

# CM1126 Reference User Manual

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V1. 20230322



**Boardcon Embedded Design**

[www.armdesigner.com](http://www.armdesigner.com)

## **1. Introduction**

### **1.1. About this Manual**

This manual is intended to provide the user with an overview of the board and benefits, complete features specifications, and set up procedures. It contains important safety information as well.

### **1.2. Feedback and Update to this Manual**

To help our customers make the most of our products, we are continually making additional and updated resources available on the Boardcon website ([www.boardcon.com](http://www.boardcon.com) , [www.armdesigner.com](http://www.armdesigner.com)).

These include manuals, application notes, programming examples, and updated software and hardware. Check in periodically to see what's new!

When we are prioritizing work on these updated resources, feedback from customers is the number one influence, If you have questions, comments, or concerns about your product or project, please no hesitate to contact us at [support@armdesigner.com](mailto:support@armdesigner.com).

### **1.3. Limited Warranty**

Boardcon warrants this product to be free of defects in material and workmanship for a period of one year from date of buy. During this warranty period Boardcon will repair or replace the defective unit in accordance with the following process:

A copy of the original invoice must be included when returning the defective unit to Boardcon. This limited warranty does not cover damages resulting from lightning or other power surges, misuse, abuse, abnormal conditions of operation, or attempts to alter or modify the function of the product.

This warranty is limited to the repair or replacement of the defective unit. In no event shall Boardcon be liable or responsible for any loss or damages, including but not limited to any lost profits, incidental or consequential damages, loss of business, or anticipatory profits arising from the use or inability to use this product.

Repairs make after the expiration of the warranty period are subject to a repair charge and the cost of return shipping. Please contact Boardcon to arrange for any repair service and to obtain repair charge information.



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# 1 CM1126 Introduction

## 1.1 Summary

The CM1126 system-on-module is equipped with Rockchip's RV1126 build in quad-core Cortex-A7, 2.0 TOPs NPU and RISC-V MCU.

It is designed specifically for the IPC/CVR devices, AI Camera devices, intelligent interactive devices, and mini robots. The high performance and low power solution can help customers to introduce new technologies more quickly and enhance the overall solution efficiency.

The least size can put on 38board.

## 1.2 Features

- **Microprocessor**
  - Quad-core Cortex-A7 up to 1.5G
  - 32KB I-cache and 32KB D-cache for each core, 512KB L3 cache
  - 2.0 TOPS Neural Process Unit
  - RISC-V MCU to support 250mS fast boot
  - Max 14M ISP

### Memory Organization

- LPDDR4 RAM up to 4GB
- EMMC up to 32GB
- SPI Flash up to 8MB

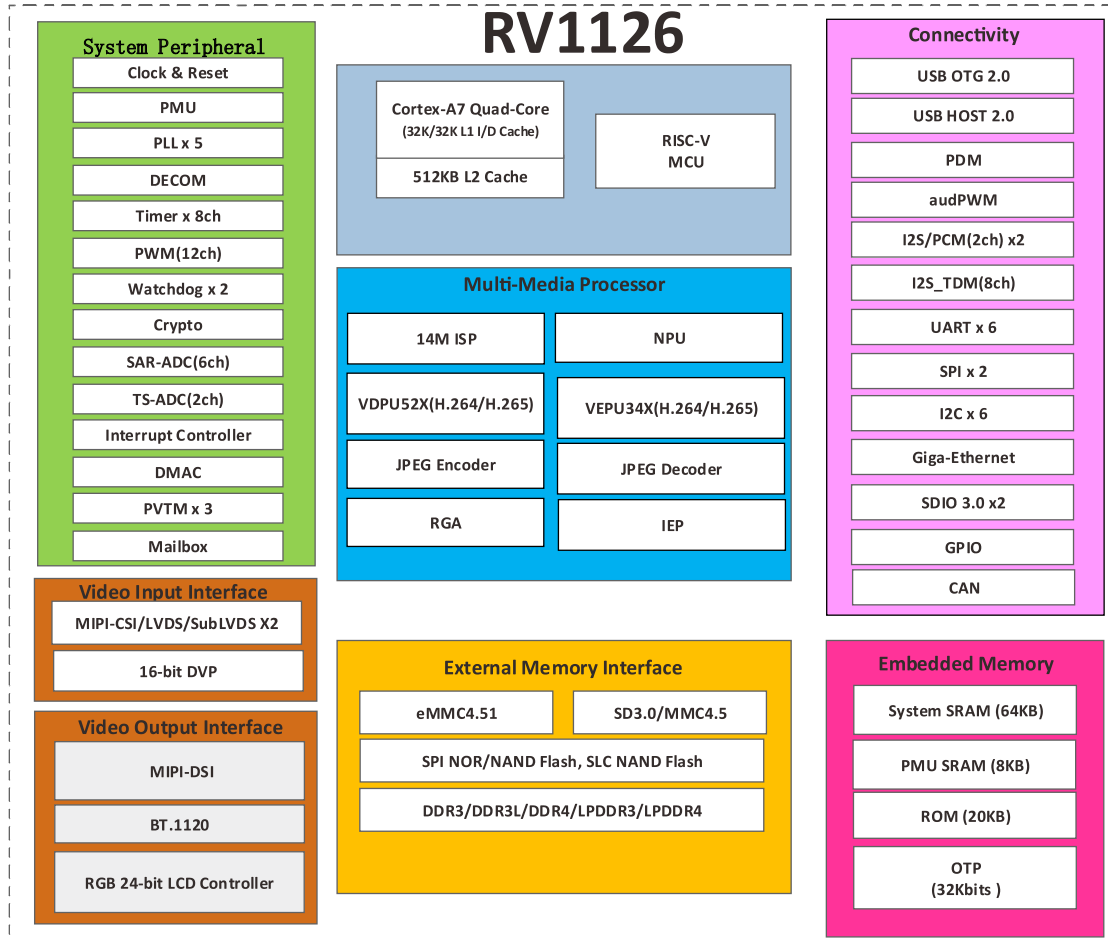
- **Video Decoder/Encoder**
  - Supports video decode/encode up to 4K@30fps
  - Supports real-time decoding of H.264/265
  - Supports real-time UHD H.264/265 video encoding
  - Picture size up to 8192x8192
- **Display Subsystem**
  - **Video Output**
    - Supports 4 lanes MIPI DSI up to 2560x1440@60fps
    - Supports 24bit RGB parallel output
  - **Image in**
    - Supports up to 16bit DVP interface
    - Supports 2ch MIPI CSI 4lanes interface
- **I2S/PCM/ AC97**
  - Three I2S/PCM interface
  - Support Mic array Up to 8ch PDM/TDM interface
  - Support PWM audio output
- **USB and PCIE**
  - Two 2.0 USB interfaces
  - One USB 2.0 OTG, and one 2.0 USB hosts



- **Ethernet**
  - RTL8211F onboard
  - Support 10/100/1000M
- **I2C**
  - Up to five I2Cs
  - Support standard mode and fast mode(up to 400kbit/s)
- **SDIO**
  - Support 2CH SDIO 3.0 protocol
- **SPI**
  - Up to two SPI controllers,
  - Full-duplex synchronous serial interface
- **UART**
  - Support up to 6 UARTs
  - UART2 with 2 wires for debug tools
  - Embedded two 64byte FIFO
  - Support auto flow control mode for UART0/1/3/4/5
- **ADC**
  - Up to four ADC channels
  - 12-bit resolution
  - Voltage input range between 0V to 1.8V
  - Support up to 1MS/s sampling rate
- **PWM**
  - 11 on-chip PWMs with interrupt-based operation
  - Support 32bit time/counter facility
  - IR option on PWM3/7
- **Power unit**
  - Discrete Power on board
  - Single 3.3V input

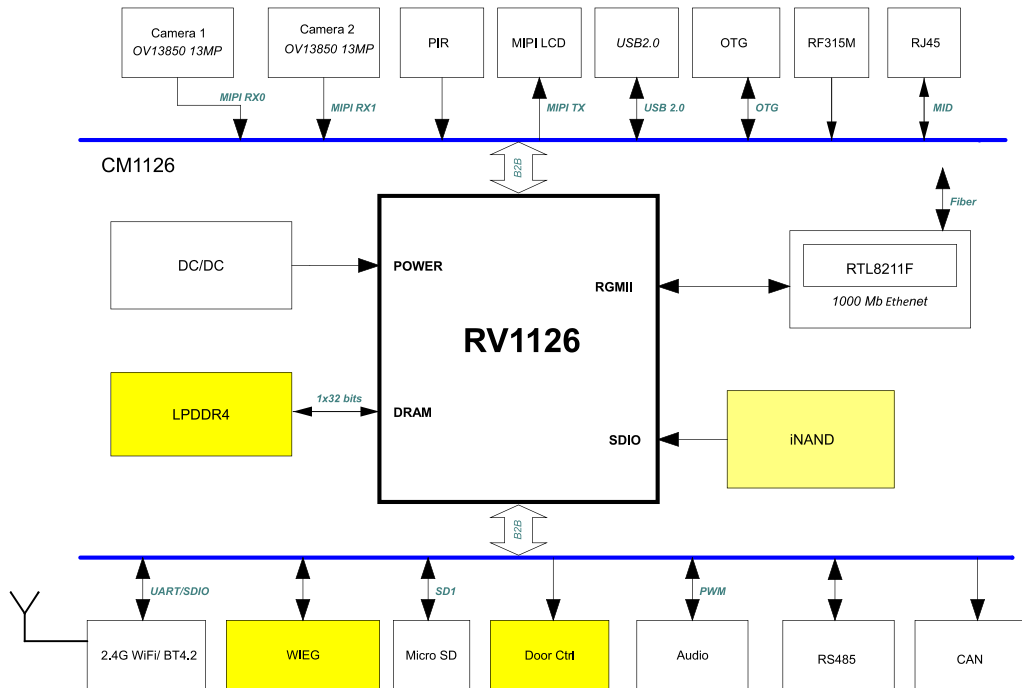
# 1.3 CM1126 Block Diagram

## 1.3.1 RV1126 Block Diagram





### 1.3.2 Development board (idea1126) Block Diagram

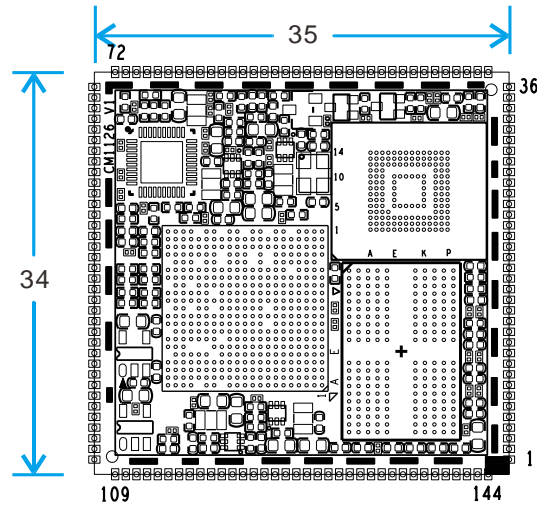


### 1.4 CM1126 specifications

| Feature         | Specifications                 |
|-----------------|--------------------------------|
| CPU             | Quad-core Cortex-A7            |
| DDR             | 2GB LPDDR4 (up to 4GB)         |
| eMMC FLASH      | 4GB (up to 32GB)               |
| Power           | DC 3.3V                        |
| MIPI DSI        | 4-Lane                         |
| I2S             | 4-CH                           |
| MIPI CSI        | 2-CH 4-Lane                    |
| RGB LCD         | 24bit                          |
| Camera          | 1-CH(DVP) and 2-CH(CSI)        |
| USB             | 2-CH (USB HOST2.0 and OTG 2.0) |
| Ethernet        | 1000M GMAC                     |
| SDMMC           | 2-CH                           |
| I2C             | 5-CH                           |
| SPI             | 2-CH                           |
| UART            | 5-CH, 1-CH(DEBUG)              |
| PWM             | 11-CH                          |
| ADC IN          | 4-CH                           |
| Board Dimension | 34 x 35mm                      |



## 1.5 CM1126 PCB Dimension



## 1.6 CM1126 Pin Definition

| Pin | Signal              | Description or functions               | GPIO serial | IO Voltage |
|-----|---------------------|--|-------------|------------|
| 1   | LCDC_D19_3V3        | I2S1_MCLK_M2/CIF_D15_M1                | GPIO2_C7_d  | 3.3V       |
| 2   | LCDC_D20_3V3        | I2S1_SDO_M2/CIF_VS_M1                  | GPIO2_D0_d  | 3.3V       |
| 3   | LCDC_D21_3V3        | I2S1_SCLK_M2/CIF_CLKO_M1               | GPIO2_D1_d  | 3.3V       |
| 4   | LCDC_D22_3V3        | I2S1_LRCK_M2/CIF_CKIN_M1               | GPIO2_D2_d  | 3.3V       |
| 5   | LCDC_D23_3V3        | I2S1_SDI_M2/CIF_HS_M1                  | GPIO2_D3_d  | 3.3V       |
| 6   | GND                 | Ground                                 |             | 0V         |
| 7   | GPIO1_D1            | UART1_RX_M1/I2C5_SDA_M2                | GPIO1_D1_d  | 1.8V       |
| 8   | BT_WAKE             | SPI0_CS1n_M0                           | GPIO0_A4_u  | 1.8V       |
| 9   | WIFI_REG_ON         | SPI0_MOSI_M0                           | GPIO0_A6_d  | 1.8V       |
| 10  | BT_RST              | SPI0_MISO_M0                           | GPIO0_A7_d  | 1.8V       |
| 11  | WIFI_WAKE_HOST      | SPI0_CLK_M0                            | GPIO0_B0_d  | 1.8V       |
| 12  | BT_WAKE_HOST        | SPI0_CS0n_M0                           | GPIO0_A5_u  | 1.8V       |
| 13  | PWM7_IR_M0_3V3      |  | GPIO0_B1_d  | 3.3V       |
| 14  | PWM6_M0_3V3         | TSADC_SHUT_M1                          | GPIO0_B2_d  | 3.3V       |
| 15  | UART2_TX_3V3        | For debug                              | GPIO3_A2_u  | 3.3V       |
| 16  | UART2_RX_3V3        | For debug                              | GPIO3_A3_u  | 3.3V       |
| 17  | I2S0_MCLK_M0_3V3    |  | GPIO3_D2_d  | 3.3V       |
| 18  | I2S0_SCLK_TX_M0_3V3 | ACODEC_DAC_CLK                         | GPIO3_D0_d  | 3.3V       |
| 19  | I2S0_SDI3_M0_3V3    | PDM_SD13_M0 /<br>ACODEC_ADC_DATA       | GPIO3_D7_d  | 3.3V       |
| 20  | I2S0_SDO0_M0_3V3    | ACODEC_DAC_DATAR<br>/APWM_R_M1/ADSM_LP | GPIO3_D5_d  | 3.3V       |





| Pin | Signal              | Description or functions           | GPIO serial | IO Voltage |
|-----|---------------------|------------------------------------|-------------|------------|
| 21  | I2S0_LRCK_TX_M0_3V3 | ACODEC_DAC_SYNC /APWM_L_M1/ADSM_LN | GPIO3_D3_d  | 3.3V       |
| 22  | PDM_SDI1_3V3        | I2S0_SDO3_SDI1_M0/I2C4SDA          | GPIO4_A1_d  | 3.3V       |
| 23  | PDM_CLK1_3V3        | I2S0_SCK_RX_M0                     | GPIO3_D1_d  | 3.3V       |
| 24  | PDM_SDI2_3V3        | I2S0_SDO2_SDI2_M0/I2C4SCL          | GPIO4_A0_d  | 3.3V       |
| 25  | PDM_SDI0_3V3        | I2S0_SDI0_M0                       | GPIO3_D6_d  | 3.3V       |
| 26  | PDM_CLK_3V3         | I2S0_LRCK_RX_M0                    | GPIO3_D4_d  | 3.3V       |
| 27  | I2C2_SDA_3V3        | PWM5_M0                            | GPIO0_C3_d  | 3.3V       |
| 28  | I2C2_SCL_3V3        | PWM4_M0                            | GPIO0_C2_d  | 3.3V       |
| 29  | USB_HOST_DP         |                                    |             | 1.8V       |
| 30  | USB_HOST_DM         |                                    |             | 1.8V       |
| 31  | GND                 | Ground                             |             | 0V         |
| 32  | OTG_DP              | Can use for download               |             | 1.8V       |
| 33  | OTG_DM              | Can use for download               |             | 1.8V       |
| 34  | OTG_DET_1V8         | OTG VBUS DET IN                    |             | 1.8V       |
| 35  | OTG_ID              |                                    |             | 1.8V       |
| 36  | SPI0_CS1n_M1        | I2S1_MCK_M1/UART4_TX_M2            | GPIO1_D5_d  | 1.8V       |
| 37  | VCC3V3_SYS          | 3.3V Main Power input              |             | 3.3V       |
| 38  | VCC3V3_SYS          | 3.3V Main Power input              |             | 3.3V       |
| 39  | USB_CTRL_3V3        | Must be use for OTG compatible     | GPIO0_C1_d  | 3.3V       |
| 40  | SDMMC0_DET          | Must be used for SD Card           | GPIO0_A3_u  | 1.8V       |
| 41  | CLKO_32K            | RTC clock output                   | GPIO0_A2_u  | 1.8V       |
| 42  | nRESET              | Reset key input                    |             | 1.8V       |
| 43  | MIPI_CSI_RX0_CL KP  | MIPI CSI0 or LVDS0 input           |             | 1.8V       |
| 44  | MIPI_CSI_RX0_CL KN  | MIPI CSI0 or LVDS0 input           |             | 1.8V       |
| 45  | MIPI_CSI_RX0_D2 P   | MIPI CSI0 or LVDS0 input           |             | 1.8V       |
| 46  | MIPI_CSI_RX0_D2 N   | MIPI CSI0 or LVDS0 input           |             | 1.8V       |
| 47  | MIPI_CSI_RX0_D3 P   | MIPI CSI0 or LVDS0 input           |             | 1.8V       |
| 48  | MIPI_CSI_RX0_D3 N   | MIPI CSI0 or LVDS0 input           |             | 1.8V       |
| 49  | MIPI_CSI_RX0_D1 P   | MIPI CSI0 or LVDS0 input           |             | 1.8V       |
| 50  | MIPI_CSI_RX0_D1 N   | MIPI CSI0 or LVDS0 input           |             | 1.8V       |
| 51  | MIPI_CSI_RX0_D0 P   | MIPI CSI0 or LVDS0 input           |             | 1.8V       |



| Pin | Signal                | Description or functions | GPIO serial | IO Voltage |
|-----|-----------------------|--------------------------|-------------|------------|
| 52  | MIPI_CSI_RX0_D0<br>N  | MIPI CSI0 or LVDS0 input |             | 1.8V       |
| 53  | GND                   | Ground                   |             | 0V         |
| 54  | MIPI_CSI_RX1_D3<br>P  | MIPI CSI1 or LVDS1 input |             | 1.8V       |
| 55  | MIPI_CSI_RX1_D3<br>N  | MIPI CSI1 or LVDS1 input |             | 1.8V       |
| 56  | MIPI_CSI_RX1_CL<br>KP | MIPI CSI1 or LVDS1 input |             | 1.8V       |
| 57  | MIPI_CSI_RX1_CL<br>KN | MIPI CSI1 or LVDS1 input |             | 1.8V       |
| 58  | MIPI_CSI_RX1_D2<br>P  | MIPI CSI1 or LVDS1 input |             | 1.8V       |
| 59  | MIPI_CSI_RX1_D2<br>N  | MIPI CSI1 or LVDS1 input |             | 1.8V       |
| 60  | MIPI_CSI_RX1_D1<br>P  | MIPI CSI1 or LVDS1 input |             | 1.8V       |
| 61  | MIPI_CSI_RX1_D1<br>N  | MIPI CSI1 or LVDS1 input |             | 1.8V       |
| 62  | MIPI_CSI_RX1_D0<br>P  | MIPI CSI1 or LVDS1 input |             | 1.8V       |
| 63  | MIPI_CSI_RX1_D0<br>N  | MIPI CSI1 or LVDS1 input |             | 1.8V       |
| 64  | SDMMC0_D3_3V3         | UART3_TX_M1              | GPIO1_A7_u  | 3.3V       |
| 65  | SDMMC0_D2_3V3         | UART3_RX_M1              | GPIO1_A6_u  | 3.3V       |
| 66  | SDMMC0_D1_3V3         | UART2_TX_M0              | GPIO1_A5_u  | 3.3V       |
| 67  | SDMMC0_D0_3V3         | UART2_RX_M0              | GPIO1_A4_u  | 3.3V       |
| 68  | SDMMC0_CMD_3V3        | UART3_CTSn_M1            | GPIO1_B1_u  | 3.3V       |
| 69  | SDMMC0_CLK_3V3        | UART3_RTSn_M1            | GPIO1_B0_u  | 3.3V       |
| 70  | GND                   | Ground                   |             | 0V         |
| 71  | LED1/CFG_LDO0         | Ethernet LINK LED        |             | 3.3V       |
| 72  | LED2/CFG_LDO1         | Ethernet SPEED LED       |             | 3.3V       |
| 73  | MDI0+                 | Ethernet MDI signal      |             | 1.8V       |
| 74  | MDI0-                 | Ethernet MDI signal      |             | 1.8V       |
| 75  | MDI1+                 | Ethernet MDI signal      |             | 1.8V       |
| 76  | MDI1-                 | Ethernet MDI signal      |             | 1.8V       |
| 77  | MDI2+                 | Ethernet MDI signal      |             | 1.8V       |
| 78  | MDI2-                 | Ethernet MDI signal      |             | 1.8V       |
| 79  | MDI3+                 | Ethernet MDI signal      |             | 1.8V       |
| 80  | MDI3-                 | Ethernet MDI signal      |             | 1.8V       |
| 81  | I2C1_SCL              | UART4_CTSn_M2            | GPIO1_D3_u  | 1.8V       |

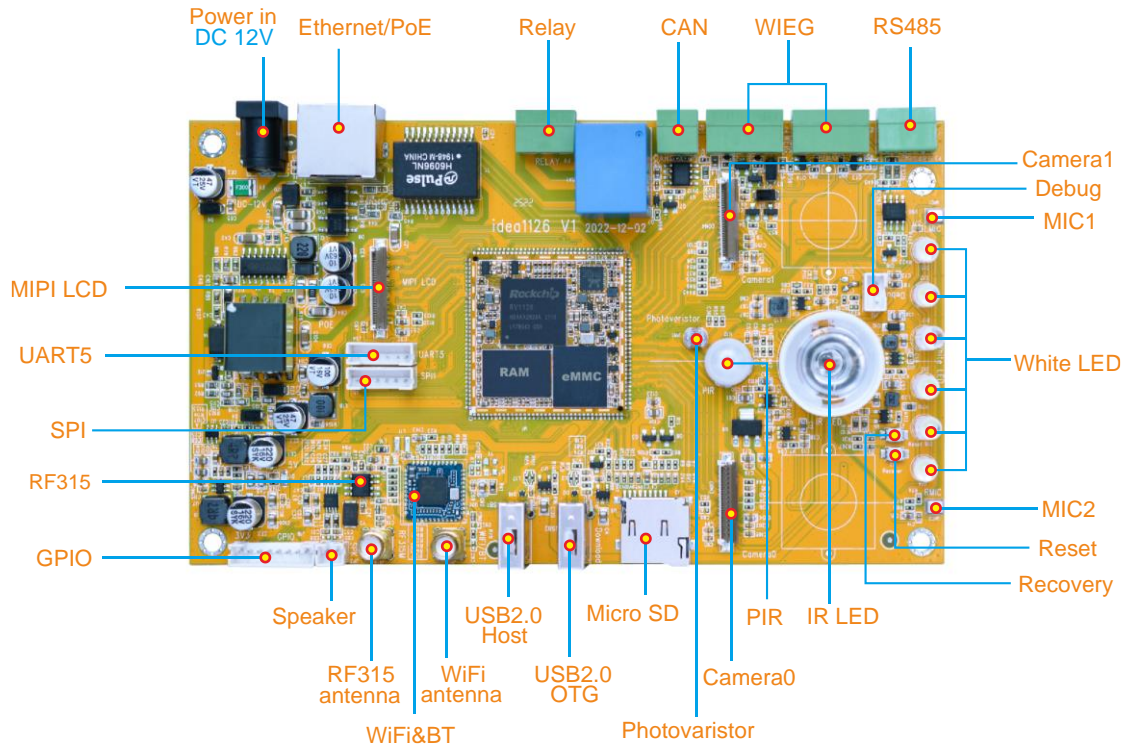


| Pin | Signal         | Description or functions             | GPIO serial | IO Voltage |
|-----|----------------|--------------------------------------|-------------|------------|
| 82  | I2C1_SDA       | UART4_RTSn_M2                        | GPIO1_D2_u  | 1.8V       |
| 83  | MIPI_CSI_PWDN0 | UART4_RX_M2                          | GPIO1_D4_d  | 1.8V       |
| 84  | SPI0_CLK_M1    | I2S1_SDO_M1/UART5_RX_M2              | GPIO2_A1_d  | 1.8V       |
| 85  | SPI0_MOSI_M1   | I2S1_SCK_M1/I2C3_SCL_M2              | GPIO1_D6_d  | 1.8V       |
| 86  | SPI0_CS0n_M1   | I2S1_SDI_M1/UART5_TX_M2              | GPIO2_A0_d  | 1.8V       |
| 87  | SPI0_MISO_M1   | I2S1_LRCK_M1/I2C3_SDA_M2             | GPIO1_D7_d  | 1.8V       |
| 88  | MIPI_CSI_CLK1  | UART5_RTSn_M2                        | GPIO2_A2_d  | 1.8V       |
| 89  | MIPI_CSI_CLK0  | UART5_CTSn_M2                        | GPIO2_A3_d  | 1.8V       |
| 90  | GND            | Ground                               |             | 0V         |
| 91  | LCDC_D0_3V3    | UART4_RTSn_M1/CIF_D0_M1              | GPIO2_A4_d  | 3.3V       |
| 92  | LCDC_D1_3V3    | UART4_CTSn_M1/CIF_D1_M1              | GPIO2_A5_d  | 3.3V       |
| 93  | LCDC_D2_3V3    | UART4_TX_M1/CIF_D2_M1                | GPIO2_A6_d  | 3.3V       |
| 94  | LCDC_D3_3V3    | UART4_RX_M1/I2S2_SDO_M1              | GPIO2_A7_d  | 3.3V       |
| 95  | LCDC_D4_3V3    | UART5_TX_M1/I2S2_SDI_M1              | GPIO2_B0_d  | 3.3V       |
| 96  | LCDC_D5_3V3    | UART5_RX_M1/I2S2_SCK_M1              | GPIO2_B1_d  | 3.3V       |
| 97  | LCDC_D6_3V3    | UART5_RTSn_M1/I2S2_LRCK_M1           | GPIO2_B2_d  | 3.3V       |
| 98  | LCDC_D7_3V3    | UART5_CTSn_M1/I2S2_MCLK_M1/CIF_D3_M1 | GPIO2_B3_d  | 3.3V       |
| 99  | CAN_RX_3V3     | UART3_TX_M2/I2C4_SCL_M0              | GPIO3_A0_u  | 3.3V       |
| 100 | CAN_TX_3V3     | UART3_RX_M2/I2C4_SDA_M0              | GPIO3_A1_u  | 3.3V       |
| 101 | LCDC_CLK_3V3   | UART3_CTSn_M2/SPI1_MISO_M2/PWM8_M1   | GPIO2_D7_d  | 3.3V       |
| 102 | LCDC_VSYNC_3V3 | UART3_RTSn_M2/SPI1_MOSI              | GPIO2_D6_d  | 3.3V       |
| 103 | MIPI_DSI_D2P   |                                      |             | 1.8V       |
| 104 | MIPI_DSI_D2N   |                                      |             | 1.8V       |
| 105 | MIPI_DSI_D1P   |                                      |             | 1.8V       |
| 106 | MIPI_DSI_D1N   |                                      |             | 1.8V       |
| 107 | MIPI_DSI_D0P   |                                      |             | 1.8V       |
| 108 | MIPI_DSI_D0N   |                                      |             | 1.8V       |
| 109 | MIPI_DSI_D3P   |                                      |             | 1.8V       |
| 110 | MIPI_DSI_D3N   |                                      |             | 1.8V       |
| 111 | MIPI_DSI_CLKP  |                                      |             | 1.8V       |
| 112 | MIPI_DSI_CLKN  |                                      |             | 1.8V       |
| 113 | ADCIN3         | ADC input                            |             | 1.8V       |
| 114 | ADCIN2         | ADC input                            |             | 1.8V       |
| 115 | ADCIN1         | ADC input                            |             | 1.8V       |
| 116 | ADKEY_IN0      | Recovery mode set(10K PU)            |             | 1.8V       |
| 117 | GND            | Ground                               |             | 0V         |
| 118 | SDIO_CLK       |                                      | GPIO1_B2_d  | 1.8V       |
| 119 | SDIO_CMD       |                                      | GPIO1_B3_u  | 1.8V       |



| Pin   | Signal         | Description or functions  | GPIO serial | IO Voltage |
|---|----------------|---|-------------|------------|
| 120   | SDIO_D0        |   | GPIO1_B4_u  | 1.8V       |
| 121   | SDIO_D1        |   | GPIO1_B5_u  | 1.8V       |
| 122   | SDIO_D2        |   | GPIO1_B6_u  | 1.8V       |
| 123   | SDIO_D3        |   | GPIO1_B7_u  | 1.8V       |
| 124   | UART0_RX       |   | GPIO1_C2_u  | 1.8V       |
| 125   | UART0_TX       |   | GPIO1_C3_u  | 1.8V       |
| 126   | UART0_CTSN     |   | GPIO1_C1_u  | 1.8V       |
| 127   | UART0_RTSN     |   | GPIO1_C0_u  | 1.8V       |
| 128   | PCM_TX         | I2S2_SDO_M0/SPI1_MOSI_M1  | GPIO1_C4_d  | 1.8V       |
| 129   | PCM_SYNC       | I2S2_LRCK_M0/SPI1_CS <sub>n</sub> 0_M1/UART1_CTS <sub>n</sub> _M1 | GPIO1_C7_d  | 1.8V       |
| 130   | PCM_CLK        | I2S2_SCLK_M0/SPI1_CLK_M1/UART1_RTS <sub>n</sub> _M1               | GPIO1_C6_d  | 1.8V       |
| 131   | PCM_RX         | I2S2_SDI_M0/SPI1_MISO_M1  | GPIO1_C5_d  | 1.8V       |
| 132   | LCDC_D15_3V3   | CIF_D11_M1  | GPIO2_C3_d  | 3.3V       |
| 133   | LCDC_D14_3V3   | CIF_D10_M1  | GPIO2_C2_d  | 3.3V       |
| 134   | LCDC_D13_3V3   | CIF_D9_M1   | GPIO2_C1_d  | 3.3V       |
| 135   | LCDC_D12_3V3   | CIF_D8_M1   | GPIO2_C0_d  | 3.3V       |
| 136   | LCDC_DEN_3V3   | I2C3_SCL_M1/SPI1_CS <sub>n</sub> 0_M2                             | GPIO2_D4_d  | 3.3V       |
| 137   | LCDC_D10_3V3   | CIF_D6_M1   | GPIO2_B6_d  | 3.3V       |
| 138   | LCDC_D9_3V3    | CIF_D5_M1   | GPIO2_B5_d  | 3.3V       |
| 139   | LCDC_D8_3V3    | CIF_D4_M1   | GPIO2_B4_d  | 3.3V       |
| 140   | LCDC_D11_3V3   | CIF_D7_M1   | GPIO2_B7_d  | 3.3V       |
| 141   | LCDC_HSYNC_3V3 | I2C3_SDA_M1/SPI1_CLK_M2   | GPIO2_D5_d  | 3.3V       |
| 142   | LCDC_D16_3V3   | CIF_D12_M1  | GPIO2_C4_d  | 3.3V       |
| 143   | LCDC_D17_3V3   | CIF_D13_M1  | GPIO2_C5_d  | 3.3V       |
| 144   | LCDC_D18_3V3   | CIF_D14_M1  | GPIO2_C6_d  | 3.3V       |
| <p><b>Note:</b></p> <ol style="list-style-type: none"> <li>1. Most GPIO voltage is 1.8V, but some pins marked 3.3V.</li> <li>2. Pin39 OTG compatible circuit refer as 2.1.3.</li> </ol> |                |   |             |            |

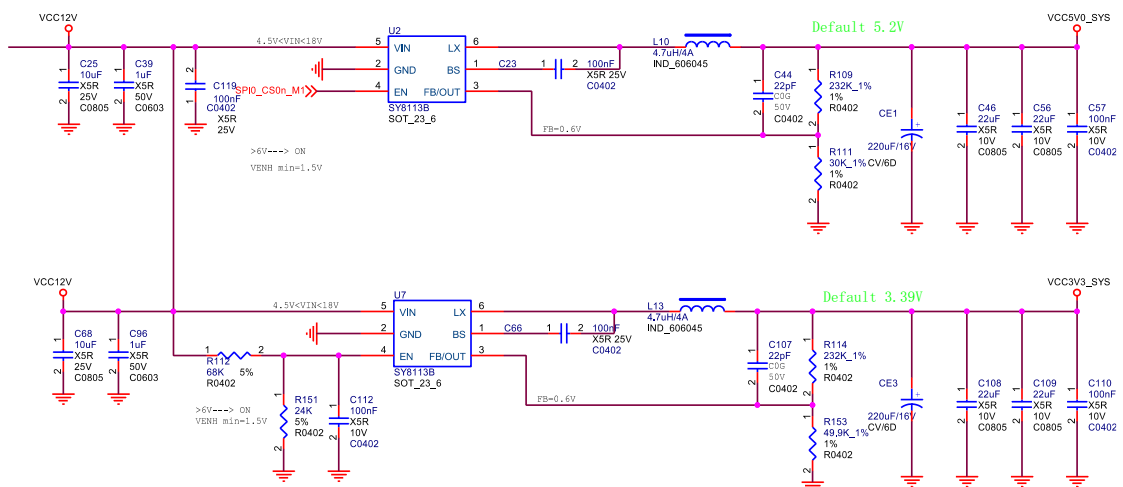
## 1.7 Development Kit (idea1126)



# 2 Hardware Design Guide

## 2.1 Peripheral Circuit Reference

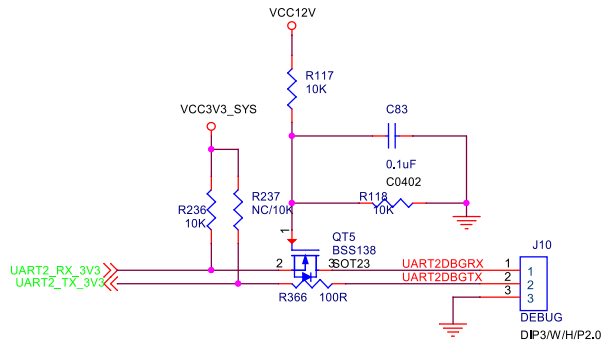
### 2.1.1 Main Power Circuit



$$V_{out} = 0.6 * (1 + R_{114} / R_{153})$$

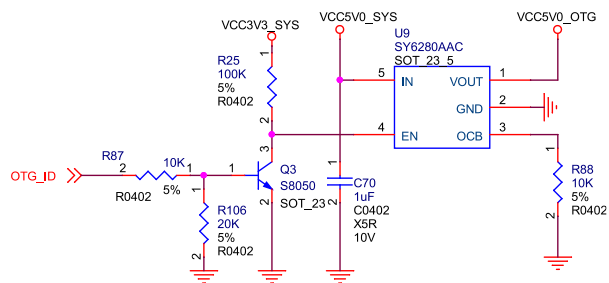
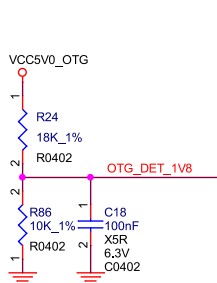
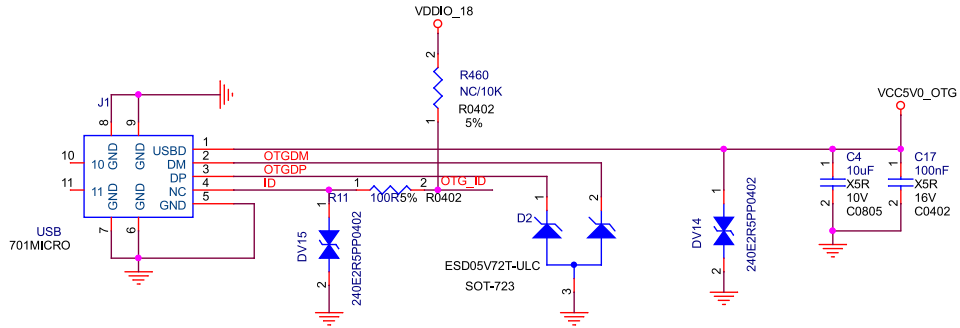
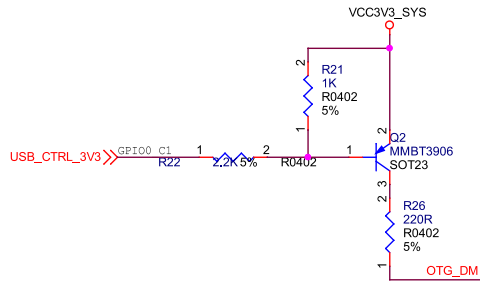


### 2.1.2 Debug Circuit



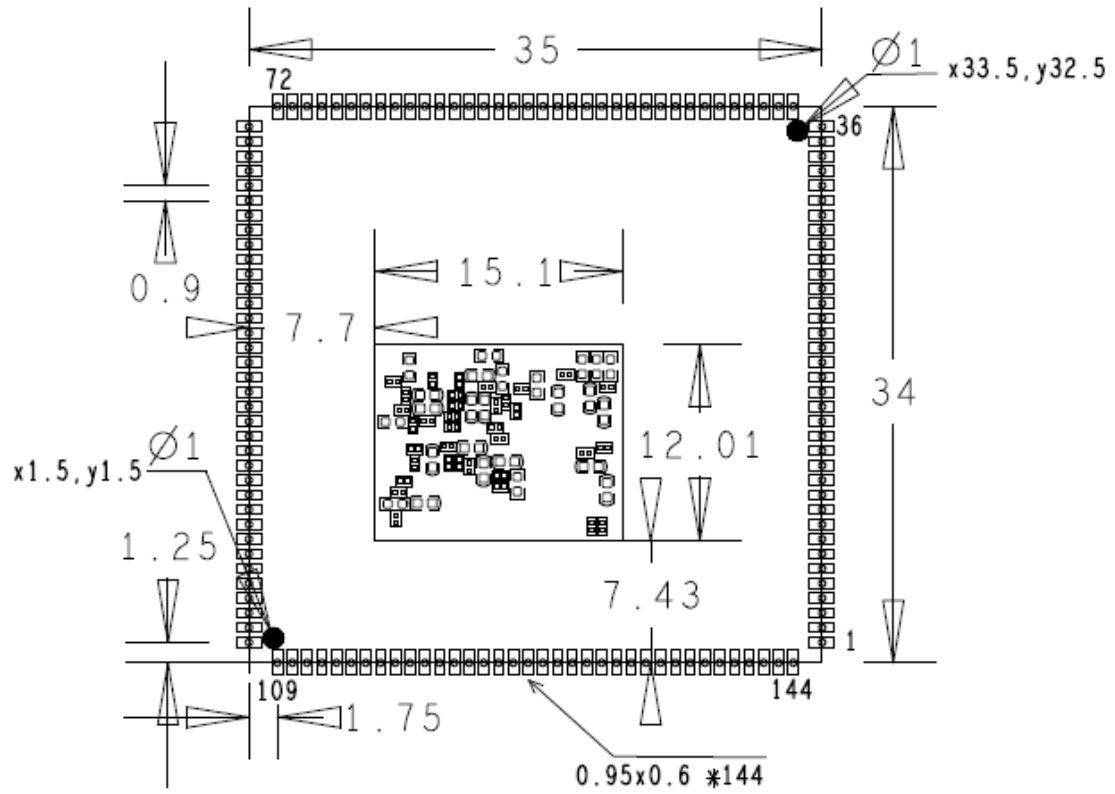
### 2.1.3 USB OTG Interface Circuit

This circuit is used to improve usb compatibility.  
 Note:  
 These components are close to R20 to avoid long branches.





## 2.2 PCB Footprint





## 3 Product Electrical Characteristics

### 3.1 Dissipation and Temperature

| Symbol              | Parameter                | Min    | Typ | Max    | Unit |
|---------------------|--------------------------|--------|-----|--------|------|
| VCC3V3_SYS          | System IO Voltage        | 3.3-5% | 3.3 | 3.3+5% | V    |
| I <sub>sys_in</sub> | VCC3V3_SYS input Current |        | 850 |        | mA   |
| T <sub>a</sub>      | Operating Temperature    | -20    |     | 70     | °C   |
| T <sub>stg</sub>    | Storage Temperature      | -40    |     | 85     | °C   |

### 3.2 Reliability of Test

| High Temperature Operating Test |                                  |            |
|---------------------------------|----------------------------------|------------|
| Contents                        | Operating 8h in high temperature | 55°C ± 2°C |
| Result                          | TBD                              |            |

| Operating Life Test |                   |      |
|---------------------|-------------------|------|
| Contents            | Operating in room | 120h |
| Result              | TBD               |      |