ESP32-P4 系列 v3.2 芯片版本升级 v1.3 版本需求收集及停产计划说明

PCN 编号 **PCN No.**	PCN202600801 (v2)	**提出日期** **Issue Date of PCN**	2026/05/20
PCN 类型 **PCN Category**	☑ 客户需要批准/ Customer Approval Required ☐客户通知/ Customer Notification		

1. 受影响的物料编码/ Affected Part Number

产品类型	计划停产的物料编码（旧版本）	推荐升级的物料编码（新版本）	硬件关键差异
芯片	ESP32-P4NRW16	ESP32-P4NRW16X	1) 物料编码不同 2) ESP32-P4 芯片版本不同 3) ESP32-P4 芯片管脚定义不同（Pin 54） 4) ESP32-P4NRW16X 产品新增内置 PSRAM 备选物料
芯片	ESP32-P4NRW32	ESP32-P4NRW32X	1) 物料编码不同 2) ESP32-P4 芯片版本不同 3) ESP32-P4 芯片管脚定义不同（Pin 54）
开发板	ESP32-P4-Function-EV-Board	ESP32-P4X-Function-EV-Board	1) 物料编码不同 2) ESP32-P4 芯片版本不同 3) ESP32-P4 芯片管脚定义不同（Pin 54）
开发板	ESP32-P4-EYE	ESP32-P4X-EYE	1) 物料编码不同 2) ESP32-P4 芯片版本不同 3) ESP32-P4 芯片管脚定义不同（Pin 54）

2. 停产及版本升级原因/ EOL and Chip Revision Upgrade Reasons

1) 乐鑫持续提升产品性能，现已推出 ESP32-P4 芯片版本 v3.2 系列产品（以下简称为新版本）。相较于 ESP32-P4 芯片版本 v1.3（以下简称为旧版本），**新版本在主频性能、影像处理能力、功耗管理以及安全防护能力等方面均进行了全面的功能升级，更好地满足终端产品应用需求。**更多信息请参见：ESP32-P4 芯片升级新闻。

   因此，乐鑫建议正在使用 ESP32-P4 芯片版本 v1.3 系列产品进行开发或量产的用户，尽快评估并升级至芯片版本 v3.2，以提升产品性能表现，并获得更稳定的软硬件长期支持及更具灵活性的供应保障。与此同时，ESP32-P4 芯片版本 v1.3 将计划进入停产（EOL）流程。

2) 为避免单一原材料的供应风险，提升供应稳定性，ESP32-P4NRW16X 新增内置 PSRAM 备选物料。

3. 新版本特性与性能提升/ New Revision Features and Performance Improvements

No.	项目	旧版本	新版本
3.1	芯片版本	v1.3	v3.2

3.2	整体性能	CPU 稳定运行在 360 MHz，PSRAM 接口频率稳定至 200 MHz。GUI 渲染和显示帧率受限。	ESP32-P4 芯片版本 v3.2 包含多项底层硬件的增强，主频由 360 MHz 提升至 400 MHz，PSRAM 接口频率稳定支持至 250 MHz、DMA 和像素处理加速器 (PPA) 增强，从而大幅增强了图形渲染与数据搬运效率；在典型多媒体应用场景下，该版本稳定支持 1920×1080 / RGB888 @ 30 Hz 的高清显示输出，且在 1280×720 / RGB565 分辨率下运行 LVGL 框架的基准测试帧率可达 40 fps，为高端 HMI 应用提供了更加流畅、丝滑的触控与视觉交互体验。
3.3	摄像头性能 (MIPI-CSI, ISP, LCD_CAM DVP)	MIPI-CSI 和 DVP 支持的字节序和格式类型有限。 ISP 缺少 BLC 等模块，图像色彩欠佳。	ESP32-P4 芯片版本 v3.2，可以获取更多的数据格式，更佳的图像质量。具体如下： a) MIPI-CSI 支持 16 位字节序转换与格式转换。 b) ISP 支持 BLC、DPC、LSC 和 Crop 模块，并内置独立的 WB 增益模块与多窗口 AWB 统计模块。 c) DVP 支持 8 位字节序转换。
3.4	内存分配	总 L2MEM 在扣除 0~512 KB 可配置的 cache 占用后的空间（256~768 KB），被固定位置的 79 KB ROM 数据占用段分成了低 183 KB，ROM 数据及高（剩余 0~512 KB）三个部分。用户静态或者动态分配的内存均无法跨过 ROM 数据占用的区域，最长连续可用内存受限。	ESP32-P4 芯片版本 v3.2 对内存地址排布进行了优化，可用 L2MEM（192 + 0~512 KB）现在是连续的，能支持更长的连续可用内存分配。
3.5	功耗	缺乏独立的 CPU 电源域及更新的存储器保持模式，Light-sleep 功耗优化有限。	ESP32-P4 芯片版本 v3.2 支持 Light-sleep 期间单独关闭 CPU 电源域，芯片的运行功耗与睡眠功耗可显著优化，具体数据请参考 ESP32-P4 系列芯片技术规格书 > "Active 模式与低功耗模式下的功耗" 章节。
3.6	安全性	1) HUK 功能无法使用。 2) 抵御侧信道攻击能力有限，包括：	1) 修复 HUK 功能，ESP32-P4 芯片版本 v3.2 可使用 ROM 中基于 HUK 的 flash 加密密钥部署以及 ESP-IDF

		a) ECC/ECDSA 无恒定时间 (constant-time) 和恒定功耗 (constant-power) 设计。 b) AES/XTS-AES 加速器不具备伪轮次 (pseudo-round) 抗 DPA 功能。	中的 HUK 功能，参见 ESP32-P4 系列芯片技术规格书 > 密钥管理器章节。 2) ESP32-P4 芯片版本 v3.2 底层硬件增强抵御侧信道攻击能力，包括： a) ECC/ECDSA 增加恒定时间 (constant-time) 和恒定功耗 (constant-power) 设计。 b) AES/XTS-AES 加速器新增伪轮次 (pseudo-round) 抗 DPA 功能。
3.7	更多的信息可参照设计变化及 ESP32-P4 系列芯片勘误表。		

4. 新旧版本硬件差异/ Hardware Differences Between Previous and New Revisions

1) ESP32-P4 系列产品的芯片晶圆金属层更新，芯片版本由 v1.3 升级为 v3.2。
2) ESP32-P4 芯片的管脚差异（Pin 54）：旧版本的 Pin 54 定义为 NC （未连接），新版本的 Pin 54 定义为 VDD_HP 电源引脚。
3) 产品物料编码不同。
4) ESP32-P4NRW16X 增加内置 PSRAM 备选物料。

5. 新旧版本识别方法/ How to Identify Previous and New Revisions

请见附录 I：新旧版本标识对比和管脚差异

6. 版本升级影响说明/ Impact of Revision Upgrade

1) 品质和性能/ Quality & Performance:

ESP32-P4 芯片版本 v3.2 实现性能优化，具体可参见段落 3。

2) 交期/ Delivery:

ESP32-P4 芯片版本 v1.3 系列产品（旧版本）将计划进入停产（EOL）流程。若您仍有旧版本的需求，请于 2026/6/30 前与乐鑫客户支持团队联系，以便提前进行需求沟通及后续供货安排评估。乐鑫将全力支持您在过渡期的产品需求，保障您的产品平稳切换。

3) 物料编码/ Part Number:

请使用新的物料编码下单，新版本对应的物料编码参见段落 1。

4) 认证/ Certification:

ESP32-P4 系列产品无射频功能，故不影响客户端整机的射频相关测试。

针对客户端整机的认证，建议客户咨询相应的认证机构确认。

5) 软件/ Software:

ESP32-P4 芯片版本 v3.2 与芯片版本 v1.3 软件不兼容。

随着 ESP32-P4 系列升级为 v3.2 版本芯片，如果您当前使用的是 v1.3 及之前的芯片版本，则现有的 ESP-IDF 版本可能无法兼容 v3.2 芯片。为确保软件兼容性，请将 ESP-IDF 升级至需求版本或更高版本（参见下表“ESP32-P4 芯片版本 v3.2 所需 ESP-IDF 版本”）。将 ESP-IDF 升级至需求版本或更高版本后，请确认 Kconfig 选项 ESP32P4_SELECTS_REV_LESS_V3=n 后对工程进行重新编译，得到的二进制文件即可运行在变更后的产品上。

注意：即使使用升级后的 ESP-IDF 版本，新旧版本的产品也无法使用同一个二进制文件运行。如已使用上述 ESP-IDF 需求版本或更高版本编译了二进制文件，则无需再更新软件。

ESP32-P4 芯片版本 v3.2 所需 ESP-IDF 版本：

ESP-IDF 版本/分支	**推荐版本**	**需求版本**
release/v5.5	v5.5.3 及其以上版本	v5.5.3
release/v6.0	v6.0 及其以上版本	v6.0

注意：有可能您本地安装的 esptool 版本仍然尚未支持升级后的产品，此时可能看到 stub 崩溃，无法建立连接等情况。您可以在 ESP-IDF 目录下运行 install 以获取支持新版本产品的最新版本的 esptool。当前最新版本为 v5.3.dev3（ESP-IDF v6.0 及以上），v4.12.dev2（ESP-IDF v5.5.3 及以上）。

6) 硬件兼容性/ Hardware Compatibility:

ESP32-P4 芯片版本 v3.2 与芯片版本 v1.3 硬件不兼容。硬件设计请参考如下说明：

a) 对于直接使用 ESP32-P4 芯片版本 v3.2 版本芯片设计的新项目：

请参考 ESP32-P4 硬件设计指南进行设计。注意将新增的电源引脚 (Pin 54) 外部连接至 VDD_HP 电源。

b) 对于使用基于 ESP32-P4 芯片版本 v1.3 芯片设计的 PCB，如使用升级后的 ESP32-P4 芯片版本 v3.2 芯片：

- ✓ PCB 设计需调整：

  新增电源引脚 (Pin 54) 需外接 VDD_HP 电源，否则可能会影响 USB，SDIO，GMAC 模块的正常工作。

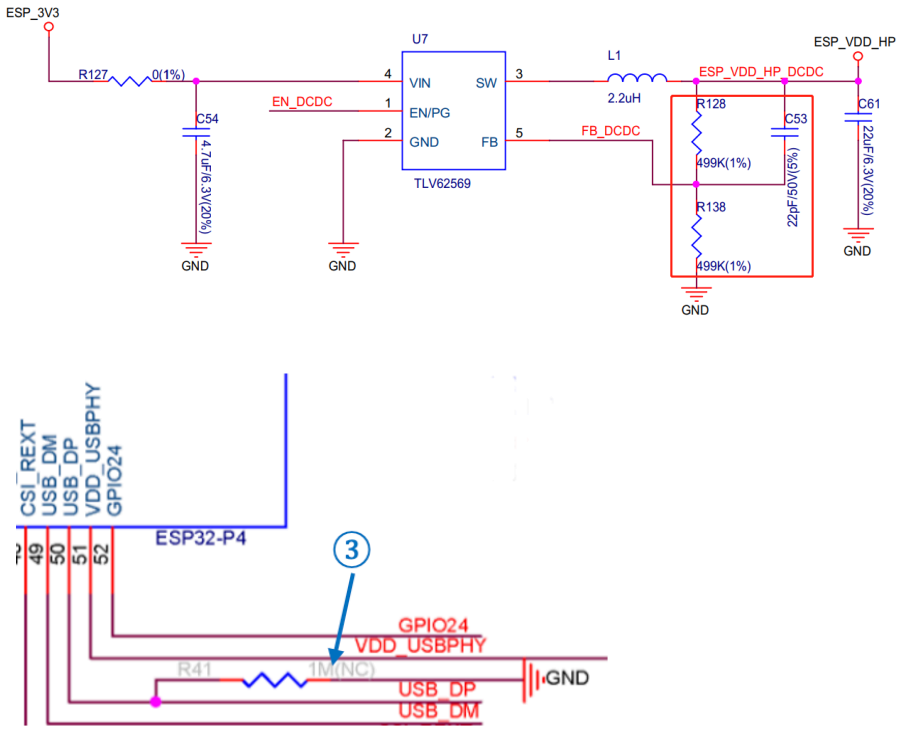
- ✓ 器件贴装需调整：

  ① 对于 VDD_HP 电源外部所连接的 DCDC 电源芯片，**确保其外围的两颗 499 kΩ 反馈分压电阻必须上件，否则有芯片损坏风险。**

  ② **前馈电容：请见 C53 对应的前馈电容上件 22 pF。**

③ USB_DP 管脚需去除 1 MΩ 电阻。

器件贴装调整示意图：



7) 技术文档/ Technical Documentation:

[ESP32-P4 系列芯片技术规格书]

[ESP32-P4 芯片版本 v3.x 用户指南]

[ESP32-P4 技术参考手册 (TRM)]

[ESP32-P4 系列芯片勘误表 (Errata)]

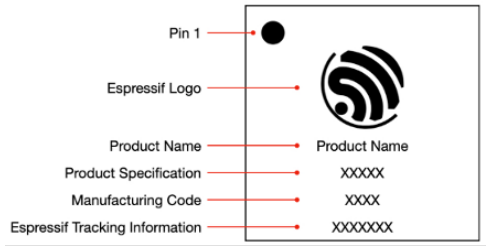
[ESP32-P4 硬件设计指南]

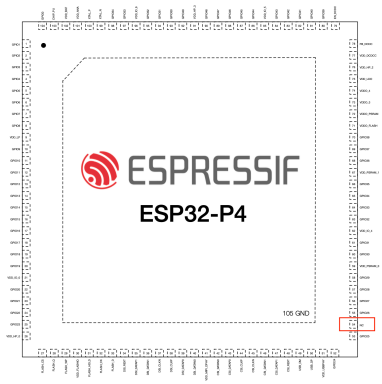
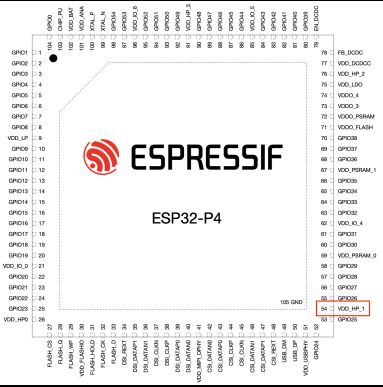
7. 给使用者的验证建议/ Verification Suggestion to Users

在使用 ESP32-P4 芯片版本 v3.2 系列产品前，请确保您的软、硬件均已完成升级。硬件设计注意事项，参见段落 6.6) 硬件兼容性，软件需升级至 ESP-IDF v5.5.3+ 或 v6.0+，并再次执行 install 以确保 esptool 已经升级至最新版本。当前 esptool 最新版本为 v5.3.dev3 （ESP-IDF v6.0 及以上），v4.12.dev2 （ESP-IDF v5.5.3 及以上）。

若您在升级过程中遇到任何问题或对本次版本升级有任何疑问，欢迎联系乐鑫客户支持团队或经销渠道。乐鑫将提供全面的技术支持，协助您的产品顺利完成升级。由此给您带来的不便，我们深表歉意。感谢您的理解和合作！

Appendix I 新旧版本标识对比和管脚差异

1	新旧版本标识对比/ Comparison of Previous and New Revision Identification			
No.	**项目**		**旧版本**	**新版本**
1.1	芯片版本		v1.3	v3.2
1.2	eFuse 芯片版本标示位/ Chip Revision Identification by eFuse Bits			
	主版本号 Major Number	EFUSE_RD_MAC_SPI_SYS_2_REG[23]	0	0
		EFUSE_RD_MAC_SPI_SYS_2_REG[5]	0	1
		EFUSE_RD_MAC_SPI_SYS_2_REG[4]	1	1
	次版本号 Minor Number	EFUSE_RD_MAC_SPI_SYS_2_REG[3]	0	0
		EFUSE_RD_MAC_SPI_SYS_2_REG[2]	0	0
		EFUSE_RD_MAC_SPI_SYS_2_REG[1]	1	1
		EFUSE_RD_MAC_SPI_SYS_2_REG[0]	1	0
1.3	Chip Marking			
	Product Specification		NRW16 or NRW32	NRW16X or NRW32X
	Manufacturing Code		xExx	xHxx

2	产品管脚差异信息/ Pin Difference		
No.	**项目**	**旧版本**	**新版本**
2.1	芯片版本	v1.3	v3.2
2.2	芯片管脚		
		Pin 54 为 NC（未连接）	Pin 54 为 VDD_HP 电源引脚

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。
Please send feedback to 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	

ESP32-P4 Chip Revision v3.2 Upgrade Chip Revision v1.3 Demand Collection and EOL Plan Description

PCN 编号 **PCN No.**	PCN202600801(v2)	**提出日期** **Issue Date of PCN**	2026/05/20
PCN 类型 **PCN Category**	☑ 客户需要批准/ Customer Approval Required ☐客户通知/ Customer Notification		

1. 受影响的物料编码/ Affected Part Number

Product Type	Part Number Planned for EOL (Previous Revision)	Recommended Upgrade Part Number (New Revision)	Key Hardware Differences
Chip	ESP32-P4NRW16	ESP32-P4NRW16X	1) Different part number 2) Different ESP32-P4 chip revision 3) Different ESP32-P4 pin definition (Pin 54) 4) ESP32-P4NRW16X adds optional in-package PSRAM material
Chip	ESP32-P4NRW32	ESP32-P4NRW32X	1) Different part number 2) Different ESP32-P4 chip revision 3) Different ESP32-P4 pin definition (Pin 54)
Development Board	ESP32-P4-Function-EV-Board	ESP32-P4X-Function-EV-Board	1) Different part number 2) Different ESP32-P4 chip revision 3) Different ESP32-P4 pin definition (Pin 54)
Development Board	ESP32-P4-EYE	ESP32-P4X-EYE	1) Different part number 2) Different ESP32-P4 chip revision 3) Different ESP32-P4 pin definition (Pin 54)

2. 停产及版本升级原因/ EOL and Chip Revision Upgrade Reasons

1) Espressif continues to improve product performance and has released the ESP32-P4 chip revision v3.2 (hereinafter referred to as the new revision). Compared with ESP32-P4 chip revision v1.3 (hereinafter referred to as the previous revision), **the new revision provides comprehensive functional upgrades in clock speed, image processing, power management, and security to better meet end-product requirements**. For more information, see: ESP32-P4 chip upgrade news.

   Therefore, Espressif recommends that users currently developing or producing with the ESP32-P4 chip revision v1.3 series products evaluate and upgrade to chip revision v3.2 as soon as possible to improve product performance and obtain more stable software and hardware support and more flexible supply assurance. Meanwhile, ESP32-P4 chip revision v1.3 is planned to enter the end-of-life (EOL) process.

2) To avoid supply risks from a single raw material and improve supply stability, ESP32-P4NRW16X adds optional in-package PSRAM material.

3. 新版本特性与性能提升/ New Revision Features and Performance Improvements

No.	Item	Previous Revision	New Revision
3.1	Chip Revision	v1.3	v3.2
3.2	Overall Performance (CPU, PSRAM)	CPU stable at 360 MHz. PSRAM interface frequency stable at 200 MHz. GUI rendering and display frame rate are limited.	ESP32-P4 chip revision v3.2 includes multiple underlying hardware enhancements. CPU frequency increases from 360 MHz to 400 MHz; PSRAM interface frequency stably supports up to 250 MHz; DMA and pixel processing accelerator (PPA) enhancements significantly improve graphics rendering and data transfer efficiency. In typical multimedia scenarios, this revision stably supports 1920×1080 / RGB888 @ 30 Hz HD display output, and at 1280×720 / RGB565 resolution, LVGL framework benchmarks can reach 40 fps, providing smoother touch and visual interaction for high-end HMI applications.
3.3	Camera Feature (MIPI-CSI, ISP, LCD_CAM DVP)	MIPI-CSI and DVP support limited byte order and format types. ISP lacks modules such as BLC; image color quality is suboptimal.	ESP32-P4 chip revision v3.2 supports more data formats and better image quality. Details are as follows: 1) MIPI-CSI supports 16-bit byte order conversion and format conversion. 2) ISP supports BLC, DPC, LSC and Crop modules, as well as a standalone WB Gain module and a multi-window AWB statistics module. 3) DVP supports 8-bit byte order conversion.
3.4	Memory Allocation	Total L2MEM after deducting 0~512 KB configurable cache usage (256~768 KB) is divided by a fixed 79 KB ROM data segment into low 183 KB, ROM data,	ESP32-P4 chip revision v3.2 optimizes memory address layout. Available L2MEM (192 + 0~512 KB) is now

		and high (remaining 0~512 KB) three regions. User static or dynamic allocations cannot cross the ROM data region; maximum contiguous available memory is limited.	contiguous and supports longer contiguous memory allocations.
3.5	Power Consumption	Lacks an independent CPU power domain and updated memory retention mode; Light-sleep power optimization is limited.	ESP32-P4 chip revision v3.2 supports shutting down the CPU power domain separately during Light-sleep, significantly optimizing active and sleep power consumption. For details, refer to ESP32-P4 Series Datasheet > "Active Mode and Low-Power Mode Power Consumption" section.
3.6	Security	1) HUK function unavailable. 2) Limited side-channel attack resistance, including: a) ECC/ECDSA: no constant-time and constant-power design. b) AES/XTS-AES accelerator lacks pseudo-round DPA resistance.	1) HUK function fixed. ESP32-P4 chip revision v3.2 can use HUK-based flash encryption key deployment in ROM and HUK features in ESP-IDF. See ESP32-P4 Series Datasheet > Key Manager section. 2) ESP32-P4 chip revision v3.2 underlying hardware enhances side-channel attack resistance, including: a) ECC/ECDSA adds constant-time and constant-power design. b) AES/XTS-AES accelerator adds pseudo-round DPA resistance.
3.7	For more information, refer to Design Changes and ESP32-P4 Series SoC Errata.		

4. 新旧版本硬件差异/ Hardware Differences Between Previous and New Revisions

1) ESP32-P4 series products: wafer metal layer updated; chip revision upgraded from v1.3 to v3.2.
2) ESP32-P4 pin difference (Pin 54): previous revision Pin 54 is defined as NC (not connected); new revision Pin 54 is defined as the VDD_HP power pin.
3) Product part numbers differ.
4) ESP32-P4NRW16X adds optional in-package PSRAM material.

5. 新旧版本识别方法/ How to Identify Previous and New Revisions

See Appendix I: Comparison of Revision Identification and Pin Differences

6. 版本升级影响说明/ Impact of Revision Upgrade

1) 品质和性能/ Quality & Performance:

ESP32-P4 chip revision v3.2 achieves performance optimizations. See Para 3 for details.

2) 交期/ Delivery:

ESP32-P4 chip revision v1.3 series products (previous revision) are planned to enter the EOL process. If you still need the previous revision, contact the Espressif customer support team before 2026/6/30 for demand communication and supply arrangement evaluation. Espressif will fully support your product needs during the transition and ensure a smooth switch.

3) 物料编码/ Part Number:

Please place orders using the new part numbers. New revision part numbers are listed in Para 1.

4) 认证/ Certification:

ESP32-P4 series products have no RF function and do not affect RF-related testing of end products.

For end-product certification, customers are advised to consult the relevant certification body.

5) 软件/ Software:

ESP32-P4 chip revision v3.2 is not software-compatible with chip revision v1.3.

As the ESP32-P4 series upgrades to v3.2, if you currently use v1.3 or earlier, existing ESP-IDF versions may not support v3.2. To ensure compatibility, upgrade ESP-IDF to the required version or later (see the table below "Required ESP-IDF Version for ESP32-P4 Chip Revision v3.2"). After upgrading ESP-IDF, set Kconfig option ESP32P4_SELECTS_REV_LESS_V3=n, rebuild the project, and the resulting binary can run on the updated product.

Note: Even with upgraded ESP-IDF, previous and new revision products cannot run the same binary.

If you already built binaries with the required ESP-IDF version or later, no further software update is needed.

Required ESP-IDF Version for ESP32-P4 chip revision v3.2：

ESP-IDF Versions/Branches	Recommended Version	Required Version
release/v5.5	v5.5.3 or above	v5.5.3
release/v6.0	v6.0 or above	v6.0

Note: Your local esptool may not yet support the upgraded product; you may see stub crashes or connection failures. Run install in the ESP-IDF directory to get the latest esptool supporting the new product. Current latest versions: v5.3.dev3 (ESP-IDF v6.0 and above), v4.12.dev2 (ESP-IDF v5.5.3 and above).

6) 硬件兼容性/ Hardware Compatibility:

ESP32-P4 chip revision v3.2 is not hardware-compatible with chip revision v1.3. Refer to the following for hardware design:

a) For new projects that have not started PCB design:

When using ESP32-P4 chip revision v3.2 chips, refer to the ESP32-P4 Hardware Design Guidelines. Connect the new power pin (Pin 54) externally to VDD_HP.

b) For PCBs designed with ESP32-P4 chip revision v1.3, when using upgraded ESP32-P4 chip revision v3.2:

- ✓ PCB design must be updated:

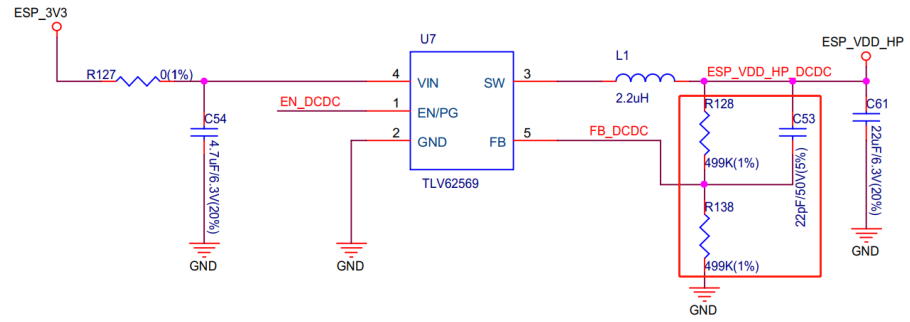
  Pin 54 must be connected to VDD_HP externally; otherwise, the normal operation of the USB, SDIO, and GMAC modules may be affected.
- ✓ Component placement must be updated:

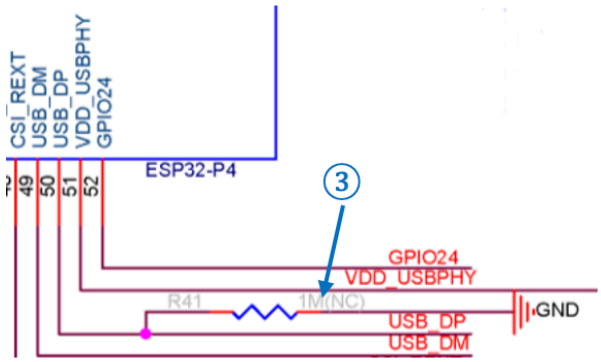
  ① For the DCDC connected to VDD_HP externally, **ensure both 499 kΩ feedback resistors are populated, or the chip may be damaged.**

  ② **Feedforward capacitor: populate 22 pF on the C53 feedforward capacitor.**

  ③ USB_DP pin: remove the 1 MΩ resistor.

Component placement adjustment diagram:





7) 技术文档/ Technical Documentation:

[ESP32-P4 Series Datasheet]

[ESP32-P4 Chip Revision v3.x User Guide]

[ESP32-P4 Technical Reference Manual]

[ESP32-P4 Series SoC Errata]

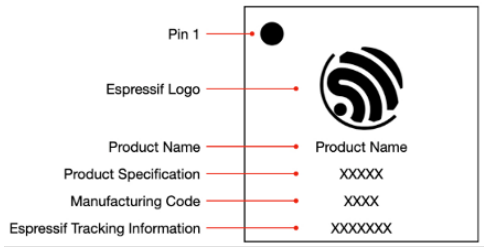
[ESP32-P4 Hardware Design Guidelines]

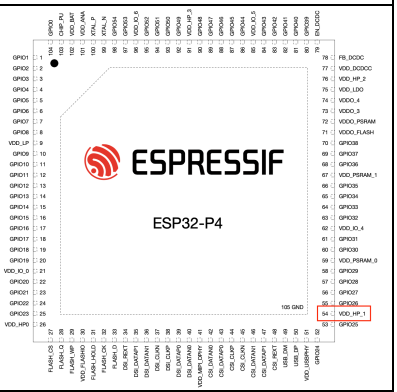
7. 给使用者的验证建议/ Verification Suggestion to Users

Before using ESP32-P4 chip revision v3.2 series products, ensure software and hardware are upgraded. For hardware design notes, see Para 6.6) Hardware Compatibility. Upgrade software to ESP-IDF v5.5.3+ or v6.0+, run install again to ensure esptool is updated. Current latest esptool versions: v5.3.dev3 (ESP-IDF v6.0 and above), v4.12.dev2 (ESP-IDF v5.5.3 and above).

If you encounter issues or have questions about this upgrade, contact Espressif customer support or your distributor. Espressif provides full technical support to help complete your upgrade. We apologize for any inconvenience and appreciate your understanding and cooperation!

Appendix I Comparison of Revision Identification and Pin Differences

1	新旧版本标识对比/ Comparison of Previous and New Revision Identification			
No.	**Item**		**Previous Revision**	**New Revision**
1.1	Chip Revision		v1.3	v3.2
1.2	eFuse 芯片版本标示位/ Chip Revision Identification by eFuse Bits			
	主版本号 Major Number	EFUSE_RD_MAC_SPI_SYS_2_REG[23]	0	0
		EFUSE_RD_MAC_SPI_SYS_2_REG[5]	0	1
		EFUSE_RD_MAC_SPI_SYS_2_REG[4]	1	1
	次版本号 Minor Number	EFUSE_RD_MAC_SPI_SYS_2_REG[3]	0	0
		EFUSE_RD_MAC_SPI_SYS_2_REG[2]	0	0
		EFUSE_RD_MAC_SPI_SYS_2_REG[1]	1	1
		EFUSE_RD_MAC_SPI_SYS_2_REG[0]	1	0
1.3	Chip Marking			
	Product Specification		NRW16 or NRW32	NRW16X or NRW32X
	Manufacturing Code		xExx	xHxx

2	产品管脚差异信息/ Pin Difference		
No.	**Item**	**Previous Revision**	**New Revision**
2.1	Chip Revision	v1.3	v3.2
2.2	Pin		
		Pin 54 is NC	Pin 54 is VDD_HP

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。
Please send feedback to 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	