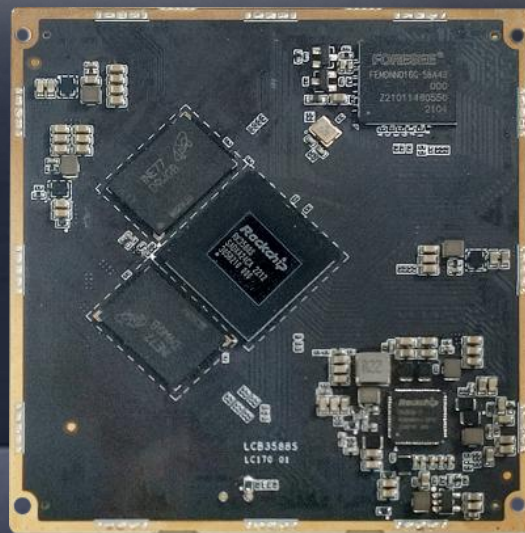


neardi

LCB3588S System On Module

Datasheet

V1.0



Shanghai Neardi Technology Co., Ltd.

www.neardi.com

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Version History

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

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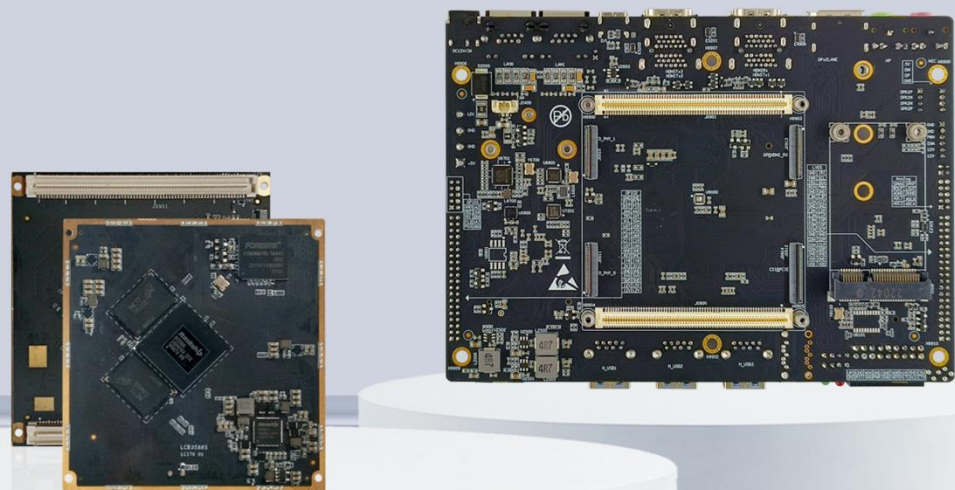
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1.Product Introduction

The LCB3588S core module is an exquisitely designed all-in-one core module based on the Rockchip RK3588S 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 RK3588S, 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 offers higher reliability and yield assurance in harsh industrial environments or long-term vibration vehicle environments.

The LCB3588S includes the CPU, DDR, eMMC, and PMU components. The CPU is the RK3588S; DDR uses mainstream market models LPDDR4/LPDDR4X, with lower power consumption and faster frequency, available in configurations of 2GB/4GB/8GB/16GB; eMMC adopts the high-speed eMMC 5.1 standard, with various capacity configurations such as 32GB/64GB/128GB; the PMU consists of RK806 and multiple DC-DC converters and LDOs, with CPU core voltages supporting DVFS (Dynamic Voltage and Frequency Scaling).

The LCB3588S adopts a modular design concept, designing the core part, which has the same requirements and strict standards, as a full-function module. It brings out all the functional pins of the CPU and has undergone comprehensive testing and mass verification. Users can save project development time, reduce corporate costs, and improve company efficiency by developing products based on this module.



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. |



Scalable NPU Computing Power

NPU computational power can be expanded up to 38 TOPS; capable of externally connecting 1 computational card with 26 TOPS of computational power and 2 computational cards with 3 TOPS each.

Demo programs are provided.



Operating System

Android

Linux (Buildroot / Debian / Ubuntu)



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 Datasheet

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 | RK3588S 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

MIPI interface :

2 * MIPI(4 lanes) + 4 * MIPI(2 lanes), totally support 6 cameras input;

Video Input interface 3 * MIPI(4 lanes) + 2 * MIPI(2 lanes), totally support 5 cameras input;

interface 4 * MIPI(4 lanes) , totally support 4 cameras input;

HDMI RX interface:

HDMI 2.0 2160p@60 Hz, Support HDCP2.3 and HDCP1.4;

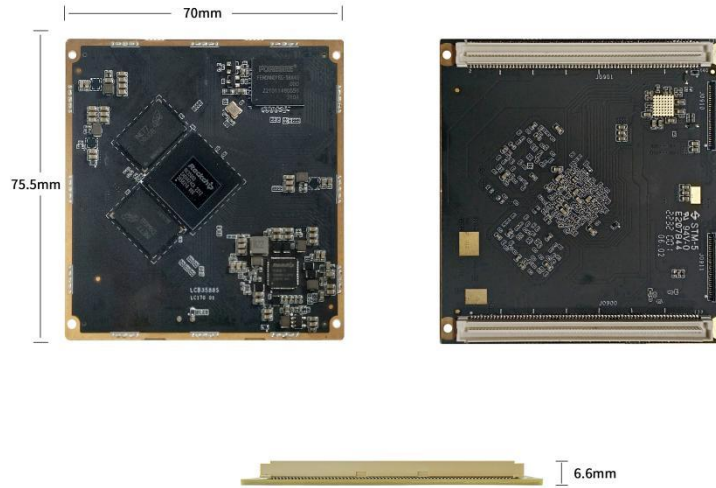
| | |
|--------------|-----------------------------------|
| | 1 * HDMI2.1 up to 8K@60fps; |
| Video Output | 1 * HDMI2.0 up to 4K@60fps; |
| interface | 2 * MIPI-DSI up to 4K@60fps; |
| | 1 * BT.1120 up to 1080@60fps; |
| Image Signal | 8064*6048@15 dual ISP; |
| Processor | 6528*4898@30 dual ISP; |
| | 4672*3504@30 single ISP; |
| Video Output | Video Port0 up to 7680*4320@60Hz; |
| Processor | Video Port1 up to 4096*4320@60Hz; |

Other Parameters

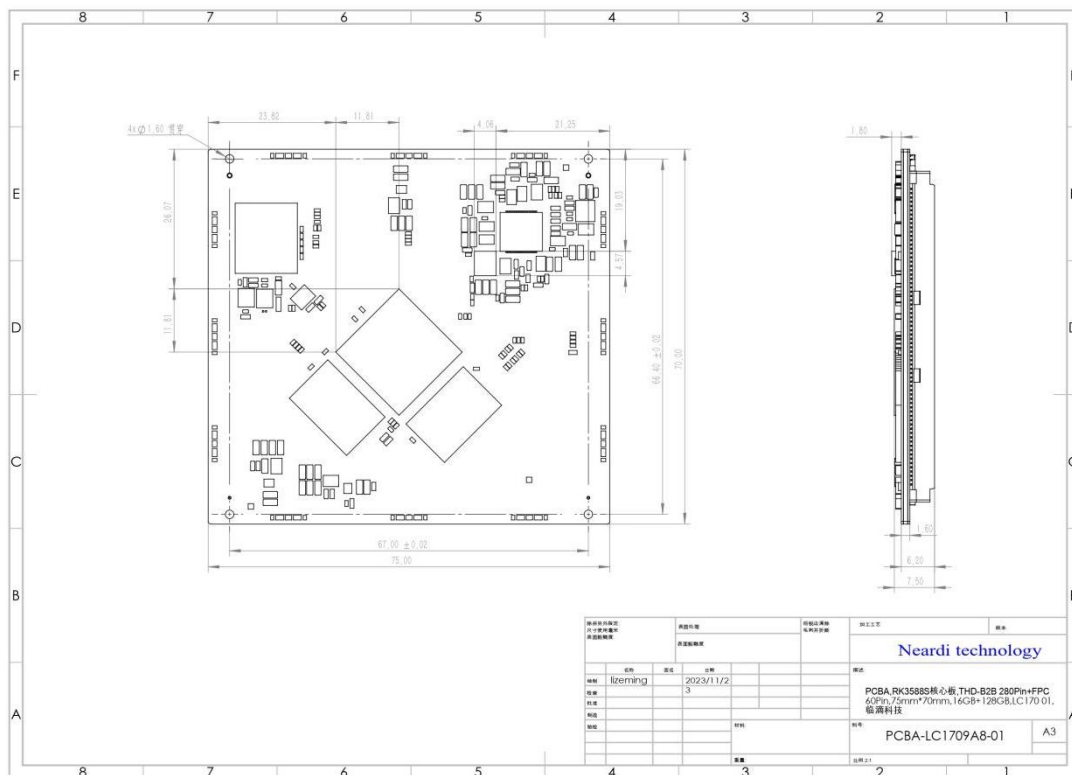
| | |
|-----------------------|--|
| Operating temperature | Enterprise Grade: -20°C to 70°C |
| PCB interface | B2B(280 Pin 0.8mm Pitch) + FPC(2 * 30 Pin 0.5mm Pitch) |
| PCB layers | 10 layers |
| PCB size | L* W *H(mm): 75 *70 * 7.5 (PCB thickness 1.6mm) |

4. Appearance and Dimensions

4.1 Appearance



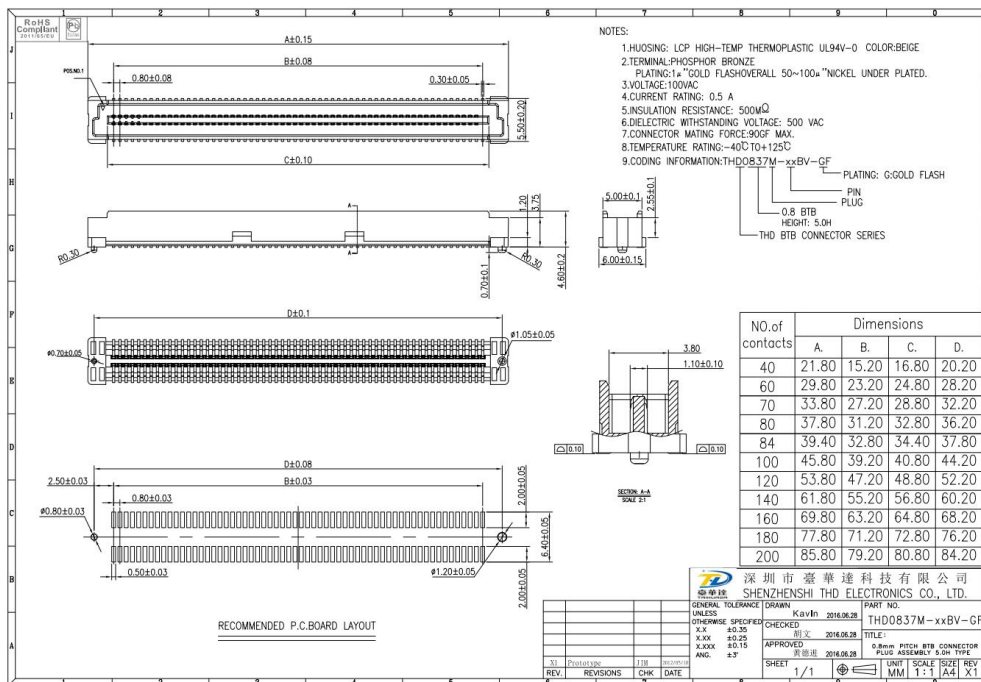
4.2 Dimensions



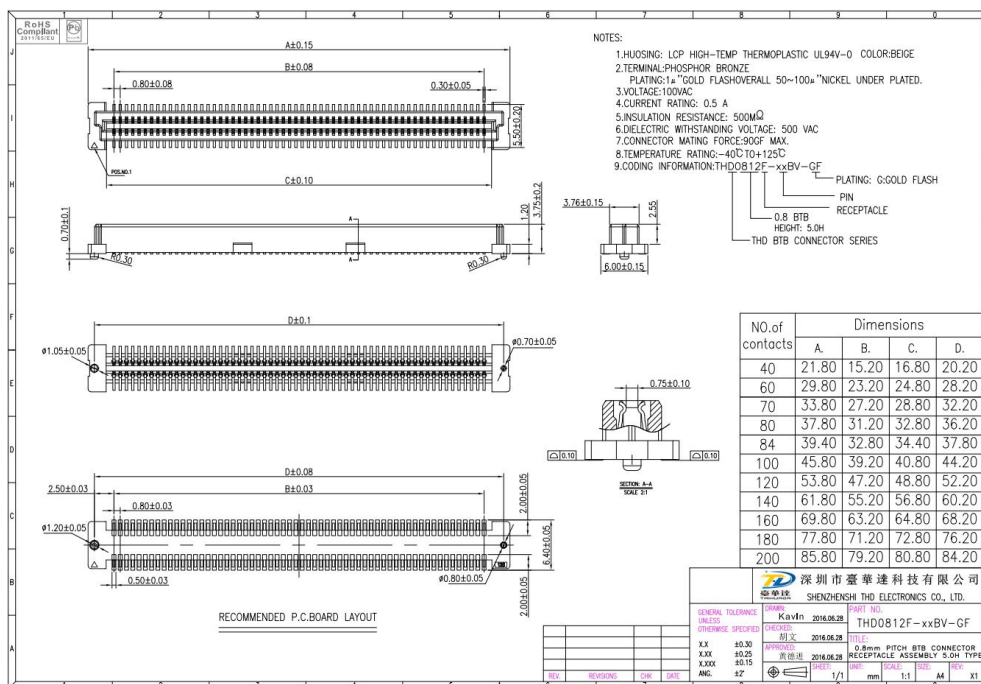
4.3 structure

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:

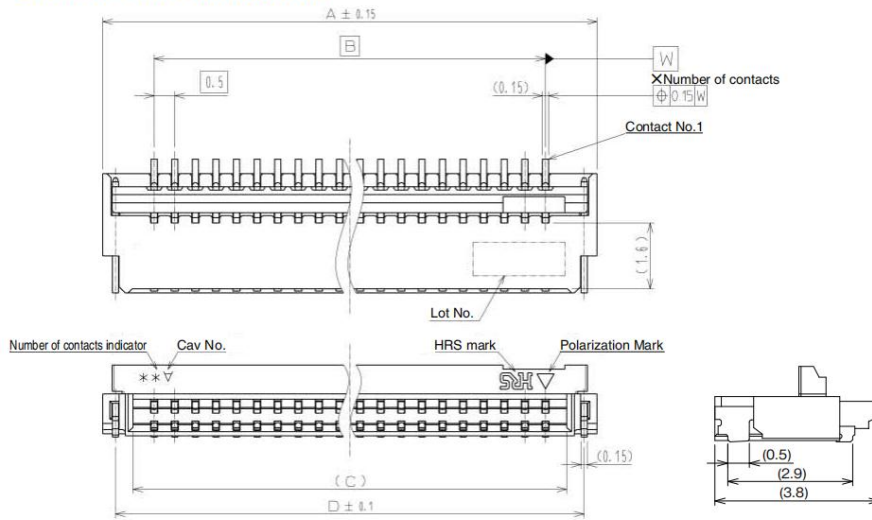


The corresponding board-to-board connector on the baseboard is model THD0812F-140BV-GF, with the relevant specifications shown in the figure below:



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



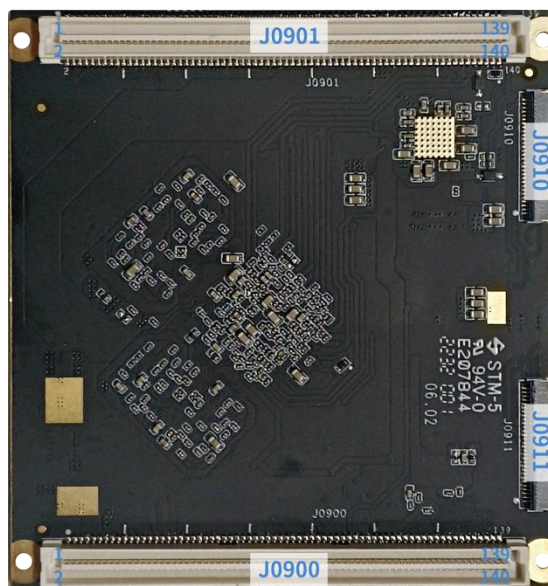
- Note 1 : The coplanarity of each terminal lead within specified dimension is 0.1mm Max.
- Note 2 : Packaged on tape and reel only. Check packaging specification.
- Note 3 : Slight variations in color of the plastic compounds do not affect form, fit or function of the connector.
- Note 4 : After reflow, 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 | GND13 |
| 2 | GPIO4_D5-SDMMC0_CLK |
| 3 | HDMI0_TX_SBDN/eDP0_TX_AUXN |
| 4 | GPIO4_D0-SDMMC0_D0 |
| 5 | HDMI0_TX_SBDP/eDP0_TX_AUXP |
| 6 | GPIO4_D1-SDMMC0_D1 |
| 7 | GND14 |
| 8 | GPIO4_D2-SDMMC0_D2 |
| 9 | HDMI0_TX3N_PORT/eDP0_TX_D3N |
| 10 | GPIO4_D3-SDMMC0_D3 |

| | |
|----|-----------------------------|
| 11 | HDMI0_TX3P_PORT/eDP0_TX_D3P |
| 12 | GPIO4_D4-SDMMC0_CMD |
| 13 | GND15 |
| 14 | GPIO0_D5-CAN2_TX_M1 |
| 15 | HDMI0_TX0N_PORT/eDP0_TX_D0N |
| 16 | GPIO0_A4-SDMMC0_DET_L |
| 17 | HDMI0_TX0P_PORT/eDP0_TX_D0P |
| 18 | GND1 |
| 19 | GND16 |
| 20 | GPIO4_B2-4G_PWR-IO6 |
| 21 | HDMI0_TX1N_PORT/eDP0_TX_D1N |
| 22 | GPIO3_D3-4G-RST_IO5 |
| 23 | HDMI0_TX1P_PORT/eDP0_TX_D1P |
| 24 | GPIO3_A6_d_IO5 |
| 25 | GND17 |
| 26 | GPIO4_B0-I2C6_SDA_M3_IO6 |
| 27 | HDMI0_TX2N_PORT/eDP0_TX_D2N |
| 28 | GPIO4_B5-IO6 |
| 29 | HDMI0_TX2P_PORT/eDP0_TX_D2P |
| 30 | GPIO3_C1_9523-RST_IO5 |
| 31 | GND18 |
| 32 | GPIO4_B1-I2C6_SCL_M3_IO6 |

| | |
|----|---|
| 33 | NC4 |
| 34 | GND2 |
| 35 | NC5 |
| 36 | USB2_DP_HOST1 |
| 37 | NC6 |
| 38 | USB2_DM_HOST1 |
| 39 | NC7 |
| 40 | GND3 |
| 41 | NC8 |
| 42 | NC1 |
| 43 | NC9 |
| 44 | NC2 |
| 45 | NC10 |
| 46 | GND4 |
| 47 | NC11 |
| 48 | PCIE20_2_RXP/SATA30_2_RXP/USB3_HOST_SSRXP |
| 49 | NC12 |
| 50 | PCIE20_2_RXN/SATA30_2_RXN/USB3_HOST_SSRXN |
| 51 | NC13 |
| 52 | GND5 |
| 53 | GND19 |
| 54 | USB3_HOST_DM |

| | |
|----|---|
| 55 | TYPECO_SBU1 |
| 56 | USB3_HOST_DP |
| 57 | TYPECO_SBU2 |
| 58 | GND6 |
| 59 | TYPECO_OTG_VBUSDET |
| 60 | TYPECO_OTG_DP |
| 61 | USB2_OTG0_ID |
| 62 | TYPECO_OTG_DM |
| 63 | SARADC_VIN3 |
| 64 | GND7 |
| 65 | NC14 |
| 66 | PCIE20_2_TXP/SATA30_2_TXP/USB3_HOST_SSTXP |
| 67 | SARADC_VIN0_BOOT_IO |
| 68 | PCIE20_2_TXN/SATA30_2_TXN/USB3_HOST_SSTXN |
| 69 | GND20 |
| 70 | GND8 |
| 71 | TYPECO_SSRX1N |
| 72 | SARADC_VIN5 |
| 73 | TYPECO_SSRX1P |
| 74 | SARADC_VIN1_KEY/RECOVERY |
| 75 | GND21 |
| 76 | SARADC_VIN4 |

| | |
|----|-------------------------|
| 77 | TYPECO_SSTX1P |
| 78 | SARADC_VIN2 |
| 79 | TYPECO_SSTX1N |
| 80 | GND9 |
| 81 | GND22 |
| 82 | GPIO3_C5-SDMMC_PWR-IO5 |
| 83 | TYPECO_SSRX2N |
| 84 | TYPECO_SBU1_DC |
| 85 | TYPECO_SSRX2P |
| 86 | TYPECO_SBU2_DC |
| 87 | GND23 |
| 88 | UART9_RX_M2_IO5 |
| 89 | TYPECO_SSTX2P |
| 90 | UART9_TX_M2_IO5 |
| 91 | TYPECO_SSTX2N |
| 92 | GPIO4_A4-AW9523_INT-IO6 |
| 93 | GND24 |
| 94 | GPIO3_C6-TYPEC_PWR-IO5 |
| 95 | GPIO3_C4-SPKCTRL-IO5 |
| 96 | GPIO3_C0-IO5 |
| 97 | NC15 |
| 98 | GPIO3_B7-NPU_PWR_EN-IO5 |

| | |
|-----|---------------------------|
| 99 | GPIO1_B0-LT8912-PWR |
| 100 | NC3 |
| 101 | GPIO3_D2d_IO5 |
| 102 | PMIC_EXT_EN_OUT |
| 103 | GND25 |
| 104 | GPIO4_B4-HDMI_TXON_H-IO6 |
| 105 | PWRON_L |
| 106 | GND10 |
| 107 | PMU_VDC_IN |
| 108 | HDMITX0_SDA_M0 |
| 109 | GPIO4_A6-NPU_REST-IO6 |
| 110 | VCC_IO5_1833_IN |
| 111 | VCC_IO6_1833_IN |
| 112 | HDMITX0_SCL_M0 |
| 113 | GPIO4_A3-LT8912-RST-IO6 |
| 114 | GPIO4_B3-HOST_WAKE_BT-IO6 |
| 115 | GPIO4_C1-BT_REGON-IO6 |
| 116 | GPIO1_C1_SEN_INT_L |
| 117 | GPIO1_B5-LCD-BKLEN_1V8 |
| 118 | GPIO0_C6_LVDS_BL_PWM5 |
| 119 | GPIO1_A4_DPHY1CAM_RST |
| 120 | GPIO4_B6-GMAC1_RSTn |

| | |
|-----|--------------------------|
| 121 | GPIO4_A5-WIFIREG_ON-IO6 |
| 122 | GPIO1_B2_UART4_Rx_M2_IO4 |
| 123 | GPIO1_B3_UART4_Tx_M2_IO4 |
| 124 | GPIO4_A7-TP-INT-L_IO6 |
| 125 | GND26 |
| 126 | GND11 |
| 127 | GND27 |
| 128 | GND12 |
| 129 | VCC_SYSIN_4 |
| 130 | VCC_SYSIN_1 |
| 131 | VCC_SYSIN_5 |
| 132 | VCC_SYSIN_2 |
| 133 | VCC_SYSIN_6 |
| 134 | VCC_SYSIN_3 |
| 135 | GND28 |
| 136 | VCC_1V8_S3_Out_2A5 |
| 137 | VCCA_3V3_S0_Out_0A5 |
| 138 | VCC_3V3_S3_Out_2A5 |
| 139 | VCC_1V8_S0_Out_0A5 |
| 140 | VCCA_PMU_IN |

J0900

| Pin Number | Pin Name |
|-------------------|-----------------|
|-------------------|-----------------|

| | |
|----|---------------------------|
| 1 | PCIE20x1_2_CLKREQn_M0 |
| 2 | NC1 |
| 3 | NC16 |
| 4 | GPIO0_C7-DPHY1_CAMA_PDN |
| 5 | PCIE20x1_2_WAKEn_M0 |
| 6 | PCIE20x1_2_PERSTn_M0 |
| 7 | GPIO1_D4-I2S0_SDI |
| 8 | GPIO0_A0-PDHYOCAM_PWR_H |
| 9 | GPIO1_C7-I2S0_SDO |
| 10 | GPIO1_B4-DPHY1CAM_PWR_H |
| 11 | GPIO1_D2-WORKING_LED_H |
| 12 | GND1 |
| 13 | GPIO1_C5-I2S0_LRCK_TX |
| 14 | GPIO1_B6-DPHY0CAM_CLKOUT |
| 15 | GPIO1_C0-HP_DET_L |
| 16 | GPIO1_C6-GM8775_PWREN_H |
| 17 | GPIO0_C5-USB_HOST_PWREN_H |
| 18 | GPIO1_B7-DPHY1CAM_CLKOUT |
| 19 | GND20 |
| 20 | GPIO1_B1-GM8775_RST |
| 21 | GPIO1_C3-I2S0_SCLK_TX |
| 22 | GND2 |

| | |
|----|--------------------------|
| 23 | GPIO1_D0-I2C7_SCL_M0_IO1 |
| 24 | GPIO1_D7-I2C8_SDA_M2_CAM |
| 25 | GPIO1_D1-I2C7_SDA_M0_IO1 |
| 26 | GPIO1_A7-DPHY0_CAMB_PDN |
| 27 | GPIO1_C2-I2S0_MCLK |
| 28 | GPIO1_D6-I2C8_SCL_M2_CAM |
| 29 | GPIO1_A5-HDMITX0_HPDI_M0 |
| 30 | GPIO0_D0_DPHY0CAMA_PDN |
| 31 | NC17 |
| 32 | GPIO0_D3_DPHY1CAMB_PDN |
| 33 | GPIO1_A1-UART6_TX_M1 |
| 34 | GPIO1_A6-DPHY0CAM_RST |
| 35 | GPIO1_A0-UART6_RX_M1 |
| 36 | GPIO0_B2-RTC_32K_IN |
| 37 | GND21 |
| 38 | GPIO0_B0-RTC_INT_L |
| 39 | NC18 |
| 40 | UART2_TX_M0/JTAG_TCK_M2 |
| 41 | NC19 |
| 42 | UART2_RX_M0/JTAG_TMS_M2 |
| 43 | GND22 |
| 44 | GND3 |

| | |
|----|---------------------------|
| 45 | NC20 |
| 46 | NC2 |
| 47 | NC21 |
| 48 | NC3 |
| 49 | GND23 |
| 50 | GND4 |
| 51 | NC22 |
| 52 | NC4 |
| 53 | NC23 |
| 54 | NC5 |
| 55 | GND24 |
| 56 | GND5 |
| 57 | RESET_L |
| 58 | NC6 |
| 59 | GPIO3_B2-BT_WAKE_HOST-IO6 |
| 60 | NC7 |
| 61 | GPIO0_D4-CAN2RX_M1-IR_M0 |
| 62 | GND6 |
| 63 | GPIO1_A2-I2C4_SDA_M3_TP |
| 64 | NC8 |
| 65 | GPIO1_A3-I2C4_SCL_M3_TP |
| 66 | NC9 |

| | |
|----|---------------------------|
| 67 | NC24 |
| 68 | GND7 |
| 69 | NC25 |
| 70 | NC10 |
| 71 | GPIO0_C4-CC_INT0_L |
| 72 | NC11 |
| 73 | GPIO4_A2-TP_RST-IO6 |
| 74 | GND8 |
| 75 | GPIO1_D3-SATA2_ACT_LED |
| 76 | PCIE20_0_REFCLKN |
| 77 | NC26 |
| 78 | PCIE20_0_REFCLKP |
| 79 | GPIO1_D5-1V8 |
| 80 | GND9 |
| 81 | GPIO1_C4-1V8 |
| 82 | PCIE20_0_RXN/SATA30_0_RXN |
| 83 | NC27 |
| 84 | PCIE20_0_RXP/SATA30_0_RXP |
| 85 | NC28 |
| 86 | GND10 |
| 87 | NC29 |
| 88 | PCIE20_0_TXN/SATA30_0_TXN |

| | |
|-----|---------------------------|
| 89 | NC30 |
| 90 | PCIE20_0_TXP/SATA30_0_TXP |
| 91 | NC31 |
| 92 | GND11 |
| 93 | GND25 |
| 94 | NC12 |
| 95 | NC32 |
| 96 | NC13 |
| 97 | NC33 |
| 98 | GND12 |
| 99 | NC34 |
| 100 | NC14 |
| 101 | NC35 |
| 102 | NC15 |
| 103 | NC36 |
| 104 | GND13 |
| 105 | NC37 |
| 106 | MIPI_CSI0_RX_D0N |
| 107 | GND26 |
| 108 | MIPI_CSI0_RX_D0P |
| 109 | GPIO3_C2-GMAC1_MDC |
| 110 | GND14 |

| | |
|-----|--------------------------|
| 111 | GPIO3_C3-GMAC1_MDIO |
| 112 | MIPI_CSI0_RX_D1N |
| 113 | GPIO3_A1-GMAC1_TXD3 |
| 114 | MIPI_CSI0_RX_D1P |
| 115 | GPIO3_A0-GMAC1_TXD2 |
| 116 | GND15 |
| 117 | GPIO3_B3-GMAC1_TXD0 |
| 118 | MIPI_CSI0_RX_CLK0N |
| 119 | GPIO3_B4-GMAC1_TXD1 |
| 120 | MIPI_CSI0_RX_CLK0P |
| 121 | GPIO3_B5-GMAC1_TXEN |
| 122 | GND16 |
| 123 | GPIO3_B6-GMAC1_MCLKINOUT |
| 124 | MIPI_CSI0_RX_D2N |
| 125 | GPIO3_A4-GMAC1_TXCLK |
| 126 | MIPI_CSI0_RX_D2P |
| 127 | GPIO3_A5-GMAC1_RXCLK |
| 128 | GND17 |
| 129 | GPIO3_A7-GMAC1_RXD0 |
| 130 | MIPI_CSI0_RX_D3N |
| 131 | GPIO3_B1-GMAC1_RXDV_CRS |
| 132 | MIPI_CSI0_RX_D3P |

| | |
|-----|---------------------|
| 133 | GPIO3_B0-GMAC1_RXD1 |
| 134 | GND18 |
| 135 | GPIO3_A2-GMAC1_RXD2 |
| 136 | MIPI_CSI0_RX_CLK1N |
| 137 | GPIO3_A3-GMAC1_RXD3 |
| 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 |

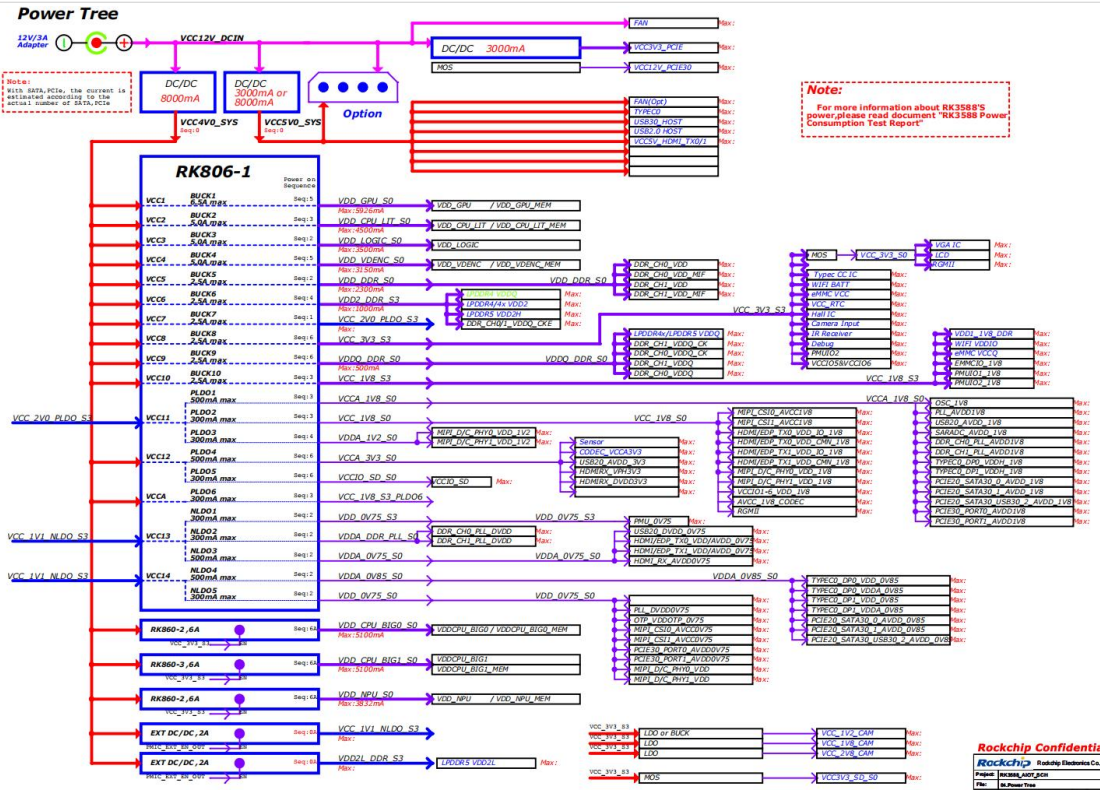
| | |
|----|--------------------|
| 3 | GND |
| 4 | MIPI_DPHY0_RX_D2P |
| 5 | MIPI_DPHY0_RX_D2N |
| 6 | GND |
| 7 | MIPI_DPHY0_RX_CLKP |
| 8 | MIPI_DPHY0_RX_CLKN |
| 9 | GND |
| 10 | MIPI_DPHY0_RX_D1N |
| 11 | MIPI_DPHY0_RX_D1P |
| 12 | GND |
| 13 | MIPI_DPHY0_RX_D0N |
| 14 | MIPI_DPHY0_RX_D0P |
| 15 | 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 |

Power Supply Voltage Parameters

| Symbol | Parameter | Current typ | Voltage (V) | | |
|-----------------------------------|--|----------------|-------------|----------------|------------|
| | | | Min | Typ | Max |
| VCC4V0_SYS_IN* | Main power input for LCB3588S | > 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 3.2 | 1.8 3.3 | 1.9 3.4 |
| VCC_IO6_1833_IN | Power input for VCCIO6 part of CPU | 0.1A | 1.7 3.2 | 1.8 3.3 | 1.9 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



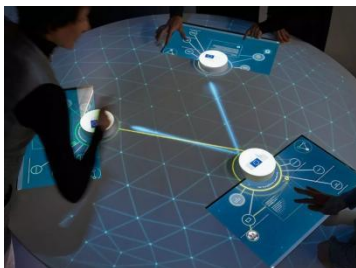
Smart Logistics



New



Smart Commercial



Object Recognition



Vehicle terminal



Security Surveillance

7.Ordering Model

| Product Model | Status | CPU | DDR | eMMC | Operating Temperature |
|----------------------|---------------|------------|------------|-------------|------------------------------|
| LC17043200 | ACTIVE | RK3588S | 4GB | 32GB | -20°C - 70°C |
| LC17086400 | ACTIVE | RK3588S | 8GB | 64GB | -20°C - 70°C |
| LC1709A800 | ACTIVE | RK3588S | 16GB | 128GB | -20°C - 70°C |

*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 |
|--|--|--|--|--|