

文件编号 Document No.	ESP-07-2-007-03	文件名称 Document Name	产品/工艺变更通知 Product/Process Change Notice (PCN)
文件版本 Document Version	1.4	保存期限 Retention Period	5 年 5 years

### ESP32-C6 系列产品的芯片版本升级

#### Upgrade Chip Revision of ESP32-C6 Series Products

PCN 编号 PCN No.	PCN20231101	提出日期 Issue Date of PCN	2023/11/01
变更日期 Proposed Date of Change	2023/11/16	预计变更后产品首次出货日期 Proposed Date of First Shipment After Change	2023/12/10
PCN 类型 / PCN Category	<input checked="" type="checkbox"/> 客户需要批准 / Customer Approval Required <input type="checkbox"/> 客户通知 / Customer Notification		

#### 1. 影响产品名称 / Affected Product Name

##### 1) 芯片产品 / Chip Product

ESP32-C6, ESP32-C6FH4

##### 2) 模组产品 / Module Products

产品名称 / Product Name	MPN	Chip on Board
ESP32-C6-WROOM-1	ESP32-C6-WROOM-1-N4	ESP32-C6
ESP32-C6-WROOM-1	ESP32-C6-WROOM-1-H4	ESP32-C6
ESP32-C6-WROOM-1	ESP32-C6-WROOM-1-N8	ESP32-C6
ESP32-C6-WROOM-1	ESP32-C6-WROOM-1-N16	ESP32-C6
ESP32-C6-WROOM-1U	ESP32-C6-WROOM-1U-N4	ESP32-C6
ESP32-C6-WROOM-1U	ESP32-C6-WROOM-1U-H4	ESP32-C6
ESP32-C6-WROOM-1U	ESP32-C6-WROOM-1U-N8	ESP32-C6
ESP32-C6-WROOM-1U	ESP32-C6-WROOM-1U-N16	ESP32-C6
ESP32-C6-MINI-1	ESP32-C6-MINI-1-N4	ESP32-C6FH4
ESP32-C6-MINI-1	ESP32-C6-MINI-1-H4	ESP32-C6FH4
ESP32-C6-MINI-1U	ESP32-C6-MINI-1U-N4	ESP32-C6FH4
ESP32-C6-MINI-1U	ESP32-C6-MINI-1U-H4	ESP32-C6FH4

### 3) 开发板产品/ Development Board Products

产品名称/ Product Name	MPN
ESP32-C6-DevKitC-1	ESP32-C6-DevKitC-1-N8
ESP32-C6-DevKitM-1	ESP32-C6-DevKitM-1-N4

### 2. 变更原因/ Reason for Change

优化 ESP32-C6 芯片，修复产品 Bug。具体修复问题参见《[ESP32-C6 系列芯片勘误表](#)》4.1 和 5.1 小节。段落 1 中列出的模组和开发板产品的主芯片为 ESP32-C6 系列芯片，因此相应地发生变更。

Optimize the ESP32-C6 series of chips to fix bugs described in [ESP32-C6 Series SoC Errata](#) > Section 4.1 and Section 5.1.

The modules and development boards listed in Para 1 are based on the ESP32-C6 series of chips, and thus will change accordingly.

### 3. 变更描述/ Description of Change

芯片版本为 v0.0 的 ESP32-C6 芯片进行主晶圆金属层设计变更，修复产品 Bug，芯片版本升级为 v0.1。具体修复问题参见《[ESP32-C6 系列芯片勘误表](#)》4.1 和 5.1 小节。

ESP32-C6 chip revision v1.0 is a metal layer design change to the ESP32-C6 chip revision v0.0. The new revision fixes the bugs described in [ESP32-C6 Series SoC Errata](#) > Section 4.1 and Section 5.1.

### 4. 变更对比/ Change Comparison

请见附录 I：变更对比。

Please refer to Appendix I: Change comparison.

芯片产品：通过 eFuse 及产品丝印。

Chip products: Identified by eFuse bits and chip marking.

模组产品通过主芯片的 eFuse，模组屏蔽盖丝印的产品规格标识位，或产品外箱标签中的 PW 号。

Module products: Identified by the chip eFuse, module shield marking, or PW No. on carton box.

开发板产品通过主芯片的 eFuse，模组屏蔽盖丝印的产品规格标识位，或产品外箱标签中的 PW 号。

Development board product: Identified by the chip eFuse, module shield marking, or PW No. on carton box.

### 5. 变更影响/ Impact of Change

#### 1) 品质和性能/ Quality & Performance:

无影响，此次更新为产品修复 Bug，具体详见 [ESP32-C6 系列产品勘误表信息](#)。

No impact. This upgrade is for product bug fixes. For details, see [ESP32-C6 Series SoC Errata Information](#).

#### 2) 交期/ Delivery: 无影响。/ No impact.

#### 3) 生产料号/ Material Part Numbers (MPN): 无影响。/ No impact.

#### 4) 认证/ Certification: 无影响。/ No impact.

#### 5) 软件/ IDF:

ESP-IDF v5.1 为首次支持 ESP32-C6 系列芯片的 ESP-IDF 版本，该版本已经支持变更后的 ESP32-C6 系列产品，客户可继续使用 ESP-IDF v5.1 及之后的 IDF 版本进行变更后产品的生产。

ESP-IDF v5.1 is the first IDF version to support ESP32-C6 series products, and is already compatible with the changed ESP32-C6 series products listed in Para 1. Customers can continue to use ESP-IDF v5.1 and later versions for the changed products.

6. 变更前后产品处理/ How to Deal with Products

FIFO

7. 相关报告/ Related Report(s):

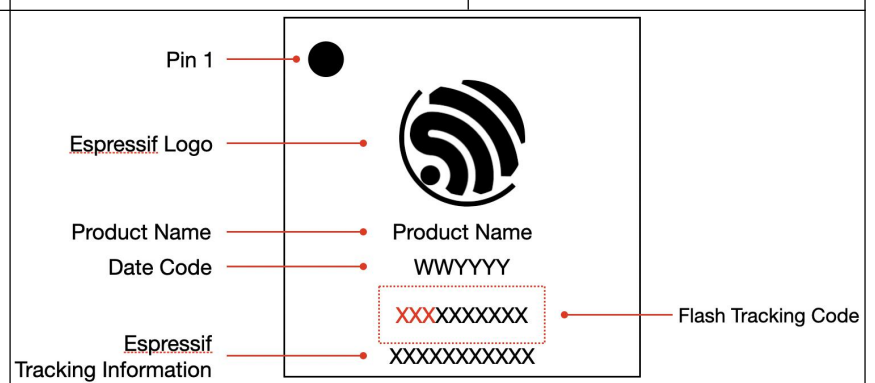

- RF Performance Test                      Pass  
[ESP32-C6 系列芯片勘误表](#)  
 Other Report                                      [ESP32-C6 Series SoC Errata](#)

8. 给使用者的验证建议/ Verification Suggestion To Users

建议客户结合实际应用场景进行验证。

Suggest customer can do the verification with practical application scenarios.

## Appendix I 变更对比/ Change Comparison

1 产品基本信息/ Product Basic Information			
No.	项目/ Item	变更前/ Before Change	变更后/ After Change
1.1	Chip Revision	v0.0	v0.1
1.2	eFuse 标识位/ eFuse identification bit		
	EFUSE_RD_MAC_SPI_SYS_3_REG[23]	0	0
	EFUSE_RD_MAC_SPI_SYS_3_REG[22]	0	0
	EFUSE_RD_MAC_SPI_SYS_3_REG[21]	0	0
	EFUSE_RD_MAC_SPI_SYS_3_REG[20]	0	0
	EFUSE_RD_MAC_SPI_SYS_3_REG[19]	0	0
	EFUSE_RD_MAC_SPI_SYS_3_REG[18]	0	1
1.3	Chip Marking (Espressif Tracking Information Line)		
		xAxxxxxxxxx	xBxxxxxxxxx
1.4	Module MPN	No Change	
1.5	Module Marking (Specification Marking Line)		
		XAXXXXX	MBXXXXX

2	<a href="#">勘误表信息/ Errata Information</a>		
2.1	时钟 Clock	RC_FST_CLK 时钟无法校准 Inaccurate Calibration of RC_FST_CLK Clock	在芯片版本 v0.1 中修复。 Fixed in chip revision v0.1.
2.2	复位 Reset	RTC 看门狗定时器触发的系统复位记录错误 System Reset Triggered by RTC Watchdog Timer Cannot be Correctly Reported	在芯片版本 v0.1 中修复。 Fixed in chip revision v0.1.

**邮件订阅**
**Espressif Email Notifications**

乐鑫为注册用户提供电子邮件通知服务，用户可通过[乐鑫订阅系统](#)接收技术文档更新、新闻通讯、PCN 等邮件通知。

Espressif sends email notifications of technical documentation changes, along with newsletters, PCNs and other valuable information, to subscribed customers only. If you wish to stay updated on our products and services, please subscribe [here](#).

**客户响应要求**
**Customer Response Requirements**
**需客户批准的变更/ Change Requiring Customer Approval:**

a) 客户须在乐鑫发出 PCN 后的 30 天内告知乐鑫已收到 PCN。如客户未在接收到 PCN 后的 30 天内告知已收到，则视为客户收到变更。

Customers are requested to acknowledge receipt of the PCN within 30 calendar days from the date of issue of the PCN. Customers would be considered as notified 30 calendar days after issue of the PCN if no acknowledgement is received.

b) 自发布 PCN 之日起 90 天内，客户没有任何其他反馈，则表示客户接受该 PCN。

The lack of any additional responses from customers within 90 calendar days from [the](#) date of issue of the PCN constitutes acceptance of the proposed changes.

**客户通知/ Customer Notification:**

a) 客户需在乐鑫发出 PCN 后 14 天内通知乐鑫收到该 PCN。如客户未在接收到 PCN 14 日反馈乐鑫，则视为客户确认该 PCN。

Customers are requested to acknowledge receipt of the PCN within 14 calendar days from the date of issue of the PCN. Customers would be considered as having acknowledged the PCN if no response is received after 14 calendar days.

请反馈至 [pcn@espressif.com](mailto:pcn@espressif.com)。

Please send feedback to [pcn@espressif.com](mailto:pcn@espressif.com).

**客户批准/确认信息**
**Customer Approval/Acknowledgement and Remarks**

客户公司全称:

Customer's Company Name:

PCN 评审结果/ PCN Review Result:

- 批准/确认 Accepted/Acknowledged  
 不批准/ Rejected  
 需要分析/ Further Analysis Required

客户意见/Comment:

公司代表人姓名  
Representative's Name:

公司代表人职责  
Representative's Job Title:

公司代表人签名  
Representative's Signature:

日期  
Date: