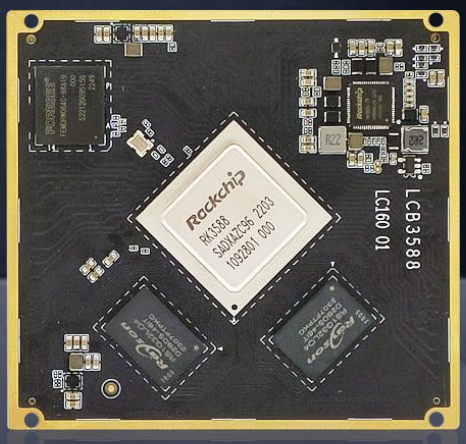
neardi

LCB3588/J/M System On Module

Datasheet

V1.0



Shanghai Neardi Technology Co., Ltd.

www.neardi.com

Notes: All contengs only for explanatory and descriptive purposes. Please refer to the actual product. We strive to ensure consistency with the actual product. This document is provided for customers as a reference for product design and end application. It is better for you confirm the specifications and parameters carefully, provided in the document to ensure they meet the design or application requirements of the product. Whatsmore, it is strongly recommended that customers conduct detailed tests based on our actual products in the actual application scenario to ensure they meet the final usage requirements. Neardi Technology does not assume any responsibility for any damage suffered due to the use of the document, materials, and product functions.

Due to product version upgrades or other needs, our company may update the manual. If you need the latest version of the manual, please contact our company. We always adhere to the principle of customer first and provide customers with fast and efficient support services. If you have any needs, please feel free to contact our company at any time. Contact information is as follows:

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Version History

Version	Date	Description
V1.0	2022/8/23	Initial version

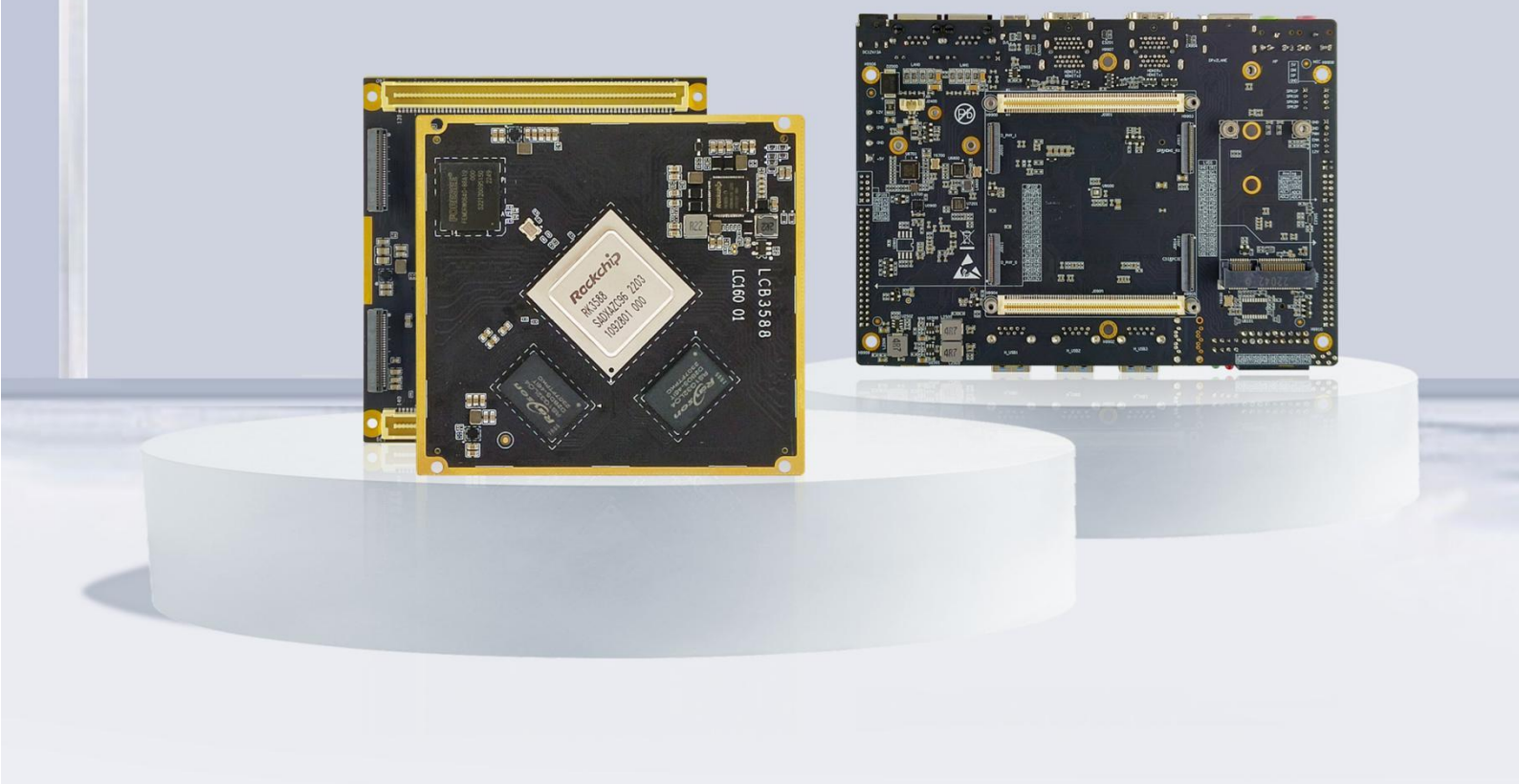
Contents

1.Product Introduction

The LCB3588 core module is an exquisitely designed all-in-one core module based on the Rockchip RK3588 chip platform, with dimensions of only 75mm by 70mm. The connection between the core module and the baseboard uses a combination of two 140Pin board-to-board connectors with a 0.8mm pitch and four 30Pin FPC connectors with a 0.5mm pitch, secured by four M2 screws; it truly brings out all the external pin signals of the RK3588, while also meeting the needs for high reliability, low cost, and high flexibility. In practical applications, the FPC connectors can be added based on the corresponding functional requirements; compared to card-edge connectors or connectors with smaller pitches (such as 0.5mm), it has higher reliability and yield assurance in harsh industrial environments or long-term vibration vehicle environments.

The LCB3588 includes the CPU, DDR, eMMC, and PMU parts. The CPU is the RK3588; DDR uses the mainstream market model LPDDR4/LPDDR4X, with lower power consumption and faster frequency, available in 2GB/4GB/8GB/16GB configurations; eMMC adopts the high-speed eMMC 5.1 standard, with various capacity configurations available such as 32GB/64GB/128GB; the PMU is composed of RK806 and multiple DC-DC and LDO, and the CPU core voltage supports DVFS dynamic voltage adjustment.

The LCB3588 adopts a modular design concept, designing the core part with the same requirements and strict standards as a full-function module, bringing out all the functional pins of the CPU, and has been fully tested and mass verified. Users can save project development cycles, reduce corporate costs, and improve company efficiency based on this module for product development.



2. Function Overview

High-Performance Processor

CPU	8nm advanced process technology with an 8-core 64-bit architecture (4A76 + 4A55), offering high performance with low power consumption.
GPU	ARM Mali-G610 MC4 GPU, featuring a dedicated 2D graphics acceleration module.
NPU	6TOPS computing power for AI-related tasks.
VPU	Capable of 8K video encoding and decoding, as well as 8K display output.
DDR	LPDDR4 memory, with options for 4GB, 8GB, or 16GB capacities.
eMMC	eMMC 5.1 storage, with options for 32GB, 64GB, or 128GB capacities.

Operating System

Android

Linux （Buildroot / Debian / Ubuntu）

Kylin

Open Source Materials

WIKI Documentation http://www.neardi.com/cms/en/wiki.html

Quick Start

Firmware Upgrade

Android Development

Linux Development

Kernel Drivers

DEMO

System Customization

Accessories

Frequently Asked Questions (FAQ)

Release Notes

Hardware Materials

Chip Datesheet

Product 2D/3D Drawings

Core Board Pin Definitions

Baseboard Reference Schematic

Baseboard Reference PCB

Key Bill of Materials (BOM)

Software Materials

Firmware Tools and Drivers

Android Source Code and Images

U-Boot and Kernel Source Code

Debian/Ubuntu/Buildroot System Files

3. Technical Specifications

Basic Parameters	
SOC	RK3588 8nm; 8-core 64-bit processor architecture (4A76 + 4A55).
GPU	ARM Mali-G610 MC4; Supports OpenGL ES 1.1/2.0/3.1/3.2; Vulkan 1.1/1.2; OpenCL 1.1/1.23/2.0; High-performance 2D image acceleration module.
NPU	6TOPS computing power / 3-core architecture; Supports int4/int8/int16/FP16/BF16/TF32.
VPU	Supports H.265/H.264/AV1/VP9/AVS2 video decoding, up to 8K60FPS; Supports H.264/H.265 video encoding, up to 8K30FPS.
DDR	LPDDR4, with options for 4GB/8GB/16GB.
eMMC	eMMC 5.1, with options for 32GB/64GB/128GB.
PMU	RK806
OS	Android / Ubuntu / Buildroot / Debian

Hardware Specifications	
Video Input interface	MIPI interface :
	2 * MIPI(4 lanes) + 4 * MIPI(2 lanes), totally support 6 cameras input;
	3 * MIPI(4 lanes) + 2 * MIPI(2 lanes), totally support 5 cameras input;
	4 * MIPI(4 lanes) , totally support 4 cameras input;
	DVP interface:
	8/10/12/16-bit standard DVP interface, up to 150MHz input data;

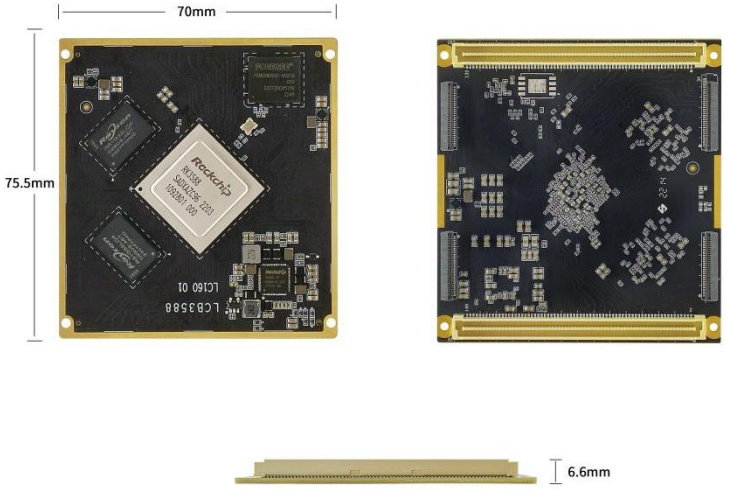
	HDMI RX interface:
	HDMI 2.0 2160p@60 Hz, Support HDCP2.3 and HDCP1.4;
Video Output interface	1 * HDMI2.1 up to 8K@60fps;
	1 * HDMI2.0 up to 4K@60fps;
	2 * MIPI-DSI up to 4K@60fps;
	2 * DP1.4 up to 8K@30fps;
	2 * eDP1.3 up to 4K@60Hz;
	1 * BT.1120 up to 1080@60fps;
Image Signal Processor	8064*6048@15 dual ISP;
	6528*4898@30 dual ISP;
	4672*3504@30 single ISP;
Video Output Processor	Video Port0 up to 7680*4320@60Hz;
	Video Port1 up to 4096*4320@60Hz;

Other Parameters

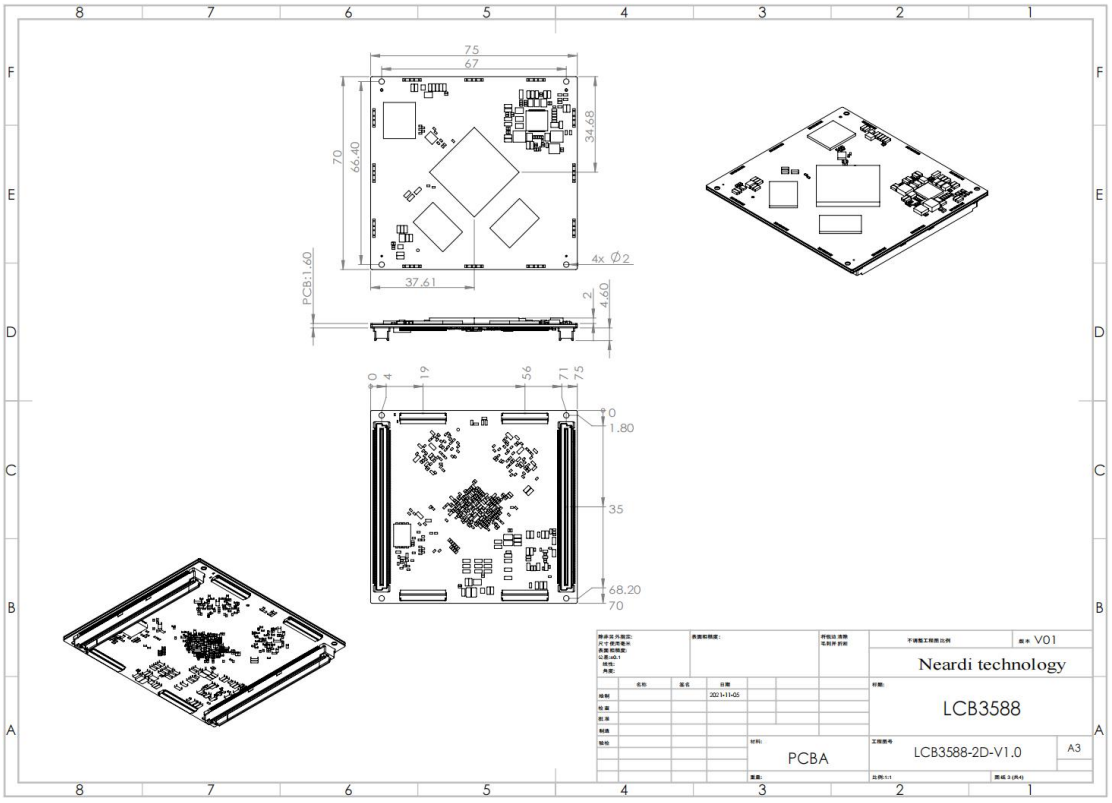
Operating temperature	Enterprise Grade: -20°C to 70°C
	Industrial Grade: -40°C to 85°C
PCB interface	B2B(280 Pin 0.8mm Pitch) + FPC(4 * 30 Pin 0.5mm Pitch)
PCB layers	10 layers
PCB size	L* W *H(mm)：75 *70 * 8.2（PCB thickness 1.6mm）

4. Appearance and Dimensions

4.1 Appearance



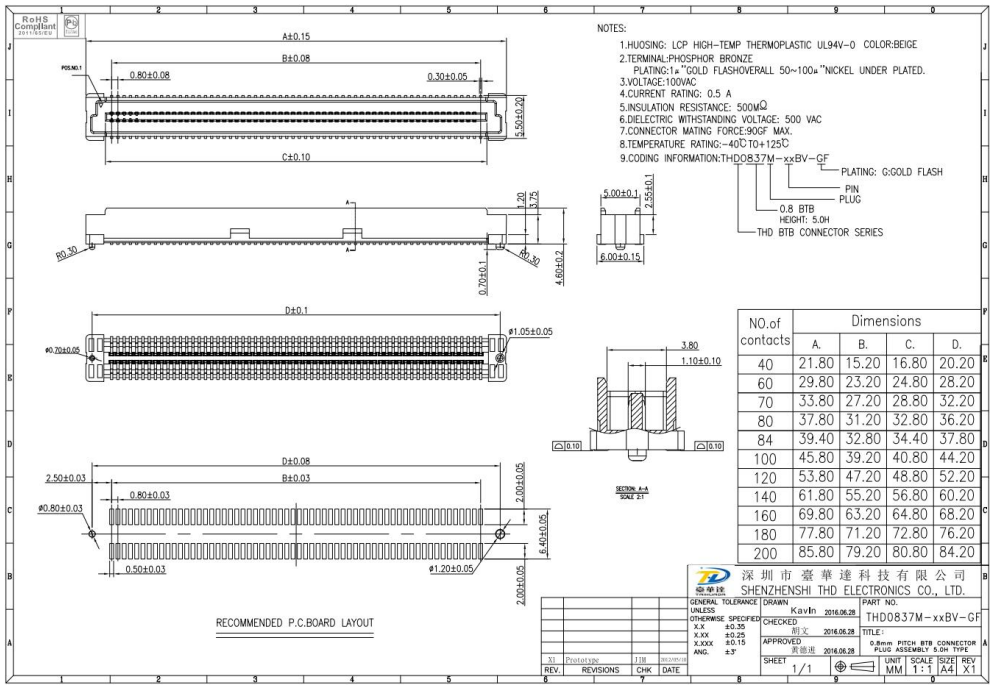
4.2 Dimensions



4.3 structure

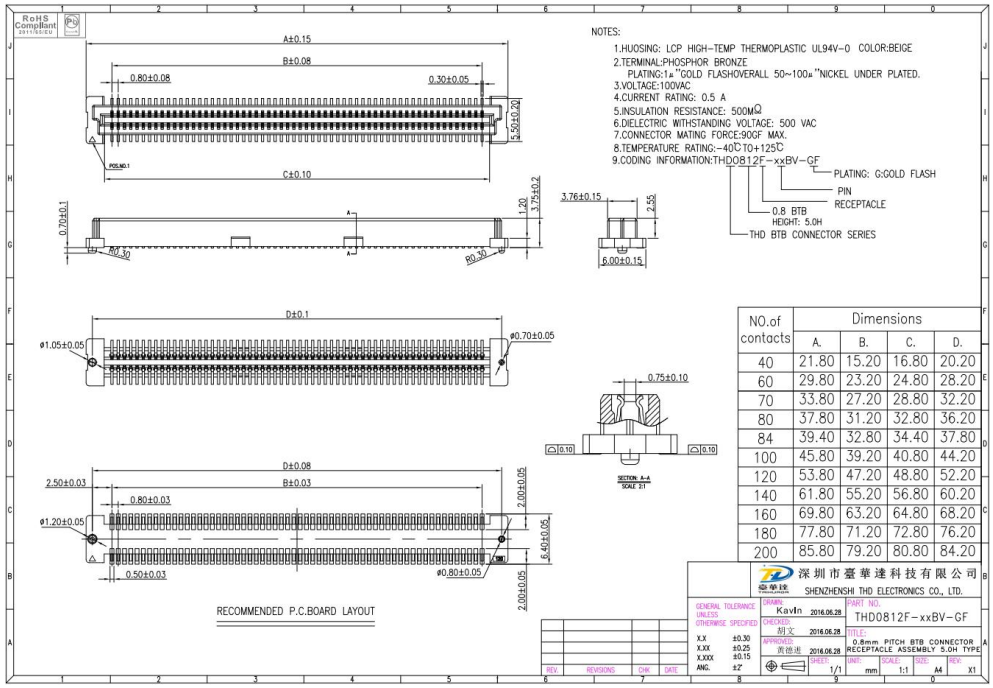
The LCB3588S utilizes two 140Pin board-to-board connectors with a 0.8mm pitch and four 30Pin FPC connectors

with a 0.5mm pitch. The standard combined height of the board-to-board connectors is 5mm. The model number of the core board's board-to-board connectors is THD0837M-140BV-GF, and the dimensions are shown in the figure below:



NO.of contacts	Dimensions			
	A.	B.	C.	D.
40	21.80	15.20	16.80	20.20
60	29.80	23.20	24.80	28.20
70	33.80	27.20	28.80	32.20
80	37.80	31.20	32.80	36.20
84	39.40	32.80	34.40	37.80
100	45.80	39.20	40.80	44.20
120	53.80	47.20	48.80	52.20
140	61.80	55.20	56.80	60.20
160	69.80	63.20	64.80	68.20
180	77.80	71.20	72.80	76.20
200	85.80	79.20	80.80	84.20

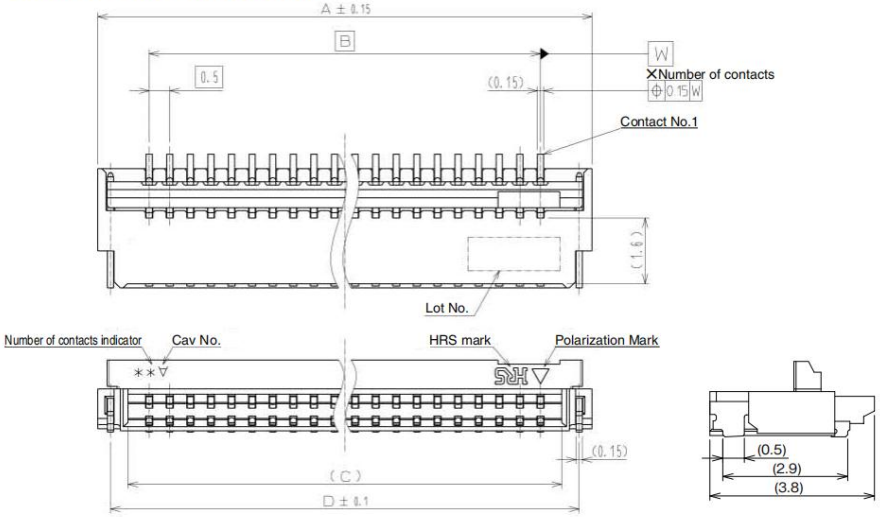
The corresponding board-to-board connector on the baseboard is model THD0812F-140BV-GF, with the relevant specifications shown in the figure below:



NO.of contacts	Dimensions			
	A.	B.	C.	D.
40	21.80	15.20	16.80	20.20
60	29.80	23.20	24.80	28.20
70	33.80	27.20	28.80	32.20
80	37.80	31.20	32.80	36.20
84	39.40	32.80	34.40	37.80
100	45.80	39.20	40.80	44.20
120	53.80	47.20	48.80	52.20
140	61.80	55.20	56.80	60.20
160	69.80	63.20	64.80	68.20
180	77.80	71.20	72.80	76.20
200	85.80	79.20	80.80	84.20

The four FPC connectors are all of the HRS model number: FH34SRJ-30S-0.5SH, with the relevant specifications shown in the figure below:

■Connector Dimensions



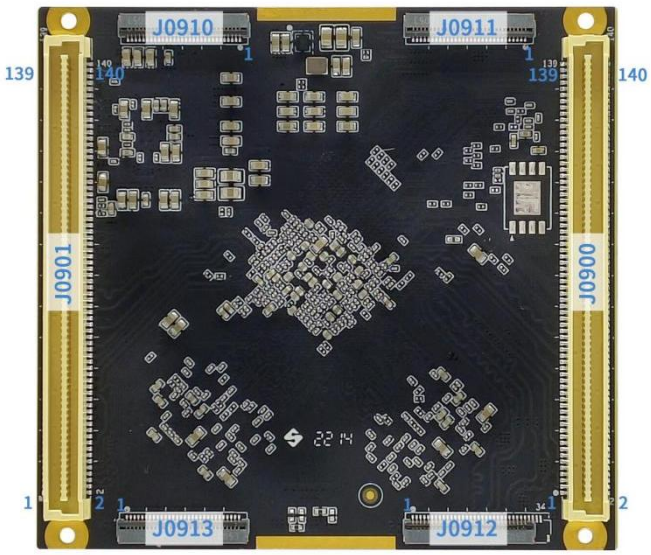
Note 1 : The coplanarity of each terminal lead within specified dimension is 0.1mm Max.
Note 2 : Packaged on tape and reel only. Check packaging specification.
Note 3 : Slight variations in color of the plastic compounds do not affect form, fit or function of the connector.
Note 4 : After reflow, the terminal plating may change color, however this does not represent a quality issue.

Unit : mm

Part No.	HRS No.	No. of Contacts	A	B	C	D
FH34SRJ-4S-0.5SH(50)	580-1238-7 50	4	4	1.5	2.53	3.38
FH34SRJ-5S-0.5SH(50)	580-1264-7 50	5	4.5	2	3.03	3.88
FH34SRJ-6S-0.5SH(50)	580-1236-1 50	6	5	2.5	3.53	4.38
FH34SRJ-7S-0.5SH(50)	580-1200-0 50	7	5.5	3	4.03	4.88
FH34SRJ-8S-0.5SH(50)	580-1231-8 50	8	6	3.5	4.53	5.38
FH34SRJ-9S-0.5SH(50)	580-1262-1 50	9	6.5	4	5.03	5.88
FH34SRJ-10S-0.5SH(50)	580-1251-5 50	10	7	4.5	5.53	6.38
FH34SRJ-11S-0.5SH(50)	580-1258-4 50	11	7.5	5	6.03	6.88
FH34SRJ-12S-0.5SH(50)	580-1253-0 50	12	8	5.5	6.53	7.38
FH34SRJ-14S-0.5SH(50)	580-1252-8 50	14	9	6.5	7.53	8.38
FH34SRJ-16S-0.5SH(50)	580-1259-7 50	16	10	7.5	8.57	9.38
FH34SRJ-18S-0.5SH(50)	580-1248-0 50	18	11	8.5	9.57	10.38
FH34SRJ-20S-0.5SH(50)	580-1256-9 50	20	12	9.5	10.57	11.38
FH34SRJ-22S-0.5SH(50)	580-1254-3 50	22	13	10.5	11.57	12.38
FH34SRJ-24S-0.5SH(50)	580-1255-6 50	24	14	11.5	12.57	13.38
FH34SRJ-26S-0.5SH(50)	580-1247-8 50	26	15	12.5	13.57	14.38
FH34SRJ-30S-0.5SH(50)	580-1232-0 50	30	17	14.5	15.57	16.38
FH34SRJ-34S-0.5SH(50)	580-1261-9 50	34	19	16.5	17.53	18.38
FH34SRJ-40S-0.5SH(50)	580-1260-6 50	40	22	19.5	20.53	21.38
FH34SRJ-45S-0.5SH(50)	580-1265-0 50	45	24.5	22	23.03	23.88
FH34SRJ-50S-0.5SH(50)	580-1266-2 50	50	27	24.5	25.53	26.38

Tape and reel packaging.
Order by number of reels.

5.Interface Definition



J0901

Pin Number	Pin Name
1	GND14
2	SDMMC0_CLK_GPIO4_D5_d_IO2_V1833_VSD
3	HDMI0_TX_SBDN/eDP0_TX_AUXN
4	SDMMC0_D0_GPIO4_D0_u_IO2_V1833_VSD
5	HDMI0_TX_SBDP/eDP0_TX_AUXP
6	SDMMC0_D1_GPIO4_D1_u_IO2_V1833_VSD
7	GND15
8	SDMMC0_D2_GPIO4_D2_u_IO2_V1833_VSD
9	HDMI0_TX3N_PORT/eDP0_TX_D3N
10	SDMMC0_D3_GPIO4_D3_u_IO2_V1833_VSD

11	HDMI0_TX3P_PORT/eDP0_TX_D3P
12	SDMMC0_CMD_GPIO4_D4_u_IO2_V1833_VSD
13	GND16
14	CAN0_TX_M0_GPIO0_B7_d_PIO2_1V8
15	HDMI0_TX0N_PORT/eDP0_TX_D0N
16	SDMMC_DET_L_GPIO0_A4_u_PIO1_1V8
17	HDMI0_TX0P_PORT/eDP0_TX_D0P
18	GND1
19	GND17
20	I2C5_SDA_M0_TP_GPIO3_D0_u_IO5_V1833_1V8
21	HDMI0_TX1N_PORT/eDP0_TX_D1N
22	I2C5_SCL_M0_TP_GPIO3_C7_u_IO5_V1833_1V8
23	HDMI0_TX1P_PORT/eDP0_TX_D1P
24	ETH1_REFCLKO_25M_GPIO3_A6_d_IO5_V1833_1V8
25	GND18
26	GPIO4_B5_IO6_V1833_3V3
27	HDMI0_TX2N_PORT/eDP0_TX_D2N
28	4G_DISABLE_GPIO4_B3_IO6_V1833_3V3
29	HDMI0_TX2P_PORT/eDP0_TX_D2P
30	USB_HOST_PWREN_H_GPIO4_B0_d_IO6_V1833_3V3
31	GND19
32	PCIE30X4_CLKREQn_M1_L_GPIO4_B4_u_IO6_V1833_3V3

33	HDMI1_TX_SBDP/eDP1_TX_AUXP
34	GND2
35	HDMI1_TX_SBDN/eDP1_TX_AUXN
36	USB20_HOST0_DP
37	HDMI1_TX3P_PORT/eDP1_TX_D3P
38	USB20_HOST0_DM
39	HDMI1_TX3N_PORT/eDP1_TX_D3N
40	GND3
41	HDMI1_TX0P_PORT/eDP1_TX_D0P
42	USB20_HOST1_DP
43	HDMI1_TX0N_PORT/eDP1_TX_D0N
44	USB20_HOST1_DM
45	HDMI1_TX1P_PORT/eDP1_TX_D1P
46	GND4
47	HDMI1_TX1N_PORT/eDP1_TX_D1N
48	TYPEC1_SSRX1P
49	HDMI1_TX2P_PORT/eDP1_TX_D2P
50	TYPEC1_SSRX1N
51	HDMI1_TX2N_PORT/eDP1_TX_D2N
52	GND5
53	GND20
54	TYPEC1_OTG_DM

55	TYPEC0_SBU1/DP0_AUXP
56	TYPEC1_OTG_DP
57	TYPEC0_SBU2/DP0_AUXN
58	GND6
59	TYPEC0_USB20_VBUSDET_LESS3V3
60	TYPEC0_OTG_DP
61	TYPEC0_USB20_OTG_ID_LESS1V8
62	TYPEC0_OTG_DM
63	SARADC_VIN2
64	GND7
65	SARADC_VIN7
66	TYPEC1_SSTX1P
67	BOOT_SARADC_IN0
68	TYPEC1_SSTX1N
69	GND21
70	GND9
71	TYPEC0_SSRX1N
72	SARADC_VIN6
73	TYPEC0_SSRX1P
74	SARADC_VIN1_KEY/RECOVERY
75	GND22
76	SARADC_VIN4

77	TYPEC0_SSTX1P
78	SARADC_VIN3_HP_HOOK
79	TYPEC0_SSTX1N
80	GND10
81	GND23
82	SPI2_MOSI_M1_GPIO4_A5_d_IO6_V1833_3V3
83	TYPEC0_SSRX2N
84	SPI2_CLK_M1_GPIO4_A6_d_IO6_V1833_3V3
85	TYPEC0_SSRX2P
86	SPI2_CS0_M1_GPIO4_A7_d_IO6_V1833_3V3
87	GND24
88	SPI2_MISO_M1_GPIO4_A4_d_IO6_V1833_3V3
89	TYPEC0_SSTX2P
90	SPK_CTL_H_GPIO4_A3_d_IO6_V1833_3V3
91	TYPEC0_SSTX2N
92	PCIEX1_1_PERSTn_M1_L_GPIO4_A2_d_IO6_V1833_3V3
93	GND25
94	TYPEC5V_PWREN_H_GPIO4_A1_d_IO6_V1833_3V3
95	PCIEX1_1_CLKREQn_M1_L_GPIO4_A0_d_IO6_V1833_3V3
96	PCIE30X4_PERSTn_M1_L_GPIO4_B6_d_IO6_V1833_3V3
97	HDMITX1_SDA_M1_GPIO3_C5_u_IO5_V1833_1V8
98	HDMITX1_CEC_M2_GPIO3_C4_u_IO5_V1833_1V8

99	PCIE_PWREN_H_GPIO2_C5_d_IO3_1V8
100	HDMITX1_SCL_M1_GPIO3_C6_u_IO5_V1833_1V8
101	HDMI1_TX_ON_H_GPIO4_B2_u_IO6_V1833_3V3
102	PMIC_EXT_EN_OUT_PMU
103	GND26
104	HDMI0_TX_ON_H_GPIO4_B1_u_IO6_V1833_3V3
105	PWRON_L_PMU
106	GND11
107	PMU_VDC_IN_1/2ATTN
108	HDMITX0_SDA_M0_GPIO4_C0_u_IO6_V1833_3V3
109	HDMITX0_CEC_M0_GPIO4_C1_d_IO6_V1833_3V3
110	VCC_IO5_1833_IN
111	VCC_IO6_1833_IN
112	HDMITX0_SCL_M0_GPIO4_B7_u_IO6_V1833_3V3
113	USB_HUB_RESET_GPIO3_B2_d_IO5_V1833_1V8
114	HOST_WAKE_BT_H_GPIO0_C5_u_PIO2_1V8
115	BT_REG_ON_H_GPIO0_C6_u_PIO2_1V8
116	GSENSOR_INT_L_GPIO4_C2_d_IO3_1V8
117	LCD_BL_EN_H_GPIO2_C1_d_IO3_1V8
118	PWM7_M3_GPIO4_C6_d_IO3_1V8
119	MIPI_CAM3/4_RESET_L_GPIO2_B6_d_IO3_1V8
120	GMAC1_RSTn_L_GPIO3_B7_d_IO5_V1833_1V8

121	WIFI_REG_ON_H_GPIO0_C4_d_PIO2_1V8
122	I2C4_SDA_M1_SENSOR_GPIO2_B4_u_IO3_1V8
123	I2C4_SCL_M1_SENSOR_GPIO2_B5_u_IO3_1V8
124	TP_INT_L_GPIO3_C0_d_IO5_V1833_1V8
125	GND27
126	GND12
127	GND28
128	GND13
129	VCC4V0_SYS_IN4
130	VCC4V0_SYS_IN1
131	VCC4V0_SYS_IN5
132	VCC4V0_SYS_IN2
133	VCC4V0_SYS_IN6
134	VCC4V0_SYS_IN3
135	GND29
136	VCC_1V8_S3_OUT_2A5
137	VCC_3V3_S0_OUT_0A5
138	VCC_3V3_S3_OUT_2A5
139	VCC_1V8_S0_OUT_0A3
140	VCCA_PMU_IN_5V0

J0900

Pin Number	Pin Name

1	PCIEx1_0_CLKREQn_M2_L_GPIO1_B5_u_IO4_1V8
2	HDMITX1_HPDIN_M0_GPIO1_A6_d_IO4_1V8
3	MIPI_CAM2_PWREN_H_GPIO1_D3_d_IO1_1V8
4	MIPI_CAM3_PDN_L_GPIO1_A7_u_IO4_1V8
5	PCIEx1_0_WAKEn_M2_L_GPIO1_B3_GPIO1_B3_d_IO4_1V8
6	PCIEX1_0_PERSTN_M2_L_GPIO1_B4_u_IO4_1V8
7	I2S0_SDI0_GPIO1_D4_d_IO1_1V8
8	MIPI_CAM3_PWREN_H_GPIO1_B2_d_IO4_1V8
9	I2S0_SDO0_GPIO1_C7_d_IO1_1V8
10	MIPI_CAM4_PWREN_H_GPIO1_B1_d_IO4_1V8
11	PWM15_M2_GPIO1_C6_d_IO1_1V8
12	GND1
13	I2S0_LRCK_TX_GPIO1_C5_d_IO1_1V8
14	MIPI_CAM1_CLKOUT_GPIO1_B6_u_IO4_1V8
15	HP_DET_L_GPIO1_C4_d_IO1_1V8
16	MIPI_CAM3_CLKOUT_GPIO1_D6_u_IO4_1V8
17	MIPI_CAM1_PWREN_H_GPIO1_D2_d_IO1_1V8
18	MIPI_CAM2_CLKOUT_GPIO1_B7_u_IO4_1V8
19	GND20
20	MIPI_CAM4_CLKOUT_GPIO1_D7_u_IO4_1V8
21	I2S0_SCLK_TX_GPIO1_C3_d_IO1_1V8
22	GND2

23	I2C3_SCL_M0_MIPI_GPIO1_C1_z_IO1_1V8
24	I2C2_SDA_M4_MIPI_GPIO1_A0_d_IO4_1V8
25	I2C3_SDA_M0_MIPI_GPIO1_C0_z_IO1_1V8
26	MIPI_CAM2_PDN_L_GPIO1_A4_d_IO4_1V8
27	I2S0_MCLK_GPIO1_C2_d_IO1_1V8
28	I2C2_SCL_M4_MIPI_GPIO1_A1_d_IO4_1V8
29	HDMITX0_HPDIN_M0_GPIO1_A5_d_IO4_1V8
30	MIPI_CAM1_PDN_L_GPIO1_A2_d_IO4_1V8
31	HDMIIRX_DET_L_GPIO1_D5_d_IO1_1V8
32	MIPI_CAM4_PDN_L_GPIO1_B0_u_IO4_1V8
33	I2C7_SCL_M0_CODEC_GPIO1_D0_d_IO1_1V8
34	MIPI_CAM1/2_RESET_L_GPIO1_A3_d_IO4_1V8
35	I2C7_SDA_M0_CODEC_GPIO1_D1_d_IO1_1V8
36	WIFI_WAKE_HOST_H_GPIO0_B2_u_PIO1_1V8
37	GND21
38	RTC_INT_L_GPIO0_B0_z_PIO1_1V8
39	PCIE20_2_REFCLKN
40	UART2_TX_M0_DEBUG_GPIO0_B5_d_PIO2_1V8
41	PCIE20_2_REFCLKP
42	UART2_RX_M0_DEBUG_GPIO0_B6_d_PIO2_1V8
43	GND22
44	GND3

45	PCIE20_2_TXP/SATA30_2_TXP
46	PCIE30_PORT0_TX1N
47	PCIE20_2_TXN/SATA30_2_TXN
48	PCIE30_PORT0_TX1P
49	GND23
50	GND4
51	PCIE20_2_RXN/SATA30_2_RXN
52	PCIE30_PORT0_TX0N
53	PCIE20_2_RXP/SATA30_2_RXP
54	PCIE30_PORT0_TX0P
55	GND24
56	GND5
57	RESET_L_PMU_RESETB
58	PCIE30_PORT0_REFCLKN_IN
59	BT_WAKE_HOST_H_GPIO0_A0_d_PIO1_1V8
60	PCIE30_PORT0_REFCLKP_IN
61	CAN0_RX_M0_LCD_BL_PWM1_GPIO0_C0_d_PIO2_1V8
62	GND6
63	I2C6_SDA_M0_GPIO0_C7_d_PIO2_1V8
64	PCIE30_PORT0_RX1N
65	I2C6_SCL_M0_GPIO0_D0_d_PIO2_1V8
66	PCIE30_PORT0_RX1P

67	I2C1_SDA_M2_GPIO0_D5_u_PIO2_1V8
68	GND7
69	I2C1_SCL_M2_GPIO0_D4_u_PIO2_1V8
70	PCIE30_PORT0_RX0N
71	CC_INT_L_GPIO0_D3_u_PIO2_1V8
72	PCIE30_PORT0_RX0P
73	TP_RST_L_GPIO3_C1_d_IO5_V1833_1V8
74	GND8
75	HDMIIRX_HPDOUT_H_GPIO3_D4_d_IO5_V1833_1V8
76	PCIE20_1_REFCLKN
77	I2S2_SDI_M0_BT_GPIO2_C3_d_IO3_1V8
78	PCIE20_1_REFCLKP
79	UART9_RX_M0_BT_GPIO2_C4_d_IO3_1V8
80	GND9
81	UART9_TX_M0_BT_GPIO2_C2_d_IO3_1V8
82	PCIE20_1_RXN/SATA30_1_RXN
83	UART9_CTSn_M0_BT_GPIO4_C5_d_IO3_1V8
84	PCIE20_1_RXP/SATA30_1_RXP
85	UART9_RTSn_M0_BT_GPIO4_C4_d_IO3_1V8
86	GND10
87	I2S2_SCLK_M0_BT_GPIO2_B7_d_IO3_1V8
88	PCIE20_1_TXN/SATA30_1_TXN

89	I2S2_SDO_M0_BT_GPIO4_C3_d_IO3_1V8
90	PCIE20_1_TXP/SATA30_1_TXP
91	I2S2_LRCK_M0_BT_GPIO2_C0_d_IO3_1V8
92	GND11
93	GND25
94	PCIE20_0_TXP/SATA30_0_TXP
95	SDIO_D3_M0_WIFI_GPIO2_B1_u_IO3_1V8
96	PCIE20_0_TXN/SATA30_0_TXN
97	SDIO_D1_M0_WIFI_GPIO2_A7_u_IO3_1V8
98	GND12
99	SDIO_D0_M0_WIFI_GPIO2_A6_u_IO3_1V8
100	PCIE20_0_RXN/SATA30_0_RXN
101	SDIO_D2_M0_WIFI_GPIO2_B0_u_IO3_1V8
102	PCIE20_0_RXP/SATA30_0_RXP
103	SDIO_CLK_M0_WIFI_GPIO2_B3_d_IO3_1V8
104	GND13
105	SDIO_CMD_M0_WIFI_GPIO2_B2_u_IO3_1V8
106	MIPI_CSI0_RX_D0N
107	GND26
108	MIPI_CSI0_RX_D0P
109	GMAC1_MDC_GPIO3_C2_d_IO5_V1833_1V8
110	GND14

111	GMAC1_MDIO_GPIO3_C3_d_IO5_V1833_1V8
112	MIPI_CSI0_RX_D1N
113	GMAC1_TXD3_GPIO3_A1_u_IO5_V1833_1V8
114	MIPI_CSI0_RX_D1P
115	GMAC1_TXD2_GPIO3_A0_u_IO5_V1833_1V8
116	GND15
117	GMAC1_TXD0_GPIO3_B3_u_IO5_V1833_1V8
118	MIPI_CSI0_RX_CLK0N
119	GMAC1_TXD1_GPIO3_B4_u_IO5_V1833_1V8
120	MIPI_CSI0_RX_CLK0P
121	GMAC1_TXEN_GPIO3_B5_u_IO5_V1833_1V8
122	GND16
123	GMAC1_MCLKINOUT_GPIO3_B6_d_IO5_V1833_1V8
124	MIPI_CSI0_RX_D2N
125	GMAC1_TXCLK_GPIO3_A4_d_IO5_V1833_1V8
126	MIPI_CSI0_RX_D2P
127	GMAC1_RXCLK_GPIO3_A5_d_IO5_V1833_1V8
128	GND17
129	GMAC1_RXD0_GPIO3_A7_u_IO5_V1833_1V8
130	MIPI_CSI0_RX_D3N
131	GMAC1_RXDV_CRS_GPIO3_B1_d_IO5_V1833_1V8
132	MIPI_CSI0_RX_D3P

133	GMAC1_RXD1_GPIO3_B0_u_IO5_V1833_1V8
134	GND18
135	GMAC1_RXD2_GPIO3_A2_u_IO5_V1833_1V8
136	MIPI_CSI0_RX_CLK1N
137	GMAC1_RXD3_GPIO3_A3_u_IO5_V1833_1V8
138	MIPI_CSI0_RX_CLK1P
139	GND27
140	GND19

J0910

Pin Number	Pin Name
1	MIPI_DPHY1_TX_D3P
2	MIPI_DPHY1_TX_D3N
3	GND
4	MIPI_DPHY1_TX_D2P
5	MIPI_DPHY1_TX_D2N
6	GND
7	MIPI_DPHY1_TX_CLKP
8	MIPI_DPHY1_TX_CLKN
9	GND
10	MIPI_DPHY1_TX_D1P
11	MIPI_DPHY1_TX_D1N
12	GND

13	MIPI_DPHY1_TX_D0P
14	MIPI_DPHY1_TX_D0N
15	GND
16	MIPI_DPHY1_RX_D3N
17	MIPI_DPHY1_RX_D3P
18	GND
19	MIPI_DPHY1_RX_D2P
20	MIPI_DPHY1_RX_D2N
21	GND
22	MIPI_DPHY1_RX_CLKP
23	MIPI_DPHY1_RX_CLKN
24	GND
25	MIPI_DPHY1_RX_D1P
26	MIPI_DPHY1_RX_D1N
27	GND
28	MIPI_DPHY1_RX_D0P
29	MIPI_DPHY1_RX_D0N
30	GND

J0911

Pin Number	Pin Name
1	MIPI_DPHY0_RX_D3P
2	MIPI_DPHY0_RX_D3N

3	GND
4	MIPI_DPHY0_RX_D2P
5	MIPI_DPHY0_RX_D2N
6	GND
7	MIPI_DPHY0_RX_CLKP
8	MIPI_DPHY0_RX_CLKN
9	GND
10	MIPI_DPHY0_RX_D1N
11	MIPI_DPHY0_RX_D1P
12	GND
13	MIPI_DPHY0_RX_D0N
14	MIPI_DPHY0_RX_D0P
15	GND
16	MIPI_DPHY0_TX_D3N
17	MIPI_DPHY0_TX_D3P
18	GND
19	MIPI_DPHY0_TX_D2N
20	MIPI_DPHY0_TX_D2P
21	GND
22	MIPI_DPHY0_TX_CLKN
23	MIPI_DPHY0_TX_CLKP
24	GND

25	MIPI_DPHY0_TX_D1P
26	MIPI_DPHY0_TX_D1N
27	GND
28	MIPI_DPHY0_TX_D0P
29	MIPI_DPHY0_TX_D0N
30	GND

J0913

Pin Number	Pin Name
1	DP1_TX3P
2	DP1_TX3N
3	GND
4	DP1_TX2P
5	DP1_TX2N
6	GND
7	DP1_AUXN
8	DP1_AUXP
9	GND
10	HDMI_RX_D2P
11	HDMI_RX_D2N
12	GND
13	HDMI_RX_D1P
14	HDMI_RX_D1N

15	GND
16	HDMI_RX_D0P
17	HDMI_RX_D0N
18	GND
19	HDMI_RX_CLKP
20	HDMI_RX_CLKN
21	GND
22	HDMI_RX_CEC
23	HDMI_RX_SCL_M1
24	GND
25	HDMI_RX_SDA_M1
26	DP1_HPDIN_M0
27	GND
28	NC
29	NC
30	GND

J0912

Pin Number	Pin Name
1	MIPI_CSI1_RX_D0P
2	MIPI_CSI1_RX_D0N
3	GND
4	MIPI_CSI1_RX_D1P

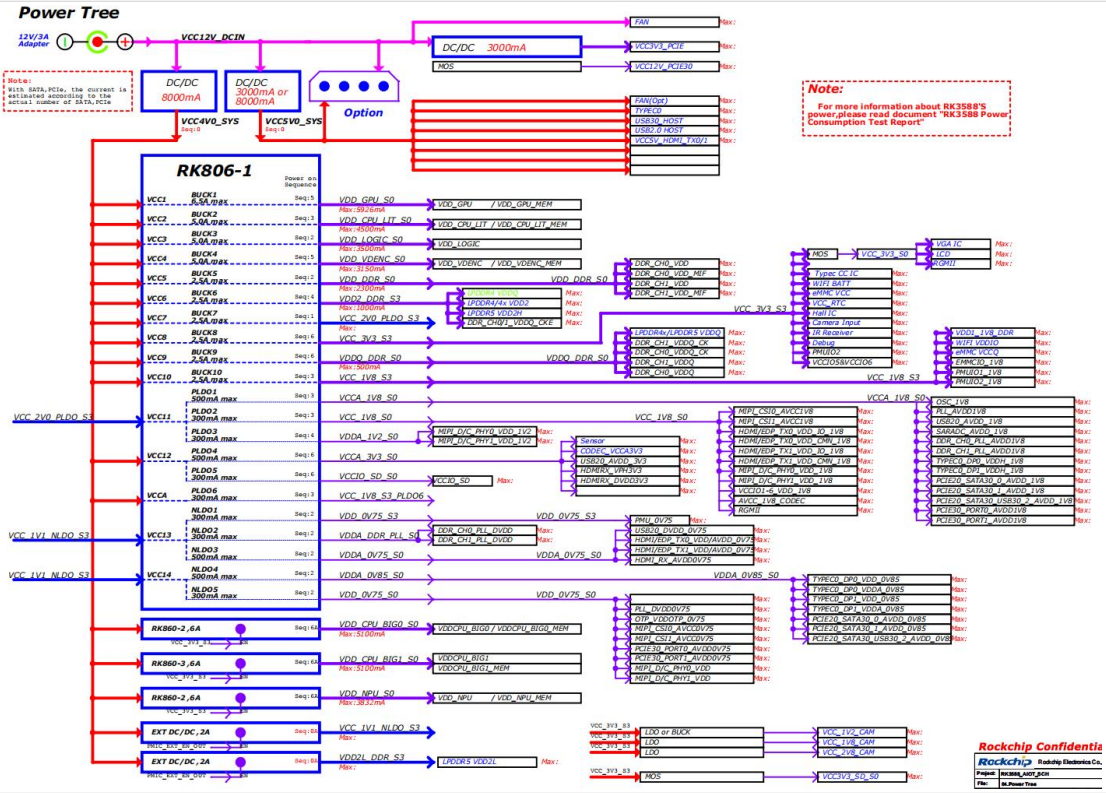
5	MIPI_CSI1_RX_D1N
6	GND
7	MIPI_CSI1_RX_CLK0P
8	MIPI_CSI1_RX_CLK0N
9	GND
10	MIPI_CSI1_RX_D2P
11	MIPI_CSI1_RX_D2N
12	GND
13	MIPI_CSI1_RX_D3P
14	MIPI_CSI1_RX_D3N
15	GND
16	PCIE30_PORT1_REFCLKN_IN
17	PCIE30_PORT1_REFCLKP_IN
18	GND
19	PCIE30_PORT1_TX3N
20	PCIE30_PORT1_TX3P
21	GND
22	PCIE30_PORT1_TX2N
23	PCIE30_PORT1_TX2P
24	GND
25	PCIE30_PORT1_RX3N
26	PCIE30_PORT1_RX3P

27	GND
28	PCIE30_PORT1_RX2N
29	PCIE30_PORT1_RX2P
30	GND
31	NC/MIPI_CSI1_RX_CLK1N
32	NC/MIPI_CSI1_RX_CLK1P
33	NC/GND
34	NC

Power Supply Voltage Parameters

Symbol	Parameter	Current typ	Voltage (V)		
			Min	Typ	Max
VCC4V0_SYS_IN*	Main power input for LCB3588	> 5A	3.3	4	5
VCCA_PMU_IN_5V0	Backup voltage input for RTC and power on detect	0.01A	-	VCC4V0_SYS_IN*	-
VCC_3V3_S3_OUT_2A5	3.3V output for carrier board use	1.5A	3.2	3.3	3.4
VCC_3V3_S0_OUT_0A5	3.3V output for carrier board use	0.3A	3.2	3.3	3.4
VCC_1V8_S3_OUT_2A5	1.8V output for carrier board use	1.0A	1.7	1.8	1.9
VCC_1V8_S0_OUT_0A3	1.8V output for carrier board use	0.1A	1.7	1.8	1.9
VCC_IO5_1833_IN	Power input for VCCIO5 part of CPU	0.1A	1.7	1.8	1.9
			3.2	3.3	3.4
VCC_IO6_1833_IN	Power input for VCCIO6 part of CPU	0.1A	1.7	1.8	1.9
			3.2	3.3	3.4
PMIC_EXT_EN_OUT_PMU	Output enable for external BUCK	-	0	3.3	3.4
PMU_VDC_IN_1/2ATTN (threshold)	System Power on signal input	2.8	3	3.3	12

Power Supply Topology Diagram



6.Application Scenarios

AI

Machine Vision

Industrial Control

Energy and Power

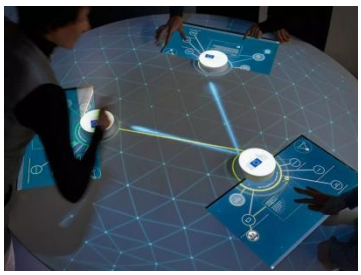
Smart Tablet

VR

Smart Logistics

New

Smart Commercial



Object Recognition

Vehicle terminal

Security Surveillance

7.Ordering Model

Product Model	Status	CPU	DDR	eMMC	Operating Temperature
LC16043200	ACTIVE	RK3588	4GB	32GB	-20℃ - 70℃
LC16086400	ACTIVE	RK3588	8GB	64GB	-20℃ - 70℃
LC1609A800	ACTIVE	RK3588	16GB	128GB	-20℃ - 70℃
LC16343200	ACTIVE	RK3588J	4GB	32GB	-40℃ - 85℃
LC16386400	ACTIVE	RK3588J	8GB	64GB	-40℃ - 85℃

*For customized non-standard orders, please contact us via email at sales@neardi.com.

8.About Neardi

Shanghai Neardi Technology Co., Ltd., established in 2014, is a national-level high-tech enterprise, a strategic partner of Rockchip, and an authorized agent for Black Sesame Technologies. We focus on the research and development and production of enterprise-level open-source hardware platforms, offering customers core modules, industry-specific boards, development boards, touch panels, and industrial control hosts. Adhering to the core philosophy of technological innovation and professional service, leveraging Neardi Technology's technical strengths and industry experience, we assist our partners in achieving rapid mass production of their products.

Company Advantages

Software Design / Custom OS / Product ODM / Bulk Delivery

Products

Rockchip

System On Module


LCB3588/J


LCB3568/J


LCB3566


LCB3399Pro


LCB3399

Development Board


LKD3588/J


LKD3568/J


LKD3566


LKD3399Pro


LKD3399

Embedded Computer


LPB3588


LPM3588


LPC3588


LPB3568


LPB3399Pro

Black Sesame Technologies


SOM-A-A1000


SOM-π-A1000


SOM-B-A1000


SOM-A1000 开发者套件

Vehicle Terminal


LPA3588


LPA3568


LPA3399Pro


LPS3399Pro

WIFI Module

FD7352S

FD7352P

FD7352M

FD7155U

FD7256S