Release Notes

DA14531/DA14585/DA14586 SDK v. 6.0.12.1020.2

SW-B-002

Abstract

This document contains the release notes for Dialog Semiconductor's DA14531/DA14585/DA14586 Software Development Kit, version 6.0.12.1020.2

Contents

Tables

1 Terms and Definitions

GA	General access
LA	Limited access
BLE	Bluetooth Low Energy
SDK	Software Development Kit
SUOTA	Software Update Over The Air
TRNG	True Random Number Generator
FW	Firmware
API	Application Programming Interface

2 Release Data

Table 1: Information Table

Software	DA14585 DA14531 SDK
Device Number	DA14531, DA14585, DA14586
Software Release Date	9 December 2019
Software Version Number	6.0.12.1020.2
Software Release Type (Note 1)	FULL (GA)

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

3 License

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

4 Related Documentation and References

DA14531 Getting Started Guide User Manual	UM-B-117
DA14585/DA14531 SDK Porting Guide	UM-B-118
DA14585/DA14531 SW Platform Reference Manual	UM-B-119

5 Release Description

5.1 Overview

This is a GA release of SDK6 that runs on the DA14531 and DA14585/6 devices.This release can be used for application development.

5.2 Fixes and Improvements since 6.0.12.1020

Table 2: 6.0.12.1020.2 Fixes and Improvements

Fix Number	Description
1020.02.01	DA14531: Updated calibration for improved radio functionality in applications with fast temperature swings

5.3 Known Issues of 6.0.12.1020.2

Table 3: 6.0.12.1020.2 Known Issues

Issue Number	Description
1020.01	DA14531: Wrong TX power level value is returned by Tx Power GATT service. Returned value is the setting of the register, not the dBm. Furthermore, the returned value refers to the advertising power, even if the connection power is different.
1020.02	DA14585/586/531: In external processor configuration the GPIO used for waking up is not programmed immediately after UART flow off. This may lead to missing the communication over UART with the external processor, if the external processor tries to wake up the device too soon.
1020.03	The prod_test.hex file might have memory alignment issues preventing its usage In SmartSnippets Toolbox RF Master or with Bluetooth tester equipment. The corresponding prod_test.bin files should be used instead.
1020.04	DA14531: when *_EXCLUDE_ROM_PRF_* is not defined and no BLE profiles are used in the application context, BLE_NB_USED_PROFILES must be set to 0. If not, the first four addresses of the executable – initial Stack Pointer, Reset Handler, NMI Handler and HardFault Handler – will be overwritten with zeros. Affected SDK projects: hci; ble_app_noncon; prod_test.
933.04	DA14585/586/531: Default system rand() function is not true random (not NIST compliant). It is suggested to use the alternative chacha20() function, when true random numbers are required (NIST compliant).

5.4 Known Limitations of 6.0.12.1020.2

Table 4: 6.0.12.1020.2 Known Limitations

Issue Number	Description
1020.05	DA14531: The peripheral examples inside the SDK do not work in boost mode due to the deactivation of the internal DCDC converter in the system initialization function.

5.5 Comments

It is recommended to migrate DA14531 projects from 6.0.12.1020 to this release.

6 Release History

6.1 Version 6.0.12.1020

Version 6.0.12.1020 of SDK6 was released on 31-Oct-2019.

6.1.1 Overview

This was the 1st GA release of SDK6 that run on the DA14531 devices. It also supported DA14585/6 devices.This release can used for application development.

6.1.2 Features of 6.0.12.1020

Table 5: 6.0.12.1020 Features

Feature Number	Description
1020/001	Supports DA14531, DA14585 and DA14586 devices.
1020/002	Includes Eclipse/GCC project example (prox_reporter).
1020/003	Supported by SmartSnippets tools version 2.0.10.
1020/004	Doxygen documentation of all API functions.
1020/011	Updated 531 radio driver.
1020/012	RF driver for DA14531.
1020/013	DA14531: API function to dynamically control radio TX power.
1020/014	DA14531: RF power control -20 ...3dbm.
1020/015	SPI driver for DA14531 (master/slave buffered and DMA driven transactions).
1020/016	I2C driver for DA14585/586/531.
1020/017	RTC driver for DA14531.
1020/018	OTP driver for DA14531.
1020/019	Support for OTP configuration script in 531.
1020/020	Support for DA14531 ROM functions.
1020/021	Near field mode API for DA14531.
1020/022	API function to enable/disable the H/W Reset pin in DA14531.
1020/023	DA14531 support in Wakeup & Quadrature Decoder driver.
1020/024	DA14531 support in GPIO driver.
1020/025	Added DA14531 target in project : ble_app_peripheral.
1020/026	Added DA14531 target in project : ble_app_profile.
1020/027	Added DA14531 target in project : ble_app_barebone.
1020/028	Added DA14531 target in project : prox_monitor_ext .
1020/029	Added DA14531 target in project : hci.
1020/030	Peripheral examples ported to DA14531.
1020/031	Batt_lvl peripheral example project DA14531.
1020/032	DA14531: Support for 1-wire UART (driver & flash programmer).
1020/033	Temperature sensor driver.
1020/034	Readout of internal temperature.
1020/035	AES driver (data and link).

Feature Number	Description
1020/036	DCDC converter API to control VBAT_H for OTP and GPIOs in Boost mode.
1020/037	Use of temperature sensor to trigger RF calibration during run-time.
1020/038	Secondary bootloader project.
1020/039	Proximity reporter example.
1020/040	Prox_reporter application wakeup using RTC or Timer 1 (apart from GPIO).
1020/041	Template example.
1020/042	Prod_Test firmware.
1020/043	OTA example project.
1020/044	Security example.
1020/045	Sleep Example.
1020/046	Add support for shipping (hibernation) mode.
1020/047	ADC Driver with DMA support.
1020/048	RCX-only operation - no need for XTAL32K.
1020/049	Added extra power optimization method using the XTAL16M adaptive settling time algorithm. It is enabled by default and can offer power savings of up to 10% for 10ms connection interval.
1020/050	Used the default XTAL16M trim value when the XTAL16M is uncalibrated.
1020/051	POR on Vbat high / low Voltage Monitor.
1020/052	Deep sleep support.
1020/053	Timer1/2 support.
1020/054	Disabled DC-DC auto calibration (Buck and Boost mode).
1020/055	Added 38K4 baud rate support in production test f/w.
1020/056	Added support for Boost mode.
1020/057	Added API for AES-CCM, AES-CBC and AES-CMAC operations.
1020/101	Compliant to BLE 5.0 (DA14585/6) and BLE 5.1 (DA14531) Core specification.
1020/102	Data Packet length Extension.
1020/103	Enhanced Privacy 1.2.
1020/104	Efficient non connectable advertising.
1020/105	Added API to support controller privacy (peripheral role).
1020/106	BLE LE Secure Connections.
1020/107	Function for the unique static random BD address generation using OTP header values.
1020/108	Adds a key renewal command that can be called after a number of failed pairing attempts
1020/109	Added support to disable the ROM ECC key generation calculations if the Secure Connections feature is not used.
1020/110	Added support for URI advertising data type.
1020/111	Added support for GATT service layer changed characteristic to application layer.

6.1.3 Known Issues of 6.0.12.1020

Table 6: 6.0.12.1020 Known Issues

Issue Number	Description
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Table 7: 6.0.12.1020 Known Limitations

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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. BRANCH. MINOR. and BUILD.

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

#BRANCH: 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.

#MINOR: Odd numbers indicate Engineering (or Patch or Binary) versions, even numbers indicate Full release versions or Release Candidates of Full 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 2.0.1.xxx, 2.0.2.xxx. etc. The #MINOR number is initialized at 1.

#BUILD: The # BUILD number increases by one at every repository update and thus indicates the total number of changes since repository initialization. The BUILD number is initialized at 1.

Document Revision History

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

Revision	Date	Description
6.0.12.1020.2	9-Dec-2019	Improves radio calibration on DA14531 release. GA
○ This is the second release of this document.		
6.0.12.1020	31-Oct-2019	Release supporting final DA14531 silicon and DA14585/6. GA
○ This is the first release of this document.		

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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RoHS Compliance

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