BIOS Recovery for XMG and SCHENKER Laptops

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This document deals with cases in which the screen of the laptop remains *completely and permanently* black after switching on the laptop and the BIOS setup can no longer be accessed with the [F2] hotkey.

This is especially true in situations where the laptop's power supply seems to be working correctly and the screen *still* remains black.

An intact power supply is to be assumed if the status LED (possibly in the power button) lights up permanently after switching on.

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1. Describing symptoms and isolating root cause

Possible causes

1. Flash operation is aborted during a BIOS update (possibly due to interruption of power supply).
2. BIOS memory chip is corrupted or a write error occurred during the flash process.
3. An incompatible BIOS ROM has been flashed or the flashed BIOS ROM is not compatible with the system configuration.
4. A third-party modified, faulty BIOS ROM has been flashed.

Minimum equipment required for boot process and BIOS setup

To open BIOS setup menu (F2) you need a CPU, compatible memory (RAM) and the internal monitor of the laptop. A single RAM module is enough. An SSD, hard disk or a working Windows installation are not necessary to open the BIOS setup. The BIOS setup can be opened either in battery mode and with external power connected.

If you see the boot logo or any Windows error messages, the issue is probably not due to the BIOS

As a rule of thumb, as long as you see content on the screen and you can open BIOS setup with the [F2] hotkey, the BIOS is fine and no reset or restore is necessary.

So if you see various error messages on the screen, such as "Default Boot Device Missing", "Missing Operating System" or a blue screen (with a sad smiley), then the BIOS seems to be fine and the problem lies either with the SSD mass storage or the operating system on it.

In such cases, you should be able to enter the BIOS setup during a reboot with the hotkey [F2] and check the settings or perform a normal reset ("Load Defaults" or "Load Optimized Defaults").

2. Possible hardware causes of black screen

If the screen remains black during booting, this can also have causes that are not directly related to the BIOS. If such a problem occurs immediately after a completed (or failed) BIOS update, then it is quite likely that it is related to the BIOS update. However, if it occurred rather randomly during normal use or "overnight", the following causes are also possible.

Memory Issues

Please remove all memory modules from the system. Most XMG and SCHENKER laptops have a maximum of two slots for SO-DIMM memory – only the XMG ULTRA series has four slots.

If the built-in memory has not already been delivered together with the laptop, please make sure that the memory meets the usual specifications of the CPU platform of the respective laptop, e.g. DDR4 2666MHz CL19 1.2V or 3200MHz CL22 1.2V.

As already described, a single RAM module is enough to boot the BIOS of the laptop. If the laptop does not boot after removing both and reinstalling a single module, please try both RAM modules individually in both RAM slots.

Problems with SSD or hard drive

Examples where a faulty SSD prevents the BIOS boot process is actually quite rare – but theoretically possible. Since an SSD is not required to boot the BIOS, you can remove all SSDs and hard drives from the system during the troubleshooting process to rule them out as a possible cause of the error.

Problems with internal laptop screen or its connection

For technical reasons, most laptops can only display their BIOS setup on the internal screen. If the internal screen is defect or not connected, some laptops can still boot and display an operating system on external monitors, but it will not be possible to open/display the BIOS setup. However, it is quite rare for a laptop screen to fail completely from one day to the next (without mechanical damage). As a rule, such defects announce themselves long in advance with image errors or temporary screen flickering.

Nevertheless, please keep this in mind. If you suspect that there is a hardware defect of the laptop screen or its connection to the mainboard, please contact us.

The connection cable between screen and laptop usually follows the eDP standard. In most laptops, the mainboard-side connector is quite easy to reach – it's usually located at the back of the mainboard, near the CPU/GPU cooling system.

3. CMOS reset by removing the CMOS battery and disconnecting all power sources

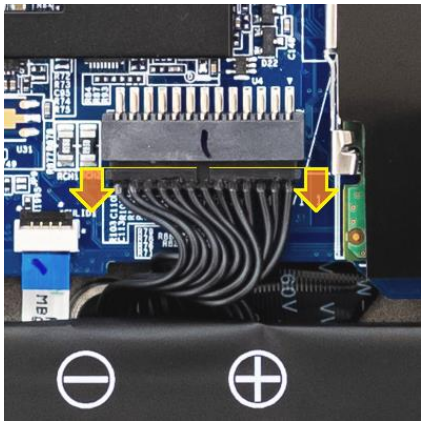
Please follow these steps:

- Disconnect the external power supply (disconnect the power supply)
- Disconnect the battery from the mainboard
- Locate the CMOS battery and disconnect it from the mainboard
- Please also remove RAM and SSD from the mainboard on this occasion
- In this configuration, let the system rest for a few minutes
- Plug a single RAM module back into the mainboard, plug in the power adapter and try to boot the laptop. For this test, the CMOS battery and rechargeable battery can still remain separate.

Die folgenden Abschnitte erklären einige dieser Schritte im Detail.

Unplugging the battery

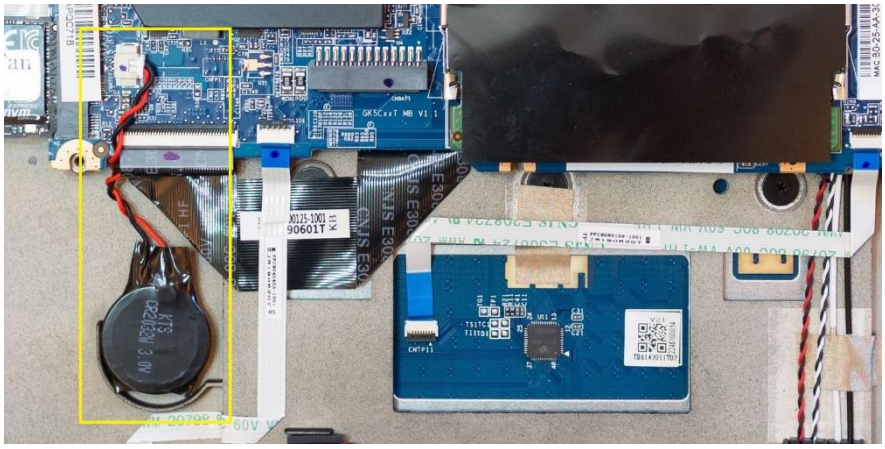
Most XMG and SCHENKER laptops have a battery, which is screwed inside the laptop. This battery is connected to the laptop via a short, broad cable. The connector of this cable can usually be pulled sideways from the mainboard. The battery does *not* need to be disassembled from the laptop – it merely needs to be disconnect from the mainboard.



In this example, the plug can be pulled out downwards. Please do not pull directly on the cable.

Structure of the CMOS battery

Depending on the laptop model, there are basically two types of CMOS batteries:

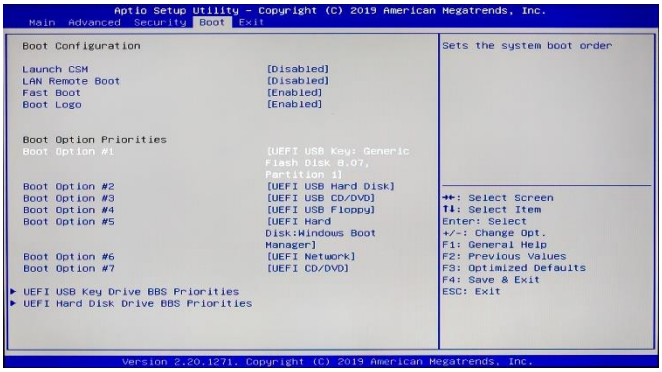
"Packaged" CMOS battery with a two-wire connection cable	*CR2032 coin cell battery in socket*
	

Both types can be easily separated from the mainboard. The "packaged" battery is often hidden under the lithium-ion battery. The two-wire cable (usually black/red coded) leads to a connector in the mainboard. This connector can be pulled out horizontally from its socket on the mainboard. If possible, you should pull the plug with your fingernail or push it out. Please avoid pulling directly on the cable.

The CR2032 coin cell is locked with a spring. The example in the photo can be pushed (with some precise force) inward (to the right side) with a pointed tool (possibly a small flat screwdriver). Once the battery reaches a certain point, it jumps out of its socket on its own.

4. CMOS reset by hotkey at boot time

First of all, depending on the laptop model, we distinguish between two different BIOS manufacturers. The two systems can be distinguished quite easily by the layout of their BIOS setup.

Aptio BIOS (American Megatrends, AMI)	Insyde BIOS
	

The two systems use different hotkeys for the CMOS reset and behave differently while performing the reset. These keyboard shortcuts only work on the laptop's internal keyboard – not on external keyboards.

Hotkey for Insyde BIOS: [Fn] + [D] + [Power Button]

As you can see, the keyboard shortcut is to press three keys at the same time. To do this, proceed as follows:

- Turn off the device completely, if necessary by pressing and holding the power button for about 5 seconds.
- Press and hold the key combination [Fn] + [D] with your left hand.
- Press and hold the power button with your right hand.
- Continue to press and hold all three buttons. It may take up to 15 seconds for the process to complete.

Depending on the system, it may happen that the laptop switches off automatically after a successful reset. If this happens, or if you see the boot logo or a BIOS message on the screen, you can release the keyboard shortcut.

If the laptop has turned itself off during the process, you can now turn it back on normally using the power button.

Hotkey for Aptio BIOS: [Ctrl] + [B] during a cold boot (applies to XMG CORE and XMG NEO models from 2021 or later)

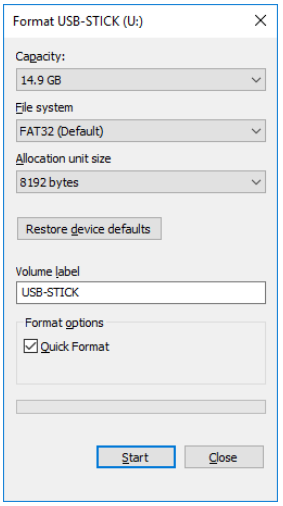
This key combination does not have to be held down together with the power button, but the duration of the press and hold is quite long. Please proceed as follows:

- Turn off the device completely, if necessary by pressing and holding the power button for about 5 seconds.
- Hold down the key combination Ctrl+B and press the power button to turn on the system.
- Keep holding down Ctrl+B. It can take up to 1 minute, 45 seconds for the process to complete.
- The power LED will flash briefly when the reset is performed. From this point on, you can release Ctrl+B.

It will now take about 20 to 25 seconds for the laptop to boot with reset settings. Then you can use F2 to go into the BIOS setup and check your settings.

5. CMOS reset by hotkey at boot time

This method can be used to overwrite a faulty or incompatible BIOS with a new ROM under certain circumstances. For this purpose, the laptop is started in a special mode to search for a suitable BIOS ROM on a USB stick. The USB stick must be formatted with FAT32 and the ROM must have a specific file name. Data carriers with USB-C connection are unfortunately not suitable.



Prepare a USB stick with FAT32

The USB stick can follow the USB 2.0 or USB 3.0 standard. It helps if the USB stick has a status LED that flashes during read and write operations.

The USB flash drive *may* contain other files – but it is better to format the stick for this process, as a fairly full USB stick may cause read problems during the recovery process. Make sure that the USB stick is formatted in FAT32. All data on the USB stick is deleted.

Correct BIOS ROM with correct file name

A BIOS update in our download portal is usually a ZIP file with various contents. The ROM is usually the largest file in the ZIP, with over 10 megabytes file size. The ROM file can have different file extensions, such as . BIN or . ROM, but on some systems it does not have a typical file extension. The correct file name usually contains part of the version number of the BIOS update, but not necessarily the complete version number.

For some BIOS updates, the ZIP file contains a "recovery" subfolder. The ROM with the correct file name is already stored there. If this is not the case with your model, please contact our support.

If you are not sure how to locate the Recovery ROM or if it has the correct filename, please contact support.

Hotkey combination

- Insyde BIOS: [Fn] + [B]
- Aptio BIOS: [Ctrl] + [Home]

The combination "Ctrl+Home" might not be obvious to find. On many laptops, the [Home] function is integrated into the numeric keypad. The [Fn] key does *not* need to be pressed because the [Pos1] function is a primary function as long as Numlock is disabled – which is already the case by default when booting.

For laptops with Aptio BIOS, which do not have a dedicated [Home] function, you can hold down the right [Ctrl] key and the [Home] key in the numeric keypad with *one hand*.

Step-by-step instructions

- Prepare the USB stick with the BIOS ROM in the root directory
- Turn off the device completely, if necessary by pressing and holding the power button for about 5 seconds.
- Connect the USB flash drive to one of the USB ports.
- Press the power button and start holding down the key combination as early as possible. You can also hold down the key combination before pressing the power button.
- Keep holding down the keyboard shortcut – but you can release the power button.
- Once you see a message on the screen, you can release the keyboard shortcut.
- Ideally, you will now see a progress bar that represents the recovery process.

If you are sure that you have the correct ROM file with the correct file name and if this process still does not work, please try a different USB stick.

6. Further information

We hope that the information in this document has helped you. Please also refer to our FAQ in the "Troubleshooting" category and our community pages:

- https://www.xmg.gg/en/faq/troubleshooting/
- https://www.xmg.gg/en/community/

If you have any further questions, please do not hesitate to contact us.

- Monday to Friday: 8am to 6pm
- Phone: +49 341 2467040
- E-Mail: support@schenker-tech.de

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