LINKIT7687HDK

MT7687FN Development board user manual V1.0

April 2016

[Linkit7687 development board is to assist customers to use the mt7687fn MTK chip to assess the test board]

Catalogue

1.PRODUCTS INTRODUCTION

LINKTI7687HDK Development board，To assist in the development of product usage. The main chip is Mediatek MT7687FN, Connective MCU integrated solutions for the Internet of things , the chip integrate WiFi+M4 MCU, In addition to meeting the WiFi connection it also can be used inside the M4 core MCU to achieve more application scenarios.

LINKTI 7687HDK Development board is mainly focused on enabling customers to quickly familiar with the IOT WiFi MediaTek chip mt7687fn function as well as the usage. The evaluation board using Arduino specifications, with good hardware interface compatibility. Through this assessment board, customers can quickly familiar with the application of mt7687fn, to achieve product pre verification. and customers can save more time and cost of develop IOT product based WiFi products；

2.PRODUCTS SHOW

The label location, please see the below picture:

End Product Labeling: The Final end product label must contain the following statement on the product label: “Contains FCC ID: 2AINMLINKIT7687HDK”.

3.PRODUCTS SPECIFICATIONS

- With Arm cortex-M4 MCU with FPU with up to 192mhz clock speed; the RISC part has a 32 bit CPU N9 FPU, the highest clock 160mhz; 352KB SRAM，64KB boot ROM；
- AES, des/3des, Sha2 hardware encryption;
- 28pin multiplexing GPIO
- 2 UART; 1 SPI, 1 from SPI; 2 I2C, 1 Road 4 road from I2C; 12 ADC; 28 PWM; 25 DMA channels;
- Support 32kHz Clock RTC low power mode;
- Support IEE802.11 d/e/h/i/k/r/w , and compatible with IEE802.11 b/g/n protocol;
- Working bandwidth in 2.4G band, 40m 20m;
- Integrated LNA, PA and t/r switch;

4. PRODUCTSCHEMATICDIAGRAM

- Please check the motherboard - principle diagram as below：
  “HDK”》“Mainboard_MK20_WS3367”》“mt7687_97_97d main board v22 20.pdf”
- please check the module principle diagram as below:
  “HDK”》“MODULE_MT7687F__V30”》 “MT7687F MODULE-V30 sch.pdf”

5. USE STEPS

5.1 MK20 BURING CHIP

Before using linkti7687hdk to burn mk20dx128vfm5 first，it can help MT7687 chip debug more suitable and Flash burn well as so on. The steps to burn the chips please view the document: “Tools”》“J-link - Mk20 program”》 “MK20 Upload SOP_20151218.pdf”。 Need to be aware of is, in the document "mbed_fw_uart_5_32.bin" needs to be replaced for the "mt7687_mk20_mbed.bin" file.

5.2 MT7687BURNING SOFTWARE INSTALLED

Linkti7687hdk burning software in the "tools" > "IOT flash tools” compression package, decompression can be installed. Burning software, user guide please refer to:" tools ">" IOT flash Tools > "IOT flash tool user guide.pdf.

5.3 THE DEVELOPMENT ENVIRONMENT

LINKTI7687HDK using a Linux environment, you need to install cross-compilation tools, recommend Ubuntu LTS 10.04 development after version.
Get started developing, please refer to: "Doc", "Getting_Started_with_SDK_v1.2_on_MT7697.pdf".
Of course, you can also use the Keil development SDK folder contains and references please see the Doc the following "LinkIt_for_RTOS_Get_Started_Guide.pdf".

5.4 SDK COMPILE GUIDE

Customers in the product development process to avoid the need to add your own function modules and code, Compile guidance, please refer to: "Doc", "IOT_SDK_build_intro_on_MT7687.pdf", Keil engineering please refer to "LinkIt_for_RTOS_Get_Started_Guide.pdf"; At the same time provide EPT tools, convenient configuration GPIO, refer to the "sdklinkit_sdk_v3.0.0ept_v1.0.2" under "easy_pinmux_tool_v1.0_user_manual.pdf".

6. NOTES

- When burning mt7687, it needs to be short the J25, after the completion of the burning to remove short circuit working in normal mode.
- The RF routing information "Doc" > "mt7687_application_design_notice_v12_20151222 (1).Pdf RF layout.

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) This device may not cause harmful interference
(2) This device must accept any interference received, including interference that may cause undesired operation.
FCC Radiation Exposure Statement:
This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment .
This equipment should be installed and operated with minimum distance 20cm between the radiator& your body.
This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.
Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

—Reorient or relocate the receiving antenna.

—Increase the separation between the equipment and receiver.

—Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.