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Development Hardware Manual

SC14CVMDECTDEVKT



SC14CVMDECT_Development_Hardware_Manual

This document contains user scenarios and a general explanation of the device and its workings. Both parts are showcased and explained separately. The schematics and component placement section of this document give the user a complete overview of the selected module.

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Terms and definitions

See SC14CVMDECTDEVKT_Terms and Definitions

1. Revision History

Version	Date	Description
1.0	15-06-2012	Initial version.
2.0	20-11-2012	Revised to company standard
2.2	24-07-2013	Revised to match development kit release 2.2
3.0	24-10-2014	Updated to match development kit release 3.0

2. References

1. SC14CVMDECT-SF Datasheet, Dialog Semiconductor
2. SC14CVMDECTDEVKT_Terms and Definitions

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3. Introduction

The SC14CVMDECT development hardware consists of two boards:

1. SC14CVMDECT_DB Development board containing the SC14CVMDECT module
2. SC14CVMDECT_DB_MMI Board that contains the MMI (buttons, LEDs, speaker).

From development kit perspective these boards are considered one SC14CVMDECT development unit. This means that the boards cannot be ordered separately. There is only one order ID: SC14CVMDECTDEVKT.

The SC14CVMDECT development unit can be used to develop and evaluate applications targeting the SC14CVMDECT module. Both hosted and embedded applications are supported. The MMI board (SC14CVMDECT_DB_MMI) can be used for user-interaction.

This document describes how to use the SC14CVMDECT Unit and the interfaces of both boards:

- Connectors
- Buttons
- LEDs
- Jumpers
- Speaker

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4. User scenarios

This section describes the user scenarios of the development. Following scenarios are described:

- Serial connection with PC
- Loading an application into the module
- Powering options
- Applications

4.1 Applications

An application can either be (programmed) in the module itself (see section 4.3) or it can be in the host. In case the application is located in the host it will communicate with the module over the serial connection (over UART pins P0.0 and P0.1). (See SC14CVMDECT-SF Datasheet Ref [1])

4.2 Serial connection with PC

There are two interfaces that enable a serial connection between the module and a PC; USB and FTDI. Both interfaces can be connected at the same time, but only one can be selected for communication using the jumpers on the development board. *Default (factory) setting: USB.* It is also possible to let the module communicate through two pins on header J7 (See SC14CVMDECT Datasheet Ref [1]). The serial connections can be used for two scenarios:

- Programming an application into the module (See SC14CVMDECT-SF Datasheet Ref [1])
- Communicate with the build-in software stack (See SC14CVMDECT-SF Datasheet Ref [1])

4.3 Loading an application into the SC14CVMDECT module

To load the hex-file of an application into the module a serial connection with a PC is required (See SC14CVMDECT-SF Datasheet Ref [1]). Before loading can be started the module must be in boot-mode. This is done by pressing the boot-button while the module is started (power-up or release the reset button).

A flash loader (FL7) is used on the PC to take care of the actual loading. This tool is part of the SC14CVMDECT development kit.

More information on this subject can be found in SC14CVMDECT-SF Datasheet.

4.4 Powering options

The SC14CVMDECT_DB allows following powering options:

- Powering using serial cable
- Powering using 5 Volt connector (only on AF module)
- Battery powered

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Powering using serial cable

In this case the serial cable (either USB or FTDI or both) is used to power the boards. The LEDs D6 and D7 indicate which of these is used:

- J7 USB cable is powering the unit (default)
- J6 FTDI cable is powering the unit

When one of these (or both) cables are plugged in the module starts up. This is because the charge-pin of the module is active in that case. Either charge-pin or PON-pin will start the module.

Battery powered

Header J1 can be used to connect a battery. The SC14CVMDECT_DB is designed such that it is possible to charge the battery. State of charge (SOC) can be measured by the stack. When battery powered the PON button is used to start the module.

4.5 Applications

An application can either be (programmed) in the module itself or it can be in the host. In case the application is located in the host it will communicate with the module over the serial connection (over UART pins P0.0 and P0.1). See SC14CVMDECT-SF Datasheet for more information.

5. SC14CVMDECT_DB_SF01

Figure 1 shows the top side of SC14CVMDECT_DB_SF_02. All relevant interfaces are indicated

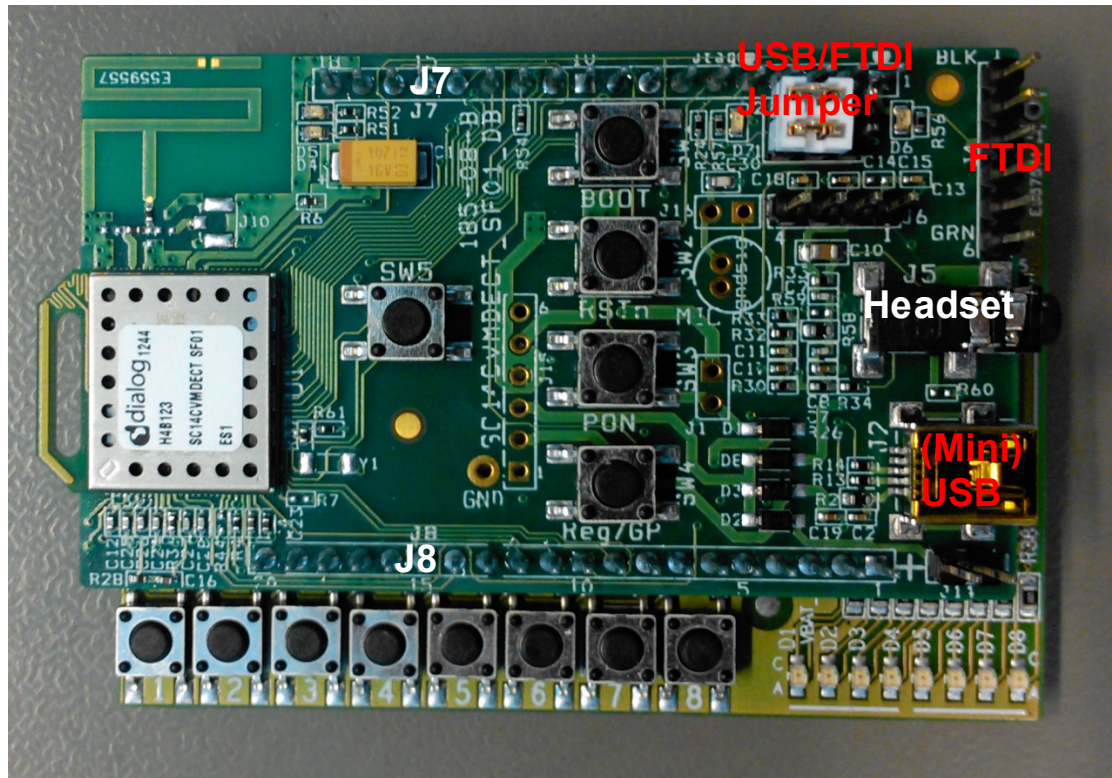


Figure 1 Overview of the SC14CVMDECT_DB_SF01

5.1 Connectors

- (Mini) USB Powers the board (5Volt) and assigns a virtual com port to the development board (using on-board FTDI chip that converts from USB to UART, so FTDI driver must be installed). To be able to communicate over this interface the jumpers must be set as in [figure 2](#) (at the side of the LED D7)
- FTDI FTDI cable is required for this interface. When using this FTDI cable the board is powered (5Volt) and a virtual comport is assigned to the development board (FTDI driver must be installed). To be able to communicate over this interface the jumpers must be shifted one position (see section 5.4 Jumpers).
- Headset Headset connector (headsets are delivered with the development kit SC14CVMDECTDEVKT).
- J6 Earpiece connector (connects to the MIC and LSR pins of the module). It allows the user to connect a telephone handle.
- J7, J8 General Purpose connectors, these connectors can be used to solder wires or components or to piggy bag the development board onto another board (in case of development kit the SC14CVMDECT_DB is piggy bagged on top of SC14CVMDECT_DB_MMI).

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5.2 Buttons

There are four buttons on the SC14CVMDECT_DB; in following order:

PON	Power-ON button
Reset	Reset button
Reg/GP	General Purpose (usually used to start registration process)
Boot	Boot button
SW5	Button added for the pendant project

5.3 LEDs

There are three red LEDs and one green LED on the board. The red ones are power LEDs:

D4	Indicating that the Module is powered
D7	Indicating that the USB connector is powered
D6	Indicating that the FTDI connector is powered

The green LED (D5) is general purpose.

5.4 Jumpers

The jumpers are used to select the UART-communication port. There are three options:

- Jumpers on the side of LED D7 : USB port selected
- Jumpers on the side of LED D6 : FTDI port selected
- No jumpers: only communication with “daughter board” is possible (Module-Tx = J7.3, module-Rx = J7.4).

6. SC14CVMDECT_DB_MMI

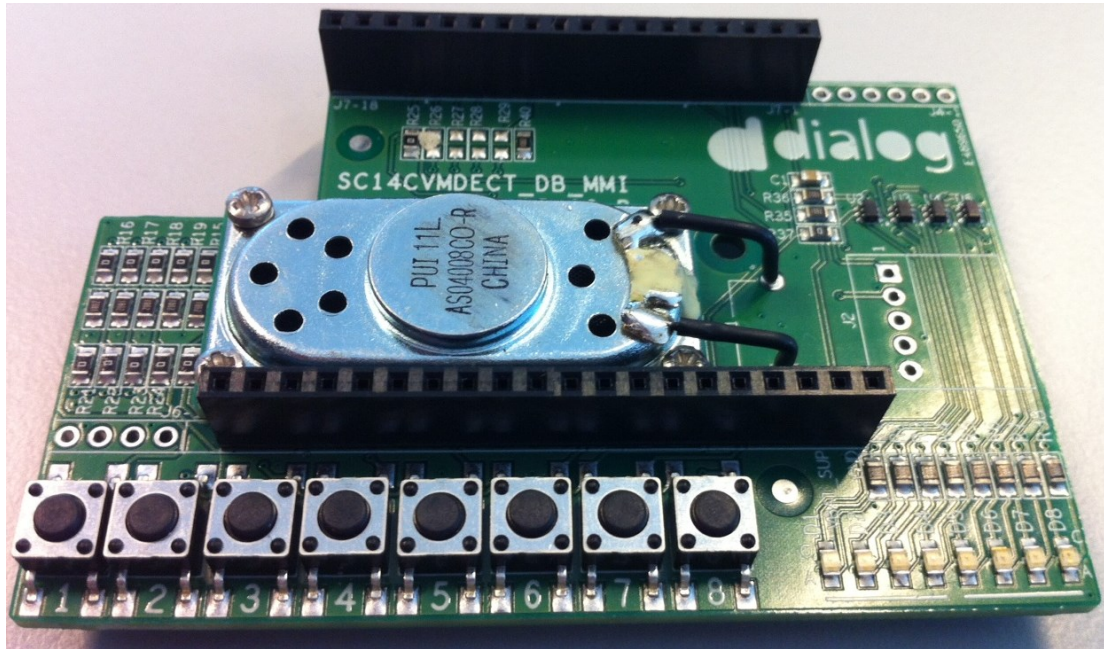


Figure 3 Part of SC14CVMDECT_DB_MMI (lower PCB)

6.1 Connectors

J7, J8 these headers are used to piggy bag the two boards.

6.2 Buttons

There are 8 general purpose buttons. Some of them share the GPIO port with a LED (See fig 4).

6.3 LED's

There are 8 general purpose LED's. All of them share the GPIO port with a button (See fig 4).

6.4 Speaker

The speaker is connected to the CLASSD outputs of the SC14CVMDECT module. This allows the user to produce loud audio for ringer sounds, hands free calling, etc...

7. Designs

This section describes the designs of both SC14CVMDECT_DB and SC14CVMDECT_DB_MMI.

7.1 Schematics

The schematics of the two boards that make up a SC14CVMDECT development unit can be found on the DVD/USB.

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