GR551x Software Development Kit Release Note

Version: 2.1.0

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1 SDK V2.1.0

The GR551x Software Development Kit (SDK) V2.1.0 is updated based on the previous version V2.0.2.

1.1 Release Overview

1.1.1 Release Package

Table 1-1 Release package

Folder	Description
build	Link-related tools and scripts
components	Bluetooth LE API header, library, and source files
documentation	API reference. For more documents, visit GR551x Series: Documentation.
drivers	Driver interface source code and header files
external	Third-party library source code and header files
platform	Link-related files
projects	Example project files and source code

1.1.2 Notices

- Major updates based on the previous version include new features, functional changes, and fixed bugs.
- The whole SDK has been comprehensively retested based on the following environments.

Table 1-2 Item version

Item	Name & Version
IDE	Keil MDK-ARM Version 5.20
SoC	GR551x series (GR5515IGND, GR5515IENDU, GR5515I0NDA, GR5515RGBD, GR5515GGBD, and GR5513BENDU)
Platform	Windows 7/10
Tools	• GProgrammer V1.2.41 • GRUart V2.1 • GRToolbox V2.16 • GRPLT Lite Config Tool V1.1.6 • GRDirect Test Mode Tool V1.5.2 • GRPLT V1.5.0.0.6

1.1.3 Limitations

- The GR551x SDK might not work in versions earlier than Keil V5.20.
- There may be some problems with SEGGER J-Link and Keil.

  Visit https://www.segger.com/IDE_Integration_Keil.html#knownproblems for more details.

2 Revision History

2.1 GR551x SDK V2.0.2

2.1.1 System

1. Supported GCC Hardware Floating Point Unit.
2. Enhanced stability at both high and low temperatures.
3. Reduced the overhead of the main stack in C.
4. Optimized the PMU calibration strategy.
5. Optimized the calibration mechanism in the SDK. For ICs with large frequency offsets, calibration will be performed with higher frequency.
6. Fixed a bug that could cause reduction in voltage supplied to SRAM due to a large gap between AON LDO voltage and Digcore voltage.
7. Reduced the code size of the template project compiled in GCC.

2.1.2 Drivers

1. Added an AON WDT API to read the reset flag
2. Fixed a bug that could cause hal_uart_get_state unable to return correct TX state which might lead to wait for a timeout or asynchronous reception completion before exiting app_uart_flush.
3. Fixed a bug that could cause errors during ADC multi-channel sampling, and enhanced stability of the ADC driver.
4. Fixed a bug that could cause an error in C++ compilation for HAL and LL drivers.
5. Fixed a bug where hal_adc_start_dma was non-reentrant.
6. Fixed a bug that could cause hal_pwm_update_freq unable to output PWM waveforms in some scenarios.
7. Fixed a bug that could cause operation in blocking state due to timeout of hal_adc_poll_for_conversion.
8. Fixed a bug that could cause impact on UART RX due to MSIO de-initialization

2.1.3 Bluetooth LE

1. Fixed a bug about the compatibility that occurred when a mobile phone acted as GATT Client to search services on another mobile phone.
2. Fixed a bug that could cause failure to enable advertising in a connection complete event.
3. Fixed a bug about compatibility of 2M PHY on some mobile phones.

2.1.4 Examples and Libraries

1. Added an implementation mechanism to the ADC driver to measure the temperature and vbattery of the SoC

2.2 GR551x SDK V2.1.0

2.2.1 System

1. Reconstructed the SDK project architecture to a certain extent, and added *ble.c* to the projects.
2. Added an API to retrieve the system reset reason.

3. Improved the sleep timing accuracy for pwr_mgmt_ultra_sleep.
4. Resolved the sleep and wakeup exceptions in ultra deep sleep mode.
5. Resolved occasional reset in high temperature scenarios.
6. Resolved the dual-driver DFU failures in encryption and signature verification environments.
7. Decoupled the implementation of SDK components from the specific OS source code.
8. Upgraded IAR IDE (V9.40.1 and later versions required).

2.2.2 Drivers

1. Resolved the exception that ITM printing did not work.
2. Added register operation APIs to the internal Flash.
3. Optimized the I2C driver.
4. Optimized the ADC driver, and resolved the exceptional stop and timeout block in multi-channel sampling scenarios.
5. Optimized the PWM driver.
6. Resolved the UART MUX exceptions.
7. Resolved the reset failures caused by RAM conflicts for hal_nvic_system_reset().

2.2.3 Bluetooth LE

1. Optimized the RF performance.
2. Fixed the disconnection issue caused by parameter update at Bluetooth LE 2M PHY.
3. Optimized the MAC address de-duplication algorithm.
4. Resolved the hardfault exception caused by an LCP EOF event, and supported –20 dB LCP TX power.
5. Resolved DFU exceptions in multi-connection scenarios.
6. Improved the PMU calibration strategy, and fixed the disconnection issue of Bluetooth LE.
7. Improved the stability of Bluetooth LE in multi-connection scenarios.