

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	1.3	保存期限 Retention Period	5 年 5 years

更新 AT 固件版本 V2.1.0.0 作为 ESP32 (4MB flash) 系列模组 AT 固件 Update ESP32 ESP32 (4MB flash) series modules AT firmware version to V2.1.0.0			
PCN 编号 PCN No.	PCN-2021-010	提出日期 Issue Date of PCN	2021/04/12
变更日期 Proposed Date of Change	2021/06/12	首次出货日期 Proposed Date of First Shipment	2021/07/12
PCN 类型 / PCN Category	☒ 客户需要批准/Customer Approval Required ☐ 客户通知/Customer Notification		
1. 影响产品名称/Affected Product Name 1) ESP32-WROOM-32X (4 MB flash) 系列模组，具体模组型号如下： ESP32-WROOM-32X Series Modules (4 MB flash), modules name as below: ESP32-WROOM-32 / ESP32-WROOM-32D / ESP32-WROOM-32U / ESP32-WROOM-32DC / ESP32-WROOM-32UC / ESP32-WROOM-32E / ESP32-WROOM-32UE 2) ESP32-SOLO-XX (4 MB flash) 系列模组，具体模组型号如下： ESP32-SOLO-XX (4 MB flash) Series Modules, modules name as below: ESP32-SOLO-1 / ESP32-SOLO-1C			
2. 变更原因/Reason for Change ESP-IDF 升级到 v4.0.1，使得段落 1 列出的模组使用的 AT 应用固件同步升级。同时 AT 固件升级对上一版本 Bug 进行修复。 The AT application firmware used by the modules listed in para 1 is upgraded to V2.1.0.0 to: 1. Accommodate the improvement introduced in ESP-IDF v4.0.1; 2. Fix the bugs existed in the previous version of AT firmware.			
3. 变更描述/Description of Change ESP32 AT 固件新增的一些功能，对已知 bug 进行了 fix，ESP-IDF 更新到 release v4.0.1(e7ac221)，优化的信息具体参见附录 I：变更对比 - 3 ESP32 AT v2.1.0.0 发布说明（与 v1.1.3.0 对比）。 ESP32 AT firmware v2.1.0.0 include some new features, bug fixes, and changes required to accommodate improvement in ESP-IDF v4.0.1(e7ac221), which can be seen on Appendix I: Change comparison-3 ESP32 AT v2.1.0.0 Release Note (Differences from v1.1.3.0) .			
4. 变更对比/Change Comparison 请见附录 I：变更对比。 Please refer to Appendix I: Change comparison.			

变更识别方式/Change Identification Method

通过包装标签信息及固件版本查询方式识别该变更。

Identify the change by querying Package Label Information and Firmware Version Check Method.

5. 变更影响/Impact of Change

1) 品质和性能/ Quality & Performance:

ESP32 AT 固件 (V2.1.0.0) 增加一些 AT 新功能及并做了一些问题的修复, 相对之前版本 (V1.1.3.0) 更加稳定。

With some new features and optimized functionalities, this version of ESP32 AT firmware (V2.1.0.0) is more stable compared with the previous version (V1.1.3.0).

2) 交期/Delivery:

无/None

3) 生产料号/Material Part Numbers (MPN):

无/None

4) 认证/Certification:

无/None

5) 其他/Others:

无/None

6. 变更前后产品处理/How to Deal with Products

FIFO

针对客户特殊要求的 AT 版本, 按照客户实际要求执行。

FIFO. Please proceed as requested if customers request a particular AT firmware version.

7. 变更验证结果/ Test Verification Result

- | | |
|--|---------------------------|
| ☒ Related ECN No. | ECN-2021-001 |
| ☒ Performance Test | Performance Test is Pass. |

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 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:

Appendix I 变更对比/Change Comparison

1. ESP32-WROOM-32X (4MB flash) 系列模组变更信息

ESP32-WROOM-32X (4MB flash) Series of Modules Change Information

ESP32-WROOM-32X (4MB flash) 系列模组 ESP32-WROOM-32X (4MB flash) Series Modules	项目 Item	变更前 Before Change	变更后 After Change
产品名称 Product Name		无变化 No Change	
丝印 Marking		无变化 No Change	
包装标签信息 Package Label Information	AT 版本 AT Version	v1.1.3.0	v2.1.0.0
	IDF 版本 IDF version	v3.0.7	v4.0.1
	固件 PN Firmware PN	ESP32U011	ESP32U012
固件版本查询方式 Firmware Version Check Method	通过串口 AT 命令查询 AT 版本号 Query AT version number through serial AT command	发送 Send: AT+GMR 返回 Reply: V1.1.3.0	发送 Send: AT+GMR 返回 Reply: V2.1.0.0

2. ESP32-SOLO-XX (4MB flash) 系列模组变更信息

ESP32-SOLO-XX (4MB flash) Series of Modules Change Information

ESP32 SOLO 系列模组 ESP32 SOLO Series Modules	项目 Item	变更前 Before Change	变更后 After Change
产品名称 Product Name		无变化 No Change	
丝印 Marking		无变化 No Change	
标签信息 Label Information	AT 版本 AT Version	v1.1.3.0	v2.1.0.0
	IDF 版本 IDF version	v3.0.7	v4.0.1
	固件 PN Firmware PN	ESP32S10	ESP32S11
固件 Firmware	通过串口 AT 命令查询 AT 版本号 Query AT version number through serial AT command	发送 Send: AT+GMR 返回 Reply: V1.1.3.0	发送 Send: AT+GMR 返回 Reply: V2.1.0.0

3. ESP32 AT v2.1.0.0 发布说明（与 v1.1.3.0 对比）

ESP32 AT v2.1.0.0 Release Note（Differences from v1.1.3.0）

Features

System

- esp-idf version update to release v4.0.1(e7ac221)
- Add uart port configuration in the factory parameter binary



- change factory parameter version to v2
- Solve an issue that an ESP device working in SoftAP may reboot unexpectedly under certain special environment.

Base command

- AT+SYSROLLBACK: Roll back to the previous firmware.
- AT+SYSTIMESTAMP: Set local time stamp.
- AT+SLEEPWKCFIG: configurate the light-sleep wakeup source and awake GPIO
- AT+SYSSTORE: control if store parameter into flash

Wi-Fi command

- AT+CWHOSTNAME: Configures the host name of ESP station
- AT+CWQIF: Disconnect station from the ESP softAP.
- Update command AT+CWJAP, add listen interval and scan mode
- AT+CWCOUNTRY: configurate and query the WiFi country code
- AT+CWSTAPROTO: set and query the 802.11 b/g/n protocol standard of station mode
- AT+CWAPPROTO: set and query the 802.11 b/g/n protocol standard of SoftAP mode
- Support automatically connect to AP in the command AT+CWMODE after changed to station mode

TCPIP command

- AT+CIPSTARTEX: Establishes TCP connection, UDP transmission or SSL connection by auto assigning ID.
- AT+CIPSSLCCONF: Config SSL client.
- AT+CIPRECONNINTV: Set the interval of auto-reconnecting in Wi-Fi UART passthrough mode.
- AT+CIPRECVMODE: Set socket receive Mode.
- AT+CIPRECVDATA: Get socket data in passive receive mode.
- AT+CIPRECVLEN: Get socket data length in passive receive mode.
- AT+PING: Ping packets
- AT+CIPDNS: Configures Domain Name System. The configuration will be saved in flash
- Update command AT+CIUPDATE, support SSL OTA and version parameter
- AT+CIPTCPOPT: configurate and query the TCP socket options, include *SOLINGER*, *TCPNODELAY*, *SO_SNDBUF* options
- Support multicast address in the command AT+CIPSTART
- AT+CIPSSLCCN: configurate and query SSL client common name(CN)
- AT+CIPSSLCSNI: configurate and query SSL client server name indication(SNI)
- AT+CIPSSLCALPN: configurate and query SSL client application layer protocol negotiation(ALPN)
- AT+CIPSSLCPSK: configurate and query SSL client pre-shared key(PSK)



BT&BLE command

- AT+BLESETKEY: Set BLE static pair key
- AT+BLEHIDINIT: BLE HID device profile initialization
- AT+BLEHIDKB: Send BLE HID Keyboard information
- AT+BLEHIDMUS: Send BLE HID mouse information
- AT+BLEHIDCONSUMER: Send BLE HID consumer information
- Enable BLE HID commands by default
- AT+BLEADVDATAEX: set BLE advertising data automatically
- Add AT+BLEGATTSSRVCRE multiple services
- Support scan filter in the command AT+BLESCAN
- Support some BLE parameters store to flash
- Support BLE connection callback for user to customize it
- Support multiple BLE connections, with a maximum connection number of 3.

MQTT command

- AT+MQTTUSERCFG : Set MQTT User Config
- AT+MQTTCONNCFG : Set configuration of MQTT Connection
- AT+MQTTCONN : Connect to MQTT Broker
- AT+MQTTPUB : Publish MQTT Data in string
- AT+MQTTPUBRAW : Publish MQTT message in binary
- AT+MQTTSUB : Subscribe to MQTT Topic
- AT+MQTTUNSUB : Unsubscribe from MQTT Topic
- AT+MQTTCLEAN : Close the MQTT Connection
- AT+MQTTCLIENTID: set and query MQTT client ID
- AT+MQTTUSERNMAE: set and query MQTT username
- AT+MQTTPASSWORD: set and query MQTT password
- Add AT+MQTTUSERNAME query command
- Add AT+MQTTCLIENDID query command

HTTP command

- AT+HTTPCLIENT - Send HTTP Client Request
- AT+HTTPGETSIZE: get HTTP resource size

Bug fixes

- Fix a bug that an SSL connection is sometimes established even when the CA certificate is incorrect.



- Fix a bug that the auto connecting sometimes fails in the UART-WiFi throughput mode.
- Fix a bug that the URC message that indicates Wi-Fi is disconnected may get lost, when the Wi-Fi router is turned off unexpectedly.
- Fix a bug that the BLE sometimes fails to write Characteristic values, when this remote Characteristic supports multiple properties.
- Fix a bug that the BLE connection parameters sometimes are still inquired even when the BLE connection is ended already.
- Fix a bug that is related to setting the BLE scan parameters.
- Fix a bug that the command of establishing a BLE connection may get stuck.
- Revise the document for the description of the BLE security parameter.
- fix: It may crash if AT command ends without '\r\n'
- fix: Sometimes it may fail to quit from UART-WiFi passthrough mode
- Fix AT+CWLAP scan fail when WiFi is connecting
- Fix missing WiFi status information if AT+CIPMODE=1
- Fix WiFi state is error after AT+CWJAP failed
- Fix UART parity configuration error

System

- Fix busy sometimes after AT+CIPSEND returned OK
- Fix AT command end with CR responses OK
- Fix missing "+QUIT" when quit transmission mode if AT+SYSMSG=1
- Fix AT+CIPSTATUS state unmatched when WiFi disconnected
- Fix AT+SYSMSG parameter check

TCP/IP

- Fix the last DNS configuration is wrong when running AT+CIPDNS

BT & BLE

- Fix crash if the notification value of ble is too long
- Fix BLE service discovery works bad in multiple connections status
- Fix crash when re-create BLE services
- Fix re-enter BLE SPP fail
- Fix AT+BLESKAN=2 return OK
- Fix hid init fail
- Fix the data is lost when in BLE SPP
- Fix exit from bluetooth throughput mode failed
- Fix gatt server re-enter spp mode fail

- Fix write characteristic value fail
- Fix exit automatically reconnect status fail after terminating BLE spp mode
- Fix establish a new connection fail after ble connection timeout
- Fix some MAC address informations is missing quotes

Optimizations

- Add “\r\n” to the end of the +IPD for that MCU distinguishes the new command easily
- Optimize sockets process workflow
- Optimize passthrough mode terminal process
- check the default max tx power validity