

Security bulletin TN1489-ST-PSIRT: Physical attacks on STM32 and STM32Cube firmware

Overview

This security bulletin relates generally to any physical attack against any version of an STM32 and/or STM32Cube firmware product (collectively referred to as **STM32 product** in this document). It does not pertain to any specific known physical attack.

Physical attacks mean attacks made by acquiring physical access, or very close access, to an STM32 product. This includes, but may not be limited to:

- attacks made through access to physical interfaces
- perturbation attacks (that is, fault injections to induce an exploitable error)
- · side channel attacks (including timing attacks), power analysis (SPA, DPA, and the like), and electromagnetic analysis
- · invasive attacks including physical changes and reverse engineering

In addition to requiring physical or close access to an STM32 product, physical attacks often require specialized tools and techniques.

Description

Regarding STM32 products and their resistance to physical attacks:

Unless an STM32 product is SESIP or PSA certified as having a security assurance level covering **physical attacker resistance**, it may be vulnerable to **physical attacks**.

For the security assurance level of a certified STM32 product:

- Services and features that are protected against physical attacks are identified in the certification scope of the product security targets. Note that the protection level (security assurance level) depends on the certification level obtained.
- Resistance level for those services and features is described in the security targets.
- Services and features outside the certification scope are not covered.

If a service or a feature of an STM32 product is not certified as having physical attacker resistance, such STM32 product should not be considered resistant to physical attacks.

Generally speaking, because *physical attacks* require physical or close access to an *STM32 product*, they are typically limited to only a select number of devices to which attackers have physical access, as opposed to remote attacks. The potential impact of a *physical attack* is therefore typically much more limited than the impact of a remote attack. The overall impact of a *physical attack* also highly depends on the sensitivity of the information associated with the targeted product.

When the application context requires resistance to *physical attacks*, it is advised to select *STM32 products* that are SESIP or PSA certified with *physical attacker resistance*. To meet the application requirements, it may not be sufficient to select a SESIP or PSA certified *STM32 product*. It is also important that the security assurance level stated in that certification provides *physical attacker resistance*.

For certification scope and security assurance level, refer to the product *security targets* and certificates available on the certification body websites:

- https://www.trustcb.com/iot/sesip/sesip-certificates/
- https://www.psacertified.org/certified-products/

Contact information

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Revision history

Table 1. Document revision history

Date	Version	Changes
09-Oct-2023	1	Initial version.

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