MT793X IoT
Power Measurement Guide

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Version History

Version	Date	Author	Description
1.0	2021-09-15	JJ Chang	Official release

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1 Introduction

The MT793X HDK provides a low quiescent current development platform to design, evaluate and implement Wi-Fi and Bluetooth enabled Internet of Things (IoT) applications. This document guides you through how to measure the power consumption of the MT7931AN and MT7933CT HDK reference boards. The power consumption is evaluated by measuring the base 3V3 power domain.

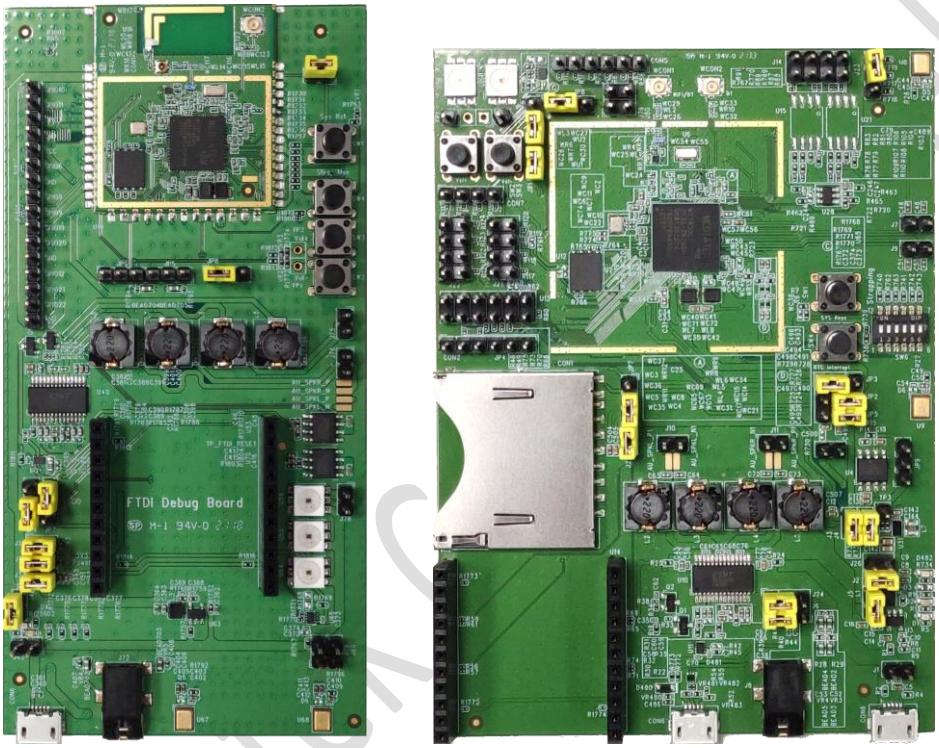

Figure 1-1 Front view of MT7931AN (left) and MT7933CT (right) HDK reference boards

2 MT7931AN HDK Reference Board

Please refer to Figure 2-1 (bottom-left corner of the HDK reference board) for the power source and measurement pins mentioned in the following sections.

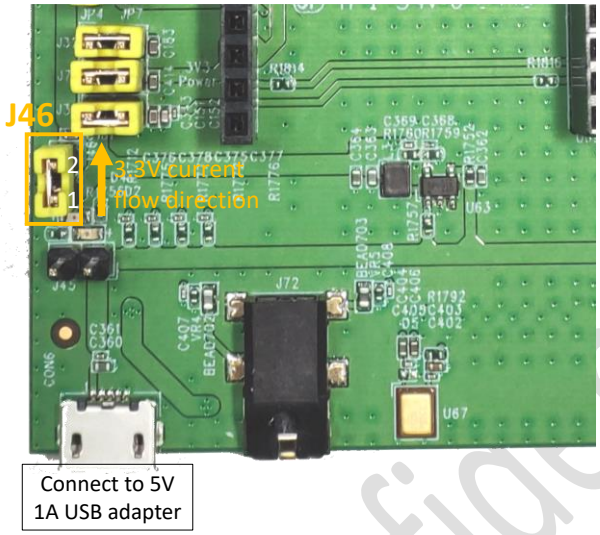

Figure 2-1 Power source and measurement pins of the MT7931AN HDK reference board

2.1 Connecting the Power Source

Supply power to the MT7931AN HDK reference board by providing a stable 5V1A power source via the micro-USB connector. We strongly recommend connecting the board to a USB power adapter instead of connecting to a computer USB port for stable power supply.

2.2 Measure Power Consumption

Follow the procedure below to prepare the board for the base 3V3 current measurement:

1. Remove jumper **J46**.
2. Connect **J46 pin 1** and **pin 2** to the current meter terminals (the current flows from pin 1 to pin 2). The reading on current meter implies the power consumption of the MT7931AN in the 3V3 power domain.

3 MT7933CT HDK Reference Board

3.1 Board Rework Requirement for Low Power Measurement

Please ensure the following 6 components on MT7933CT HDK reference board are removed: U15, U21, R78, R79, R107 and R108. All of them are located near the upper-right corner of the board. See Figure 3-1 for their locations.

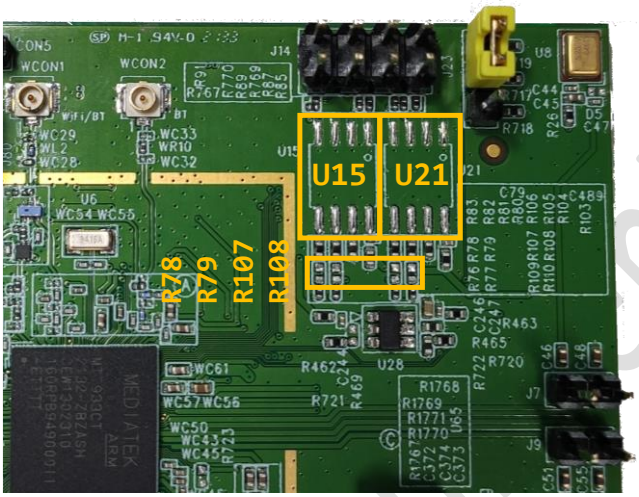

Figure 3-1 Components that should be removed from MT7933CT HDK reference board (upper-right corner)

Please ensure the following U11 component on MT7933CT HDK reference board is removed, then connect the pin2 to pin7 as below red line of Figure 3-2 for their locations. The U11 is located near the down corner of the board

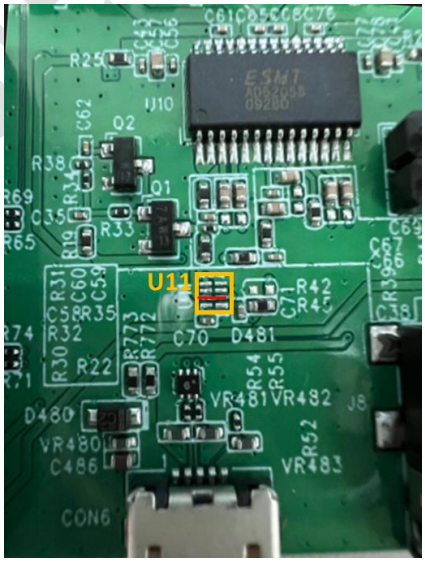

Figure 3-2 Components that should be removed from MT7933CT HDK reference board (down corner)

3.2 Connecting the Power Source

Please refer to Figure 3-3 (bottom-right corner of the HDK reference board) for the power source and measurement pins mentioned in Sections 3.2 and 3.3.

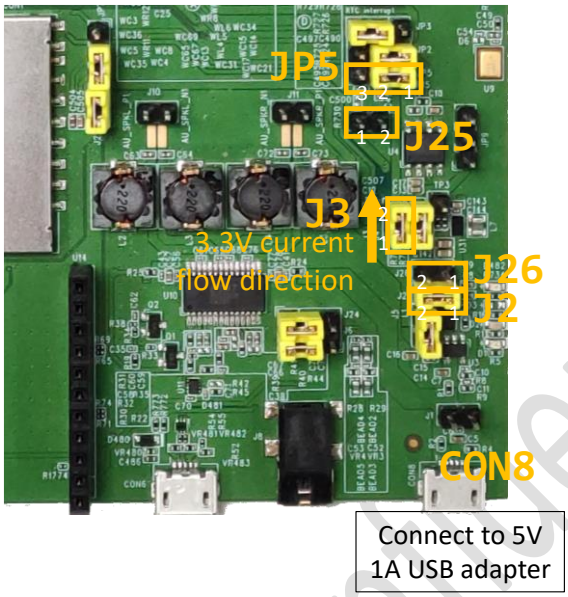

Figure 3-3 Power source and measurement pins of MT7933CT HDK reference board

Power supply for the MT7933CT HDK reference board can be provided either through a micro-USB cable or by a battery.

1) Powered via a micro-USB cable
    a. Short jumper **JP5 pins 1-2**.
    b. Remove jumper **J26**.
    c. Short jumper **J2**.
    d. Provide a stable 5V1A power source via the micro-USB connector near the corner of the reference board (label: **CON8**). We strongly recommend connecting the board to a USB power adapter instead of connecting to a computer USB port for stable power supply.
2) Powered by a battery
    a. Short jumper **JP5 pins 2-3**.
    b. Short jumper **J26**.
    c. Remove jumper **J2**.
    d. Connect the positive electrode (+) of the battery to **J25 pin 1**, negative electrode (-) to **J25 pin 2**.

3.3 Measure Power Consumption

Follow the procedure below to prepare the board for the base 3V3 current measurement:

1. Remove jumper **J3**.
2. Connect **J3 pin 1** and **pin 2** to the current meter terminals (the current flows from pin 1 to pin 2). The reading on current meter implies the power consumption of the MT7933CT in the 3V3 power domain.

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