

ESP8684 Series SoC

Errata

Introduction

This document describes known errata in ESP8684 series of SoCs.



Version 1.1

Espressif Systems

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Chip Identification

Note:

Check the link or the QR code to make sure that you use the latest version of this document:
https://espressif.com/sites/default/files/documentation/esp8684_errata_en.pdf



1 Chip Revision

Espressif is introducing **vM.X** numbering scheme to indicate chip revisions.

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.

The chip revision is identified by:

- eFuse field EFUSE_BLK2_DATA1_REG[21:20] and EFUSE_BLK2_DATA1_REG[19:16].

Table 1: Chip Revision Identification by eFuse Bits

	eFuse Bit	Chip Revision		
		v0.0	v1.0	v1.1
Major Number	EFUSE_BLK2_DATA1_REG[21]	0	0	0
	EFUSE_BLK2_DATA1_REG[20]	0	1	1
Minor Number	EFUSE_BLK2_DATA1_REG[19]	0	0	0
	EFUSE_BLK2_DATA1_REG[18]	0	0	0
	EFUSE_BLK2_DATA1_REG[17]	0	0	0
	EFUSE_BLK2_DATA1_REG[16]	0	0	1

- **Espressif Tracking Information** line in chip marking

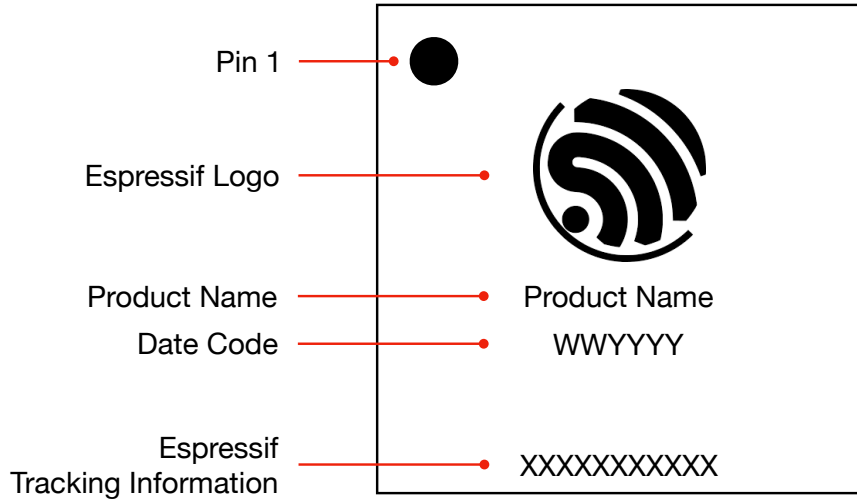


Figure 1: Chip Marking Diagram

Table 2: Chip Revision Identification by Chip Marking

Chip Revision	Espressif Tracking Information
v0.0	X A XXXXXXXX
v1.0	X AA XXXXXXXX
v1.1	X B XXXXXXXX

- **Specification Identifier** line in module marking

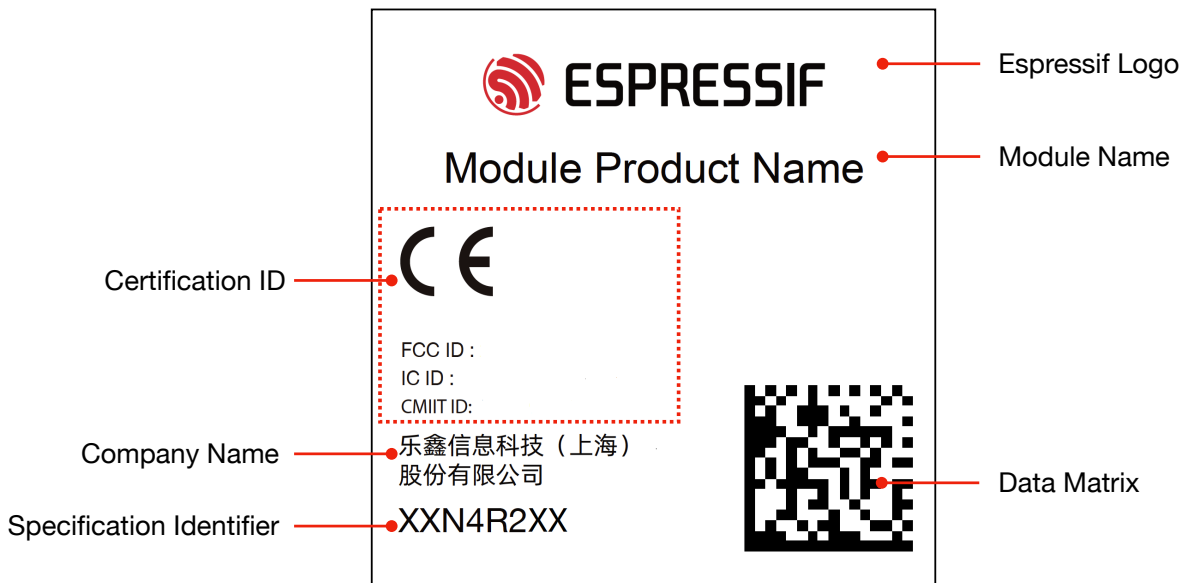


Figure 2: Module Marking Diagram

Table 3: Chip Revision Identification by Module Marking

Chip Revision	Specification Identifier ¹
v0.0	–
v1.0	XAXXXX
v1.1	XBXXXX

¹ – means modules with this chip revision are not mass produced.

Note:

- Information about ESP-IDF release that supports a specific chip revision is provided in [Compatibility Between ESP-IDF Releases and Revisions of Espressif SoCs](#).
- For more information about the chip revision upgrade and their identification of ESP8684 series products, please refer to [ESP8684 Product/Process Change Notifications \(PCN\)](#).
- For more information about the chip revision numbering scheme, see [Compatibility Advisory for Chip Revision Numbering Scheme](#).

2 Additional Methods

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 Figure 1). For more information, please refer to [Espressif Chip Packaging Information](#).

Modules built around the chip may be identified by **PW Number** in product label (see Figure 3). For more information, please refer to [Espressif Module Packaging Information](#).

 ESPRESSIF 乐鑫信息科技(上海)股份有限公司	
生产工单 PW Number	PW-2020-11-0001
产品型号 Product Name	ESP32-WROOM-32D
产品料号 Product Number	M21EH3264PH3Q0
数量 Quantity	650 pcs
固件版本 Firmware Ver	IDF: AT: FW P/N:
原产国 Country of Origin	MADE IN CHINA
生产日期 Seal Date	2020-11-30
批次号 Lot Number	202048-000001 202048-000002 202048-000003 202048-000004 202048-000005
出货检验 OQC	产品条码 QR code
	

Figure 3: Module Product Label

Note:

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

Errata Description

Table 4: Errata Summary

Category	Description	Affected Revisions		
		v0.0	v1.0	v1.1
XTAL Campabilitiy Issue	3.1 40 MHz crystal cannot work	Y	Y	N

3 Crystal

3.1 40 MHz crystal cannot work

Description

ESP8684 was designed to support 26 MHz and 40 MHz crystals. However, for revision v1.0 and previous versions, some chips cannot work properly when equipped with 40 MHz crystal. Specific symptoms of the problem include clock issues, or printing garbled characters when powering on, etc.

Workarounds

Use 26 MHz crystal instead of 40 MHz for revision v1.0 and previous chips.

Projected Solution

This issue has been fixed in revision v1.1, which supports both 26 MHz and 40 MHz crystals.

Related Documentation and Resources

Related Documentation

- [ESP8684 Series Datasheet](#) – Specifications of the ESP8684 hardware.
- [ESP8684 Technical Reference Manual](#) – Detailed information on how to use the ESP8684 memory and peripherals.
- [ESP8684 Hardware Design Guidelines](#) – Guidelines on how to integrate the ESP8684 into your hardware product.
- *Certificates*
<https://espressif.com/en/support/documents/certificates>
- *ESP8684 Product/Process Change Notifications (PCN)*
<https://espressif.com/en/support/documents/pcns?keys=ESP8684>
- *Documentation Updates and Update Notification Subscription*
<https://espressif.com/en/support/download/documents>

Developer Zone

- [ESP-IDF Programming Guide for ESP8684](#) – 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>

Products

- *ESP8684 Series SoCs* – Browse through all ESP8684 SoCs.
<https://espressif.com/en/products/socs?id=ESP8684>
- *ESP8684 Series Modules* – Browse through all ESP8684-based modules.
<https://espressif.com/en/products/modules?id=ESP8684>
- *ESP8684 Series DevKits* – Browse through all ESP8684-based devkits.
<https://espressif.com/en/products/devkits?id=ESP8684>
- *ESP Product Selector* – Find an Espressif hardware product suitable for your needs by comparing or applying filters.
<https://products.espressif.com/#/product-selector?language=en>

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Revision History

Date	Version	Release Notes
2023-08-17	v1.1	Added Chip Revision Identification by Module Marking
2022-12-14	v1.0	First release



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