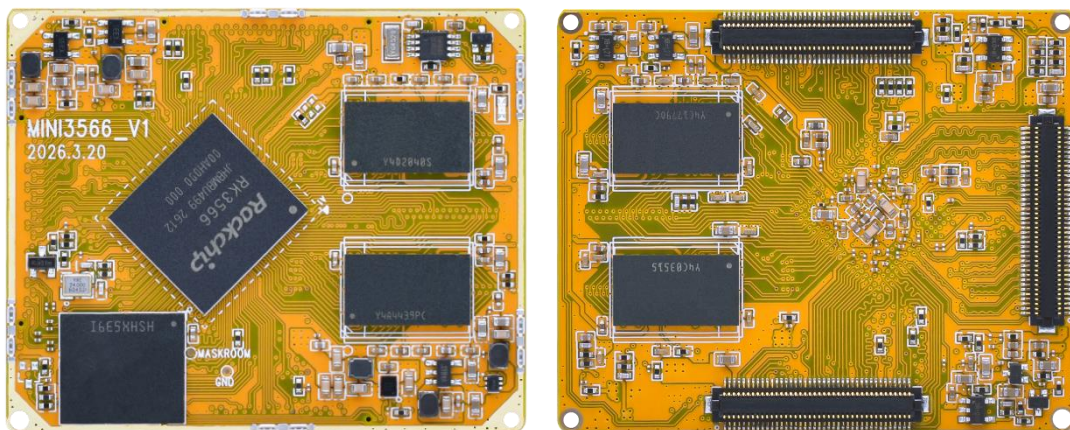


MINI3566 Reference User Manual

V1.20260915



Boardcon Embedded Design

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 , 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.

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 lighting 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 MINI3566 Introduction

1.1 Summary

The MINI3566 system-on-module is equipped with Rockchip's RK3566, which features a quad-core Cortex-A55 CPU, a Mali-G52 GPU, and an NPU with 1 TOPS.

It is designed specifically for AI devices such as industrial controllers, IoT devices, intelligent interactive devices, personal computers, and robots. This high-performance, low-power solution can help customers introduce new technologies more quickly and improve the overall efficiency of their solutions.

1.2 Features

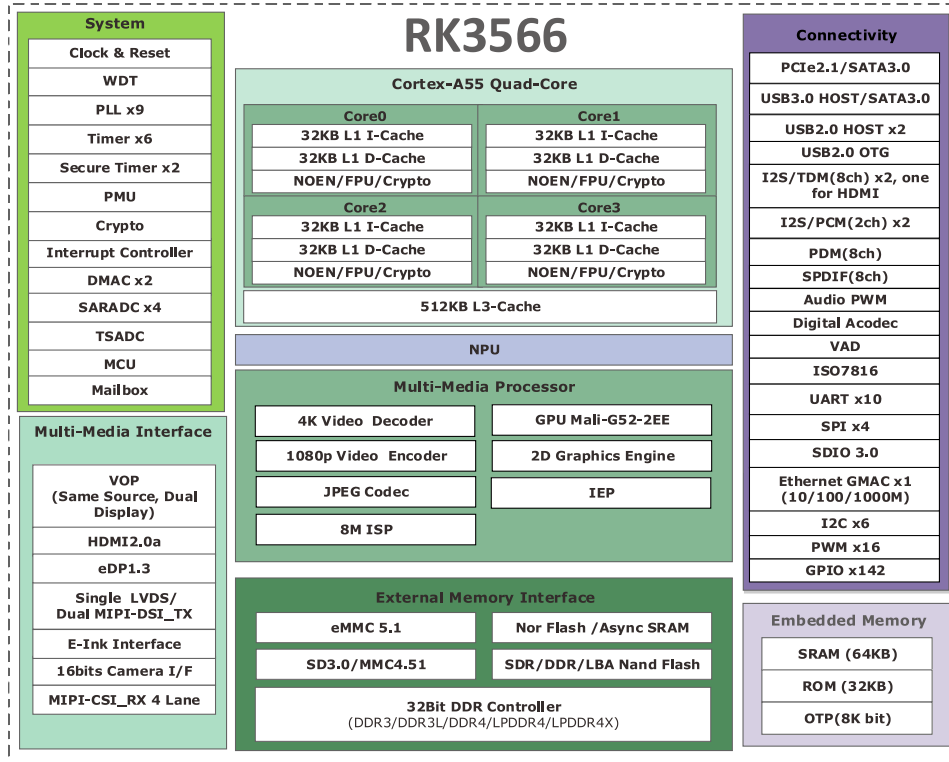
- **Microprocessor**
 - Quad-core Cortex-A55 up to 1.8G
 - 32KB I-cache and 32KB D-cache for each core, 512KB L3 cache
 - 1 TOPS Neural Process Unit
 - Mali-G52 up to 0.8G
- **Memory Organization**
 - DDR3 or DDR3L RAM up to 4GB
 - EMMC up to 128GB
- **Boot ROM**
 - Supports system code download through USB OTG or SD
- **Trust Execution Environment system**
 - Supports secure OTP and multiple cipher engine
- **Video Decoder/Encoder**
 - Supports video decoding up to 4K@50fps
 - Supports H.264 encode
 - H.264 HP encoding up to 1080p@100fps
 - Picture size up to 8192x8192
- **Display Subsystem**
 - **Video Output**
 - Supports HDMI 2.0 transmitter with HDCP 1.4/2.2, up to 4K@50fps
 - Supports 4 lanes MIPI DSI up to 2560x1440@60Hz
 - Or LVDS interface up to 1920x1080@60Hz
 - Supports 4 lanes MIPI DSI, up to 2560x1600@60HZ for dual-MIPI mode
 - Supports ePD1.3 interface up to 2560x1600@60fps
 - Supports BT-656 8bit output
 - **Image in**
 - Supports up to 16bit DVP interface
 - Supports MIPI CSI 4lanes interface
 - Or 2ch MIPI CSI 2lanes interfaces
- **I2S/PCM/ AC97**



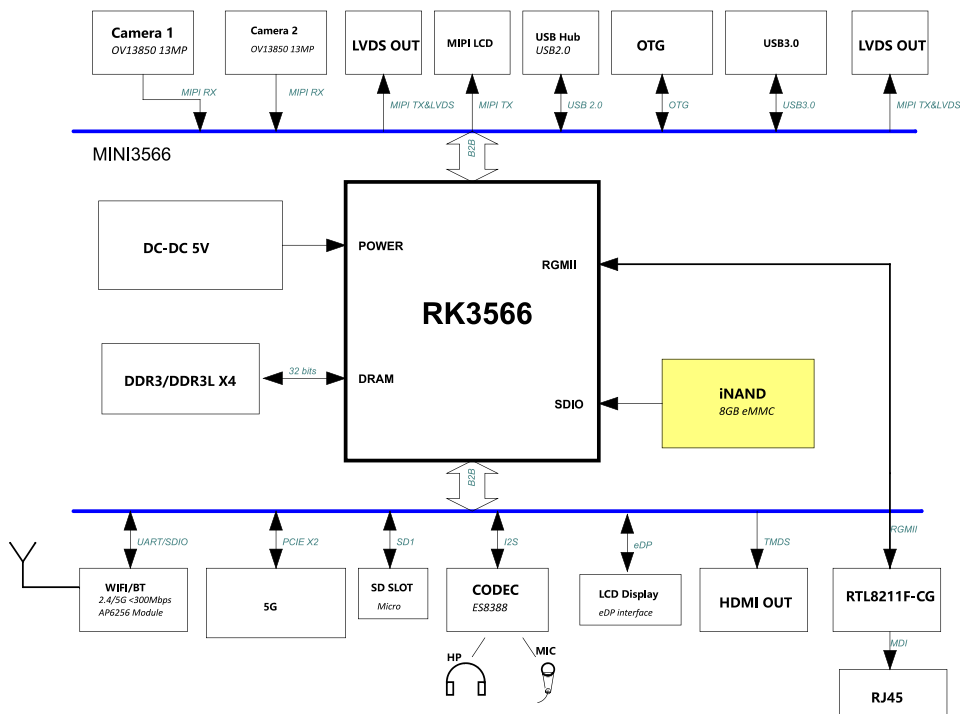
- Three I2S/PCM interface
- Support Mic array Up to 8ch PDM/TDM interface
- One SPDIF output
- **USB and PCIE**
 - Three 2.0 USB interfaces
 - One USB 2.0 OTG, and two 2.0 USB hosts
 - One USB 3.0 host or SATA interface.
 - One 1lane PCIE or SATA interface.
- **Ethernet**
 - GMAC/EMAC
 - Support 10/100/1000Mbit/s data transfer rates
 - Support MII/RMII/RGMII PHY interface
- **I2C**
 - Up to Four I2C
 - Support standard mode and fast mode (up to 400kbit/s)
- **SDIO**
 - Support SDIO 3.0 protocol
- **SPI**
 - Up to four SPI controllers,
 - Full-duplex synchronous serial interface
- **UART**
 - Support up to 9 UARTs
 - UART2 with 2 wires for debug tools
 - Embedded two 64byte FIFO
 - Support auto flow control mode for UART1, UART3-9
- **SATA**
 - Two SATA host controller
 - Support SATA 1.5Gb/s, 3.0Gb/s and SATA 6.0Gb/s
- **ADC**
 - Up to four ADC channels
 - 10-bit resolution
 - Voltage input range between 0V to 1.8V
 - Support up to 1MS/s sampling rate
- **PWM**
 - 14 on-chip PWMs with interrupt-based operation
 - Support 32bit time/counter facility
 - IR option on PWM3/7/11/15
- **Power unit**
 - Discrete Power on board
 - Single 5.0V input
 - Very low RTC consume current, less 5uA at 3V button Cell

1.3 MINI3566 Block Diagram

1.3.1 RK3566 Block Diagram



1.3.2 Development Board (SBC3566) Block Diagram



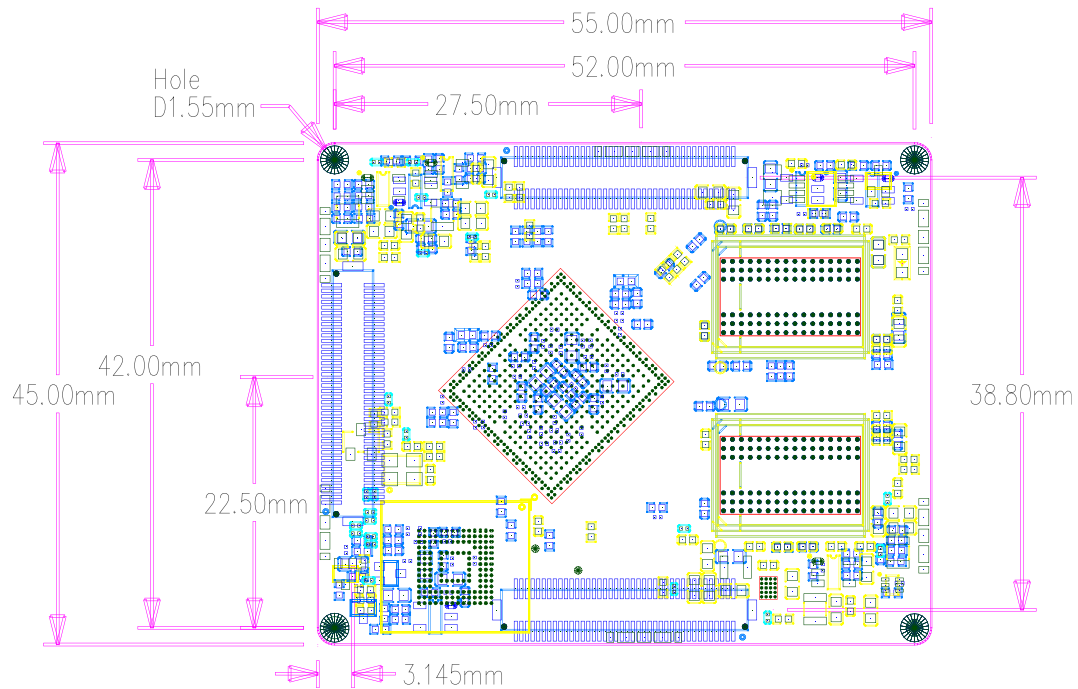


1.4 MINI3566 Specifications

Feature	Specifications
CPU	Quad-core Cortex-A55
DDR	2GB DDR3 (up to 8GB)
eMMC FLASH	8GB (up to 128GB)
Power	DC 5V
LVDS/MIPI DSI	4-Lane
MIPI DSI	4-Lane
EDP	4-Lane
I2S	3-CH
MIPI CSI	4-Lane or 2-CH 2-Lane
SATA	2-CH
HDMI out	1-CH
Camera	1-CH(DVP) and 2-CH(CSI)
USB	2-CH (USB HOST2.0), 1-CH (OTG 2.0) and 1-CH (USB 3.0)
Ethernet	10/100/1000M MAC(RGMII)
SDMMC	2-CH
SPDIF TX	1-CH
I2C	4-CH
SPI	4-CH
UART	8-CH, 1-CH(DEBUG)
PWM	14-CH
ADC IN	4-CH
Board Dimension	55 x 45mm



1.5 MINI3566 PCB Dimension



1.6 MINI3566 Pin Definition

J1	Signal	Description or functions	GPIO serial	IO Voltage
1	GMAC1_TXD3_M0	I2S3_SCLK_M0/SDMMC2_D2_M1	GPIO3_A3_d	3.3V
2	GPIO3_A1	SPI1_CS0_M1/SDMMC2_D0_M1	GPIO3_A1_d	3.3V
3	GMAC1_TXD2_M0	I2S3_MCLK_M0/SDMMC2_D1_M1	GPIO3_A2_d	3.3V
4	GMAC1_TXD0_M0	I2C3_SCL_M1/PWM10_M0	GPIO3_B5_d	3.3V
5	GMAC1_RXD2_M0	I2S3_LRCK_M0/SDMMC2_D3_M1	GPIO3_A4_d	3.3V
6	GMAC1_TXCLK_M0	I2S3_SDI_M0/SDMMC2_CLK_M1	GPIO3_A6_d	3.3V
7	GMAC1_RXD3_M0	I2S3_SDO_M0/SDMMC2_CMD_M1	GPIO3_A5_d	3.3V
8	GMAC1_TXEN_M0	UART3_TX_M1/PDM_SDI2_M2/PWM12_M0	GPIO3_B7_d	3.3V
9	GMAC1_RXD0_M0	UART4_RX_M1/PWM8_M0	GPIO3_B1_d	3.3V
10	ETH1_REFCLK0_25_M_M0	SDMMC2_PWREN_M1	GPIO3_B0_d	3.3V
11	GMAC1_RXD1_M0	UART4_TX_M1/PWM9_M0	GPIO3_B2_d	3.3V
12	GMAC1_TXD1_M0	I2C3_SDA_M1/PWM11_IR_M0	GPIO3_B6_d	3.3V
13	GMAC1_RXDV_CRS	I2C5_SCL_M0/PDM_SDI0_M2	GPIO3_B3_d	3.3V



J1	Signal	Description or functions	GPIO serial	IO Voltage
	_M0			
14	GMAC1_RXCLK_M0	SDMMC2_DET_M1	GPIO3_A7_d	3.3V
15	GND	Ground		0V
16	GND	Ground		0V
17	GPIO3_C1	SPI1_MOSI_M1/PCIE20_PERSTn_M1/I2S1_SDO2_M2	GPIO3_C1_d	3.3V
18	GMAC1_MCLKINOUT_M0	PWM13_M0/UART3_RX_M1/PDM_SDI3_M2	GPIO3_C0_d	3.3V
19	UART5_TX_M1	SPI1_MISO_M1/I2S1_SDO3_M2	GPIO3_C2_d	3.3V
20	GND	Ground		0V
21	UART5_RX_M1	SPI1_CLK_M1/I2S1_SCLK_RX_M2	GPIO3_C3_d	3.3V
22	GPIO3_B4	I2C5_SDA_M0/GMAC1_RXER_M0/PDM_SDI1_M2	GPIO3_B4	3.3V
23	SPI0_CLK_M0	PWM1_M1/I2C2_SCL_M0/PCIE20_WAKEn_M0	GPIO0_B5_u	3.3V
24	CIF_8BIT_D1	GMAC1_TXD3_M1/UART1_RX_M1/PDM_SDI0_M1	GPIO3_D7_d	1.8V
25	SPI0_MISO_M0	PWM6	GPIO0_C5_d	3.3V
26	CIF_8BIT_D0	GMAC1_TXD2_M1/UART1_TX_M1/PDM_CLK0_M1	GPIO3_D6_d	1.8V
27	SPI0_CS0_M0	PWM7_IR	GPIO0_C6_d	3.3V
28	CIF_8BIT_D2	GMAC1_TXCLK_M1/PDM_CLK1_M1	GPIO4_A0_d	1.8V
29	SPI0_MOSI_M0	PWM2_M1/I2C2_SDA_M0/PCIE20_PERSTn_M0	GPIO0_B6_u	3.3V
30	CIF_8BIT_D7	GMAC1_TXD1_M1/UART9_RX_M2/I2S2_LRCK_RX_M1	GPIO4_A5_d	1.8V
31	PWM0_M0		GPIO0_B7_d	3.3V
32	CIF_8BIT_D5	GMAC1_RXCLK_M1/UART7_RX_M2/PDM_SDI3_M1	GPIO4_A3_d	1.8V
33	SPI3_MOSI_M1	PWM15_IR_M1/I2S3_SCLK_M1	GPIO4_C3_d	3.3V
34	CIF_8BIT_D4	GMAC1_RXD3_M1/UART7_TX_M2/PDM_SDI2_M1	GPIO4_A2_d	1.8V
35	SPI3_CLK_M1	PWM14_M1/I2S3_MCLK_M1	GPIO4_C2_d	3.3V
36	CIF_8BIT_D3	GMAC1_RXD2_M1/PDM_SDI1_M1	GPIO4_A1_d	1.8V
37	SPI3_MISO_M1	PWM12_M1/SATA1_ACT_LED/UART9_TX_M1/I2S3_SDO_M1	GPIO4_C5_d	3.3V
38	CIF_8BIT_D6	GMAC1_TXD0_M1/UART9_TX_M2/I2S2_LRCK_TX_M1	GPIO4_A4_d	1.8V
39	SPI3_CS0_M1	PWM13_M1/SATA0_ACT_LED/U	GPIO4_C6_d	3.3V



J1	Signal	Description or functions	GPIO serial	IO Voltage
		ART9_RX_M1/I2S3_SDI_M1		
40	CIF_8BIT_VSYNC	GMAC1_MDIO_M1/I2S2_SCLK_TX_M1	GPIO4_B7_d	1.8V
41	VOP_BT656_D1_M1	CIF_D1/SDMMC2_D1_M0/I2S1_SCLK_TX_M1	GPIO3_C7_d	1.8V
42	CIF_8BIT_CLKIN	GMAC1_MCLKINOUT_M1/UART1_CTSn_M1/I2S2_SCLK_RX_M1	GPIO4_C1_d	1.8V
43	VOP_BT656_D0_M1	CIF_D0/SDMMC2_D0_M0/I2S1_MCLK_M1	GPIO3_C6_d	1.8V
44	GND	Ground		0V
45	VOP_BT656_D2_M1	CIF_D2/SDMMC2_D2_M0/I2S1_LRCK_TX_M1	GPIO3_D0_d	1.8V
46	CIF_CLKOUT	PWM11_IR_M1	GPIO4_C0_d	1.8V
47	VOP_BT656_D3_M1	CIF_D3/SDMMC2_D3_M0/I2S1_SDO0_M1	GPIO3_D1_d	1.8V
48	GND	Ground		0V
49	VOP_BT656_D4_M1	CIF_D4/SDMMC2_CMD_M0/I2S1_SDI0_M1	GPIO3_D2_d	1.8V
50	GMAC1_MDC_M0	PWM14_M0/VOP_PWM_M1/UART7_TX_M1/PDM_CLK1_M2	GPIO3_C4_d	3.3V
51	VOP_BT656_D5_M1	CIF_D5/SDMMC2_CLK_M0/I2S1_SDI1_M1	GPIO3_D3_d	1.8V
52	GPIO4_A7_d_1V8	CAM_CLKOUT0/GMAC1_RXD0_M1/SPI3_CS1_M0/I2S1_LRCK_RX_M1	GPIO4_A7_d	1.8V
53	GPIO4_A6_d_1V8	GMAC1_TXEN_M1/SPI3_CS0_M0/I2S1_SCLK_RX_M1	GPIO4_A6_d	1.8V
54	GMAC1_MDIO_M0	PWM15_IR_M0/SPDIF_TX_M1/UART7_RX_M1/I2S1_LRCK_RX_M2	GPIO3_C5_d	3.3V
55	VOP_BT656_D7_M1	CIF_D7/SDMMC2_PWREN_M0/I2S1_SDI3_M1	GPIO3_D5_d	1.8V
56	GPIO4_B0_d_1V8	CAM_CLKOUT1/GMAC1_RXD1_M1/SPI3_MISO_M0/I2S1_SDO1_M1	GPIO4_B0_d	1.8V
57	VOP_BT656_D6_M1	CIF_D6/SDMMC2_DET_M0/I2S1_SDI2_M1	GPIO3_D4_d	1.8V
58	CIF_8BIT_HREF	GMAC1_MDC_M1/UART1_RTSn_M1/I2S2_MCLK_M1	GPIO4_B6_d	1.8V
59	VOP_BT656_CLK_M1	I2C2_SDA_M1	GPIO4_B4_d	1.8V
60	GND	Ground		0V



J1	Signal	Description or functions	GPIO serial	IO Voltage
61	GPIO4_B1_d_1V8	GMAC1_RXDV_CRS_M1/I2S1_SDO2_M1	GPIO4_B1_d	1.8V
62	USB2_HOST3_DP	HOST3_DP		0.5V
63	I2C4_SDA_M0_1V8	GMAC1_RXER_M1/SPI3_MOSI_M0/I2S2_SDI_M1/I2C4_SDA_M0(PU 2.2K onboard)	GPIO4_B2_d	1.8V
64	USB2_HOST3_DM	HOST3_DM		0.5V
65	I2C4_SCL_M0_1V8	ETH1_REFCLKO_25M_M1/SPI3_CLK_M0/I2S2_SDO_M1/I2C4_SCL_M0(PU 2.2K onboard)	GPIO4_B3_d	1.8V
66	USB2_HOST2_DP	HOST2_DP		0.5V
67	GPIO4_B5_d_1V8	I2C2_SCL_M1/I2S1_SDO3_M1	GPIO4_B5_d	1.8V
68	USB2_HOST2_DM	HOST2_DM		0.5V
69	VCC_RTC	RTC button Cell Power input		3V
70	GND	Ground		0V
71	VCC_3V3	3.3V OUT(MAX:100MA)		3.3V
72	VCC_1V8	1.8V OUT(MAX:100MA)		1.8V
73	PMIC_32KOUT_SOC	32.768khz output (PU 10K)		3.3V
74	GND	Ground		0V
75	GND	Ground		0V
76	GND	Ground		0V
77	VCC5V_SYS	5V Main Power input		5V
78	VCC5V_SYS	5V Main Power input		5V
79	VCC5V_SYS	5V Main Power input		5V
80	VCC5V_SYS	5V Main Power input		5V
Note: RGMII defaults to 3.3V, but can be configured to 1.8V.				

J2	Signal	Description or functions	GPIO serial	IO Voltage
1	EDP_TX_D0P			1.8V
2	USB_OTG0_VBUSDET	USB OTG VBUS input		3.3V
3	EDP_TX_D0N			1.8V
4	USB_OTG0_ID	Pull up 200KR in core		1.8V
5	EDP_TX_D1P			1.8V
6	GND	Ground		0V
7	EDP_TX_D1N			1.8V
8	USB_OTG0_DP	USB_OTG0_DP		0.5V
9	EDP_TX_D2P			1.8V
10	USB_OTG0_DM	USB_OTG0_DM		0.5V
11	EDP_TX_D2N			1.8V



J2	Signal	Description or functions	GPIO serial	IO Voltage
12	USB3_HOST1_DM	HOST1_DM		0.5V
13	EDP_TX_D3N			1.8V
14	USB3_HOST1_DP	HOST1_DP		0.5V
15	EDP_TX_D3P			1.8V
16	USB3_HOST1_SSRX N	USB3.0 or SATA1 RXN		0.5V
17	EDP_TX_AUXN			1.8V
18	USB3_HOST1_SSRX P	USB3.0 or SATA1 RXP		0.5V
19	EDP_TX_AUXP			1.8V
20	USB3_HOST1_SSTX N	USB3.0 or SATA1 TXN		0.5V
21	GND	Ground		0V
22	USB3_HOST1_SSTX P	USB3.0 or SATA1 TXP		0.5V
23	RESETn	Reset signal OUT		3.3V
24	GND	Ground		0V
25	HDMITX_SCL	HDMITX_SCL(PU2.2K)/I2C5_SCL _ / M1	GPIO4_C7_u	3.3V
26	PCIE20_SATA2_TXP	PCIE or SATA2 TXP		1.8V
27	HDMITX_SDA	HDMITX_SDA(PU2.2K)/I2C5_SD A_ / M1	GPIO4_D0_u	3.3V
28	PCIE20_SATA2_TXN	PCIE or SATA2 TXP		1.8V
29	HDMITX_CEC_M0	SPI3_CS1_M1	GPIO4_D1_u	3.3V
30	PCIE20_SATA2_RXN	PCIE or SATA2 RXN		1.8V
31	GND	Ground		0V
32	PCIE20_SATA2_RXP	PCIE or SATA2 RXP		1.8V
33	HDMI_TX2P			1.8V
34	PCIE20_REFCLKN			1.8V
35	HDMI_TX2N			1.8V
36	PCIE20_REFCLKP			1.8V
37	HDMI_TX1P			1.8V
38	GND	Ground		0V
39	HDMI_TX1N			1.8V
40	UART2DBG_TX	UART2 for Debug	GPIO0_D1_u	3.3V
41	HDMI_TX0P			1.8V
42	UART2DBG_RX	UART2 for Debug	GPIO0_D0_u	3.3V
43	HDMI_TX0N			1.8V
44	HDMI_TX_HPDIN	HDMI HPD input		3.3V



J2	Signal	Description or functions	GPIO serial	IO Voltage
45	HDMI_TXCLKP			1.8V
46	GND	Ground		0V
47	HDMI_TXCLKN			1.8V
48	MIPI_DSI_TX0_CLK P/LVDS_TX0_CLKP	MIPI DSI or LVDS TX0_CLKP		1.8V
49	MIPI_DSI_TX1_D0P			1.8V
50	MIPI_DSI_TX0_CLK N/LVDS_TX0_CLKN	MIPI DSI or LVDS TX0_CLKN		1.8V
51	MIPI_DSI_TX1_D0N			1.8V
52	MIPI_DSI_TX0_D0P/ LVDS_TX0_D0P	MIPI DSI or LVDS TX0_D0P		1.8V
53	MIPI_DSI_TX1_D1P			1.8V
54	MIPI_DSI_TX0_D0N/ LVDS_TX0_D0N	MIPI DSI or LVDS TX0_D0N		1.8V
55	MIPI_DSI_TX1_D1N			1.8V
56	MIPI_DSI_TX0_D1P/ LVDS_TX0_D1P	MIPI DSI or LVDS TX0_D1P		1.8V
57	MIPI_DSI_TX1_D2P			1.8V
58	MIPI_DSI_TX0_D1N/ LVDS_TX0_D1N	MIPI DSI or LVDS TX0_D1N		1.8V
59	MIPI_DSI_TX1_D2N			1.8V
60	MIPI_DSI_TX0_D2P/ LVDS_TX0_D2P	MIPI DSI or LVDS TX0_D2P		1.8V
61	MIPI_DSI_TX1_D3P			1.8V
62	MIPI_DSI_TX0_D2N/ LVDS_TX0_D2N	MIPI DSI or LVDS TX0_D2N		1.8V
63	MIPI_DSI_TX1_D3N			1.8V
64	MIPI_DSI_TX0_D3P/ LVDS_TX0_D3P	MIPI DSI or LVDS TX0_D3P		1.8V
65	MIPI_CSI_RX_D0P	CSI0 RXD0P		1.8V
66	MIPI_DSI_TX0_D3N/ LVDS_TX0_D3N	MIPI DSI or LVDS TX0_D3N		1.8V
67	MIPI_CSI_RX_D0N	CSI0 RXD0N		1.8V
68	GND	Ground		0V
69	MIPI_CSI_RX_D1P	CSI0 RXD1P		1.8V
70	MIPI_DSI_TX1_CLK P			1.8V
71	MIPI_CSI_RX_D1N	CSI0 RXD1N		1.8V
72	MIPI_DSI_TX1_CLK N			1.8V
73	MIPI_CSI_RX_D2P	CSI0 RXD2P or CSI1 RXD0P		1.8V



J2	Signal	Description or functions	GPIO serial	IO Voltage
74	MIPI_CSI_RX_CLK0_P	MIPI CSI0 CLKP		1.8V
75	MIPI_CSI_RX_D2N	CSI0 RXD2N or CSI1 RXD0N		1.8V
76	MIPI_CSI_RX_CLK0_N	MIPI CSI0 CLKN		1.8V
77	MIPI_CSI_RX_D3P	CSI0 RXD3P or CSI1 RXD1P		1.8V
78	MIPI_CSI_RX_CLK1_N	MIPI CSI1 CLKN		1.8V
79	MIPI_CSI_RX_D3N	CSI0 RXD3N or CSI1 RXD1N		1.8V
80	MIPI_CSI_RX_CLK1_P	MIPI CSI1 CLKP		1.8V

J3	Signal	Description or functions	GPIO serial	IO Voltage
1	VCC5V_SYS	5V Main Power input		5V
2	VCC5V_SYS	5V Main Power input		5V
3	VCC5V_SYS	5V Main Power input		5V
4	VCC5V_SYS	5V Main Power input		5V
5	GND	Ground		0V
6	GND	Ground		0V
7	SARADC_VIN2_HP_HOOK	SARADC_VIN2		1.8V
8	SARADC_VIN1	SARADC_VIN1		1.8V
9	SARADC_VIN3	SARADC_VIN3		1.8V
10	SARADC_VIN0_KEY/RECOVERY	Pull up 10K_1% onboard		1.8V
11	GND	Ground		0V
12	GND	Ground		0V
13	SPDIF_TX_M2	I2S3_LRCK_M1/EDP_HPDI_N_M0/SATA2_ACTLED	GPIO4_C4_d	3.3V
14	I2S2_LRCK_TX_M0	UART9_RTSn_M0/SPI2_MOSI_M0	GPIO2_C3_d	1.8V
15	GPIO0_A3_u	GPIO0_A3_u	GPIO0_A3_u	3.3V
16	I2S2_SDI_M0	UART8_TX_M0/SPI2_CS1_M0	GPIO2_C5_d	1.8V
17	PWM5	SPI0_CS1_M0/UART0_RTSn	GPIO0_C4_d	3.3V
18	I2S2_SCLK_TX_M0	UART7_CTSn_M0/SPI2_MISO_M0	GPIO2_C2_d	1.8V
19	LCD_BL_PWM	PWM4/VOP_PWM_M0	GPIO0_C3_d	3.3V
20	I2S2_SDO_M0	UART9_CTSn_M0/SPI2_CS0_M0	GPIO2_C4_d	1.8V
21	LCD_PWREN_H	PWM0_M1/HDMI_CEC_M1/UART0_CTSn	GPIO0_C7_d	3.3V
22	GND	Ground		0V



J3	Signal	Description or functions	GPIO serial	IO Voltage
23	I2C1_SDA	Pull up 2.2K onboard	GPIO0_B4_u	3.3V
24	GPIO2_B2_u_1V8	UART8_CTSn_M0/I2C4_SCL_M1/ SDMMC1_DET	GPIO2_B2_u	1.8V
25	I2C1_SCL	Pull up 2.2K onboard	GPIO0_B3_u	3.3V
26	GPIO2_B7_d_1V8	UART6_RTSn_M0/SPI1_MOSI_M 0/I2S2_SCLK_RX_M0	GPIO2_B7_d	1.8V
27	GND	Ground		0V
28	GPIO2_B1_d_1V8	UART8_RTSn_M0/I2C4_SDA_M1 /SDMMC1_PWREN	GPIO2_B1_d	1.8V
29	UART3_TX_M0	AudioPWM_LOUT_N/I2C3_SCL_ M0	GPIO1_A1_u	3.3V
30	GPIO2_C0_d_1V8	UART6_CTSn_M0/SPI1_CS0_M0/ I2S2_LRCK_RX_M0	GPIO2_C0_d	1.8V
31	UART3_RX_M0	AudioPWM_LOUT_P/I2C3_SDA_ M0	GPIO1_A0_u	3.3V
32	GPIO2_C1_d_1V8	UART7_RTSn_M0/SPI2_CLK_M0/ I2S2_MCLK_M0/ETH0_REFCKO _25M	GPIO2_C1_d	1.8V
33	GND	Ground		0V
34	GPIO2_C6_d_1V8	UART8_RX_M0/SPI1_CS1_M0/C LK32K_OUT1	GPIO2_C6_d	1.8V
35	I2S1_MCLK_M0_PMI C	I2S1_MCLK_M0/UART3_RTSn_M 0	GPIO1_A2_d	3.3V
36	GND	Ground		0V
37	I2S1_SCLK_TX_M0_ PMIC	I2S1_SCLK_TX_M0/UART3_CTS n_M0	GPIO1_A3_d	3.3V
38	GPIO1_D4_u_1V8	FSPI_D3/FLASH_CS1n	GPIO1_D4_u	1.8V
39	I2S1_LRCK_TX_M0_ PMIC	I2S1_LRCK_TX_M0/UART4_RTS n_M0	GPIO1_A5_d	3.3V
40	PCIE20_CLKREQn_ M2	I2S1_SDO1/SDI3_M0/PDM_SDI3 _M0	GPIO1_B0_d	3.3V
41	I2S1_SDO0_M0_PMI C	I2S1_SDO0_M0/UART4_CTSn_M 0/AudioPWM_ROUT_N	GPIO1_A7_d	3.3V
42	UART4_RX_M0	I2S1_SCLK_RX_M0/PDM_CLK1_ M0/SPDIF_TX_M0	GPIO1_A4_d	1.8V
43	GND	Ground		0V
44	I2S1_SDI0_M0/PDM _SDI0_M0_PMIC	I2S1_SDI0_M0/PDM_SDI0_M0	GPIO1_B3_d	3.3V
45	PCIE20_PERSTn_M 2	I2S1_SDO3/SDI1_M0/PDM_SDI1 _M0	GPIO1_B2_d	3.3V
46	UART4_TX_M0	I2S1_LRCK_RX_M0/PDM_CLK0_ M0/AudioPWM_ROUT_P	GPIO1_A6_d	3.3V

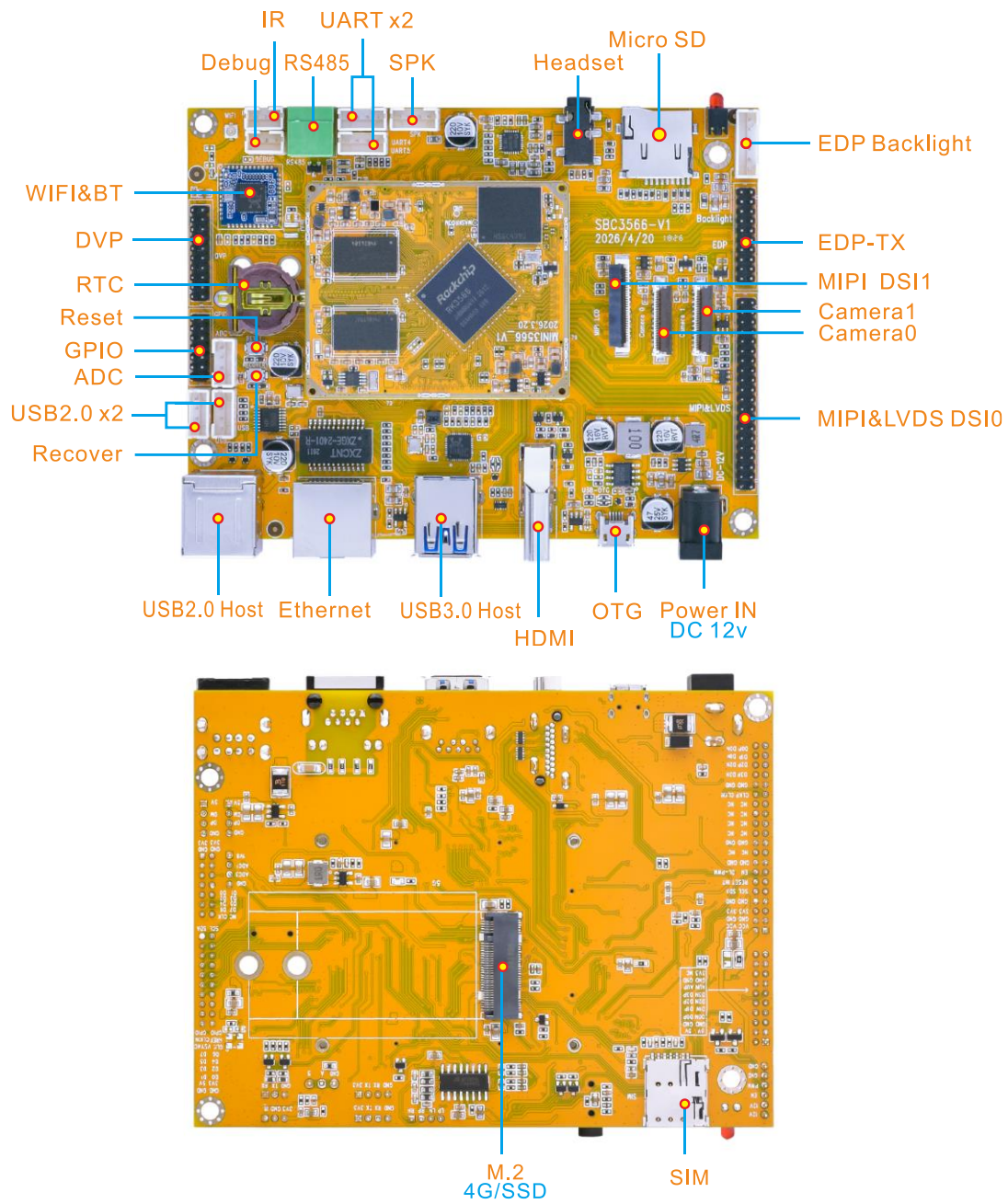


J3	Signal	Description or functions	GPIO serial	IO Voltage
47	PCIE20_WAKEn_M2	I2S1_SDO2/SDI2_M0/PDM_SDI2_M0	GPIO1_B1_d	3.3V
48	GPIO1_D0_d_1V8	FSPI_CLK/FLASH_ALE	GPIO1_D0_d	1.8V
49	GPIO0_A0_d	REFCLK_OUT/GPIO0_A0_d	GPIO0_A0_d	3.3V
50	GPIO1_D1_d_1V8	FSPI_D0/FLASH_RDY	GPIO1_D1_d	1.8V
51	GPIO0_D4_1v8	GPIO0_D4	GPIO0_D4_d	1.8V
52	GPIO1_D3_u_1V8	FSPI_CS0n/FLASH_CS0n	GPIO1_D3_u	1.8V
53	GPIO0_D5_1v8	GPIO0_D5	GPIO0_D5_d	1.8V
54	GPIO1_D2_u_1V8	FSPI_D1/FLASH_RDn	GPIO1_D2_u	1.8V
55	GND	Ground		0V
56	GND	Ground		0V
57	SDMMC0_DET_L	SATA_CP_DET	GPIO0_A4_u	3.3V
58	SDMMC1_D3	UART7_TX_M0	GPIO2_A6_u	1.8V
59	GPIO0_A5_d	SDMMC0_PWREN/SATA_MP_S WITCH/PCIE20_CLKREQ_M0	GPIO0_A5_d	3.3V
60	SDMMC1_D0	UART6_RX_M0	GPIO2_A3_u	1.8V
61	GPIO0_A6_d	SATA_CP_POD	GPIO0_A6_d	3.3V
62	SDMMC1_D1	UART6_TX_M0	GPIO2_A4_u	1.8V
63	PWM3_IR	EDP_HPDI_M1	GPIO0_C2_d	3.3V
64	SDMMC1_D2	UART7_RX_M0	GPIO2_A5_u	1.8V
65	GND	Ground		0V
66	SDMMC1_CMD	UART9_RX_M0	GPIO2_A7_u	1.8V
67	SDMMC0_CLK	UART5_TX_M0	GPIO2_A2_d	VCCIO_SD
68	GND	Ground		0V
69	GND	Ground		0V
70	SDMMC1_CLK	UART9_TX_M0	GPIO2_B0_d	1.8V
71	SDMMC0_D2	UART5_CTSn_M0	GPIO1_D7_u	VCCIO_SD
72	GND	Ground		0V
73	SDMMC0_D0	PWM8_M1/UART2_TX_M1/UART 6_TX_M1	GPIO1_D5_u	VCCIO_SD
74	UART1_RX_M0	UART1_RX_M0	GPIO2_B3_u	1.8V
75	SDMMC0_CMD	PWM10_M1/UART5_RX_M0	GPIO2_A1_u	VCCIO_SD
76	UART1_RTSn_M0	SPI1_CLK_M0	GPIO2_B5_u	1.8V
77	SDMMC0_D3	UART5_RTSn_M0	GPIO2_A0_u	VCCIO_SD
78	UART1_TX_M0	UART1_TX_M0	GPIO2_B4_u	1.8V
79	SDMMC0_D1	PWM9_M1/UART2_RX_M1/UART 6_RX_M1	GPIO1_D6_u	VCCIO_SD
80	UART1_CTSn_M0	SPI1_MISO_M0	GPIO2_B6_u	1.8V

Note:

VCCIO_SD defaults to 3.3V. It can automatically switch to either 3.3V or 1.8V, depending on the type of SD card inserted into the SD card socket on the baseboard.

1.7 Development Kit (SBC3566)

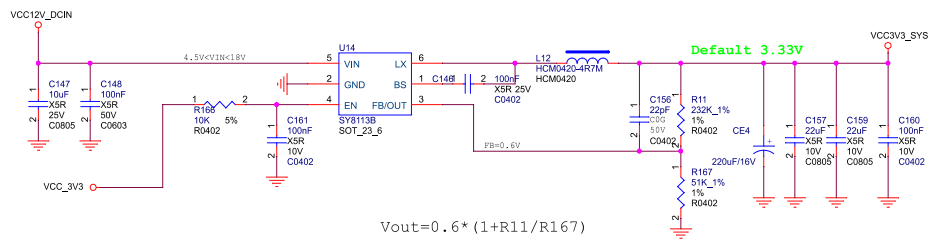
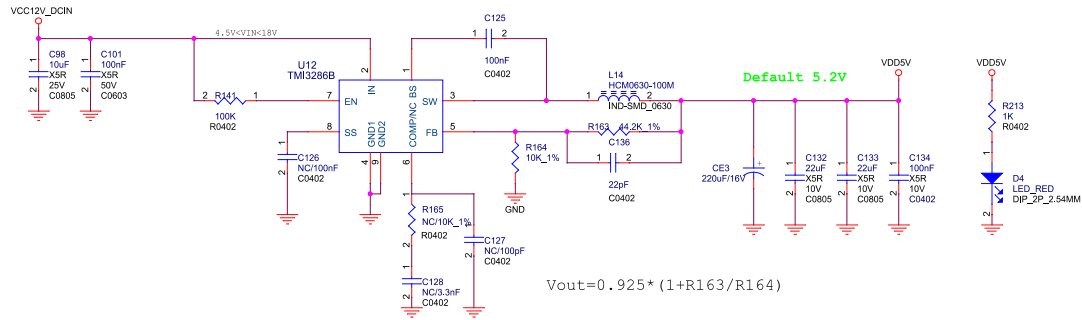




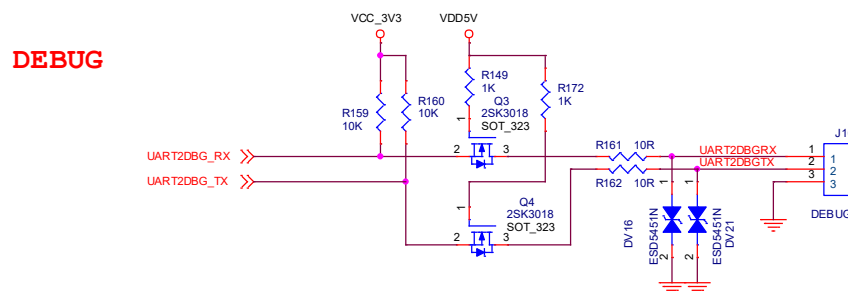
2 Hardware Design Guide

2.1 Peripheral Circuit Reference

2.1.1 External Power

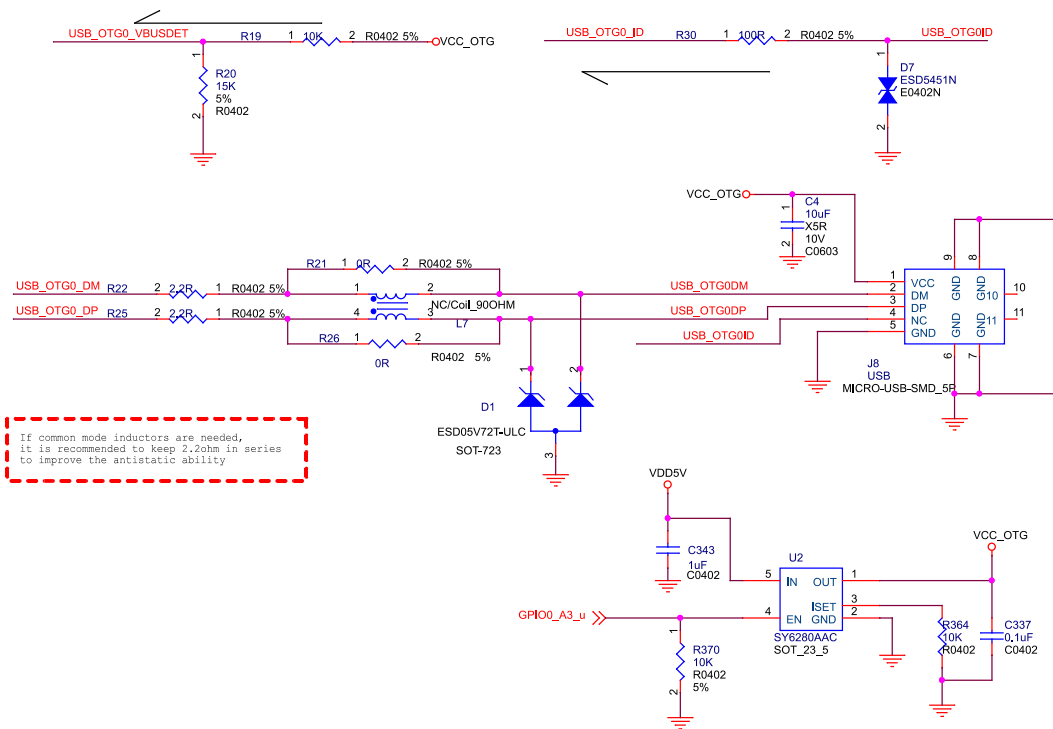


2.1.2 Debug Circuit





2.1.3 USB OTG Circuit



2.2 Mother Board Length Offset

2.2.1 MIPI DSI Interface Length Offset

MIPI_DSI_TX0_CLKP	MIPI_DSI_TX0_D0P	(-13)	(-13)
	MIPI_DSI_TX0_D1P	(-18)	(-18)
	MIPI_DSI_TX0_D2P	(-28)	(-30)
	MIPI_DSI_TX0_D3P	(7)	(+7)

MIPI_DSI_TX1_CLKP	MIPI_DSI_TX1_D0P	(-1)	(-1)
	MIPI_DSI_TX1_D1P	(26)	(+26)
	MIPI_DSI_TX1_D2P	(4)	(+4)
	MIPI_DSI_TX1_D3P	(13)	(+13)

Yellow block is MINI3566 DSI group length difference.

Unit: mil

2.2.2 MIPI CSI Interface Length Offset

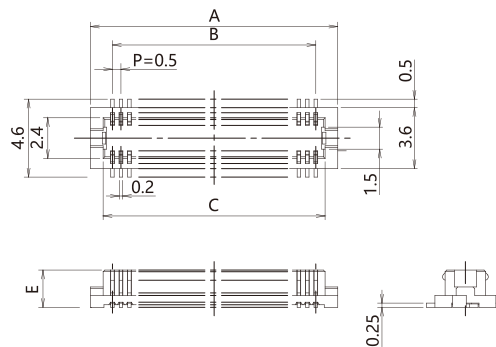
MIPI_CSI_RX_CLK0P	MIPI_CSI_RX_D0P	(-2)	(-2)
	MIPI_CSI_RX_D1P	(13)	(+13)
	MIPI_CSI_RX_D2P	(28)	(+28)
	MIPI_CSI_RX_D3P	(42.5)	(+42.5)
	MIPI_CSI_RX_CLK1P	(14)	(+14)

Yellow block is MINI3566 CSI group length difference.

Unit: mil

2.3 PCB Footprint

■Receptacle Without Solder Tab

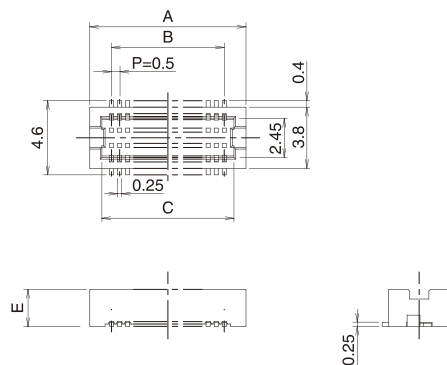


●Stacking Height : 3mm Product

Unit : mm

Part No.	HRS No.	No. of Pos.	A	B	C	E	Remarks	RoHS
DF12NC(3.0)-80DS-0.5V(51)	537-0285-0 51	80	22.1	19.5	20.6	2.2	Without Solder Tab	YES

■Header Without Solder Tab



●Stacking Height : 3mm Product

Unit : mm

Part No.	HRS No.	No. of Pos.	A	B	C	E	Remarks	RoHS
DF12NC(3.0)-80DP-0.5V(51)	537-0492-0 51	80	22.2	19.5	20.7	2.3	Without Solder Tab	YES



3 Product Electrical Characteristics

3.1 Dissipation and Temperature

Symbol	Parameter	Min	Typ	Max	Unit
VCC5V_SYS	System IO Voltage	5.0-5%	5.0	5.0+5%	V
I _{sys_in}	VCC5V_SYS input Current		1500		mA
VCC_RTC	RTC Voltage	1.8	3	3.4	V
I _{rtc}	RTC input Current		5	8	uA
T _a	Operating Temperature	0		70	°C
T _{stg}	Storage Temperature	-40		85	°C

3.2 Reliability of Test

Low Temperature Operating Test		
Contents	Operating 4h in Low temperature	-20°C±2°C
Result	pass	
High Temperature Operating Test		
Contents	Operating 8h in high temperature	65°C±2°C
Result	pass	

Operating Life Test		
Contents	Operating in room	120h
Result	pass	