Hi3520D/Hi3515A/Hi3515C Demo Board

User Guide

Issue 01

Date 2013-06-21

HiSilicon Technologies Co., Ltd.

Address: Huawei Industrial Base
Bantian, Longgang
Shenzhen 518129
People's Republic of China

Website: http://www.hisilicon.com

Email: support@hisilicon.com

About This Document

Purpose

This document describes the functions, hardware features, and hardware configurations of the Hi3520D/Hi3515A/Hi3515C demo board. It also describes how to debug the Hi3520D/Hi3515A /Hi3515C demo board by using software.

Related Version

The following table lists the product version related to this document.

Product Name	Version
Hi3520D	V100
Hi3515A	V100
Hi3515C	V100

Intended Audience

This document is intended for:

- Technical support personnel
- Board hardware development engineers

Change History

Changes between document issues are cumulative. Therefore, the latest document issue contains all changes made in previous issues.

Issue 01 (2013-06-21)

This issue is the first official release, which incorporates the following changes:

The descriptions related to the Hi3515C are added.

Issue 00B01 (2013-04-03)

This issue is the first draft release.

Contents

Figures

Tables

1 Introduction

NOTE

Unless otherwise specified, this document applies to the Hi3520D, Hi3515A and Hi3515C and uses the Hi3520D as an example.

1.1 Overview

Developed based on the Hi3520D, the Hi3520D demo board supports reference design and chip verification. It demonstrates various multimedia interfaces and peripheral interfaces of the Hi3520D, and enables you to implement hardware development by modifying only the module circuits of the reference design or without modifications. The Hi3520D demo board also supports the SDK development and application development and running.

The Hi3520D demo board can serve as a basic development system by connecting to a PC through UART ports and interface cables. It can also function as a more complete development system or demonstration environment by connecting to the following devices or components:

- TV set or monitor
- Video source
- Audio capture device and sound box
- USB 2.0 device
- RealView-ICE simulator
- Storage devices such as the USB flash drive and hard disk

NOTE

HiSilicon provides a mature Hi-boot program called universal boot loader (U-boot). By using it, you can perform debugging over the Trivial File Transfer Protocol (TFTP) without simulators.

1.2 Features

Hi3520D demo board has the following features:

- Provides two BT.656 interfaces (VIU0 and VIU1)to connect to CX26828. VIU0 and VIU1 support 8xD1 or 4x960H inputs.

NOTE

Hi3515A has one BT.656 interface (VIU0)

- Supports one HDMI output.
- Provides a built-in PHY.
- Provides a reduced media independent interface (RMII) to connect to an external 100 Mbit/s Ethernet PHY (this function is not provided on the Hi3520D demo board).
- Supports two composite video broadcast signal (CVBS) outputs and one video graphics array (VGA) output.
- Provides two SATA interfaces and two USB ports.
- Provides one RS232 serial port of the baud rate of 1200–115200 bit/s, and one RS485 port.
- Provides one infrared (IR) interface.
- Supports intercom input/output.

Table 1-1 describes the specifications of the memories supported by the Hi3520D demo board when only one double-data rate controller (DDRC) is used.

Table 1-1 Memory specifications

Memory	Bit Width	Frequency	Capacity
DDR3 SDRAM	16 bits	660 MHz	2 Gbits
SPI NOR Flash	8 bits	None	16 MB

1.3 Deliverables

The Hi3520D demo board package includes the following deliverables:

- A Hi3520D demo board
- A power adapter with 50 Hz 90–240 V AC input and 2 A 12 V DC output

1.4 Related Components

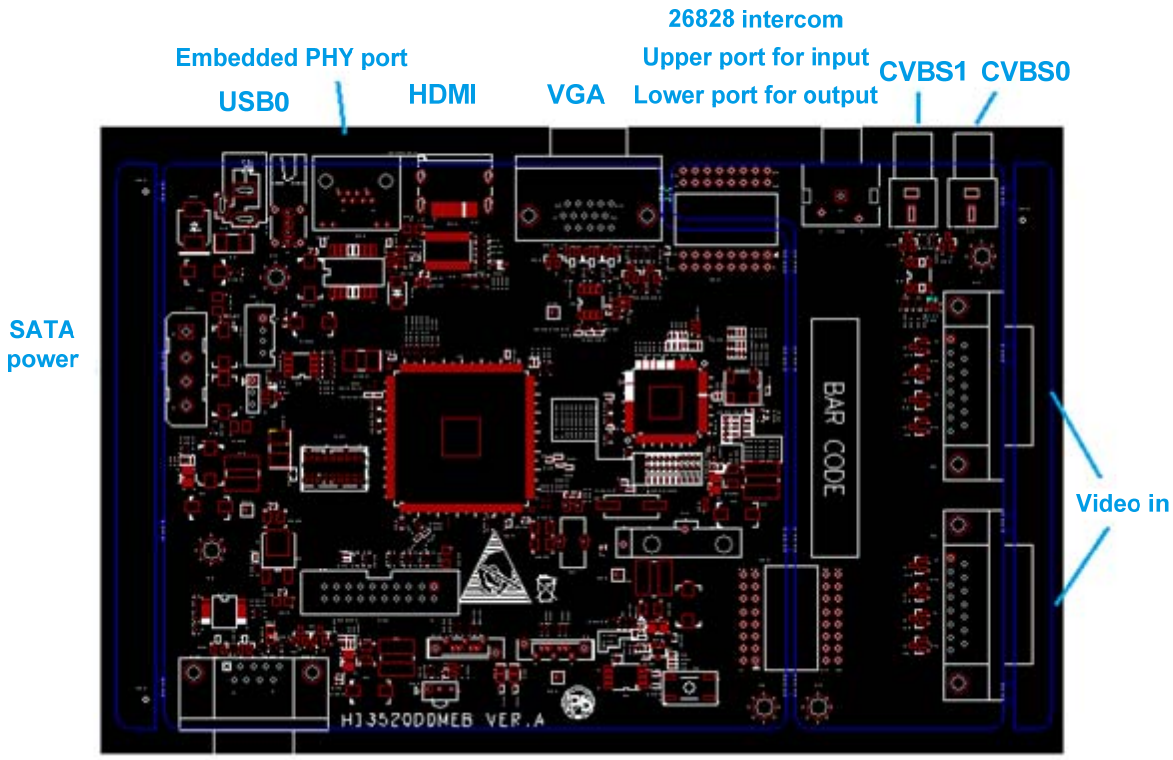
The following components are not included in the Hi3520D demo board package; however, they are required for program debugging. You need to prepare them by yourself.

- Video source
- Audio/Video receiving devices such as the TV set, stereo equipment, and camera

2 Hardware Descriptions

Figure 2-1 shows the external interfaces of the Hi3520D demo board.

Figure 2-1 External interfaces of the Hi3520D demo board



3 Operation Guide

3.1 Notes

The Hi3520D demo board applies to the laboratory or engineering development environment. Take the following precautions before performing operations:

CAUTION

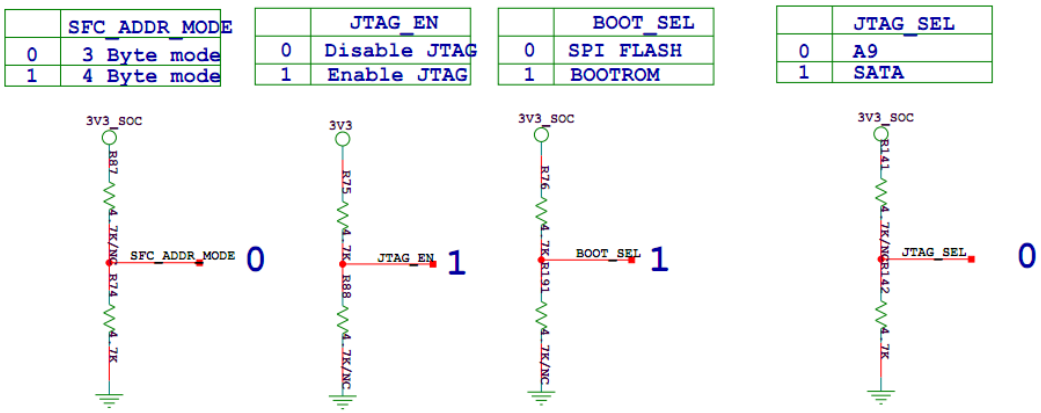
Never perform the hot-swap operation on the board in any case.

- Take antistatic measures before unpacking or installing the board to prevent the board hardware from being damaged by the electrostatic discharge (ESD).
- Hold the board on the edge and do not touch the exposed metal on the board. Otherwise, the board components may be damaged by the ESD.
- Place the Hi3520D demo board on a dry plane and keep them away from heat sources, electromagnetic interference sources, radiant sources, and electromagnetic susceptibility equipment (such as the medical equipment).
- Familiarize yourself with the layout of the Hi3520D demo board by following Figure 2-1. Ensure that you know the positions of components such as the switches, connectors, and indicators.

3.2 Setting the Board

Before starting the Hi3520D demo board, set the four parameters shown in Figure 3-1. For details, see the schematic diagram of the Hi3520D.

Figure 3-1 Boot parameters for the Hi3520D demo board



The system parameters for the Hi3520D demo board are set by selectively soldering resistors. The following are default configurations and you can change the configurations as required:

- SFC_ADDR_MODE: 3-byte mode
- JTAG_EN: JTAG enabled
- BOOT_SEL: BOOTROM
- JTGA_SEL: A9

For details about the resistor positions, see the schematic diagrams of the Hi3520D demo board and PCB.