

User's guidance

N32H787_HMI Development Board Hardware Usage Guide

Introduction

The purpose of this document is to enable users to quickly familiarize themselves with the N32H787_HMI development board, understand its functions, usage instructions, and precautions, and facilitate the debugging and development of the image interface。

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1 Hardware Development Instructions

1.1 Briefly

The N32H787_HMI_V1.1 development board is used for image function development of the N32H787XIB7 chip sample from National Technology Corporation . This document describes the functions and usage instructions of the N32H787_HMI_V1.1 development board.

1.2 Development board function

The main chip of the N32H787_HMI_V1.1 development board is the N32H787XIB7, in a BGA240 package. The board includes SDRAM , XSPI FLASH , and SD_CARD memory modules , as well as onboard LCDC and MIPI interfaces . Customers can develop and debug corresponding screen interfaces according to their needs. Additionally, the board includes ETH , DVP , and CODEC audio modules, and has reserved SPI , UART , I2C , NS_LINK , two LED indicators, and wake-up and reset buttons for easy debugging.

1.3 Development board layout

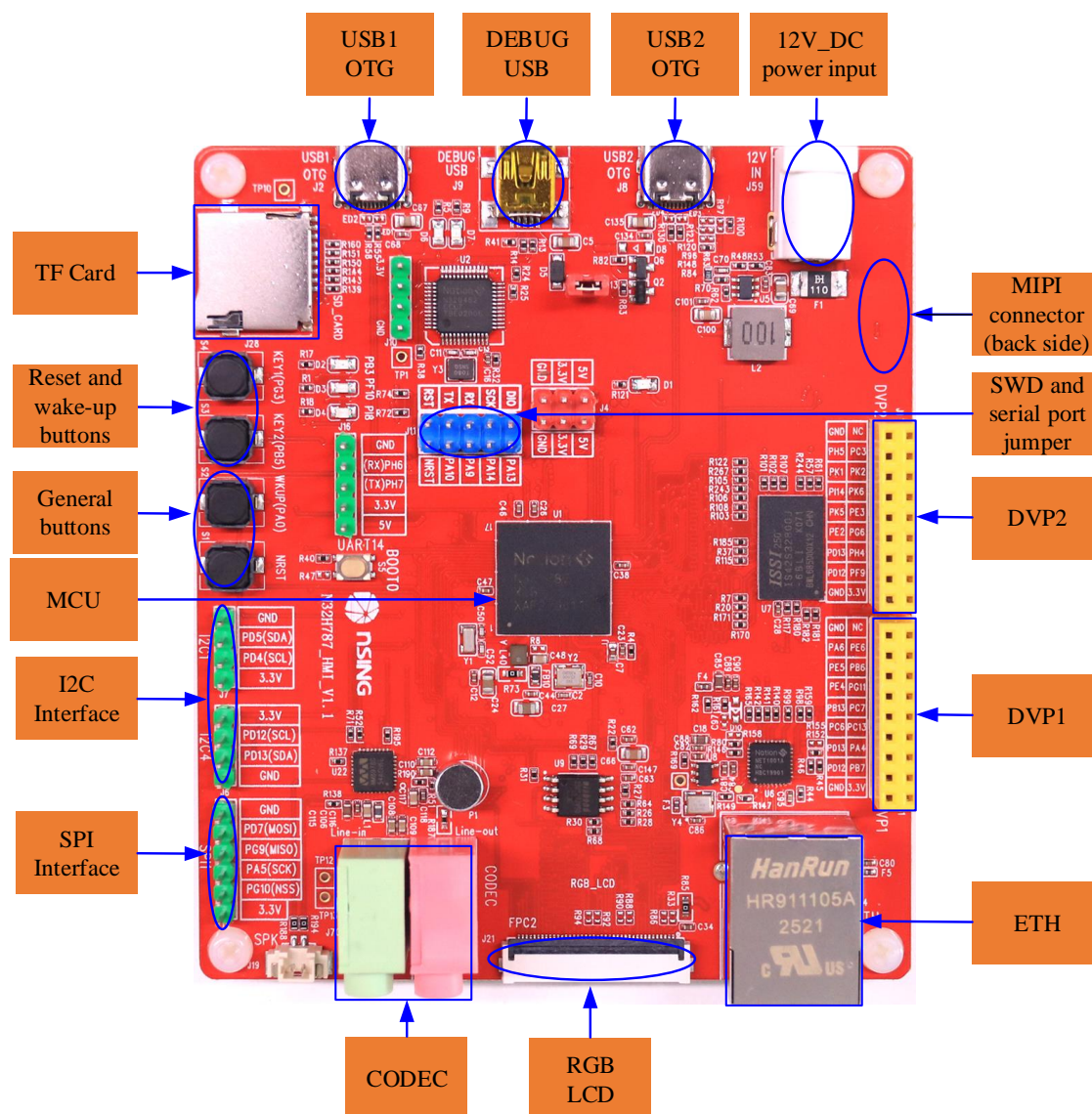


图 1-1 开发板布局

1) Power supply for the development board

The development board can be powered via the DC_JACK interface (J59) 12V DC, the USB OTG interface (J2, J8), the DEBUG USB interface (J9), or the 5V pins on the header. When using DC_JACK or USB power, the J13 jumper on the board must be connected.

2) Debug USB (J9)

The DEBUG USB interface of the NS-LINK chip (U2) can provide the function of downloading and debugging the main MCU program, and can also be connected to the MCU's serial port to provide

USB to serial port function.

3) USB OTG (J2、J8)

The development board has two onboard USB OTG interfaces (J2 and J8) , which enable upgrades and debugging between master and slave devices.

4) SWD interface and Serial port (J11)

SWD interface: PA13 (SWDIO) and PA14 (SWDCK) are used for downloading and debugging the main MCU program. ULINK2 or JLINK can be used to download and debug the MCU, or jumper caps can be used to short the SWDIO signal pins and SWDCK signal pins to download and debug the MCU via DEBUG USB.

Serial ports: MCU_TX and MCU_RX are used as external serial signals. PA9 (TX) and PA10 (RX) of the MCU are used as serial ports. They can be used to connect serial devices independently, or the MCU_TX signal pin and MCU_RX signal pin can be shorted with jumpers to convert the USB port to a serial port through NS-LINK on the development board for the convenience of customers.

5) RGB_LCD interface (FPC2)

The development board has an onboard RGB-LCD connector for RGB-LCD debugging.

6) MIPI interface (FPC1)

The development board has a reserved interface for MIPI screens for MIPI screen development and debugging.

7) DVP interface (J1、J61)

The development board has two DVP interfaces, which, when paired with the OV5640 module, can be used for related application development and debugging.

8) CODEC audio modules (J21、J70)

The development board has an onboard audio decoding module (W M8978), which can be used for related application development and debugging.

9) ETH module (J14)

The development board has an onboard ETH module, which can be used for related application

development and debugging.

10) SD_CARD (J28)

The development board has an onboard SD_CARD interface, which can be used for related application development and debugging.

11) Reset button (S1)

S1 is the reset button , connected to the NRST pin of the chip , used for chip reset and debugging.

12) Wake-up button (S2)

S2 is the wake-up button , connected to the PA0 pin of the chip , used to wake up the main chip.

13) General buttons (S3、 S4)

The development board has two onboard universal buttons for development and debugging.

14) SPI interface (J3)

The development board has an onboard SPI interface, which can be used for development and debugging.

15) UART interface (J16)

The development board has an onboard UART interface, which can be used for development and debugging.

16) I2C interface (J6、 J7)

The development board has an onboard I2C interface, which can be used for development and debugging.

17) LED (D2、 D3、 D4)

D2, D3 , and D4 are LEDs , which are connected to the PB3, PF10, and PI8 pins of the chip, respectively , and can be used for the development and debugging of this board.

18) Power connector

The development board has reserved power supply pins, including 5V , 3.3V and GND pins , to facilitate customer debugging.

1.4 Development board schematic

N32H787_HMI development board schematic diagram (see "N32H787_HMI_V1.1" for details):

2 Version history

Version	Date	Modify
V1.0	2024-12-10	Initial version
V1.1	2025-9-10	Based on project requirements, the peripheral resource modules were redesigned

3 Notice

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