

HI3516DV300 SOM PCBA DATASHEET

Build-version: Hi3516DV300 SOM VAO

Build-date: 2020-11-18

Build: Peter

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About This Document

Purpose

This document describes the base functions, interface usages and hardware specification of HI3516DV300 SOM.

Related Version

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

| Product Name | Version | Release Date |
|---------------------|---------|--------------|
| HI3516DV300_SOM_VAO | VA0 | 2020.11.18 |

Intended Audience

This document is intended for:

- Technical Support Engineer
- Hardware engineer
- Mechanical structure engineer
- Software engineer

Change History

| Version | Describes |
|---------------------|----------------------------|
| HI3516DV300_SOM_VAO | The first official release |
| | |
| | |

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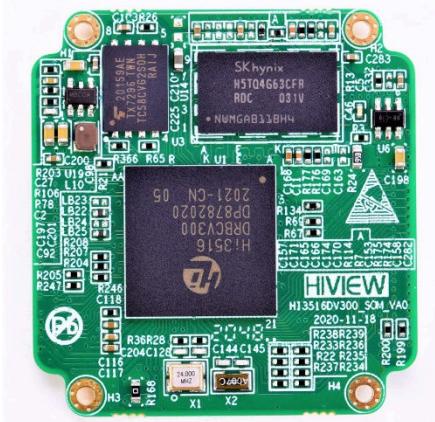
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1 Overview

1.1 Brief Introduction

HI3516DV300_SOM is a board with encoding and decoding capabilities using HiSilicon new-generation SoC. It shows customers the powerful multimedia functions and rich peripheral interfaces of the Hi3516DV300 chip, and provides customers with product hardware PCBA based on the Hi3516DV300 chip, which is used in single Sensor/Dual Sensor IPC, encoder, decoder, NVR, AI edge computing box products. Customers can flexibly realize their own product functional requirements by designing or customizing the interface board by themselves. At the same time, it is equipped with our open source framework system software, which has high stability, compatibility, flexibility and scalability, which shortens the development cycle of customers' products and reduces customers' development costs and risks. It can be applied to multiple industries such as smart monitoring, smart retail, smart industry, smart transportation, and smart education.

PCBA Interface see below:



Top



Bottom

| Interface Name | Description |
|----------------|---|
| J1 | Multi-function expansion interface1 (include SDI00/1、USB2.0、USB3.0、UART0/1/2/3/4、I2S、SPI2/3、AUDIO、PWM、GPIO) |
| J2 | Sensor0/Sensor1/VI port |

1.2 Hardware Feature

1.2.1 Hi3516DV300 Key Specifications

1) Processor Core

- Dual-core ARM Cortex-A7@ 900MHz, 32KB I-Cache, 32KB D-Cache
256KB L2 cache
- Neon acceleration and integrated FPU

2) Smart Video Analysis

- Neural network acceleration engine with processing performance up to 1.0 TOPS.
- Smart computing acceleration engine
(Including tracking and face image correction)

3) ISP

- 3A functions (AE, AWB, AF), supporting third-party 3A algorithms
- FPN removal and DPC
- LSC, LDC, and purple fringing correction
- Direction-adaptive demosaic
- Gamma correction, DCI, and color management and enhancement
- Region-adaptive dehaze
- Multi-level NR (including BayerNR and 3DNR), detail enhancement, and sharpening enhancement
- Sensor built-in WDR and 2F WDR (line-based/frame-based/DCG) Local Tone Mapping

-
-
- ISP tuning tools for the PC
 - Anti-flicker processing for video and graphics output
 - 1/15 -16x video and graphics scaling
 - Video graphics overlay, 90° , 180° , and 270° image rotation
 - Image mirroring and flipping
 - Up to 8-region OSD overlay before encoding

4) VEDU Performance

- Up to 3072-pixel wide and 3072 x 1728 resolution for H.264/H.265 encoding and decoding. Only the decoding of self-encoded streams is supported.
- Real-time multi-stream H.264/H.265 encoding and decoding:
 - 2688x1536@30fps encoding + 720x480@30fps encoding
+360x240@30fps encoding
 - 2688x1944@20fps encoding + 720x480@20fps encoding
+360x240@20fps encoding
 - 1920x1080@30fps encoding + 720x480@30fps encoding
+1920x1080@30fps decoding
- JPEG encoding and decoding performance: 16M (4608 x3456) @10 fps
- Five bit rate control modes (CBR, VBR, FixQp, AVBR, and QpMap)
- Up to 50 Mbit/s output bit rate
- Up to 8-ROI encoding

5) Video Interface

- VI
 - 2-channel VI

Up to 2688-pixel wide and 2688 x 1944 resolution for input of the first channel

Up to 2048-pixel wide and 2048 x 1536 resolution for input of the second channel

- 8-/10-/12-/14-bit RGB Bayer DC timing VI
- BT.601, BT.656, and BT.1120 VI interfaces
- MIPI, LVDS/sub-LVDS, and HiSPi
- Compatibility with mainstream HD CMOS sensors provided by vendors such as

Sony, ON, OmniVision, and Panasonic

- Compatibility with the electrical specifications of parallel and differential interfaces of various sensors
- Programmable sensor clock output
- V0
- One BT.656/BT.1120 V0 interface
- 6-/8-bit RGB serial LCD V0 and 16-/18-/24-bit RGB parallel LCD V0
- 4-lane MIPI-DSI V0
- HDMI 1.4 output with a maximum resolution of 1080p60

6) Audio Interface Encoding and Decoding

- Audio codec, supporting 16-bit input and output
- Mono-channel differential MIC input for background NR
- Single-end dual-channel input
- I2S interface for connecting to external audio codec
- Multi-protocol audio encoding and decoding (G.711, G.726, and ADPCM) by using software
- Audio 3A functions (AEC, ANR, and ALC)

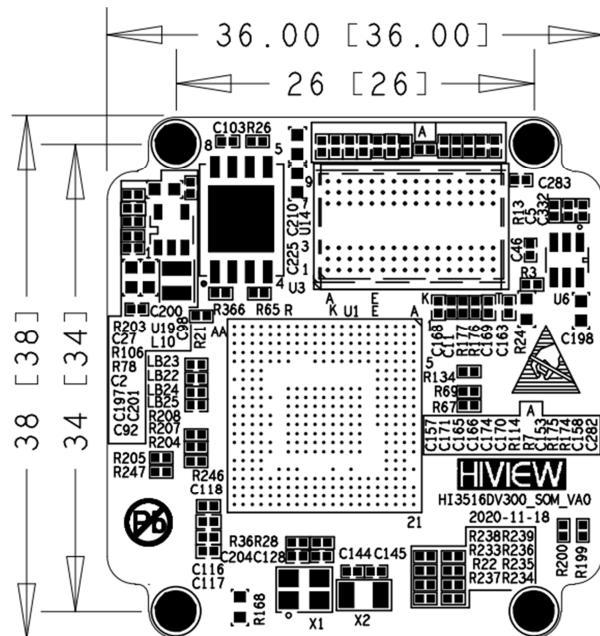
1.2.2 Hardware optional configuration

| | | | | | | | |
|---------------------------|-------|--|-------------------------------|---------------------------------|---|--------------------------------|---|
| SoC | | Hi3516DV300 | | | | | |
| Memory | Flash | <input checked="" type="checkbox"/> NAND | <input type="checkbox"/> NOR | <input type="checkbox"/> eMMC | <input type="checkbox"/> 64MB | <input type="checkbox"/> 128MB | <input checked="" type="checkbox"/> 256MB |
| | RAM | <input checked="" type="checkbox"/> DDR3 | <input type="checkbox"/> DDR4 | <input type="checkbox"/> LPDDR4 | <input checked="" type="checkbox"/> 1GB | <input type="checkbox"/> 2GB | <input type="checkbox"/> 4GB |
| RTC | | <input checked="" type="checkbox"/> Internal RTC | | | <input type="checkbox"/> External RTC | | |
| Hardware-based encryption | | <input checked="" type="checkbox"/> Support | | | <input type="checkbox"/> Not support | | |
| Watchdog | | <input checked="" type="checkbox"/> Internal | | | <input type="checkbox"/> External | | |
| Dimensions | | 38*36mm | | | | | |

2 Hardware Introduction

2.1 Hi3516DV300 SOM Hardware Introduction

2.1.1 Mechanical Dimensions



Unit: mm



Table 2-1 Interface definition

| J1 Connector ---SENSOR0/1, VI Multiplexing (Model. -HIROSE DF40C-80DP-0.4V(51)) | | | |
|--|------------------------|---------------|--|
| Pin No. /Name | | Pin No. /Name | |
| PIN1 | HDMI_TXCN | PIN2 | 5V0_USB |
| PIN3 | HDMI_TXCP | PIN4 | GND |
| PIN5 | GND | PIN6 | SDIO0_CARD_DETECT/GPIO1_1 |
| PIN7 | HDMI_TXON | PIN8 | SDIO0_CDATA0/GPIO1_4 |
| PIN9 | HDMI_TXOP | PIN10 | DVDD3318_SDIO_VOUT |
| PIN11 | GND | PIN12 | SDIO0_CDATA1/GPIO1_5/JTAG_TMS |
| PIN13 | HDMI_TX1N | PIN14 | SDIO0_CCLK_OUT/GPIO1_2/JTAG_TRSTN |
| PIN15 | HDMI_TX1P | PIN16 | SDIO0_CCMD/GPIO1_3 |
| PIN17 | GND | PIN18 | SDIO0_CDATA3/GPIO1_7/JTAG_TDI |
| PIN19 | HDMI_TX2N | PIN20 | SDIO0_CDATA2/GPIO1_6/JTAG_TDO |
| PIN21 | HDMI_TX2P | PIN22 | SDIO0_CARD_POWER_EN/GPIO1_0/JTAG_TCK |
| PIN23 | GND | PIN24 | GND |
| PIN25 | MIPI_RX0_D1N | PIN26 | USB_PWREN/GPIO2_2 |
| PIN27 | MIPI_RX0_D1P | PIN28 | USB_OVRCUR/GPIO2_0 |
| PIN29 | GND | PIN30 | GND |
| PIN31 | MIPI_RX0_CK1N/VI_DATA8 | PIN32 | USB_DM |
| PIN33 | MIPI_RX0_CK1P/VI_DATA9 | PIN34 | USB_DP |
| PIN35 | GND | PIN36 | GND |
| PIN37 | MIPI_RX0_D3N/VI_DATA10 | PIN38 | HDMI_HOTPLUG/GPIO2_4/UART3_RXD |
| PIN39 | MIPI_RX0_D3P/VI_DATA11 | PIN40 | HDMI_SDA/GPIO2_6/UART3_RTSN/I2C4_SDA/FLASH_TRIGGER |
| PIN41 | GND | PIN42 | HDMI_SCL/GPIO2_7/UART3_CTSN/I2C4_SCL/SHUTTER_TRIGGER |
| PIN43 | MIPI_RX0_DON | PIN44 | HDMI_CEC/GPIO2_5/UART3_TXD |
| PIN45 | MIPI_RX0_DOP | PIN46 | GND |
| PIN47 | GND | PIN48 | SPI0_CS_N/I2C1_SCL/GPIO4_5/SPI_3LINE_CS_N/SENSOR_HS |

| | | | |
|-------|--|-------|---|
| PIN49 | MIPI_RX0_D2P/VI_DATA14 | PIN50 | SPI0_SDI/I2C1_SDA/GPIO4_4/SENSOR_VS |
| PIN51 | MIPI_RX0_D2N/VI_DATA15 | PIN52 | SPI0_SCLK/I2C0_SCL/GPIO4_2/SPI_3LINE_SCLK |
| PIN53 | GND | PIN54 | SPI0_SDO/I2C0_SDA/GPIO4_3/SPI_3LINE_SDATA |
| PIN55 | MIPI_RX0_CKOP/VI_DATA12 | PIN56 | VI_DATA7/VOU656_DATA7/SPI2_CSN/GPIO3_7/UART2_TXD |
| PIN57 | MIPI_RX0_CKON/VI_DATA13 | PIN58 | VI_DATA5/VOU_DATA5/SPI2_SDO/GPIO3_5/UART2_CTSN |
| PIN59 | GND | PIN60 | VI_DATA4/VOU_DATA4/SPI2_SCLK/GPIO3_4/UART_RTSN |
| PIN61 | VI_CLK/VOU656_CLK/GPIO2_3 | PIN62 | VI_DATA6/VOU656_DATA6/SPI2_SDI/GPIO3_6/UART2_RXD |
| PIN63 | SENSOR0_CLK/GPIO4_0 | PIN64 | GND |
| PIN65 | GND | PIN66 | SENSOR0_RSTN/BOOT_SEL1/GPIO4_1 |
| PIN67 | VI_DATA2/VOU656_DATA2/I2C6_SCL /GPIO3_2 | PIN68 | VI_DATA3/VOU656_DATA3/I2C6_SDA/GPIO3_3 |
| PIN69 | VI_DATA0/VOU656_DATA0/I2C5_SCL /GPIO3_0 | PIN70 | VI_DATA1/VOU656_DATA1/I2C5_SDA/GPIO3_1 |
| PIN71 | GND | PIN72 | VI_VS/SENSOR_VS/SENSOR1_CLK/GPIO4_6/FALSH_TRIG |
| PIN73 | AC_MICBIAS | PIN74 | VI_HS/SENSOR_HS/SENSOR1_RSTN/GPIO4_7/SHUTTER_TRIG |
| PIN75 | AC_INL/MIC_IN | PIN76 | GND |
| PIN77 | AC_INR | PIN78 | AC_OUTL |
| PIN79 | GND | PIN80 | AC_OUTL |

J2 Connector Multiplexing interface 1 (Model. -HIROSE DF40C-100DP-0.4V(51))

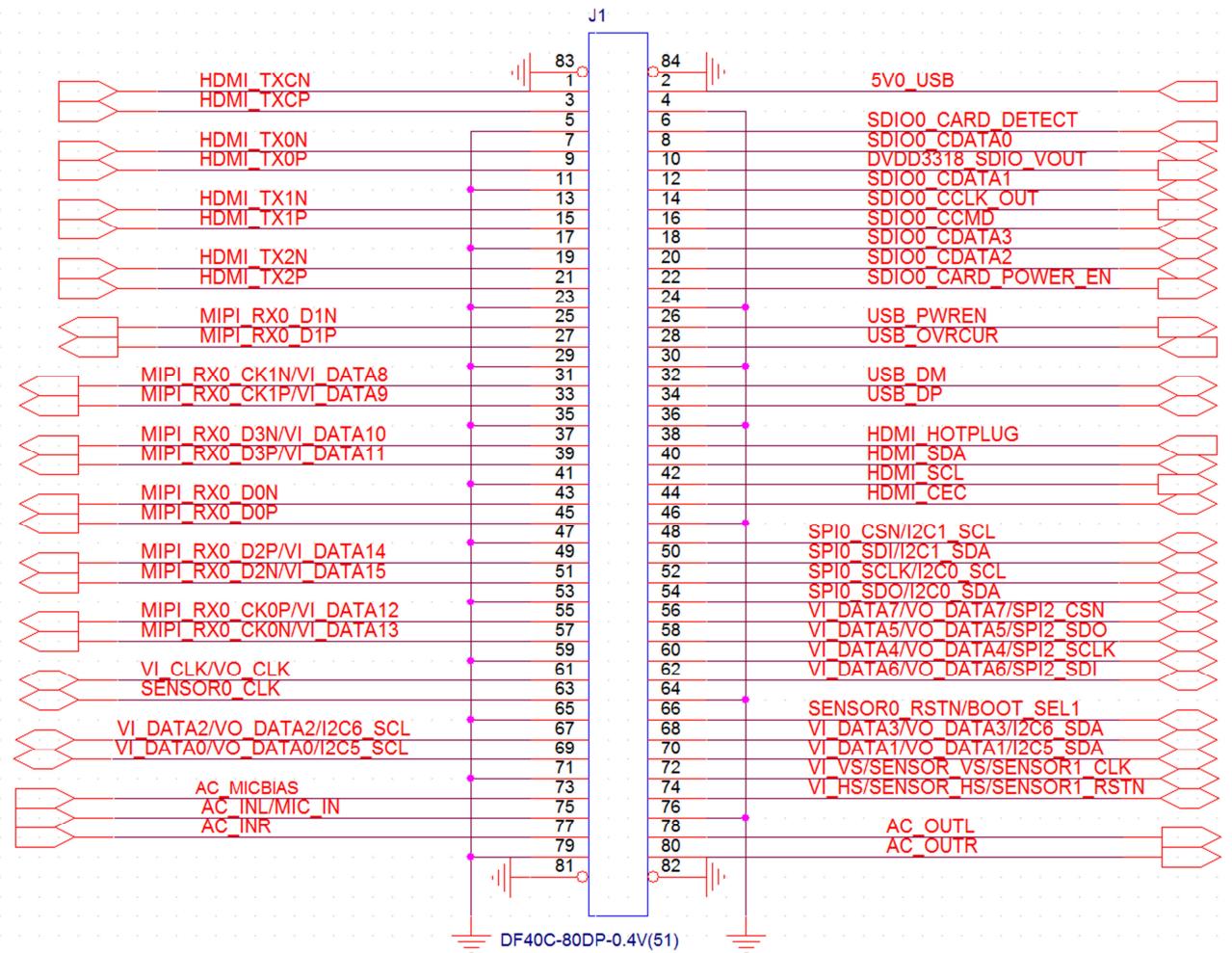
| Pin No. /Name | | Pin No. /Name | |
|---------------|---|---------------|--|
| PIN1 | 3.3V | PIN2 | 3.3V |
| PIN3 | 3.3V | PIN4 | 3.3V |
| PIN5 | 3.3V | PIN6 | 3.3V |
| PIN7 | GND | PIN8 | GND |
| PIN9 | GND | PIN10 | GND |
| PIN11 | GND | PIN12 | GND |
| PIN13 | SYS_RSTN_OUT/GPIO10_5 | PIN14 | 1.8V |
| PIN15 | GND | PIN16 | 1.8V |
| PIN17 | LCD_RST/GPIO0_5/LCD_DATA22 | PIN18 | GND |
| PIN19 | TP_INT/GPIO0_4/LCD_DATA21 | PIN20 | UPDATE_MODE/GPIO0_0 |
| PIN21 | I2C3_SDA/GPIO0_1/LCD_DATA20 | PIN22 | GND |
| PIN23 | I2C3_SCL/GPIO0_2/LCD_DATA19 | PIN24 | DSI_D1P/LCD_DATA11/LCD1_DATA0/GPIO9_7 /VOU1120_DATA12 |
| PIN25 | RMII_RX_DV/GPIO7_3/LCD_DATA6/ VOU656_DATA1/VOU1120_DATA1 | PIN26 | DSI_D1N/LCD_DATA10/LCD1_HSYNC/GPIO9_6 /VOU1120_DATA13 |
| PIN27 | RMII_RXD0/GPIO7_5/LCD_DE | PIN28 | GND |
| PIN29 | RMII_RXD1/GPIO7_4/LCD_VSYNC | PIN30 | DSI_D0N/LCD_DATA9/LCD1_VSYNC/GPIO10_1 /VOU1120_DATA14 |
| PIN31 | RMII_CLK/GPIO7_2/LCD_HSYNC | PIN32 | DSI_D0P/LCD_DATA8/LCD1_DE/GPIO10_0 /VOU1120_DATA15 |
| PIN33 | RMII_TXD0/GPIO7_1/LCD_DATA0 /VOU656_DATA7/VOU1120_DATA7 | PIN34 | GND |
| PIN35 | RMII_TXD1/TEST_CLK/LCD_DATA1/VOU656_DATA6 /VOU1120_DATA6/GPIO8_7 | PIN36 | DSI_CKN/LCD_DATA13/LCD1_DATA2/GPIO9_5 /VOU1120_DATA10 |
| PIN37 | RMII_TX_EN/GPIO7_0/LCD_DATA2/VOU656_DATA5 | PIN38 | DSI_CKP/LCD_DATA12/LCD1_DATA1/GPIO9_4 |

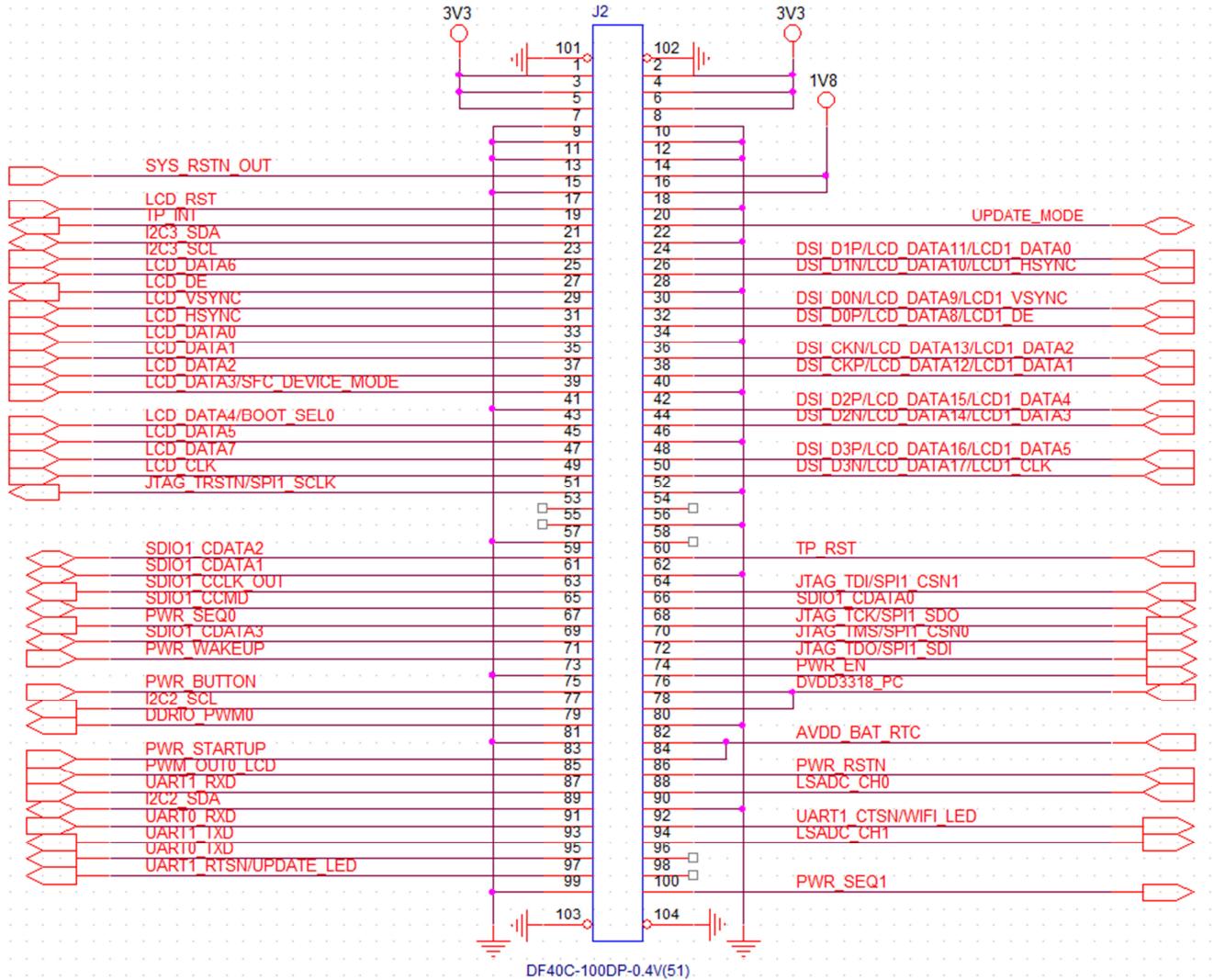
| | | | |
|-------|--|-------|---|
| | /VOU1120_DATA5 | | /VOU1120_DATA11 |
| PIN39 | EPHY_RSTN/GPIO7_6/LCD_DATA3/VOU656_DATA4 /VOU1120_DATA4/SFC_DEVICE_MODE | PIN40 | GND |
| PIN41 | GND | PIN42 | DSI_D2P/LCD_DATA15/LCD1_DATA4/GPIO9_3 /VOU1120_DATA8 |
| PIN43 | MDCK/GPIO8_6/LCD_DATA4/ VOU656_DATA3/VOU1120_DATA3/BOOT_SEL0 | PIN44 | DSI_D2N/LCD_DATA14/LCD1_DATA3/GPIO9_2 /VOU1120_DATA9 |
| PIN45 | MDIO/GPIO8_5/LCD_DATA5/ VOU656_DATA2/VOU1120_DATA2 | PIN46 | GND |
| PIN47 | EPHY_CLK/GPIO7_7/LCD_DATA7/ VOU656_DATA0/VOU1120_DATA0 | PIN48 | DSI_D3P/LCD_DATA16/LCD1_DATA5/GPIO9_0 /SHUTTER_TRIG |
| PIN49 | LCD_CLK/GPIO0_6/VOU656_CLK/VOU1120_CLK | PIN50 | DSI_D3N/LCD_DATA17/LCD1_CLK/GPIO9_1 /FLASH_TRIGGER |
| PIN51 | JTAG_TRSTN/SPI1_SCLK/ RMII_TXD1/I2S_MCLK/GPIO8_0 | PIN52 | GND |
| PIN53 | NC | PIN54 | NC |
| PIN55 | NC | PIN56 | GND |
| PIN57 | GND | PIN58 | NC |
| PIN59 | SDI01_CDATA2/GPIO6_4/RMII_TX_EN | PIN60 | TP_RST/GPIO0_3/IR_IN/LCD_DATA18 |
| PIN61 | SDI01_CDATA1/GPIO6_3/MDIO | PIN62 | GND |
| PIN63 | SDI01_CCLK_OUT/GPIO6_0/RMII_RX_DV | PIN64 | JTAG_TDI/SPI1_CS_N1/LCD_DATA23/I2S_SD_RX /GPIO8_4 |
| PIN65 | SDI01_CCMD/GPIO6_1/EPHY_CLK | PIN66 | SDI01_CDATA0/GPIO6_2/MDCK |
| PIN67 | PWR_SEQ0/GPIO11_1 | PIN68 | JTAG_TCK/SPI1_SDO/ RMII_RXD1/I2S_BCLK_TX/GPIO8_1 |
| PIN69 | SDI01_CDATA3/GPIO6_5/EPHY_RSTN | PIN70 | JTAG_TMS/SPI1_CS_N0/ RMII_TXD0/I2S_WS_TX/GPIO8_2 |
| PIN71 | PWR_WAKEUP/GPIO11_0 | PIN72 | JTAG_TDO/SPI1_SDI/ RMII_RXD0/I2S_SD_TX/GPIO8_3 |

| | | | |
|-------|---|------------|---------------------------------------|
| PIN73 | GND | PIN74 | PWR_EN/GPIO11_3 |
| PIN75 | PWR_BUTTON | PIN76 | DVDD3318_PC |
| PIN77 | I2C2_SCL/GPIO5_7 | PIN78 | DVDD3318_PC |
| PIN79 | DDRIO_PWM0/GPIO6_6 | PIN80 | GND |
| PIN81 | GND | PIN82 | AVDD_BAT_RTC |
| PIN83 | PWR_STARTUP | PIN84 | AVDD_BAT_RTC |
| PIN85 | PWM_OUT0_LCD/GPIO6_7 | PIN86 | PWR_RSTN |
| PIN87 | UART1_RXD/GPIO5_2 | PIN88 | LSADC_CH0/GPIO10_3 |
| PIN89 | I2C2_SDA/GPIO5_6 | PIN90 | GND |
| PIN91 | UART0_RXD/GPIO5_4 | PIN92 | UART1_CTSN/WIFI_LED/GPIO5_1/UART4_TXD |
| PIN93 | UART1_TXD/GPIO5_3 | PIN94 | LSADC_CH1/GPIO10_4 |
| PIN95 | UART0_TXD/GPIO5_5 | PIN96 | NC |
| PIN97 | UART1_RTSN/UPDATE_LED/GPIO5_0/UART4_RXD | PIN98 | NC |
| PIN99 | GND | PIN10 0 | PWR_SEQ1/GPIO11_2 |

2.1.2 Bus List

2.1.3 Interface schematic



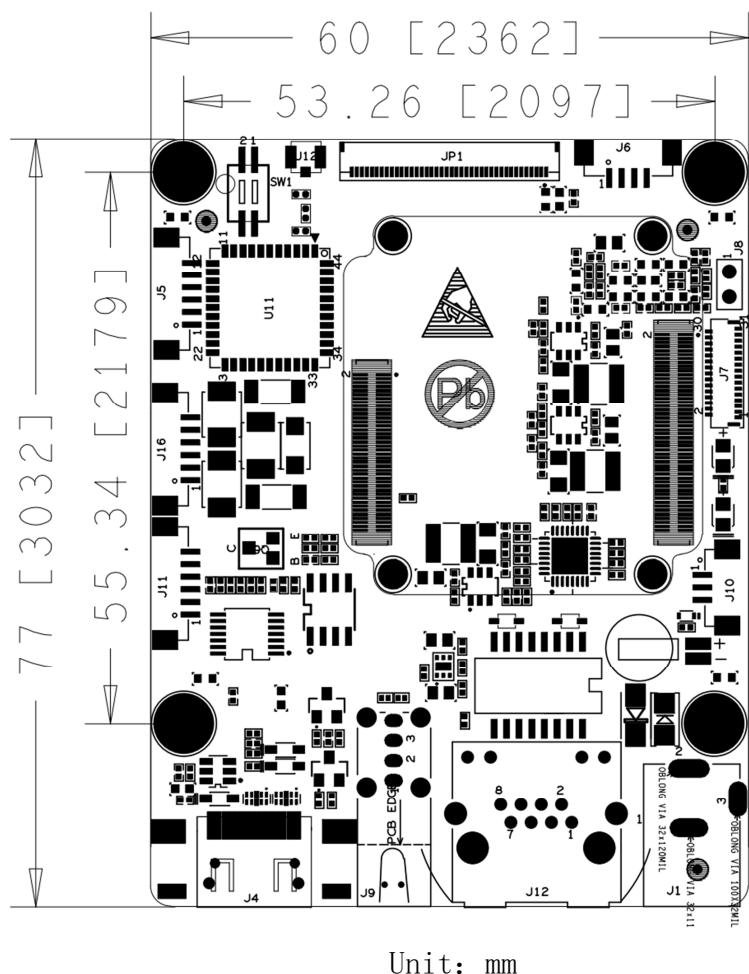


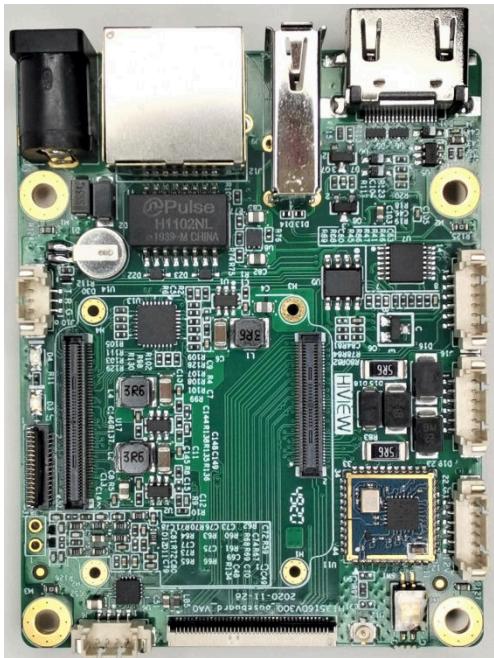
2.2 Hi3516DV300 Base Board Introduction

2.2.1 Brief Introduction

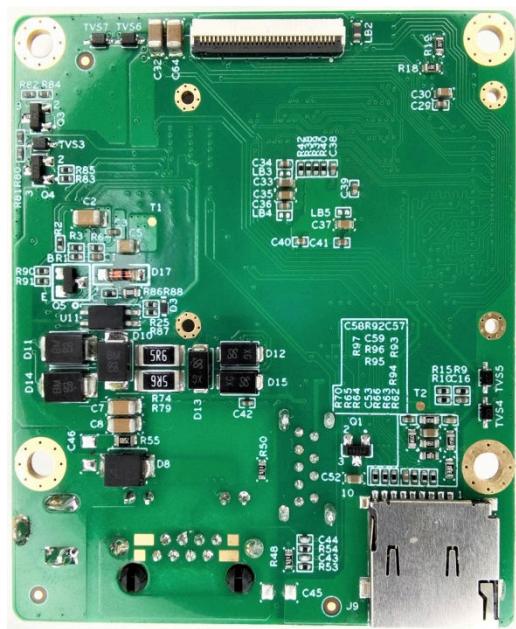
This base board is exposing every interface from our company's Hi3516DV300 SOM board, provides a development platform and reference base-board design for Hi3516DV300 SOM board. The board integrates a WIFI module (BL-M8189FS6 (VC), 802.11n 150Mbps) which can be used as a wireless video product. It provides MIPI CSI interface, MIPI DSI interface, HDMI interface, which can be used as video encoding and video decoding product. Provide SD card storage, RS485, UART, AUDIO, ALARM, AUTO-IRIS control, CDS detection, USB and other interfaces, and also reserve some IO ports for customers to choose flexibly to meet customer needs in various application scenarios.

2.2.2 Mechanical Dimensions





TOP



BOTTOM

Table 2-2 Interface definition

| J6 Connector ---P_IRIS (Model. SMD4_1.25mm_Vertical) | | | | |
|---|----|----------|---------------|----------|
| Pin No. /Name | | Function | Pin No. /Name | Function |
| PIN1 | B- | | PIN2 | A- |
| PIN3 | A+ | | PIN4 | B+ |

| JP1 Connector ---Sensor in (Model..FPC40-0.5mm) | | | | |
|--|--------------------|----------|---------------|-------------------|
| Pin No. /Name | | Function | Pin No. /Name | Function |
| PIN1 | 3V3 | | PIN2 | 3V3 |
| PIN3 | SPI0_SCLK/I2C0_SCL | | PIN4 | SPI0_CSN/I2C1_SCL |
| PIN5 | SPI0_SDI/I2C1_SDA | | PIN6 | SPI0_SDO/I2C0_SDA |
| PIN7 | GND | | PIN8 | NC |
| PIN9 | NC | | PIN10 | GND |
| PIN11 | NC | | PIN12 | NC |
| PIN13 | MIIPIO_D3M | | PIN14 | MIIPIO_D3P |

| | | | | | |
|-------|-------------------|--|-------|-------------------|--|
| PIN15 | GND | | PIN16 | SENSORO_HS | |
| PIN17 | SENSORO_VS | | PIN18 | MIPIO_D2M | |
| PIN19 | MIPIO_D2P | | PIN20 | GND | |
| PIN21 | MIPIO_D1P | | PIN22 | MIPIO_D1M | |
| PIN23 | MIPIO_CKP | | PIN24 | MIPIO_CKM | |
| PIN25 | GND | | PIN26 | MIPIO_DOM | |
| PIN27 | MIPIO_DOP | | PIN28 | NC | |
| PIN29 | NC | | PIN30 | GND | |
| PIN31 | NC | | PIN32 | NC | |
| PIN33 | SENSORO_CLK | | PIN34 | IR_CUT_0_CONTROL1 | |
| PIN35 | IR_CUT_0_CONTROL2 | | PIN36 | CDS | |
| PIN37 | SENSORO_RSTN | | PIN38 | NC | |
| PIN39 | 12V0 | | PIN40 | 12V0 | |

| J10 Connector--- Debug uart0 (Model. SMD3-1.25mm_Vertical) | | | | | |
|---|-----------|----------|---------------|-----------|----------|
| Pin No. /Name | | Function | Pin No. /Name | | Function |
| PIN1 | GND | | PIN2 | UART0_RXD | |
| PIN3 | UART0_TXD | | | | |

| J7 Connector ---DSI interface (Model. USL00-30L-A) | | | | | |
|---|------|------------------|---------------|------|------------------|
| Pin No. /Name | | Function | Pin No. /Name | | Function |
| PIN1 | LEDA | LED POWER SUPPLY | PIN2 | LEDA | LED POWER SUPPLY |
| PIN3 | LEDA | LED POWER SUPPLY | PIN4 | NC | |
| PIN5 | LEDK | LED POWER GND | PIN6 | LEDK | LED POWER GND |
| PIN7 | LEDK | LED POWER GND | PIN8 | LEDK | LED POWER GND |
| PIN9 | GND | | PIN10 | GND | |

| | | | | | |
|-------|----------|--|-------|---------|--|
| PIN11 | DSI_D2P | | PIN12 | DSI_D2N | |
| PIN13 | GND | | PIN14 | DSI_D1P | |
| PIN15 | DSI_D1N | | PIN16 | GND | |
| PIN17 | DSI_CKP | | PIN18 | DSI_CKN | |
| PIN19 | GND | | PIN20 | DSI_D0P | |
| PIN21 | DSI_D0N | | PIN22 | GND | |
| PIN23 | DSI_D3P | | PIN24 | DSI_D3N | |
| PIN25 | GND | | PIN26 | NC | |
| PIN27 | TFT_RSTN | | PIN28 | NC | |
| PIN29 | 1V8 | | PIN30 | 3V3 | |
| PIN30 | 3V3 | | | | |

| J5 Connector --- To IR led board (Model. SMD6-1.25mm_Vertical) | | | | | |
|---|--------|---|---------------|------------|---------------------------|
| Pin No. /Name | | Function | Pin No. /Name | | Function |
| PIN1 | CDS | CDS voltage Level Input, High or Low | PIN2 | IR_CONTROL | LED on/off control |
| PIN3 | GND | | PIN4 | GND | |
| PIN5 | DC12V0 | LED board power supply | PIN6 | DC12V0 | LED board power supply |

| J11 Connector --- Audio&UART2 (Model. SMD6-1.25mm_Vertical) | | | | | |
|--|------------|----------|---------------|------------|----------|
| Pin No. /Name | | Function | Pin No. /Name | | Function |
| PIN1 | AUDIO_OUTL | | PIN2 | AUDIO_OUTR | |
| PIN3 | AUDIO_INL | | PIN4 | AUDIO_INR | |
| PIN5 | UART2_RX | | PIN6 | UART2_TX | |

J16 Connector --- RS485&Alarm in/out (Model. SMD6-1.25mm_Vertical)

| Pin No. /Name | | Function | Pin No. /Name | | Function |
|---------------|------------|----------|---------------|-------------|---------------------------------------|
| PIN1 | RS485_A | | PIN2 | RS485_B | |
| PIN3 | GND | | PIN4 | ALARM_IN | Connect to GND, The Alarm happened |
| PIN5 | RELAY1_COM | | PIN6 | RELAY1_OPEN | |

J8--- MIC IN (Model. SIP2_2.54mm)

| Connector No. /Name | | Function | Connector No. /Name | | Function |
|---------------------|---------|----------|---------------------|---------|----------|
| PIN1 | MICIN_N | | PIN2 | MICIN_P | |

SW1--- GPIO SET KEY

| Connector No. /Name | | Function | Connector No. /Name | | Function |
|---------------------|-----|--------------|---------------------|-----|--------------|
| PIN1 | GND | GPIO3_5 LOW | PIN2 | GND | GPIO3_2 LOW |
| PIN3 | 3V3 | GPIO3_2 HIGH | PIN4 | 3V3 | GPIO3_5 HIGH |

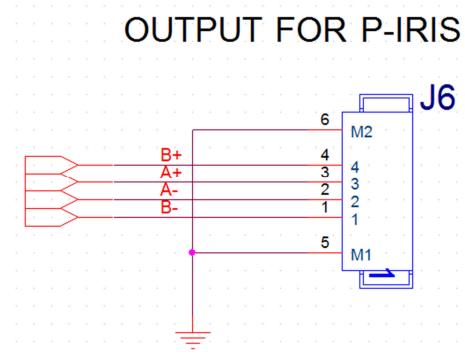
Other function interface

| Connector No. /Name | | Function | Connector No. /Name | | Function |
|---------------------|----------|-------------|---------------------|-----------------|-----------------------|
| J4 | HDMI OUT | | KEY1 | UPDATE_MODE KEY | GPIO0_0, Default high |
| J9 | USB2.0 | | J12 | RJ45 | 10/100M Ethernet |
| J1 | DC12V | Power input | J15 | TF CARD | |

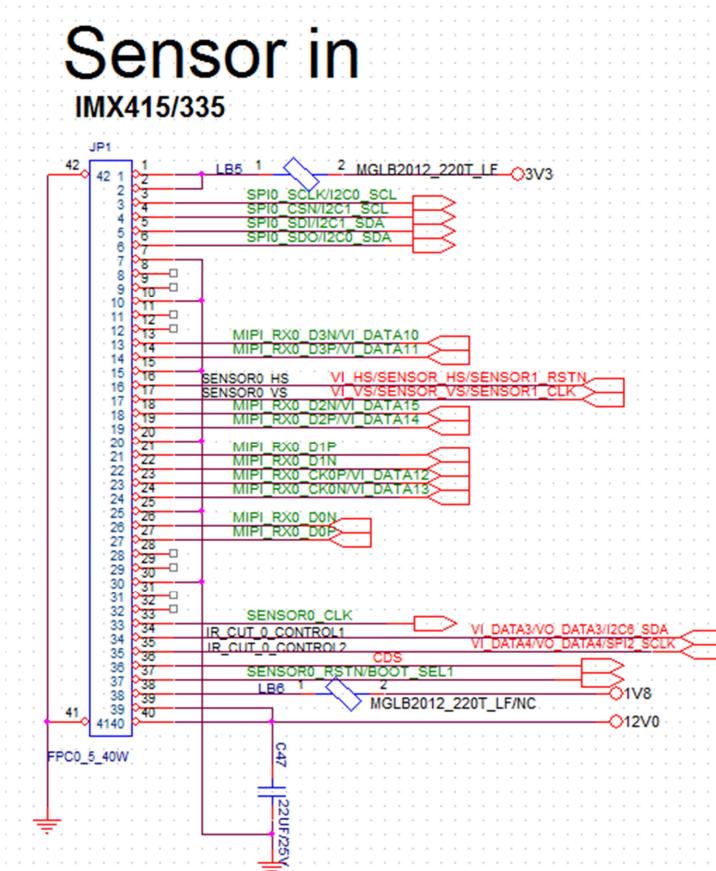
2.2.3 Bus List

2.2.4 Interface schematic

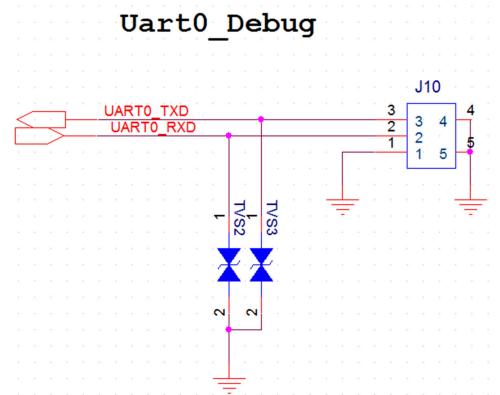
J6-P_IRIS



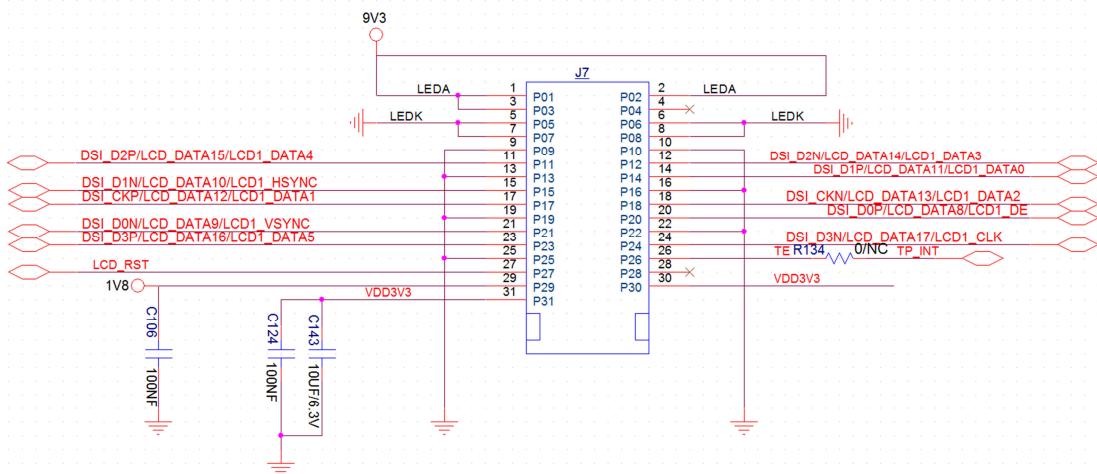
JP1-Sensor 0 input



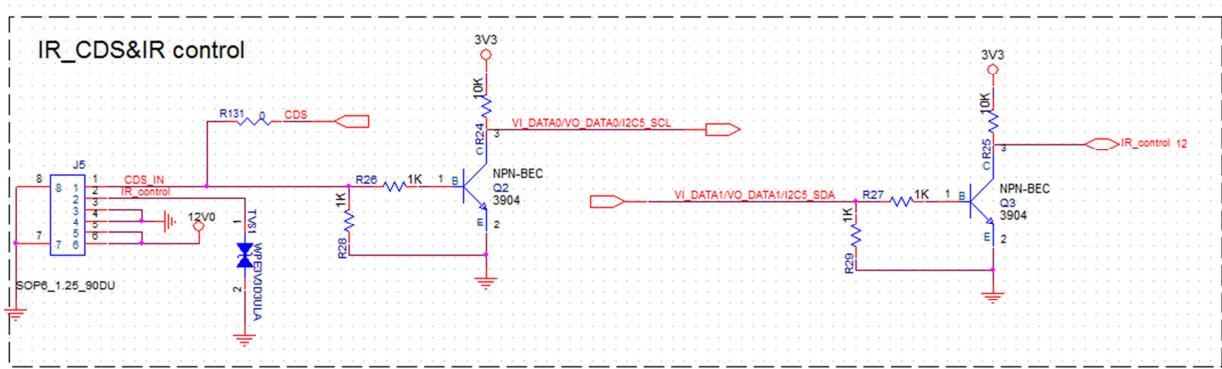
J10-Debug UART0



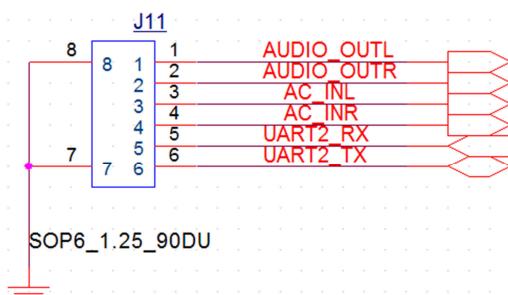
J7-LED display



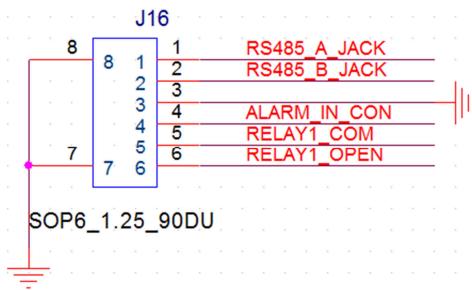
J5-To IR led board



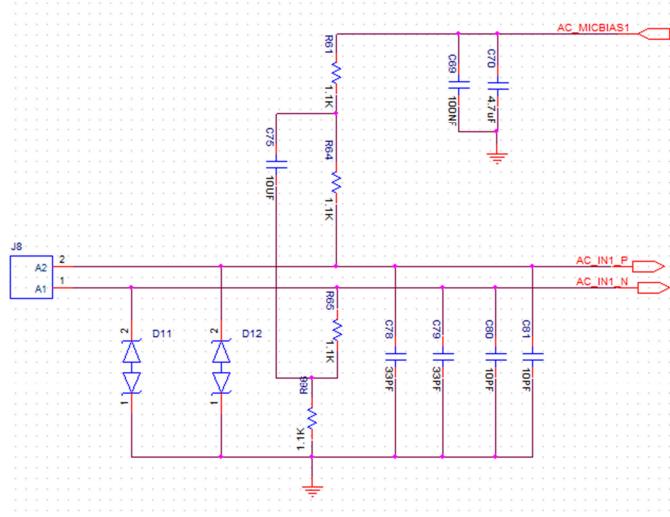
J11-Audio&UART2



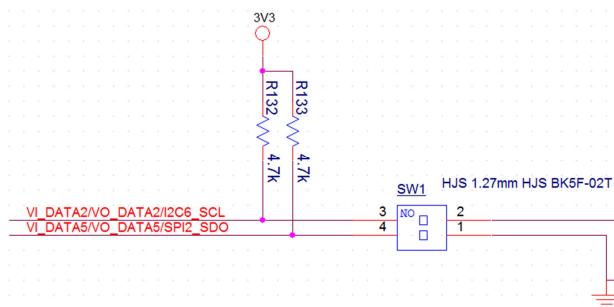
J16-RS485 & Alarm in/out



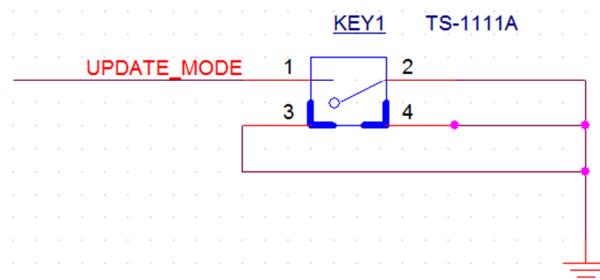
J8-Mic in



SW1-GPIO set



Key1-Update key



3. Operation Guide

3. 1 Precautions

For product testing or application development environment, please read the following precautions before operation:

- In the power-on state, the bare board cannot be hot-plugged, and it is forbidden to touch the internal components of the PCBA board by hand;
- The power output capacity of each port is limited, do not exceed the specifications, otherwise the system will crash or even burn the board;
- Pay attention to the docking I/O level, and prohibit over-specification applications, otherwise it will cause the I/O to burn out;
- SoC and DDR are used for heat dissipation, keep away from heat sources to avoid affecting the performance and life of the chip;
- Carefully check the connection of each component to avoid wrong connection causing burn-in or failure to work.

3. 2 Configuration

3. 2. 1 Sensor, VI, DSI/LCD Power Configuration

The working level of Sensor, VI, DSI/LCD can pass the magnetic beads according to the actual application mode

LB22/LB23: AVDD3318_MIPIRX

LB24/LB25:DVDD3318_VI

LB5/LB21:AVDD3318_MIPITX

For selection, SOM defaults to 1.8V, as shown in the schematic diagram below, according to the different product application requirements of customers, select the corresponding matching level mode during testing and production.

