

Release Notes

DA16200 DA16600 ThreadX SDK

Abstract

This document contains the release notes for Dialog Semiconductor's DA16200 and DA16600 ThreadX Software Development Kit, version 2.4.2.0

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1 Terms and Definitions

| | |
|------|-----------------------------------|
| API | Application Programming Interface |
| OTA | Over The Air Upgrade |
| RTOS | Real Time Operating System |
| SDK | Software Development Kit |
| QFN | Quad Flat No-lead Package |

2 Release Data

Table 1: Information Table

| | |
|---------------------------------------|---|
| Software | SDK 2.4.2.0 (DA16200 and DA16600 ThreadX SDK) |
| Device Number | DA16200 / DA16600 |
| Software Release Date | 24 Dec 2021 |
| Software Version Number | 2.4.2.0 |
| Software Release Type (Note 1) | FULL (GA) |

Note 1 Releases can be of the following types : FULL (GA), FULL (LA), ENGINEERING, PATCH or BINARY

3 License

Licenses covering this SDK release are listed in the license.txt file in SDK docs folder.

4 Related Documentation and References

- [1] UM-WI-037, DA16200 DA16600, ThreadX SDK Startup Guide, User Manual, Dialog Semiconductor
- [2] UM-WI-023, DA16200, EVK User Manual, User Manual, Dialog Semiconductor
- [3] UM-WI-002, DA16200 DA16600, ThreadX SDK Programmer Guide, User Manual, Dialog Semiconductor
- [4] UM-WI-036, DA16200 DA16600, ThreadX OTA Update, User Manual, Dialog Semiconductor
- [5] UM-WI-010, DA16200 DA16600, MQTT Programmer Guide, User Manual, Dialog Semiconductor
- [6] UM-WI-003, DA16200, AT-CMD User Guide, User Manual, Dialog Semiconductor
- [7] UM-WI-034, DA16200, DPM over AT-CMD on MCU, User Manual, Dialog Semiconductor
- [8] DA16200, Datasheet, Dialog Semiconductor

5 Release Description

5.1 Version 2.4.2.0

5.1.1 Overview

This release note is for SDK 2.4.2.0 supporting the DA16200 device and the DA16600 module.

This SDK release is an intermediate update to add fix several issues. [Table 3](#) lists bug fixes and improvements.

5.1.2 New and Updated Features in 2.4.1.0

Table 2: 2.4.1.0 New Features

| Feature Number | Description |
|----------------|-------------|
| 2.4.2.0 - 01 | None. |

5.1.3 Fixes and Improvements in 2.4.2.0

Table 3: 2.4.2.0 Fixes and Improvements

| Fix Number | Description |
|--------------|--|
| 2.4.2.0 / 01 | Changed for AT+NWDNS and NWDNS2 AT-CMDs. When in DHCP mode, the DNS IP address is saved in NVRAM and is not applied to the current session. The DNS IP address is always fetched from the DHCP provisioned data. |
| 2.4.2.0 / 02 | Added a validation check of the input data and time values for AT+TIME AT-CMD. |
| 2.4.2.0 / 03 | Modified the validation check of the country code input for AT+WFCC AT-CMD. |
| 2.4.2.0 / 04 | Added MAC Address exception handling. |

5.1.4 Known Issues in 2.4.2.0

Table 4: 2.4.2.0 Known Issues

| Issue Number | Description |
|--------------|--|
| 2.4.2.0 : 01 | [Soft-AP] The last 6th STA may not connect to SDK in Soft-AP to use WPS mode because memory is not enough. |

5.1.5 Known Limitations of 2.4.2.0

Table 5: 2.4.2.0 Known Limitations

| Issue Number | Description |
|---------------|---|
| 2.4.2.0 :: 01 | Does not support the AT-CMD feature on a 2MB SFLASH type for DA16200. |
| 2.4.2.0 :: 02 | Does not support a 2MB SFLASH configuration for DA16600. |

6 Release History

6.1 Version 2.4.1.0

6.1.1 Overview

This release note is for SDK 2.4.1.0 supporting the DA16200 device and the DA16600 module.

This SDK release is an intermediate update to add new features and fix several issues. [Table 6](#) lists new and updated features. [Table 7](#) lists bug fixes and improvements.

6.1.2 New and Updated Features in 2.4.1.0

Table 6: 2.4.1.0 New Features

| Feature Number | Description |
|----------------|-----------------------------------|
| 2.4.1.0 - 01 | Added 2nd Cache for DNS function. |

6.1.3 Fixes and Improvements in 2.4.1.0

Table 7: 2.4.1.0 Fixes and Improvements

| Fix Number | Description |
|--------------|---|
| 2.4.1.0 / 01 | Added a BC/MC IP filtering function. |
| 2.4.1.0 / 02 | Fixed a fault problem on CPU 160M. |
| 2.4.1.0 / 03 | Changed parameters to improve SmartPS-POLL reliability. |
| 2.4.1.0 / 04 | Fixed issue that the active state control function does not work after BUFP is complete. |
| 2.4.1.0 / 05 | Fixed an issue when setting an invalid SNTP period with the AT+NWSNUP AT-CMD. |
| 2.4.1.0 / 06 | Fixed an issue when setting an invalid parameter with the AT+NWDHLT AT-CMD. |
| 2.4.1.0 / 07 | Fixed an issue to print an invalid parameter range with the AT+WFAPUI AT-CMD. |
| 2.4.1.0 / 08 | Separation of functions with SNTP Enable/Sync commands. |
| 2.4.1.0 / 09 | In non DPM mode, changes have been made for MQTT config initialization to be done only once. |
| 2.4.1.0 / 10 | Removed the dns_ip parameter from AT+NWDHS. |
| 2.4.1.0 / 11 | Fixed to receive HTTP POST extended content from iOS device. |
| 2.4.1.0 / 12 | Fixed the 'remove_network 0' condition for AT+DEFAP AT-CMD. |
| 2.4.1.0 / 13 | Fixed an issue when setting invalid parameters for the AT+NWPING AT-CMD. |
| 2.4.1.0 / 14 | Fixed an issue when setting invalid parameter for the AT+NWTIME AT-CMD. |
| 2.4.1.0 / 15 | Always clear the wakeup source (external and GPIO wakeup) when reboot is done. |
| 2.4.1.0 / 16 | The gas leak sample application in DA16600 is not rebooted in the case of a connection loss detected in DPM memory. |
| 2.4.1.0 / 17 | Fixed build option to change the certificate format from X.509 to ARM property. |
| 2.4.1.0 / 18 | Added a mutex to avoid mixed output by calling PUTS_ATCMD() API. |

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| Fix Number | Description |
|--------------|---|
| 2.4.1.0 / 19 | Added mode parameter to transmit data of TCP, UDP, and TLS client. |
| 2.4.1.0 / 20 | Enlarged stack size of the thread mqtt_client_check_keep_alive to 1024 bytes. |
| 2.4.1.0 / 21 | Added preemption restore code before continue. |
| 2.4.1.0 / 22 | Treats "\r", "\n", "\t" strings as regular characters in SSID input. |
| 2.4.1.0 / 23 | Added supported for a provisioning security mode of the SoftAP provisioning function. |
| 2.4.1.0 / 24 | Added exception handling of key restore errors for DPM. |
| 2.4.1.0 / 25 | Fixed an OFDM beacon performance issue in PTIM. |
| 2.4.1.0 / 26 | Fixed a uart1 crash issue when using AT-CMDs on the DA16600. |
| 2.4.1.0 / 27 | Changed max & default period to 129600 sec (36 hr). |
| 2.4.1.0 / 28 | Disabled the AT-CMD related to WPA Enterprise by default. |
| 2.4.1.0 / 29 | Added HTTPs client AT-CMDs to set ALPN and SNI. : AT+NWHTCALPN, AT+NWHTCSNI, AT+NWHTCALPNDEL, AT+NWHTCSNIDEL |

6.1.4 Known Issues in 2.4.1.0

Table 8: 2.4.1.0 Known Issues

| Issue Number | Description |
|--------------|--|
| 2.4.1.0 : 01 | [Soft-AP] The last 6th STA may not connect to SDK in Soft-AP to use WPS mode because memory is not enough. |

6.1.5 Known Limitations of 2.4.1.0

Table 9: 2.4.1.0 Known Limitations

| Issue Number | Description |
|---------------|---|
| 2.4.1.0 :: 01 | Does not support the AT-CMD feature on a 2MB SFLASH type for DA16200. |
| 2.4.1.0 :: 02 | Does not support a 2MB SFLASH configuration for DA16600. |

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6.2 Version 2.4.0.0

6.2.1 Overview

This release note is for SDK 2.4.0.0 supporting the DA16200 device and the DA16600 module.

This SDK release includes major structural changes such as the re-organization of the entire file and folder structure including the project location. For more information about SDK structural changes, see UM-WI-037 [1]. SDK 2.4.0.0 includes improvements and new features listed in Table 10 and bug fixes and improvements listed in Table 11.

6.2.2 New and Updated Features in 2.4.0.0

Table 10: 2.4.0.0 New Features

| Feature Number | Description |
|----------------|---|
| 2.4.0.0 - 01 | Added an AT-CMD for Zero config. |
| 2.4.0.0 - 02 | Add AT-CMD to set TLS options (ALPN, SNI, and cipher suites) for MQTT Client. |
| 2.4.0.0 - 03 | Add AT-CMD to set Wi-Fi connection option for Hidden AP. |
| 2.4.0.0 - 04 | Add AT-CMD to enter to SLEEP_1 state. |
| 2.4.0.0 - 05 | Add console and AT-CMDs to set retry count of Wi-Fi connection before going to DPM sleep state by DPM abnormal process. |
| 2.4.0.0 - 06 | Add AT+DPMABNWFCCNT command for Wi-Fi connection retry count when DPM abnormal state. |
| 2.4.0.0 - 07 | Add option to set DPM activation to NVRAM without system reboot. |
| 2.4.0.0 - 08 | Support Wi-Fi callback functionality enabled by default in user area. |
| 2.4.0.0 - 09 | Support Wi-Fi callback functionality over AT-CMD. |
| 2.4.0.0 - 10 | Add NVRAM footprint functionality to trace NVRAM crash. |
| 2.4.0.0 - 11 | Add BOD (Brown Out Detect) functionality. |
| 2.4.0.0 - 12 | Add fast connection functionality in DPM sleep1, 2. Support IP collision avoidance functionality for fast connection. |
| 2.4.0.0 - 13 | Add BLE Provisioning functionality and samples for DA16600. |
| 2.4.0.0 - 14 | Add support for AT-CMDs over the UART2 host interface on DA16600. |
| 2.4.0.0 - 15 | Add NVRAM recovery functionality. |
| 2.4.0.0 - 16 | Update ADC sample application. |
| 2.4.0.0 - 18 | Update I2C sample application. |
| 2.4.0.0 - 19 | Support new SFLASH types: Giga Device GD25LE32E and MXIC XM25QU16C |
| 2.4.0.0 - 20 | Add configuration to set timeout of received packet after changing DPM wakeup state. It can be active by <code>__SUPPORT_USER_DPM_RCV_READY_TO__</code> definition. |
| 2.4.0.0 - 21 | Add low-current RF mode OFF. |
| 2.4.0.0 - 22 | Add low-current configuration V3 active state control for pTIM and Tx-retry for pTIM. |
| 2.4.0.0 - 23 | Support DPM feature of WPA3 OWE functionality. |

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| Feature Number | Description |
|----------------|---|
| 2.4.0.0 - 24 | Support to configurate CA certificate and certificate, which are saved in SFLASH memory, for HTTPs client (include OTA update). |
| 2.4.0.0 - 25 | Add support for SDIO DAT1 operation (Interrupt). |

6.2.3 Fixes and Improvements in 2.4.0.0

Table 11: 2.4.0.0 Fixes and Improvements

| Fix Number | Description |
|--------------|---|
| 2.4.0.0 / 01 | Improve DPM abnormal process for "Wi-Fi connection failure wrong key input". In this event, the DA16200 will stop Wi-Fi reconnection and go to DPM sleep1 state optionally. |
| 2.4.0.0 / 02 | Fix SETDPMSLP2EXT, CLRDPMSLP2EXT, SETDPMSLP1EXT, and SETDPMSLP1EXT work in only DPM mode. |
| 2.4.0.0 / 03 | Fix issue which SFlash memory address to download MCU firmware couldn't be setup. |
| 2.4.0.0 / 04 | Fix issue which invalid AUTHENTICATION could be selected. |
| 2.4.0.0 / 05 | Add Easy Setup option to stop SNTP feature. Fix DPM mode is deactivated after Easy Setup is not completed and stopped. |
| 2.4.0.0 / 06 | Delete DNS information in option of DHCP server. (Unavailable information) |
| 2.4.0.0 / 07 | Fix issue which invalid channel information is shown by "cli status" command in Soft-AP mode. |
| 2.4.0.0 / 08 | Fix issue which system exception is occurred after calling "cli ap stop" and "cli ap start" commands. |
| 2.4.0.0 / 09 | Fix AT+NWDHR works in only DHCP Client is running. |
| 2.4.0.0 / 10 | Fixed a buffer overflow for AT+NWDHIP. |
| 2.4.0.0 / 11 | Fixed a minor issue for the emergency boot feature. |
| 2.4.0.0 / 12 | Fixed the validation of invalid vendor type. |
| 2.4.0.0 / 13 | Improved the information for the DPM manager that will be saved into the RTM before going to DPM sleep state. |
| 2.4.0.0 / 14 | Update SDK directory. - Rename directory from \src to \core. - Rename directory from \src_tim to \core_tim. - Move sample project to \apps\common\examples. - Improved project management by separated project. |
| 2.4.0.0 / 15 | Fixed an issue with the writeDataToFlash() API where it would not work correctly if the length of data to write is over 4 Kbytes. |
| 2.4.0.0 / 16 | Fix ed an issue where DHCP client is restarted after changing the Wi-Fi configuration after DPM wake-up. |
| 2.4.0.0 / 17 | Reduce power current by APIs related with updated DPM sleep2 power down scheme. |
| 2.4.0.0 / 18 | Show default CID for MQTT over AT-CMD if it does not exist. |
| 2.4.0.0 / 19 | Added an AT-CMD to show baud rate. |

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| Fix Number | Description |
|--------------|---|
| 2.4.0.0 / 20 | Add the latest DA14531 SDK which includes fixes for peri tests. |
| 2.4.0.0 / 21 | Updated the device name format to include the MAC address. |
| 2.4.0.0 / 22 | Fix for bd address display. |
| 2.4.0.0 / 23 | Added a command to check BLE OTA information. |
| 2.4.0.0 / 24 | Fixed an issue where a TCP session is lost after changing to the DPM wakeup state. |
| 2.4.0.0 / 25 | Remove AT+NWDHDNS AT-command. It's not required since the WAN port is not available in Soft-AP mode. |
| 2.4.0.0 / 26 | Changed and fix SPI/SDIO features and pin_mux_config() for AT-CMD. |
| 2.4.0.0 / 27 | Fixed power-grade change fail issue when RF CW test. |
| 2.4.0.0 / 28 | Changed AT-command from SETDPMSLP2EXT to SETSLEEP2EXT. Changed AT-command from SETDPMSLP1EXT to SETSLEEP1EXT. |
| 2.4.0.0 / 29 | Changed the point where RF_calibration is performed in the source code to remove the "read delay" when checking the Temperature-Sensor. |
| 2.4.0.0 / 30 | Debugging to read RSSI value using by AT-CMD when DPM wakeup. AT-CMD support for reading RSSI value after DPM wakeup. |
| 2.4.0.0 / 31 | Debugging SFLASH locking issue when POR boot (Winbond W25Q32JW) Solution for unexpected write-lock issue in a Winbond flash model (W25Q32JW) |
| 2.4.0.0 / 32 | Added the retry count when the TCP client connects to a TCP server over AT-CMD. |
| 2.4.0.0 / 33 | Fixed an issue where an exception occurs if an erase-key is continually input. |
| 2.4.0.0 / 34 | Add AT-CMD response message if TCP(or UDP) session cannot be established. |
| 2.4.0.0 / 35 | Fixed a corner case when trying to connect to the AP with an incorrect PW in connected state. |
| 2.4.0.0 / 36 | Fixed a bug when connect to non-static address type devices. |
| 2.4.0.0 / 37 | Fixed an issue where an exception occurs during boot if the CPU clock is 160MHz. |
| 2.4.0.0 / 38 | Fixed an issue which Data transfer couldn't be completed in 9600bps when DPM state is changed to DPM sleep. |
| 2.4.0.0 / 39 | Fixed APPLE devices Wi-Fi connection issue on WPA3 mode |
| 2.4.0.0 / 40 | Fixed a bug which doesn't work "user_wakeup_timer" on DDPS operation |
| 2.4.0.0 / 41 | Simplified improvement for 2MB / 4MB SFLASH image creation method |

6.2.4 Known Issues in 2.4.0.0

Table 12: 2.4.0.0 Known Issues

| Issue Number | Description |
|--------------|--|
| 2.4.0.0 : 01 | [Soft-AP] The last 6th STA may not connect to SDK in Soft-AP to use WPS mode because memory is not enough. |

DA16200 DA16600 ThreadX SDK**6.2.5 Known Limitations of 2.4.0.0****Table 13: 2.4.0.0 Known Limitations**

| Issue Number | Description |
|---------------|--|
| 2.4.0.0 :: 01 | Does not support the AT-CMD feature on 2MB SFLASH type for DA16200 |
| 2.4.0.0 :: 02 | Does not support a 2MB SFLASH configuration for DA16600 |

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6.3 Previous Version under Version 2.4.0.0

6.3.1 Overview

The revision history and descriptions of the previous SDK are different formats from version 2.4.0.0.

6.3.2 Revision History

| SDK Rev | Date | Description |
|---------|-------------|---|
| 1.0.0 | 3-July-2019 | First release on DA16200 SLR |
| 1.1.0 | 09-Sep-2019 | <ul style="list-style-type: none"> - Support Wi-Fi direct mode - Support concurrent mode - Stabilize DPM operation - Stabilize ARM mbedTLS library with CC312 HW security engine - Stabilize AT-CMD over SDIO - Reassign the system memory map - Optimize system memory usage - Optimize RW data memory area - Add UDP hole-punching functions (RTOS, pTIM) - Add Winbond 4MB SFLASH binary - Stabilize TIM operation - Apply and stabilize the RF driver 1p0 - Add fcCSP Low-Power Tx mode of RF driver - Support BT_Coex over SDIO I/F |
| 1.2.0 | 18-Nov-2019 | <ul style="list-style-type: none"> - Update TIM functions - Add API for Wi-Fi / BT Co-existence - Apply Power up and down sequence - Improve TIM RX current consumption in low-current mode - Modify default transport speed for UDP Holepunch (6Mbps → 1Mbps) - Modify default transport speed for KA/ARP response (6Mbps → 1Mbps) - Add call-back functions for RTC wakeup pin interrupt - Apply RTC_WAKEUP 1/2/3/4 - Add script file to make NVRAM binary image - Debug ATE OTP operation - Add 5th MAC address region - Add 3rd TX power offset region - Modify write flow for MAC address on OTP - Add copy command for TX power offset value (region #0 → region #2) - Add download function for TLS Certification - Improve TCP Client Tx throughput of AT-CMD via SDIO interface - Add network connection timeout function when DPM Abnormal Wakeup - Add timeout argument for DNS Query API - Add one-session MQTT operation feature (Default: disable) - Add QoS feature of MQTT publisher operation - Add API to add HTTP header field by customer - Add AT command to change Boot index - Add API to assign downloading SFLASH address for user FW image. - Add to support ASN.1 feature for TLS RSA Public Key - Optimize fast-connection scan time delay (100ms → 30ms) - Upgrade iPerf tool for NetxDuo 5.11 - Support to change operating channel of AP-side on Concurrent mode when STA don't connect to legacy AP. - Add Direct-SSID Scan function (Default: disable) - Debug to support I-Jet debugger - Add sample code for CoAP client |
| 1.2.1 | 25-Nov-2019 | <ul style="list-style-type: none"> - Debug DPM Manager |

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| SDK Rev | Date | Description |
|---------|-------------|---|
| | | <ul style="list-style-type: none"> Add TCP/UDP client Binding timeout operation Add local port number generation function for TCP client session Debug to prevent to go to DPM sleep unintendedly after initializing of DPM manager - Add payload for UDP hold-punching function - Debug to prevent to set State-HIGH of GPIO OUT unintendedly after Power-On-Reset - Add AT-CMD to enter sleep 2 mode (AT+SETDPMSLP2EXT) - Add I-Jet debugging mode for SFLASH MX25U1635F type - Change OTA update flow to stop when SLIB downloading fail - Debug DPM Sleep 3 operation In case of to receive Wi-Fi "Deassoc message" from AP during perform to enter DPM sleep 3 status: the reason of POR reboot - Debug DPM operation for Doorbell-Reference SDK package Don't enter DPM sleep 3 mode again when wakeup from RTC timer |
| 1.2.2 | 02-Dec-2019 | <ul style="list-style-type: none"> - Debug OTA Update Debug operation duplicate for test command of OTA update function - Debug / Improve ARP operation Debug the issue entering DPM sleep without ARP table when POR/Reset Debug the issue removing Auto_ARP scheduling issue when DPM wakeup - Add GPIO Retention-Low function (Default: Enable) Add APIs to maintain about specified pin status as LOW Prevent to set GPIO retention status as HIGH for about GPIOA[3:0] Add API to save the external Pull-Up pin information in Retention-Memory (SAVE_PULLUP_PINS_INFO()) - Debug "udp_client_dpm_sample.c" for DPM operation |
| 1.2.3 | 16-Dec-2019 | <ul style="list-style-type: none"> - Add debug PMF (Protected Management Frame) function PMF function is set up to disable in generic SDK. - Add debug log for FW image create fail issue Debug log file is created at ~/build/build_error.log file - Improve Wi-Fi disconnection issue stability - Improve duplicate AutoARP tx issue - Fix Tx Rate mode value when DPM wakeup |
| 1.2.4 | 23-Dec-2019 | <ul style="list-style-type: none"> - Debug and optimize DPM operation In case of NO_ACK DPM wakeup, send active NULL-frame to sync PS mode with legacy AP. - Debug throughput down issue when DPM wakeup Add initialize scheme for rate-control when DPM wakeup - Add CoAP Server APIs - Modify SPI header mode as 8 bytes in case of AT-CMD / SPI interface |
| 1.2.5 | 13-Jan-2020 | <ul style="list-style-type: none"> - Add BT coexistence feature (Default is disable) - Add DPM TCP ACK feature (ACK after 3 seconds on first connection, ACK every 3 minutes thereafter) - Add J-Link debugger instruction guide in SDK programmer. - Modify GPIO related AT command - Modify ESC command sequence and add SPI_IF same as SDIO_IF in AT command |
| 2.0.0 | 02-Feb-2020 | <ul style="list-style-type: none"> - Improve SDK architecture - Unify compile feature in SDK - Separate sample codes from source code hierarchy - Support Doxygen online documents |
| 2.0.1 | 03-Apr-2020 | <ul style="list-style-type: none"> - Add Doxygen document that was not provided for sample code - Add system architecture Doxygen documents - Add pTIM SDK |

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| SDK Rev | Date | Description |
|---------|-------------|---|
| | | <ul style="list-style-type: none"> - Improve DPM stability - Improve MQTT Client stability - Improve AT-CMD stability - Improve Doorbell reference SDK feature stability - Improve Combo Module (DA16600 project) stability |
| 2.1.0.0 | 29-Apr-2020 | <ul style="list-style-type: none"> - Change Upper-MAC code (Dialog proprietary Upper-MAC Code) - Change Version numbering format |
| 2.2.0.0 | 29-May-2020 | <ul style="list-style-type: none"> - Separate version information: config_generic_sdk.h → sdk_version.h - Improve main() flow and change Main project - Add customer_app project - Enable Hello World Thread - Add __ENABLE_SAMPLE__ feature into User Application Table <ul style="list-style-type: none"> : Remove compile dependency for Sample project - Change non-dpm Network Sample applications (Remove DPM manager dependency) - Add non-DPM HTTP sample - Improve Secure Boot generation tool - Add "How to start" chapter into Programmer's Guide document. - Add "How to start" chapter into Example User Manual document. |
| 2.2.1.0 | 18-Jun-2020 | <ul style="list-style-type: none"> - Add new AT-CMD for OTA Update - Add new AT-CMD to check Wi-Fi connection status - Add OTA Update operation for MCU binary image - Add MCU Wakeup GPIO 11 trigger operation when DPM wakeup - Add provision operation on Soft-AP Mode over AT-CMD features - Improve AT-CMD data transfer operation when DPM UC wakeup - Improve DPM operation for external wakeup |
| 2.3.0.0 | 30-Jul-2020 | <ul style="list-style-type: none"> - Upgrade the WPA Supplicant V2.4 → V2.7 <ul style="list-style-type: none"> : It is possible to support the WPA3 (PMF, SAE, OWE) and MESH features - Improve Wi-Fi SCAN operation (Optimize the memory usage) |
| 2.3.1.0 | 20-Aug-2020 | <ul style="list-style-type: none"> - Patch Sample project compile error |
| | 02-Feb-2021 | <ul style="list-style-type: none"> - OTA function addition and modification Add SFLASH Copy, Read, Erase API and AT-CMD Add MCU FW, Certificate update API and sample code Modify typedef struct OTA_UPDATE_CONFIG Modify enum ota_update_fw_type |
| 2.3.2.0 | 23-Sep-2020 | <ul style="list-style-type: none"> - Update the Doxygen document for SPI Master (IOCTL description) - Add new SFDP file for MX3232 SFLASH - Improve PTIM operation <ul style="list-style-type: none"> : Correct an issue in which becomes as wrong optimization value, if continued UC Rx occurs before AP-Sync optimization proceeds - Improve UC-Retry feature <ul style="list-style-type: none"> : Enable UC-Retry feature : Reduce UC Rx timeout as 20 TU : Set UC-Retry count as 2 : Fix bug that SEQ.NUM didn't increase when UC trigger w/ NULL frame - Improve Smart PS-POLL - Fix channel change issue when legacy AP run as Wi-Fi Router mode - Improve DPM function <ul style="list-style-type: none"> : Enable TIM_TCP_ACK function when DPM MQTT TCP session established : Fix TCP Rx fail issue after running EAPOL_UPDATE on some legacy AP - Optimize the DPM Wakeup active time (from Boot to DPM sleep) <ul style="list-style-type: none"> : 140msec → 80msec |

DA16200 DA16600 ThreadX SDK

| SDK Rev | Date | Description |
|---------|-------------|---|
| | | <ul style="list-style-type: none"> - Support to create 4MB SFLASH images from the DA16200 SDK Except 4MB SFASH + AT command feature. - Add TLS protocol for Soft-AP provisioning - Fix bug for Wi-Fi scanning: Memory size overflow issue - Improve AT-CMD module - Improve Supplicant memory pool size (for Soft-AP Max station) - Update Doxygen document |
| 2.3.3.0 | 30-Dec-2020 | <ul style="list-style-type: none"> * W-Fi Features <ul style="list-style-type: none"> - Add Dynamic DPM Period Selection (DDPS) function. - Fix a problem that some APs could not receive ACK frame. - Set the beacon timeout by the beacon interval when SLEEP time > 10 secs. - Check if AP has changed the default channel. - Fix APSYNC optimization error when the AP generates many UCs. * Stabilities <ul style="list-style-type: none"> - NVRAM field integrity check patched. - Memory copy with DMA example and document added. - AT-CMD at SPI issue patched – build option and stack size modified. - Change features for 4MB SFLASH + AT-CMD (Default #undef __SUPPORT_PROVISION_TLS) - Add Root CA loading command over AT-CMD * Sample Codes <ul style="list-style-type: none"> - Fix two sample code compile error: HTTP_Client_DPM / Crypto_RSA - Improve Sample format: Add main.c / sample_apps.c / sample_defs.h into each sample * Documents - Revision <ul style="list-style-type: none"> : UM-WI-002-DA16200_SDK_Programmer_Guide_Rev_2v2 : UM-WI-003-DA16200_AT-Command_User_Manual_Rev_2v0 : UM-WI-007-DA16200_Example_Application_Manual_Rev_2v0 : UM-WI-035-DA16200_SDK_Memory_Map_Rev_1v0 : UM-WI-034-DA16200_DPM_Over_ATCMD_on_MCU_Rev_1v0 : UM-WI-036-DA16200_OTA_Update_User_Manual_Rev_1v0 : AN-WI-011-DA16200_Register_Map_Peripherals_Rev_1v0 : AN-WI-010-DA16200_Pin_Multiplexing_Rev_1v1 - SDK Improvements <ul style="list-style-type: none"> : Source codes Open <ul style="list-style-type: none"> - ThreadX, NetXDuo, HTTP Server/Client, - DPM Manager, iPerf, Network Apps : Merge fcCSP LP RamLibrary binary in SDK - ETC <ul style="list-style-type: none"> : Add SFDP binary file for AT25SL321 and MX25R1635. : Update PC tools' version (v1.0) and ReadMe. |
| 2.3.4.0 | | <ul style="list-style-type: none"> * System Applications <ul style="list-style-type: none"> - MQTT client <ul style="list-style-type: none"> : Modify MQTT flow when mqtt_client is stopped or terminated : Workaround read flow for TLS certificate files (for GIGA Device SFLASH) - Add NVRAM recovery procedure <ul style="list-style-type: none"> : Add new flow to check and to recover/restore for crashed NVRAM - Add Wi-Fi Wrong Password notify callback function - Improve the function "<i>da16x_get_config_str()</i>": Add initialize the buffer as 0. <ul style="list-style-type: none"> : int da16x_get_config_str(int name, char *value) ➔ int da16x_get_config_str(int name, char *value, int buf_len) - Add configuration functions to configure UART1/UART2 devices |

DA16200 DA16600 ThreadX SDK

| SDK Rev | Date | Description |
|---------|------|---|
| | | <ul style="list-style-type: none"> : AT-CMD or UART1/UART2 - Add User UART/UART2 configuration features <ul style="list-style-type: none"> : #undef __SUPPORT_USER_UART_CONFIG__ : void UART_conf_default() / int UART_init() / int set_user_UART_conf() : PRINTF_UART() / puts_UART() / getchar_UART() - AT-CMD <ul style="list-style-type: none"> : Add new "AT+NWMQAUTO" command - Improve CC312 HW Engine initialization time when start Kernel <ul style="list-style-type: none"> : Skip TRNG initialize operation (100msec → 10msec) - Remove mbedTLS library compile warning <ul style="list-style-type: none"> : In mbedtls_ssl_safer_memcmp() <ul style="list-style-type: none"> /* Read volatile data in order before computing diff. * This avoids IAR compiler warning: * 'the order of volatile accesses is undefined.' */ - Fix some bugs of "cli commands" argument handling - Improve operation to read TLS certifications for MQTT <ul style="list-style-type: none"> : Three times access NVRAM to read certifications → Read one time (Solve Giga Device SFLASH read timing problem) - Change some variables / function names <ul style="list-style-type: none"> : fc9k / FC9K → da16x / DA16X, FCI → Dialog - Improve I2C read operation - Add new feature __SUPPORT_APPMEM_CHECKER__ <ul style="list-style-type: none"> : Default disable <p>* pTIM</p> <ul style="list-style-type: none"> - Add new function to check the low battery status for brown-out - Fix hidden SSID handling issue <ul style="list-style-type: none"> : An issue where BCN_Change when it was a hidden SSID. <p>* ETC</p> <ul style="list-style-type: none"> - Debug the operation to save 2nd DNS server IP address when DPM wakeup <ul style="list-style-type: none"> : In case of no information for 2nd DNS server IP address. <p>* SDK</p> <ul style="list-style-type: none"> - Stop to support ISSI D-type SFLASHs - Change Library project compile mode (Release-ASIC) <ul style="list-style-type: none"> : Except Crypto library - Change SDK format: Separate core source and customer code/project <ul style="list-style-type: none"> : ~/SDK/customer/, ~/SDK/src/ - Separate the Crypto Library from the HW engine part and the normal mbedTLS security library <ul style="list-style-type: none"> : Open the source codes the normal mbedTLS library in SDK <p>* Samples</p> <ul style="list-style-type: none"> - Add softap_provisioning sample <ul style="list-style-type: none"> → Remove softap_provision module in SDK - Add <i>sample_preconfig()</i> function to pre-set the configuration when start. <ul style="list-style-type: none"> → ~/SDK/sample/common_config/sample_preconfig.c <p>* Documents</p> <ul style="list-style-type: none"> - UM-WI-036-DA16200_OTA_Update_Rev.2v0 Update <ul style="list-style-type: none"> : Add description sentence of Heap-memory when using TLS session. - UM-WI-002-DA16200_SDK_Programmer_Guide_Rev_2v3 <ul style="list-style-type: none"> : Change some contents for new SDK structure - UM-WI-007_DA16200_Example_Application_Manual_Rev_2v2 <ul style="list-style-type: none"> : Change some contents for new SDK structure : Add pre-configure function for sample code |

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| SDK Rev | Date | Description |
|---------|-------------|---|
| | | <ul style="list-style-type: none">- Update DA16200_Datasheet_Rev3v3- Update Doxygen documents: Add some APIs |
| 2.3.4.1 | 29-Apr-2021 | <ul style="list-style-type: none">* System Applications- Support provisioning feature in SDK.: DA16200_IMG_Generic_QFN_ATCMD_v2.3.4.1_2MB image does not support provisioning feature. |
| 2.3.4.2 | 19-Jul-2021 | <ul style="list-style-type: none">* System Applications- Fix SFLASH locking issue on 2nd Bootloader of Winbond Sflash.- Fix CW RF power grade issue in manufacture SDK- Added TLS client and mDNS feature over ATCMD |

Appendix A Software Versioning Rules

This describes the software version numbers and does not apply to documentation version numbers (as found in the footer of this document).

Each software version number string consists of four numbers: MAJOR. MINOR. REVISION. and ENGINEERING_REV.

#MAJOR: It is increased (by one only) if the project undergoes a major modification, for example OS changes. It usually changes only when the project sources undergo major restructuring affecting most of the repository. It is initialized at 1.

#MINOR: Used in the case of concurrent projects that for special reasons need to be spun off the major repository. It corresponds to different versions of the repository code that have to be supported concurrently. In this case each branch number corresponds to a different GIT branch. The basic project has BRANCH id 0.

#REVISION: Full release versions. Each Full release increases this number by one. After the Full release, the number is increased by one again. Therefore, Project releases correspond to release numbers like X.Y.0.0, X.Y.1.0. etc. The #REVISION number is initialized at 0.

#ENGINEERING_REV: The # ENGINEERING_REV number increases by one at engineering update and thus indicates the total number of releases since release the official SDK package. The ENGINEERING_VERSION number is initialized at 0.

DA16200 DA16600 ThreadX SDK**Document Revision History**

This section summarizes the changes made to this document and not to the Software that this document describes.

| Revision | Date | Description |
|------------------------|-------------|--|
| 2.4.2.0 | 24-Dec-2021 | Official release for SDK 2.4.2.0. |
| 2.4.1.0 | 10-Dec-2021 | Official release for SDK 2.4.1.0. |
| 2.4.0.0 | 31-Aug-2021 | Initial version that merged the DA16200 and the DA16600. Official release for SDK 2.4.0.0. |
| Change details: | | |

DA16200 DA16600 ThreadX SDK

Status Definitions

| Status | Definition |
|----------------------|--|
| DRAFT | The content of this document is under review and subject to formal approval, which may result in modifications or additions. |
| APPROVED or unmarked | The content of this document has been approved for publication. |

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