How to solve STM32H7 blocking due to incorrect configuration

Problem Overview

The issue here is that the MCU comes with an internal converter and LDO.

The hardware design is not the same when it works with SMPS or with LDO.

On our boards it is selected by resistors R44, R45 and R46.

By default we have LDO trim enabled, which means that R44 and R46 are not

mounted, and the R45 is 0R. The processor blocks itself, if it initializes with

a configuration different from the hardware.

It prevents the processor from self-destruction. Then the SWD is also blocked.
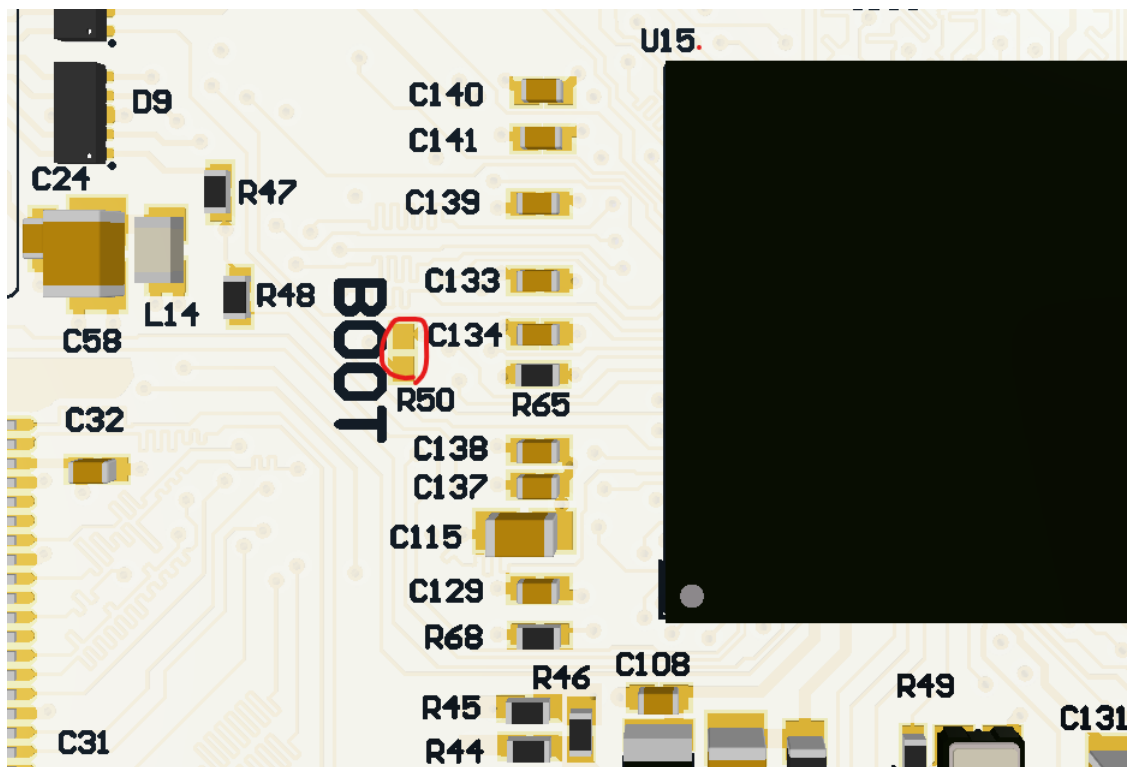
SOLUTION

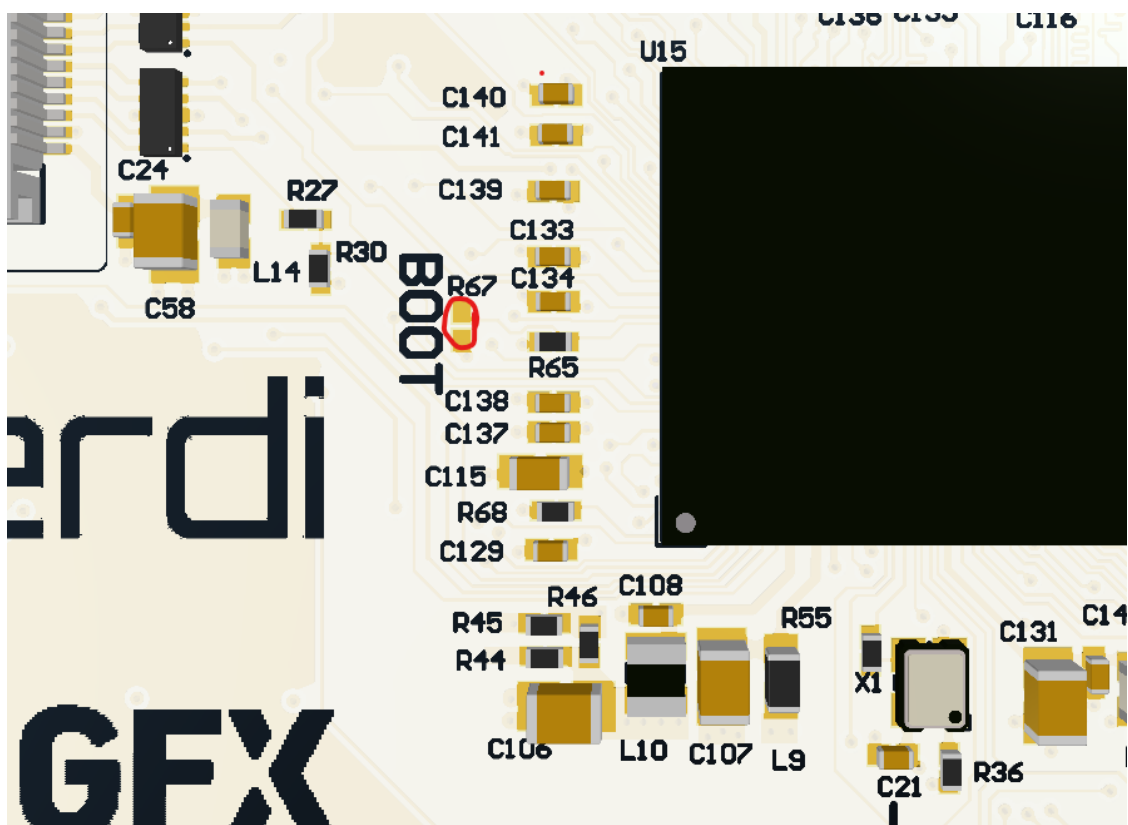There are 3 ways to reset this mode, choose one of them:

A) Enter the boot mode by performing following steps:

1. Turn off the power
2. Short BOOT pads (see the image below), *You can use tweezers or soldering iron*
3. Turn the power back on
4. Connect the SWD and perform full chip erase
5. Turn off the power
6. Un-short BOOT pads

For 10.1" (R50)

For 7.0" (R67)

B) Remove the R45 0R resistor, solder R44 and R46 with 0R. Then connect the SWD, clear the flash, and switch back the resistors.

or

C) Hold the processor reset and try to connect before the flash program reaches the PWR configuration. It takes only several dozen of ms, so you might need couple repeats to nail it. Then connect the SWD, clear the flash.

NOTE:

Remember to keep in your projects default power configuration:

HAL_PWREx_ConfigSupply(PWR_LDO_SUPPLY);

NOTE:

For older PCB versions option A is different

A) Enter the boot mode by performing following steps:

1. Turn off the power
2. Connect the soldering pads R65 and C134 (see the image below)
3. Turn the power back on
4. Connect the SWD and clean the flash
5. Turn off the power
6. Disconnect R65 and C134