



How to diagnose a boot failure



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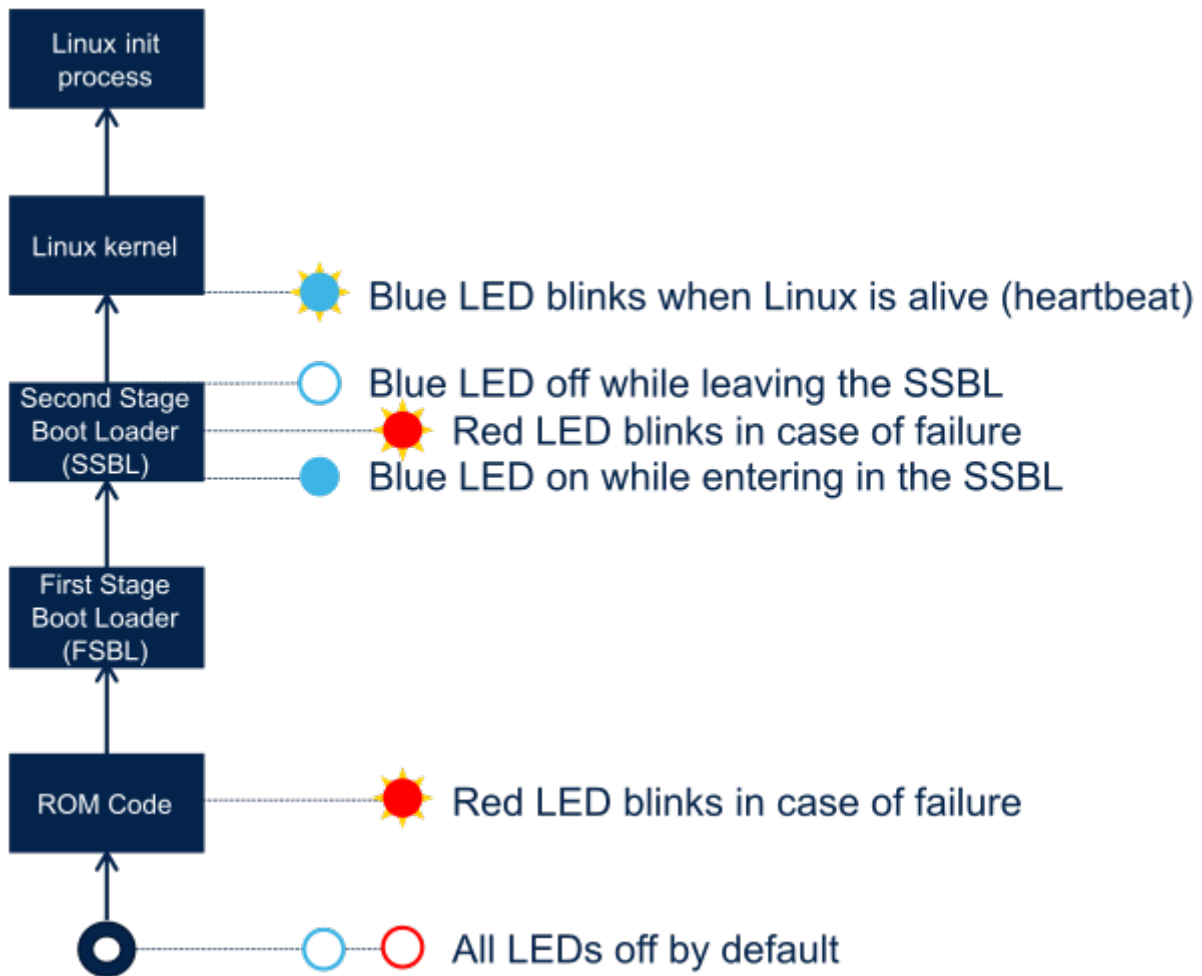
1 Introduction

The blue and red LEDs on STM32MP15 boards are used to notify the user in case of boot failure during the boot chain execution and at runtime.



2 Description and debug

The statuses of blue and red LEDs allow to see at which stage the execution failed: the diagram below shows how each boot component uses these LEDs while the table gives more information on the way to interpret the LED statuses when the boot fails. Among the boot components, the FSBL can be TF-A or U-Boot SPL and the SSBL is U-Boot, as explained in the [boot chain overview](#).



Blue LED	Red LED	System state	Action
	Blinking		Check that: <ul style="list-style-type: none"> your microSD card is properly inserted in the board the boot pins configuration selects the boot device



Blue LED	Red LED	System state	Action
Off	On	The execution failed during ROM code execution	<ul style="list-style-type: none"> your boot memory was well programmed with STM32CubeProgrammer
On	Blinking	The execution failed during the second stage bootloader (SSBL)	See U-Boot - How to debug to investigate the failure
Off	Off	The execution may have failed: <ol style="list-style-type: none"> In FSBL execution After the SSBL execution but before the heartbeat (blue LED) started 	<ol style="list-style-type: none"> See TF-A - How to debug to investigate the failure See U-Boot - How to debug and how to trace and debug to investigate the failure
Off or on	Off	The execution may have failed during Linux [®] kernel execution between two heartbeat pulses (blue LED): a fatal error leading to a kernel panic might have occurred...	See Dmesg and Linux kernel log to investigate the failure
Blinking	Off	Your platform is alive	Enjoy !

Light-emitting diode

First Stage Boot Loader

Trusted Firmware for Arm[®] Cortex[®]-A

Das U-Boot -- the Universal Boot Loader (see [U-Boot_overview](#))

Secondary Program Loader, *Also known as **U-Boot SPL***

Second Stage Boot Loader

Linux[®] is a registered trademark of Linus Torvalds.

Stable: 12.03.2021 - 11:29 / Revision: 12.03.2021 - 11:15

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[Return to Boot chain overview.](#)

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Return to Category: [How to trace and debug.](#)



Pages in category "How to trace and debug"

The following 18 pages are in this category, out of 18 total.

H

- [How to access information in sysfs](#)
- [How to activate the Gcnano GPU debug mode](#)
- [How to check that a device tree resource is correctly set](#)
- [How to debug the Gcnano GPU with VTK](#)
- [How to debug Weston](#)
- [How to detect memory leaks](#)
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- [How to enable earlyprintk for Linux kernel](#)
- [How to find Linux kernel driver associated to a device](#)
- [How to get DRM KMS logs](#)
- [How to get name and current status of a DRM connector](#)
- [How to get Terminal](#)
- [How to monitor the display framerate](#)
- [How to monitor the GCNANO GPU load](#)
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- [How to read or write peripheral registers](#)
- [How to retrieve Cortex-M4 logs after crash](#)
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[Return to Dmesg and Linux kernel log](#)

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[Return to STM32CubeProgrammer](#)

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[Return to STM32MP15 ROM code overview](#)

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