

Company Confidential

User Manual DA14681 to DA14683 Porting Guide

UM-B-097

Abstract

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

UM-B-097

DA14681 to DA14683 Porting Guide



Company Confidential

Contents

Ab	stract	. 1
Со	ntents	. 2
Fig	jures	. 2
1	References	. 3
2	Introduction	4
3	Target Configuration	4
4	Memory Optimization	8
5	GPIO Adapter	8
6	Wearable Reference design	8
	6.1 Partition Table	8
Re	vision History1	0

Figures

Figure 1: Configuration manager Selection	. 4
Figure 2: Create new configuration	. 4
Figure 3: Select configuration base	. 5
Figure 4: Edit project properties	. 5
Figure 5: Edit assembly defined symbols	. 6
Figure 6: Edit compiler defined symbols	. 6
Figure 7: Edit Pre-build configuration	. 7
Figure 8: Edit linker configuration	. 8
•	



1 References

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

User Manual

Revision 1.0



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).

Ele Edit Source Refector Navigate Search	Project Ban Window Help	
Image: Solution in the solut	Quick Access P Vetecome (C C -)	Gir 🏷 Debug
	Protenti 🔄 Tasta 🕞 Console 💷 📄 Properties 🛛 🕞 🛃 👘 📰 🐨 - 🗂 - 🤭 🗆 GNU ARM Eclipse Peels console	P1 = □ + + + + N = N To display the call hierarchy, select a function or method and select the 'Oper Call Hierarchy' menu option.

Figure 1: Configuration manager Selection

ble_adv: Manage Configurations				
Configuration	Description	Status		
DA14681-01-D	Applicable for DA			
DA14681-01-Re	Applicable for DA	Active		
DA14683-00-D	Applicable for DA			
DA14683-00-Re	Applicable for DA			
Set Active	New	Cancel		

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).

User Manual

Revision 1.0



Company Confidential

Name and and	day da18683		
Name: new_config	707 da14085		
Description:			
Copy settings from			
Existing configuration	DA14681-01-Release_QSPI(Applicable for	0A14680/1+01. Release build configuration for cached QSP	Pl mode.)
Default configuration	Debug		
Import from projects	not selected		
Import predefined	not selected		

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).

	119	9-9-8 U 10-	1 1.0. C.	
92.4	φ.	0 • • • •	Quick Access	Git the De
- Proje	ect Ex	plorer II 🕒 🎕 🗢 🖽 🖸	- D 🚼 0 12 📆 0	⊛ M
1 2	1.0	22	7	
P.1		New C. L.	An outline is not availa	ble.
1		Gointe		
1		Open in New Window		
1.1		Show In		
2.4	B)	Сору		
P.	0	Paste		
105	×	Delete		
10		Move		
		Rename		
	20	Import		
	De.	Export		
		Build Project		
		Clean Project		
	-	Clore Design		
		Close Unselated Projects		
		Build Configurations		
		Make Largets		
		Index		
		Validate		
	0	Build Documentation		
		Run As	Tata Contole 11 T Properties	×, =
		Debug As	Ninte Packs console	
		Profile As		
		Restore from Local History		To dicela
	-	PyDev P		call hieran
	N	Tase		select a fu
		Compare With		select the
		Confinuer		menu opti
				10603570

Figure 4: Edit project properties

 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



Company Confidential

Properties for ble_adv			L 🖽 🐹
type filter text	Settings		¢•••
 Resource Builders C/C++ Build Build Variables Environment 	Configuration: new_config_for da14683 [Acti	e]	• Manage Configurations
Loging Settings Teol Chan Edder Tools Paths 9 CC++ General Project Facets Project Facets Project Afferences Rum/Debug Settings Task Tags 9 Validation	Tool Setting: Decision: Image: Processor Optimization Optimization Progrocessor Image: Proprocessor Progrocessor Image: Proprocessor Progrocessor Image: Progrocessor Progrocessor	Build Steps Build Antifact Binary Panses De preprocessor De not search system directories (-nostdinc) Preprocess only (-E) Defined symbols (-D) deg condpilators CORCA IC SYRE BLACK_ORCA IC STRP_B BLLASS_BUILD Undefined symbols (-U)	 ଲି ଲି ହି। ଛି। ଲି ଲି ହି। ଛି। ଲି ଲି ହି। ଛି। ଲି ହି। ଛି।
0			OK Cancel

Figure 5: Edit assembly defined symbols

Properties for ble_adv			
type filter text	Settings		¢••••
 Resource Builders C/C++ Build Build Variables 	Configurations new_config_for da14683 [Acti	ve]	Manage Configurations_
 Ketourče Buriders C/C-= Đuid Buid Variables Environment Logging Settingsi Tool Chains Edder Tool Chains Edder Tools Paths C/C-+ General Project References Run/Deburg Settings Task Tags Validation 	Tool Settings Distribution Target Processor Optimization	s Build Steps. Build Antitat: Bit Binary Parsers G Error Parsers Do not search system directories (-nortdinc) Preprocess only (-B) Defined symbols (-D) dg.configBLACK_ORCA_JC_STEP=BLACK_ORCA_JC_STEP_B RELEASE_BUILD Undefined symbols (-U)	원 원 원 전 원 (1) (1) (1) (1) (1) (1) (1) (1) (1) (1)
3	[™]		Restore Defaults Apply OK Cancel

Figure 6: Edit compiler defined symbols

User Manual

Revision 1.0

UM-B-097



DA14681 to DA14683 Porting Guide

Company Confidential

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).

filter text	Settings 🗘 🖛 🖒
filter text lesource uilders C/C++ Build Build Variables Environment Logging Settings Tool Chain Editor Tools Paths C/C++ General troject Facets roject References Lun/Debug Settings ask Tags alidation	Settings Image Configurations Configuration: new_config_for da14683 [Active] Image Configurations Image Configurations Image Configurations Image Configurations Image Configurations

Figure 7: Edit Pre-build configuration

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

User Manual	Revision 1.0	14-Jun-2018



Properties for ble_adv			
type filter text	Settings		← → ⇒ →
 Resource Builders C/C++ Build Build Variables Environment Logging 	Configuration: new_config_for da14683 [Active	e] 🎤 Build Steps 🙅 Build Artifact 📷 Binary Parsers 🥹 Error Parsers	Manage Configurations
 Settings Tool Chain Editor Tools Paths C/C++ General Code Analysis Documentation Export Settings File Types Formatter Indexer Language Mappings Paths and Symbols Preprocessor Include Pi Project Facets Project References Run/Debug Settings 	Target Processor Optimization Warnings Debugging Fress ARM GNU Assembler Preprocessor Includes Miscellaneous S Cross ARM C Compiler Preprocessor Includes Optimization Optimization Warnings Miscellaneous	Libraries (-1) [ble_stack_da14683_00	원 원 정 정
Task Tags ⊳ Validation	 Stors ARM C Linker General Libraries Miscellaneous Stors ARM GNU Create Flash Image General Cross ARM GNU Print Size General 	Library search path (-L) "ud-ud-ud-ud-stack//DA14683-00-Release" "S(workspace_loc:/S(ProjName)/misc)"	 副 圖 等 號
< >			Restore <u>D</u> efaults <u>Apply</u>
?			OK Cancel

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)

User Manual	
-------------	--

Revision 1.0

UM-B-097



DA14681 to DA14683 Porting Guide

Company Confidential

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($0 \pm 0 \pm 0000$,	$0 \ge 0 \ge 0 \ge 0$,	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($0 \times 07 F000$,	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
1.0	14-06-2018	Initial version.

User Manual

Revision 1.0



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.

Disclaimer

Information in this document is believed to be accurate and reliable. However, Dialog Semiconductor does not give any representations or warranties, expressed or implied, as to the accuracy or completeness of such information. Dialog Semiconductor furthermore takes no responsibility whatsoever for the content in this document if provided by any information source outside of Dialog Semiconductor.

Dialog Semiconductor reserves the right to change without notice the information published in this document, including without limitation the specification and the design of the related semiconductor products, software and applications.

Applications, software, and semiconductor products described in this document are for illustrative purposes only. Dialog Semiconductor makes no representation or warranty that such applications, software and semiconductor products will be suitable for the specified use without further testing or modification. Unless otherwise agreed in writing, such testing or modification is the sole responsibility of the customer and Dialog Semiconductor excludes all liability in this respect.

Customer notes that nothing in this document may be construed as a license for customer to use the Dialog Semiconductor products, software and applications referred to in this document. Such license must be separately sought by customer with Dialog Semiconductor.

All use of Dialog Semiconductor products, software and applications referred to in this document are subject to Dialog Semiconductor's Standard Terms and Conditions of Sale, available on the company website (www.dialog-semiconductor.com) unless otherwise stated.

Dialog and the Dialog logo are trademarks of Dialog Semiconductor plc or its subsidiaries. All other product or service names are the property of their respective owners.

© 2018 Dialog Semiconductor. All rights reserved.

Contacting Dialog Semiconductor

United Kingdom (Headquarters) Dialog Semiconductor (UK) LTD Phone: +44 1793 757700

Germany

Dialog Semiconductor GmbH Phone: +49 7021 805-0

The Netherlands

Dialog Semiconductor B.V. Phone: +31 73 640 8822

Email: enquiry@diasemi.com

User Manual

CFR0012

North America

Dialog Semiconductor Inc. Phone: +1 408 845 8500

Japan

Dialog Semiconductor K. K. Phone: +81 3 5769 5100

Taiwan

Dialog Semiconductor Taiwan Phone: +886 281 786 222

Web site: www.dialog-semiconductor.com

Hong Kong

Dialog Semiconductor Hong Kong Phone: +852 2607 4271

Korea Dialog Semiconductor Korea Phone: +82 2 3469 8200

China (Shenzhen) Dialog Semiconductor China Phone: +86 755 2981 3669

China (Shanghai) Dialog Semiconductor China Phone: +86 21 5424 9058

Revision 1.0