvux file and a .bup file deskflash --make -o <output_combined.bup> -cinp <config_archive.nvux> -binp <original_bios.bup>
--------	---

Apply the combined image with -nvu parameter. It updates the BIOS and apply the settings from NVUX file in one step.

Attention: Different usage of parameters in Windows and Linux deskflash!

BIOS Flash Tools

- 5) If desired, apply other customizations that are specific to each piece of system, like SLP/OA activation data, system serial number, etc.

Note: When later upgrading / downgrading the BIOS, all customizations and settings will be preserved.

BIOS Flash Tools

7.3 Archive workflow (≤ D35xx)

Caution: The BIOS version on the source and destination motherboard must be the same!
If necessary, update the BIOS and reboot before applying an Archive!

Creating a BIOS archive file from a source motherboard

Note: Steps 1) and 2) can also be done vice versa.

- 1) If necessary: Upgrade/Downgrade the BIOS to the version you intend to use in mass production, reboot to activate this BIOS version.
- 2) Apply all customizations that you wish to use (Defaults, settings, LOGO, LVDS, SMCO, ...).
- 3) Create a BIOS archive file. The commands are:

DOS: `efiflash.exe /archive (*.ARC)`

EFI: `efiflash.efi /archive (*.ARC)`

Windows: `dskflash /ar (*.BUP)`

Linux: `deskflash /ar (*.BUP)`

The created file will be named automatically according to the motherboard version and with DeskFlash additionally to the BIOS version.

Applying a BIOS archive file to a target motherboard

- 1) If necessary: Upgrade/downgrade the BIOS to the same version as was used to create the archive, reboot to activate this BIOS version.
- 2) Apply the BIOS archive in the same way like flashing a standard BIOS file (see chapter “Upgrading / Downgrading the BIOS”).
- 3) If desired, apply other customizations that are specific to each piece of system, like SLP/OA activation data, system serial number, etc.

Note: When later upgrading / downgrading the BIOS, all customizations and settings will be preserved.

Caution: Do NOT apply an archive file to a motherboard with a different BIOS version than was used to create the archive! As described above, some parts of the BIOS are not updated during applying an archive, only during normal BIOS update. This could result in the BIOS version shown as the one used to create the BIOS archive, but not all parts of the BIOS would actually match this version.

BIOS Flash Tools

8 Recovery flash [updated v1.7]

In case the BIOS update process was interrupted, the contents of the BIOS flash chip might be corrupted. If a small very first part of the BIOS, the boot loader, is undamaged, a recovery procedure can restore the BIOS to normal working order.

Preparing the recovery procedure

- 1) Copy all appropriate *.ROM and *.<Number> files into the root directory of a FAT32 formatted USB stick.
- 2) Connect the USB stick to any USB port of the affected motherboard.
- 3) Set the Recovery Jumper to the appropriate position.
Please see your motherboard's manual or Tech Notes for the location of this jumper.

Typically there are two different layouts available (depending on the motherboard model):

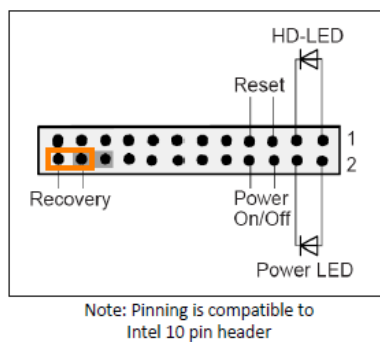


Figure 1 Combined with FrontPanel

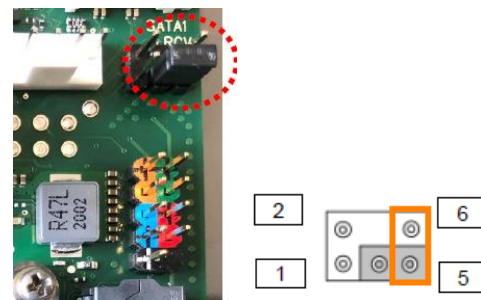


Figure 2 Separate pin header



Figure 3 Config pin header (> K39xx) -> Pin 5+6

Executing the recovery procedure

After switching on the motherboard, the BIOS bootloader automatically initiates recovery and restores the BIOS contents from the ROM file.

There will be no video output, but repeating short beeps every few seconds will indicate that the recovery is running. Depending on the motherboard model and BIOS version either a repeating sequence of short and long beeps or a message on the screen will signal success of the recovery procedure. Remove the power and set the recovery jumper back to its normal position.

BIOS Flash Tools

9 Kontron FTP Weblinks

Common	
FTP Home	https://ftp.kontron.com/main.html?download&weblink=3cb83a90a99c51160d2aa1f1f34cc340
Motherboard Tools Home	https://ftp.kontron.com/main.html?download&weblink=3cb83a90a99c51160d2aa1f1f34cc340&subfolder=Services/Software_Tools
Motherboard Drivers	https://ftp.kontron.com/main.html?download&weblink=3cb83a90a99c51160d2aa1f1f34cc340&subfolder=Products/Motherboards/0_Drivers/
Updating BIOS	
Flash Tools	https://ftp.kontron.com/main.html?download&weblink=3cb83a90a99c51160d2aa1f1f34cc340&subfolder=Services/Software_Tools/BIOS-Flash-Tools
FlashTools Documentation	https://ftp.kontron.com/main.html?download&weblink=3cb83a90a99c51160d2aa1f1f34cc340&subfolder=Services/Software_Tools/BIOS-Flash-Tools&realfilename=BIOS-Flash-Tools_HowTo.pdf
Customer Tools	
SystemGuard	https://ftp.kontron.com/main.html?download&weblink=3cb83a90a99c51160d2aa1f1f34cc340&subfolder=Services/Software_Tools/Common-Mainboard-Tools/SystemGuard/
LVDS Brightness Tool	https://ftp.kontron.com/main.html?download&weblink=3cb83a90a99c51160d2aa1f1f34cc340&subfolder=Services/Software_Tools/LVDS_Brightness-Tool/

BIOS Flash Tools

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