ESPRESSIF

Bug Advisory

Title	Advisory for Upgrading ESP-IDF for Application That Has Enabled [Auto Suspend] or [XIP from PSRAM]
Issue Date	2023/09/04
Advisory Number	AR2023-003
Serial Number	NA
Version	V1.0

What Application Is Affected

1. Application that has enabled [Auto Suspend] is affected. Follow the steps below to check if your application has enabled [Auto Suspend].
   - Check the chip used. If **ESP32-C3** is used, the application may be affected. Other chips are not affected.
   - Check the software option enabled. If the option CONFIG_SPI_FLASH_AUTO_SUSPEND is enabled on the chip mentioned above, the application is affected.

2. Application that has enabled [XIP from PSRAM] is affected. Follow the steps below to check if your application has enabled [XIP from PSRAM].
   - Check the chip used. If **ESP32-S2** or **ESP32-S3** is used, the application may be affected. Other chips are not affected.
   - Check the software option enabled. If the options CONFIG_SPIRAM_FETCH_INSTRUCTIONS and CONFIG_SPIRAM_RODATA both are enabled on the chips mentioned above, the application is affected.

   NOTE

   - The three options above are all **disabled** by default in ESP-IDF.
   - Applications affected should upgrade ESP-IDF to **the fixed version or above.** For the affected versions and fixed versions, see the following sections.

Issue Summary

Protection for concurrent access to main flash (connected to SPI0 CS0) with esp_flash API is bypassed in any conditions described in **Section What Application Is Affected**. Unexpected concurrent access may cause data corruption in the main flash, which may forbid the device from booting up.
The following ESP-IDF versions are affected.

Affected versions if Auto Suspend is used:

ESP-IDF Branch	Affected Release Versions	Affected Commit ID
master after v5.2-dev	No related releases	7a20ea5 to ad0345a (excluded)
release/v5.1	v5.1	7a20ea5 to 0930b5c (excluded)
release/v5.0	v5.0~v5.0.3	7a20ea5 to 3fba342 (excluded)
release/v4.4	v4.4~v4.4.5	7a20ea5 to 48e848c (excluded)
release/v4.3	v4.3~v4.3.5	7a20ea5 to e1647e5 (excluded)

Affected versions if XIP From PSRAM is used:

ESP-IDF Branch	Affected Release Versions	Affected Commit ID
master after v5.2-dev	No related releases	1005c3b to ad0345a (excluded)
release/v5.1	v5.1	1005c3b to 0930b5c (excluded)
release/v5.0	v5.0.1~v5.0.3	987e6b4 to 3fba342 (excluded)
release/v4.4	v4.4.5	43b9f6d to 48e848c (excluded)

Fixed Versions of ESP-IDF

ESP-IDF Branch	Fixed ESP-IDF Version	Commit ID with the Fix
master after v5.2-dev	Expected in v5.2	ad0345a
release/v5.1	Expected in v5.1.1	0930b5c
release/v5.0	Expected in v5.0.4	3fba342
release/v4.4	Expected in v4.4.6	48e848c
release/v4.3	Expected in v4.3.6	e1647e5

Recommendations for Application Developers

If your application may use the listed features, please check sdkconfig file to see if the affected options are enabled. If yes, and your ESP-IDF version is in the affected range, please upgrade ESP-IDF to the fixed version or above or to the version that has the commit with the fix merged, see tables above. If you encounter problems during the upgrade process, please provide the ESP-IDF version or Commit ID to Espressif. We will handle related matters as soon as possible.