ESP32-S31

Series SoC Errata Version v0.1

ESPRESSIF

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1 Chip Revision Identification

Espressif is introducing a new **vM.X** numbering scheme to indicate chip revisions. This guide outlines the structure of this scheme and provides information on chip errata and additional identification methods.

1.1 Chip Revision Numbering Scheme

The new numbering scheme **vM.X** consists of the major and minor numbers described below.

M –Major number, indicating the major revision of the chip product. If this number changes, it means the software used for the previous version of the product is incompatible with the new product, and the software version shall be upgraded for the use of the new product.

X –Minor number, indicating the minor revision of the chip product. If this number changes, it means the software used for the previous version of the product is compatible with the new product, and there is no need to upgrade the software.

The **vM.X** scheme replaces previously used chip revision schemes, including ECOx numbers, Vxxx, and other formats if any.

1.2 Primary Identification Methods

eFuse Bits

The chip revision is encoded using two eFuse fields:

- EFUSE_RD_MAC_SYS3_REG[23:22]
- EFUSE_RD_MAC_SYS3_REG[21:18]

Table 1.1: Chip Revision Identification by eFuse Bits

	eFuse Bit	Chip Revision
		v0.0
Major Number	EFUSE_RD_MAC_SYS3_REG[23]	0
	EFUSE_RD_MAC_SYS3_REG[22]	0
Minor Number	EFUSE_RD_MAC_SYS3_REG[21]	0
	EFUSE_RD_MAC_SYS3_REG[20]	0
	EFUSE_RD_MAC_SYS3_REG[19]	0
	EFUSE_RD_MAC_SYS3_REG[18]	0

Chip Marking

- **Manufacturing Code** line in chip marking

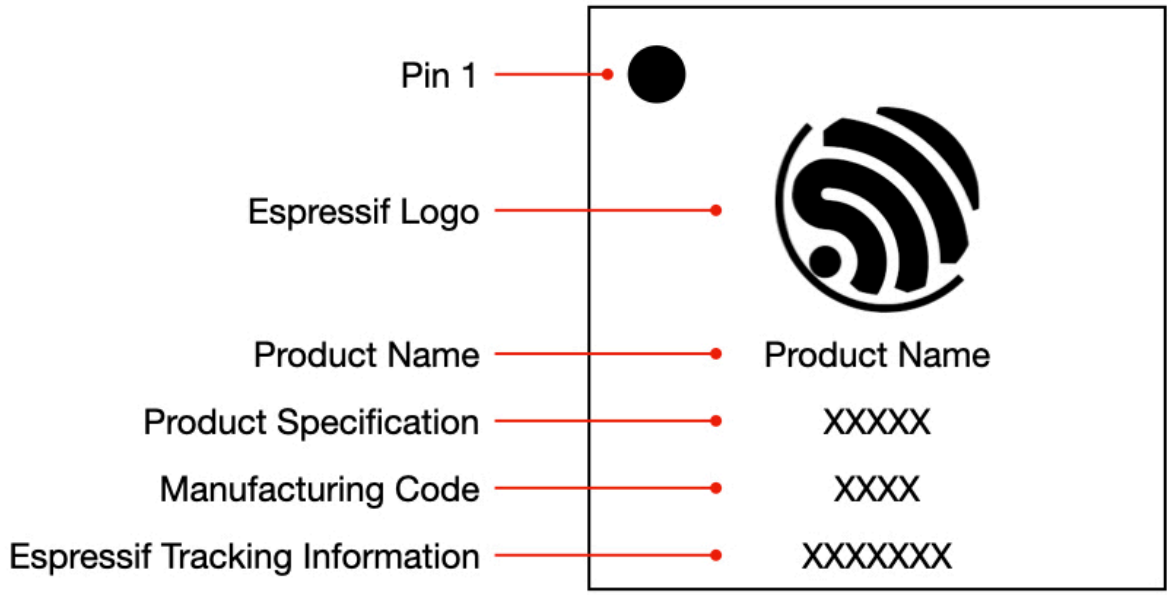

Figure 1.1: Chip Marking Diagram

Table 1.2: Chip Revision Identification by Chip Marking

Chip Revision	Manufacturing Code
v0.0	X A XX

Module Marking

- **Specification Identifier** line in module marking

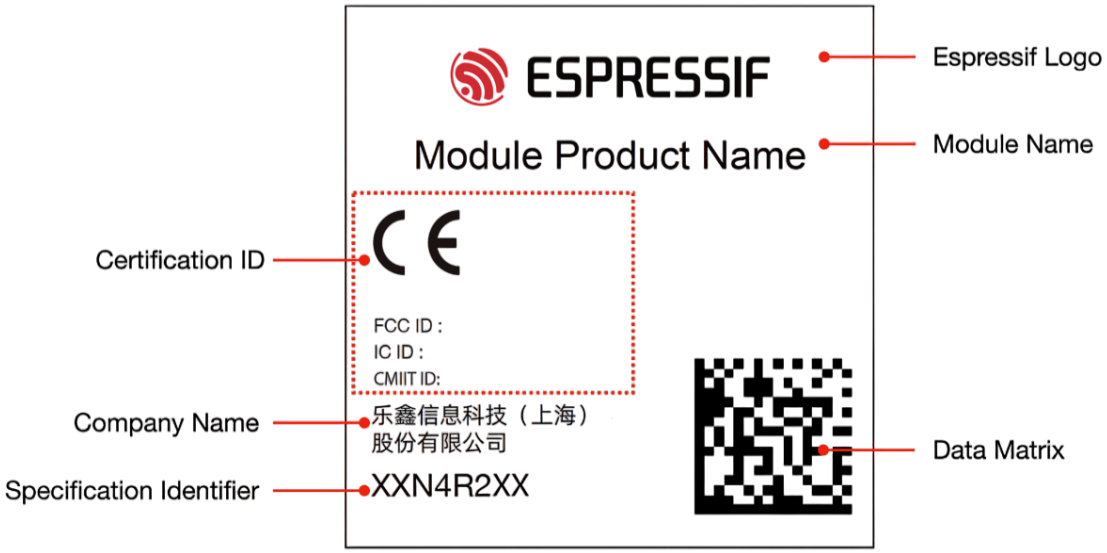

Figure 1.2: Module Marking Diagram

Table 1.3: Chip Revision Identification by Module Marking

Chip Revision	Specification Identifier
v0.0	MA XXXX

1.3 Additional Identification Methods

Date Code

Some errors in the chip product don’ t need to be fixed at the silicon level, or in other words in a new chip revision.

In this case, the chip may be identified by **Date Code** in chip marking (see *Chip Marking*). For more information, please refer to ESP32-S31 Chip Packaging Information > Chip Silk Marking.

PW Number

Modules built around the chip may be identified by **PW Number** in product label (see *Module Product Label*). For more information, please refer to ESP32-S31 Module Packaging Information > Pizza Box.

Figure 1.3: Module Product Label

Note: Please note that **PW Number** is only provided for reels packaged in aluminum moisture barrier bags (MBB).

1.4 ESP-IDF Release Compatibility

Information about ESP-IDF release that supports a specific chip revision is provided in Compatibility Between ESP-IDF Releases and Revisions of Espressif SoCs.

1.5 Related Documents

- For more information about the chip revision upgrade and their identification of series products, please refer to ESP32-S31 Product/Process Change Notifications (PCN).
- For more information about the chip revision numbering scheme, see Compatibility Advisory for Chip Revision Numbering Scheme.

2 Errata Summary

Table 2.1: Errata summary

Category	Errata No.	Descriptions	Affected Revisions
			v0.0
SPI	SPI-855	*[SPI-855] Flash Boot Fails at 1.8 V VDD_SPI*	Y
ECDSA_DS [1]	ECDSA_DS-836	*[ECDSA_DS-836] Signatures with Invalid r and s Values Are Incorrectly Accepted*	Y

[1] ECDSA_DS: ECDSA Digital Signature Peripheral.

3 All Errata Descriptions

3.1 [SPI-855] Flash Boot Fails at 1.8 V VDD_SPI

Affected revisions: v0.0

Description

The voltage corresponding to the default value of EXT_LDO_DREF is not 1.8 V, and the chip cannot boot from flash under 1.8 V VDD_SPI conditions.

Workaround

Boot from flash using 3.3 V VDD_SPI.

Solution

To be fixed in the next chip revision.

3.2 [ECDSA_DS-836] Signatures with Invalid r and s Values Are Incorrectly Accepted

Affected revisions: v0.0

Description

When the signature `{r = 0 or n, s = 0 or n}` with invalid `r` and `s` values is submitted to the ECDSA_DS peripheral against any message and public key, the peripheral incorrectly reports the signature as "valid".

Workarounds

Use RSA_DS Secure Boot instead of ECDSA_DS Secure Boot.

Solution

No fix scheduled.

4 Revision History

Table 4.1: Revision History

Date	Version	Release Notes
2026-07-10	v0.1	First release

5 Related Documentation and Resources

5.1 Related Documentation

- ESP32-S31 Datasheet –Specifications of the ESP32-S31 hardware.
- ESP32-S31 Technical Reference Manual –Detailed information on how to use the ESP32-S31 memory and peripherals.
- ESP32-S31 Hardware Design Guidelines –Guidelines on how to integrate the ESP32-S31 into your hardware product.
- Certificates
  https://espressif.com/en/support/documents/certificates

- ESP32-S31 Product/Process Change Notifications (PCN)
  https://espressif.com/en/support/documents/pcns?keys=ESP32-S31
- ESP32-S31 Advisories –Information on security, bugs, compatibility, component reliability.
  https://espressif.com/en/support/documents/advisories?keys=ESP32-S31
- Documentation Updates and Update Notification Subscription
  https://espressif.com/en/support/download/documents

5.2 Developer Zone

- ESP-IDF Programming Guide for ESP32-S31 –Extensive documentation for the ESP-IDF development framework.
- ESP-IDF and other development frameworks on GitHub.
  https://github.com/espressif
- ESP32 BBS Forum –Engineer-to-Engineer (E2E) Community for Espressif products where you can post questions, share knowledge, explore ideas, and help solve problems with fellow engineers.
  https://esp32.com/
- The ESP Journal –Best Practices, Articles, and Notes from Espressif folks.
  https://blog.espressif.com/
- See the tabs SDKs and Demos, Apps, Tools, AT Firmware.
  https://espressif.com/en/support/download/sdks-demos

5.3 Products

- ESP32-S31 Series SoCs –Browse through all ESP32-S31 SoCs.
  https://espressif.com/en/products/socs?id=ESP32-S31
- ESP32-S31 Series Modules –Browse through all ESP32-S31-based modules.
  https://espressif.com/en/products/modules?id=ESP32-S31
- ESP32-S31 Series DevKits –Browse through all ESP32-S31-based devkits.
  https://espressif.com/en/products/devkits?id=ESP32-S31
- ESP Product Selector –Find an Espressif hardware product suitable for your needs by comparing or applying filters.
  https://products.espressif.com/#/product-selector

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  https://espressif.com/en/contact-us/sales-questions

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