HUAWEI MU509 HSDPA LGA Module

Development Board Guide

Issue 01

Date 2010-12-27

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About This Document

History

Version	Date	Section Number	Description
01	2010-12-27		Creation

Contents

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1 Overview

1.1 About This Chapter

This chapter provides a brief description of the MU509 module development kit (DVK), including:

- Introduction to the DVK
- Components of the DVK

NOTE
In the following chapters and sections, "module" refers to the MU509 module; "DVK" refers to the MU509 module development kit.

1.2 Introduction to the DVK

The DVK provides a complete solution based on the data and audio functions of the MU509 module.

For designers who adopt the module in their design, the DVK facilitates their module-based programming and troubleshooting at the project development stage.

Consisting of a dedicated interface board and accessories, the DVK provides the following interfaces:

- One 5 V power supply input interface
- One mini USB port
- One standard RS-232 interface: COM1
- One standard Subscriber Identity Module (SIM) card interface
- Two audio interfaces
- One antenna connector

The MU509 HSDPA LGA module is welded onto the interface board in a manner that is similar to the surface mounting of chips. The signals output from the module are transferred to the development board for secondary development.

1.3 Components of the DVK

Table 1-1 lists the components of the DVK.

Check the components and their quantities after you obtain the DVK. If any component is missing or damaged, contact your DVK supplier.

Table 1-1 Components of the DVK

Item	Quantity
Development board	1
5 V output AC-DC power supply	1
External antenna	1
Radio frequency (RF) cable (for connecting RF testing instruments)	1
RS-232 serial cable	1
USB cable	1
2-pin jumper	3

2 Overview of the DVK Development Board

2.1 About This Chapter

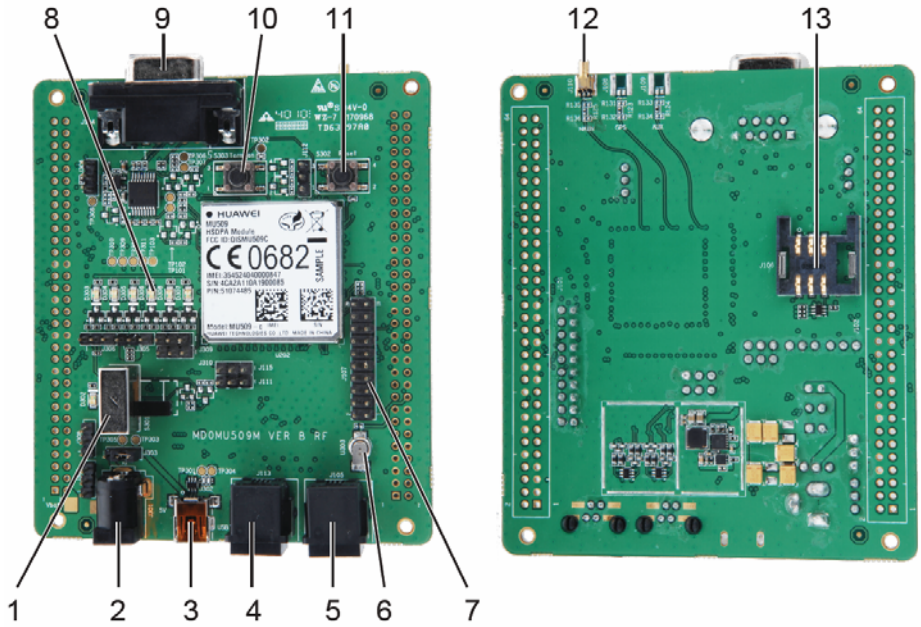
This chapter describes the structure, interface functions, and interface usage of the DVK development board.

- DVK Development Board Structure
- Interface Functions

2.2 DVK Development Board Structure

Figure 2-1 shows the layout of the DVK development board.

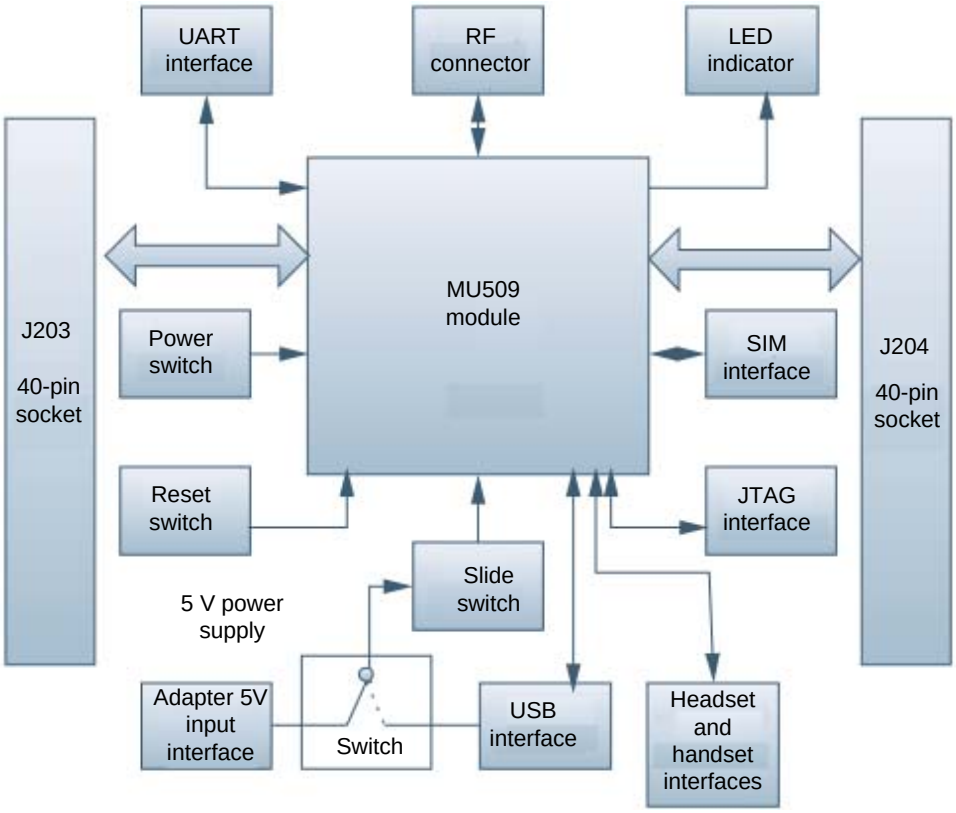
Figure 2-1 Layout of the DVK development board



1. Power switch
2. 5 V power supply input interface
3. Mini USB port
4. Headset interface
5. Handset interface
6. Button cell
7. Joint Test Action Group (JTAG) interface
8. Light-emitting diode (LED) indicators
9. Universal asynchronous receiver/transmitter (UART) serial port
10. Power button
11. Reset button
12. Antenna connector
13. SIM card interface

Figure 2-2 shows the structure of the DVK development board.

Figure 2-2 DVK development board structure

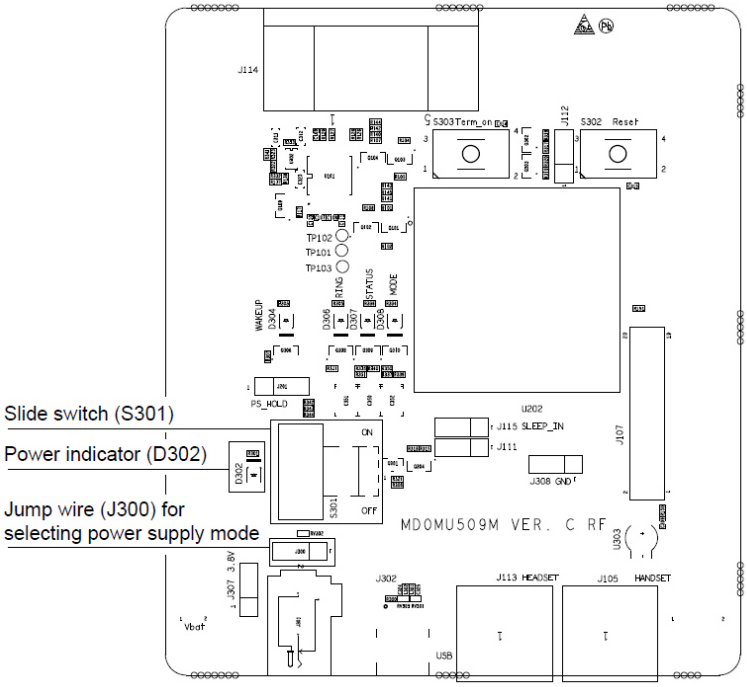


2.3 Interface Functions

2.3.1 Power Switch and Power Supply Mode

The DVK development board provides a slide switch (S301) that controls the power supply input, as shown in Figure 2-3. The ON and OFF positions of the slide switch are marked on the development board. Slide the switch to OFF before verifying that all components of the DVK are connected properly. If the components are connected properly, slide the switch to ON to power on the development board. Once the development board is powered on, the power indicator (D302) lights up.

Figure 2-3 Position of the slide switch



The power supply on the DVK development board supplies power to the development board and the module.

Power can be supplied to the DVK development board in two modes: by a 5 V AC-DC power adapter or the USB 5 V power supply. You can use the jump wire J300 to select a power supply mode. When pin1 and pin2 are connected, the USB 5 V power supply is used; when pin2 and pin3 are connected, the 5 V AC-DC power adapter is used. Only one mode can be selected at a time.

2.3.2 USB Communications Interface

The DVK development board provides a mini USB B-type connector. The connector implements communications between the module and a personal computer (PC) or other data terminal equipment (DTE) and supports USB analyzers.

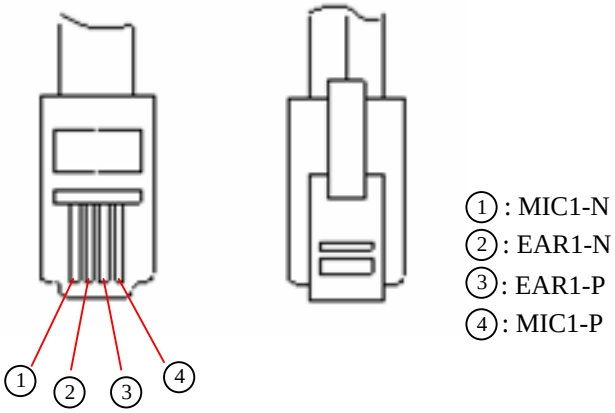
2.3.3 Audio Interfaces

The DVK development board provides two audio interfaces, supporting two channels of input from microphones, one channel of output to earphones, and one channel of output to speakers.

Standard handset jacks (marked as "J113" and "J115") are adopted for both audio interfaces. J113 is used to connect a headset; J115 is used to connect a handset.

The handset jacks are RJ11 connectors, as shown in Figure 2-4.

Figure 2-4 RJ11 connector



Users can connect the DVK development board to a DVK backplane and then connect a 3.5 mm headset adapter to the DVK backplane for headset and speaker testing. For details about connecting the DVK development board to a DVK backplane, see the user guide for the MU203 interface board.

2.3.4 Button Cell and JATG Interface

The button cell supplies power to the real-time clock after the module is powered off.

The JTAG interface is used by the trace tool to load software into the module. The JTAG interface is not provided for the user.

2.3.5 LED Indicators

The DVK development board has five LED indicators: one power indicator and four signal indicators.

The power indicator (D302) is described in section 2.3.1 .The description of the indicators is marked on the development board. Table 2-1 lists the functions of the indicators.

Table 2-1 Functions of the LED indicators on the DVK development board

Position Number	Mark on the Development Board	Color	Function of the LED When It Lights Up
D302	POWER_UP	Green	Indicates that the DVK development board has been powered on properly.
D306	RING	Green	Indicates the ringing.
D307	STATUS	Green	Indicates the operating status of the module.
D308	MODE	Green	Indicates the operating mode of the module.
D304	WAKEUP	Green	Indicates that the wake-up signal output is at high level

For details about the description of the indicators, see the *HUAWEI MU509 HSDPA LGA Module Hardware Guide.*

2.3.6 Serial Communications Interface

The DVK development board provides a DB9 female connector (a standard RS-232 serial communications interface), which supports 3-wire serial communications and can be connected to a PC or other DTE through a RS-232 serial cable.

Users can connect the DVK development board to a DVK backplane and then connect an 8-wire serial interface to the DVK backplane for debugging. For details about connecting the DVK development board to a DVK backplane, see the user guide for the MU203 interface board.

2.3.7 Buttons

The DVK development board has two buttons: the power button (S303) and the reset button (S302).

The power button S303 (marked as "Term_on" on the development board) powers on or off the module. The power-on/power-off signal of the module is at low level when the button is pressed. The duration of the low-level signal input to the power-on/power-off signal pin of the module equals to the duration when the button is pressed.

The reset button (S302) (marked as "Reset" on the development board) resets the module. The reset signal of the module is at low level when the button is pressed. The duration of the low-level signal input to the reset signal pin of the module equals to the duration when the button is pressed.

For details about powering on or off the module, see the *HUAWEI MU509 HSDPA LGA Module Hardware Guide*.

2.3.8 SIM Card Interface

The DVK development board provides a standard SIM card interface (marked as "J106" on the development board).

2.3.9 Antenna Connector

The DVK development board provides an antenna connector for connecting the main antenna of the module. The antenna connector can be connected to an RF tester (CMU200 or Agilent 8960), or directly connected to an external antenna for testing the services of the existing network.

2.3.10 3-Pin Jump Wire Configuration

The DVK development board has seven 3-pin jump wires, as shown in Figure 2-5. Two jump wires need to be configured as necessary during use. Table 2-2 lists the usage and configuration method of the 3-pin jump wires.

Figure 2-5 Positions of the 3-pin jump wires

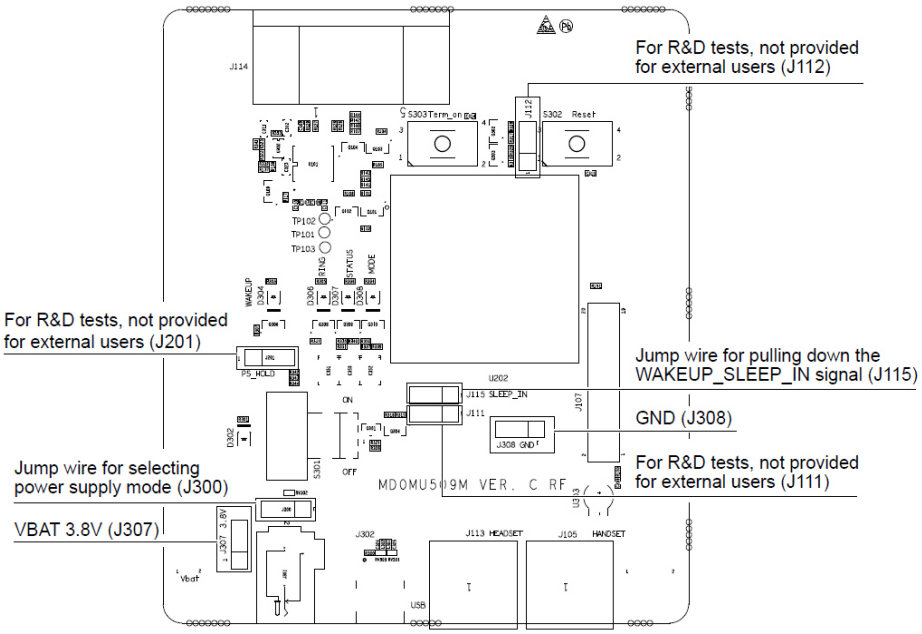


Table 2-2 3-pin jump wire configuration

Position Number	Mark on the Development Board	Usage and Configuration	Figure
J307	J307 3.8V	All the three pins are VBAT pins. No configuration is needed. The three pins can be used for testing.	

Position Number	Mark on the Development Board	Usage and Configuration	Figure
J308	GND	All the three pins are GND pins. No configuration is needed. The three pins can be used for testing.	
J300	J300	This jump wire is used to select the power supply mode. Configuration is needed. For configuration method, see section 2.3.1.	
J115	SLEEP_IN	To put the module in sleep mode, connect pin1 and pin2.	
		To put the module in non-sleep mode, no configuration is needed.	
J111 J112 J201	J111 J112 PS_HODE	These jump wires are used only for internal tests by research and development personnel. No configuration is needed.	