User Manual

DA14681 to DA14683 Porting Guide

UM-B-097

Abstract

This is a guide explaining the porting from DA14681 to DA14683 silicon version.

Contents

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1 References

[1] UM-B-044, DA1468x Software Platform Reference, User Manual, Dialog Semiconductor.

2 Introduction

This document explains the changes and steps needed for porting an application developed on the DA14681 SDK 1.0.12 release to the DA14683 SDK1.0.12 release.

3 Target Configuration

The application developed on the DA14681 SDK shall be compiled to target the DA14683-00 silicon version, and it can be achieved by adding a new building configuration to the existing application in the following steps.

1. Open the configuration manager (Figure 1) and select a new configuration (Figure 2).

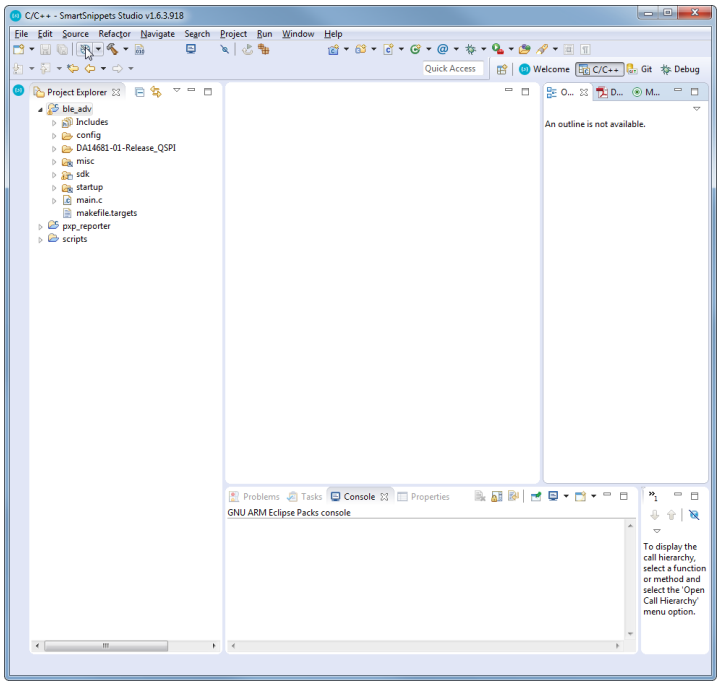

Figure 1: Configuration manager Selection

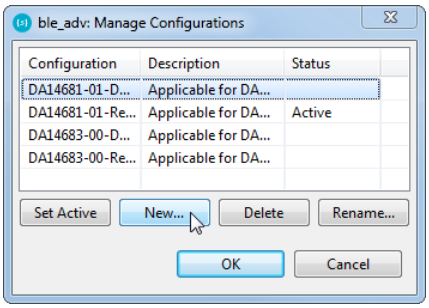

Figure 2: Create new configuration

2. Create a new configuration with the name of your choice and copy the settings from your preferred current configuration (Figure 3).

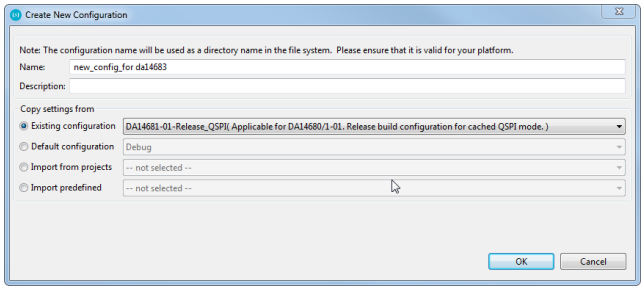

Figure 3: Select configuration base

3. Now you can close the configuration manager.
4. Open the project **Properties** to edit the new configuration with a right click on the application project (Figure 4).

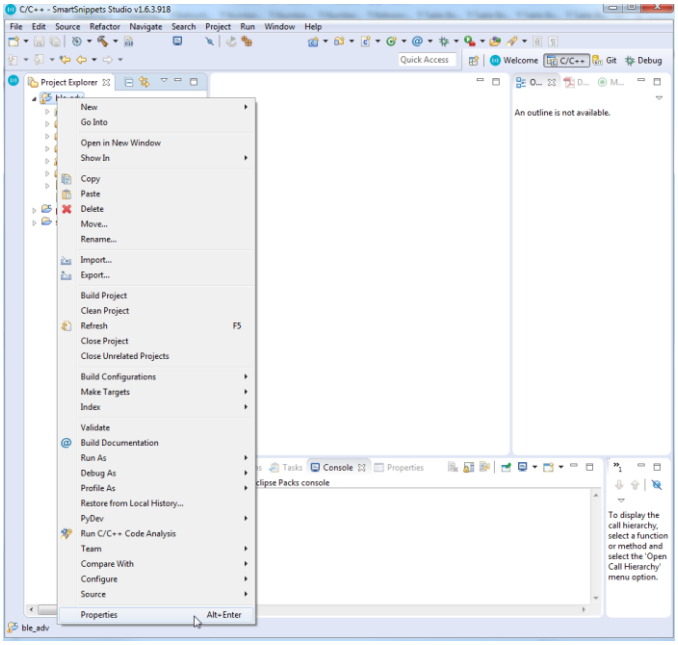

Figure 4: Edit project properties

5. Make sure the new configuration is selected at the top of the window. In the "**C/C++ Build/Settings**" area, edit the preprocessor setting for both **Cross ARM GNU assembler** (Figure 5) and **Cross ARM C Compiler** (Figure 6). You should edit the IC_REV and IC_STEP to reflect the following values:

```
dg_configBLACK_ORCA_IC_REV=BLACK_ORCA_IC_REV_B
dg_configBLACK_ORCA_IC_STEP=BLACK_ORCA_IC_STEP_B
```

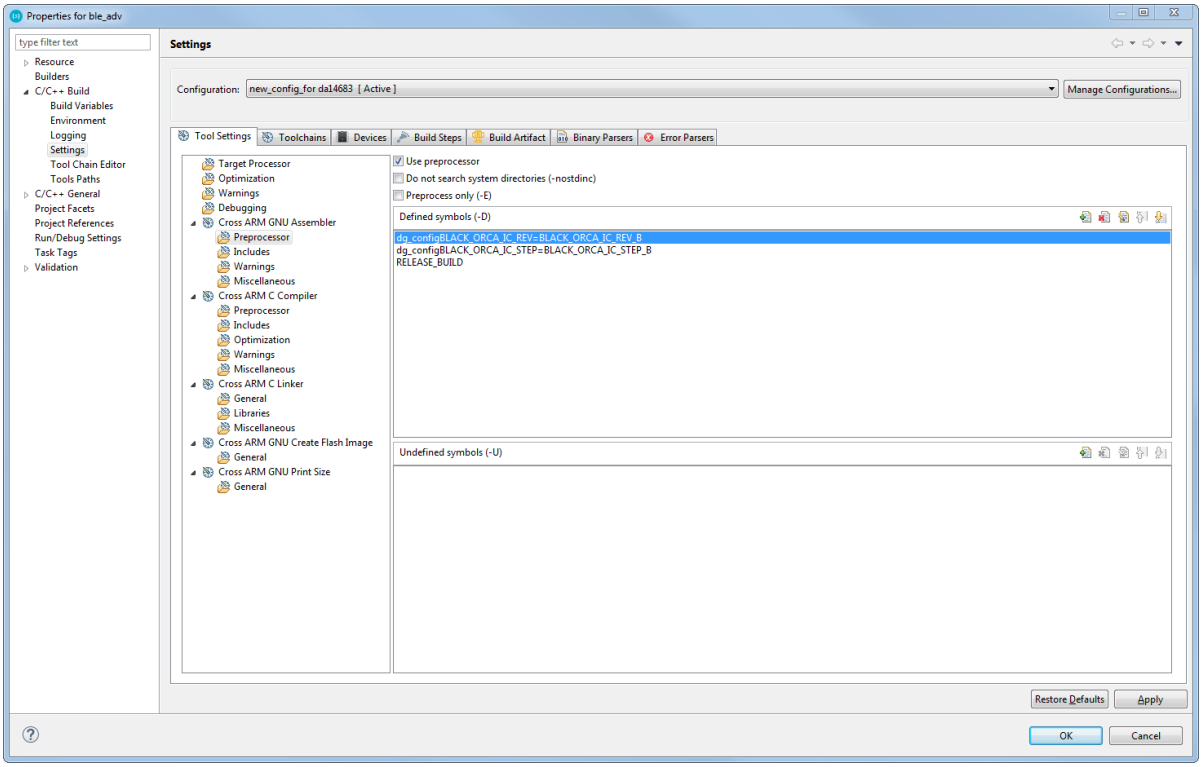

Figure 5: Edit assembly defined symbols

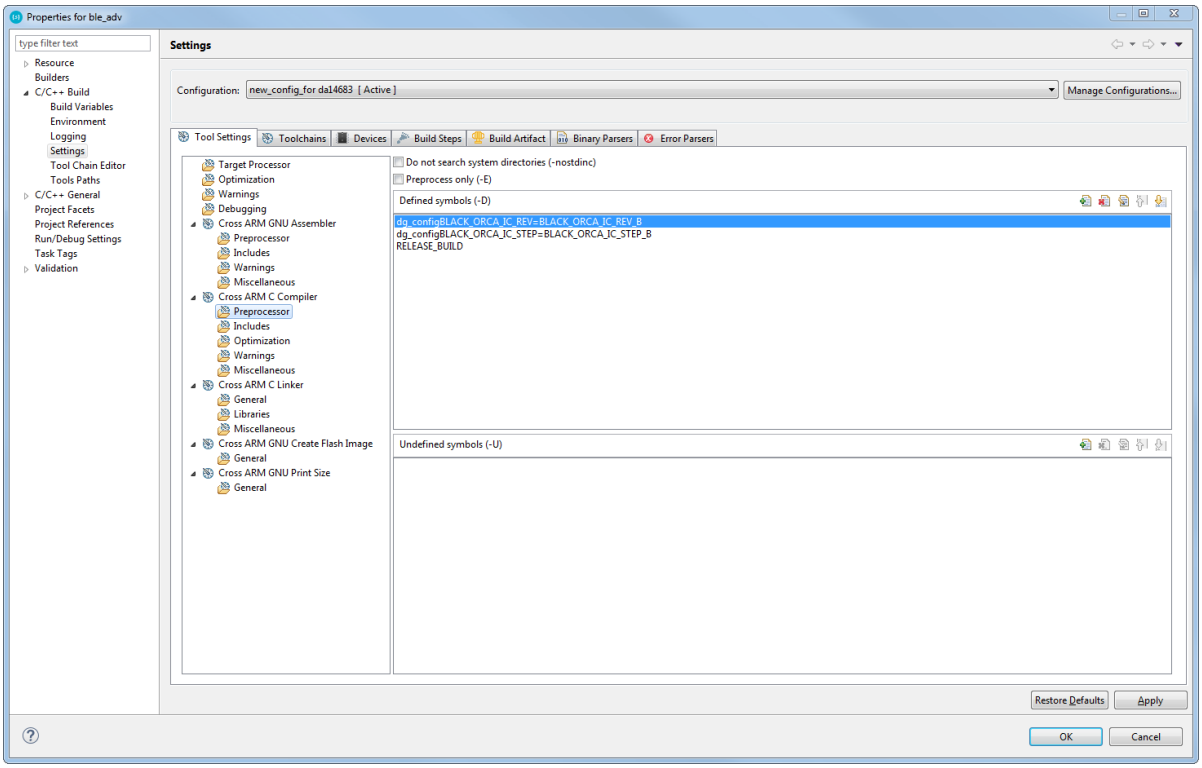

Figure 6: Edit compiler defined symbols

6. In the **Build Steps** tab, the command in the **Command** of the **Pre-build Steps** edits the IC revision to match the compiler parameters (Figure 7).

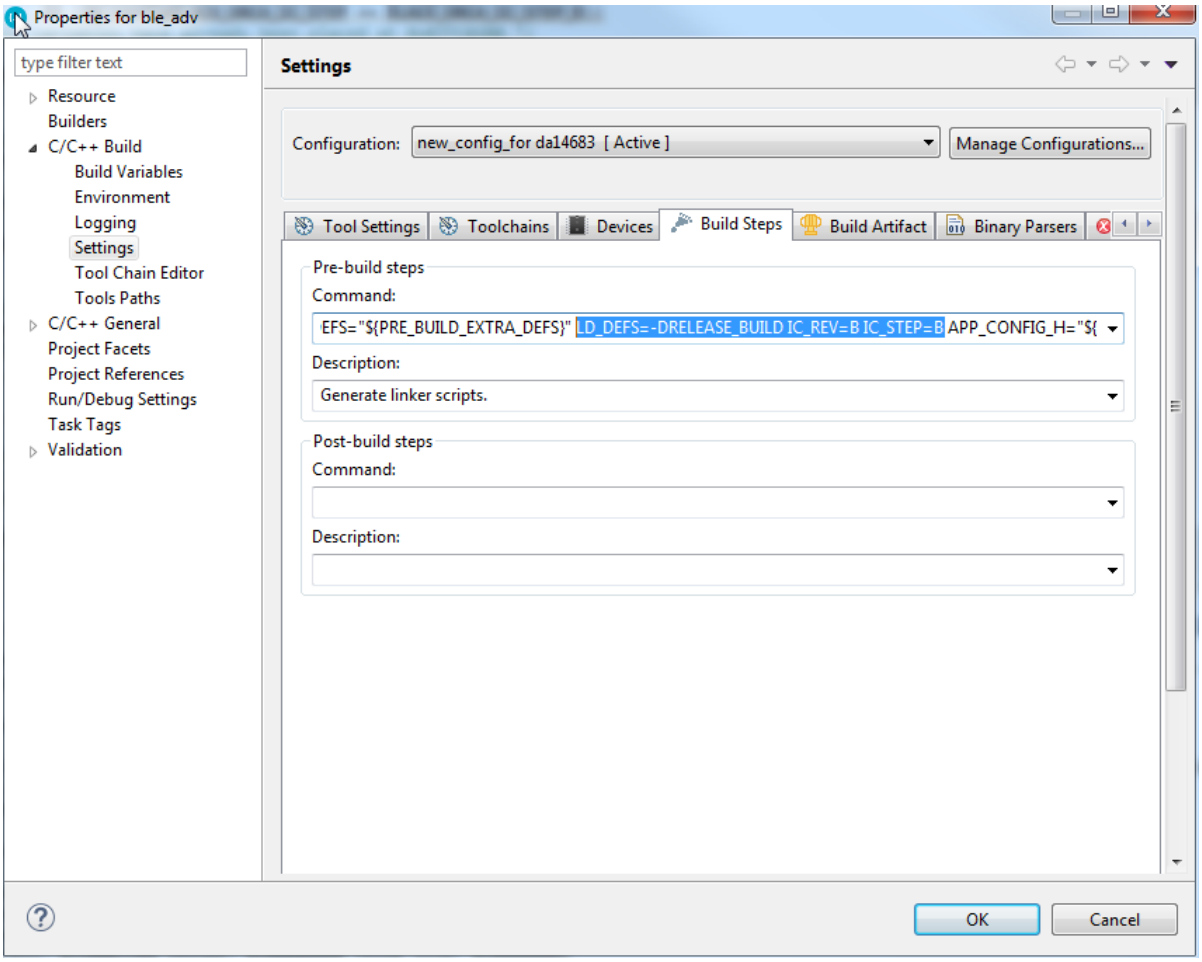

Figure 7: Edit Pre-build configuration

7. In the **Libraries** of the **Cross ARM C Linker**, edit the **libraries (-l)** and **Library search path (-L)** to point at the DA14683 SDK (Figure 8).

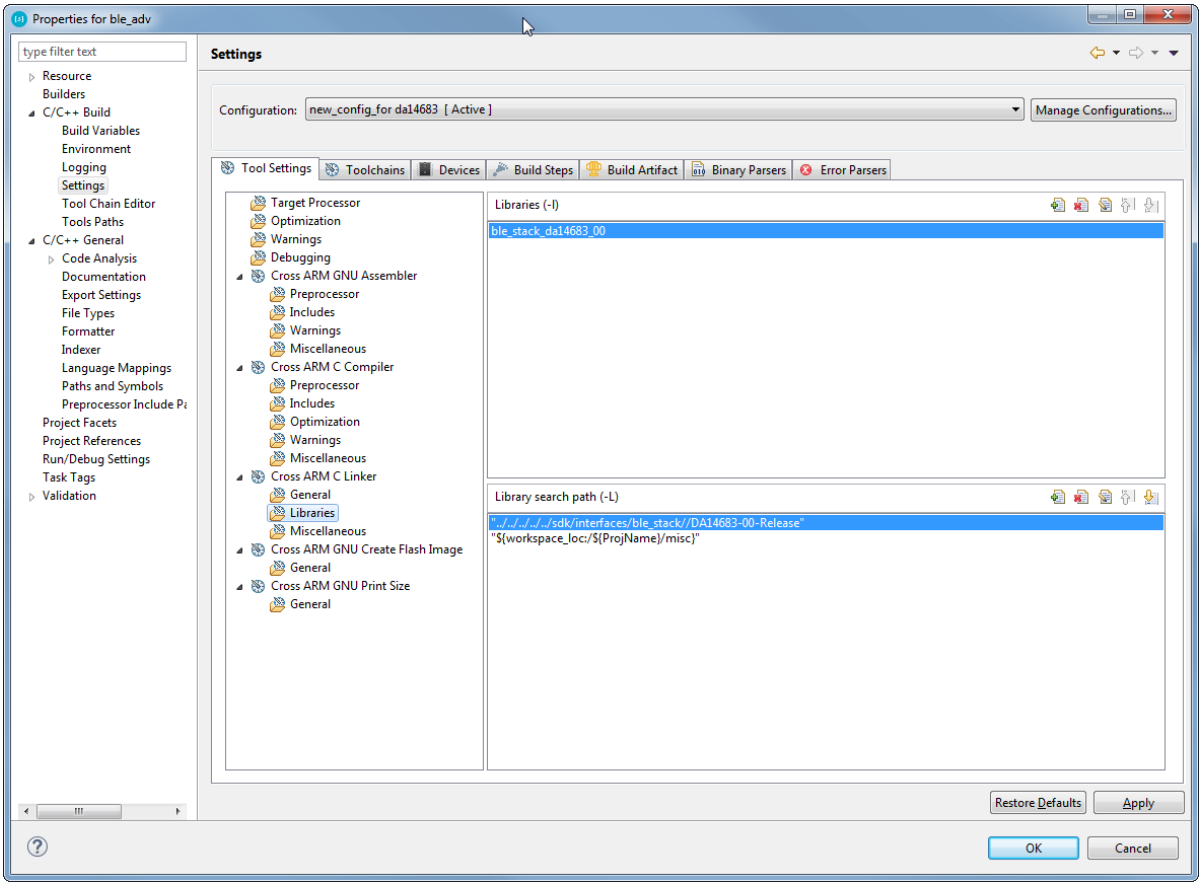

Figure 8: Edit linker configuration

8. Recompile and run your application, which should now be able to run on the DA14683.

4 Memory Optimization

Please note that the Bluetooth Low Energy stack in the DA14682/DA14683 uses a different RAM mapping from the DA14680/DA14681. Please refer to [1] Section 13.3 to select the best possible memory retention configuration depending on your application footprint.

5 GPIO Adapter

The DA14683 does not support the GPIO event counter that is present on the DA14680/DA14681 and therefore all calls/parameters in `ad_gpio_intr.c` have to be modified so that these elements are only included for DA14680/DA14681 builds.

6 Wearable Reference design

6.1 Partition Table

In the DA14681 Wearable SDK 1.150.6, the flash partition table (1M) is as follows:

```
PARTITION2( 0x000000 , 0x07F000 , NVMS_FIRMWARE_PART        , 0 )
```

```
PARTITION2( 0x07F000 , 0x001000 , NVMS_PARTITION_TABLE      , PARTITION_FLAG_READ_ONLY
)
PARTITION2( 0x080000 , 0x010000 , NVMS_PARAM_PART           , 0 )
PARTITION2( 0x090000 , 0x030000 , NVMS_BIN_PART             , 0 )
PARTITION2( 0x0C0000 , 0x020000 , NVMS_LOG_PART             , 0 )
PARTITION2( 0x0E0000 , 0x020000 , NVMS_GENERIC_PART         , 0 )
```

In the SDK 1.0.10, the flash partition table (1M) is as follows:

```
PARTITION2( 0x000000 , 0x07F000 , NVMS_FIRMWARE_PART        , 0 )
PARTITION2( 0x07F000 , 0x001000 , NVMS_PARTITION_TABLE      , PARTITION_FLAG_READ_ONLY
)
PARTITION2( 0x080000 , 0x010000 , NVMS_PARAM_PART           , 0 )
PARTITION2( 0x090000 , 0x030000 , NVMS_BIN_PART             , 0 )
PARTITION2( 0x0C0000 , 0x020000 , NVMS_LOG_PART             , 0 )
PARTITION2( 0x0E0000 , 0x020000 , NVMS_GENERIC_PART         , PARTITION_FLAG_VES )
```

The SDK 1.0.12 uses VES for the generic partition but the wearable application does not include this module in the configuration settings. To fix this, the `custom_config_qspi.h` file in the Wearable Application was modified as follows:

```
#define dg_configNVMS_VES                       (1)
```

Revision History

Revision	Date	Description
1.1	20-Jan-2022	Updated logo, disclaimer, copyright.
1.0	14-06-2018	Initial version.

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.