

LKD3588 开发板
产品手册
V2.1



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版本历史

版本	日期	说明
V1.0	2022/8/23	初始版本
V2.0	2024/1/10	产品手册优化
V2.1	2024/4/25	数据更新

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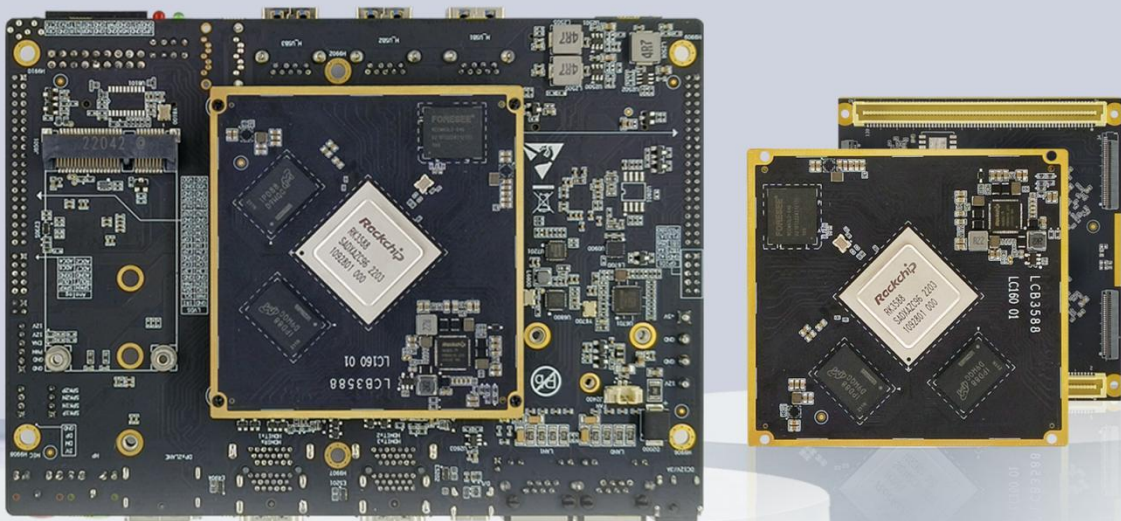
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1.产品介绍

LKD3588 是基于瑞芯微 RK3588 芯片平台精心设计的一款多功能开发评估板，其由我司的 LCB3588 核心模块与底板组成。核心模块与底板采用 B2B 连接器的方式连接，并通过 4 颗 M2 的螺丝固定，稳定可靠。整板功能多样，接口丰富，尺寸小巧，轻薄平整，适用于结构空间受限的产品。

LKD3588 板载 3 路 Type-A USB3.0 HOST，1 路 Type-C USB 3.1 otg 以及 1 路 4pin PH2.0 插口的 USB2.0 HOST 接口，可以外接多个 USB 摄像头；板载 2 个 mini-PCIe 接口，除了可以外接 4G 模块外还可以外接基于 RK1808 的 mini-PCIe 接口 NPU 计算卡；LKD3588 还支持双频 WIFI6、BT5.0、双路 1000M 以太网、UART、I2C、RS232、RS485、CANBUS 等常用通讯模块接口，支持 3 路 HDMI 输出、1 路双通道 LVDS 输出、1 路 DP 接口输出等多种显示接口并支持多屏异显；另外还可支持多路 mipi-csi 摄像头接口输入以及 1 路 HDMI2.0 接口输入。

LKD3588 支持 Android、buildroot、Debian 和 Ubuntu 系统，具备高性能、高可靠性、高扩展性等优势，为用户开放系统源码。用户可基于此款产品二次开发和定制，我司为开发者和企业用户提供全方位的技术支持，使其高效的完成研究开发工作，大量缩短产品研发量产周期。



2. 功能概述



高性能处理器

CPU	8nm 先进制程, 8 核 64 位架构, 高性能, 低功耗
GPU	ARM Mali-G610 MC4 GPU, 专用 2D 图形加速模块
NPU	6TOPS 算力
VPU	8K 视频编解码, 8K 显示输出
DDR	LPDDR4,可选 4/8/16GB
eMMC	eMMC 5.1,可选 32/64/128GB



接口丰富

3 路 HDMI2.0 输出, 1 路 DP 接口输出, 1 路 type-C 带 DP1.4 显示接口输出, 一路双 8 位 LVDS 输出, 多达 6 屏异显

4 路 mipi-csi 接口, 最多 6 个 mipi 摄像头输入

2 路千兆网口, 双频 WIFI6

2 路 MIPI PCIE 接口, 可扩展 4/5G 模块, 可扩展算力卡

1 路 M.2 M-Key 接口, 支持外接 NVMe 协议 2280 规格

3 路 Type-A USB3.0 HOST, 1 路 Type-C USB3.1 otg 带 DP 显示, 1 路 4Pin PH2.0 插座 USB2.0 HOST



可扩展 NPU 算力

NPU 算力可扩展至 38TOPS; 可外接 1 块 26TOPS 算力卡, 2 块 3TOPS 算力卡

提供 Demo 程序



操作系统

Android

Linux (Buildroot / Debian / Ubuntu)

Kylin(麒麟)



开源资料

WIKI 资料 <http://www.neardi.com/wiki/>

快速入门

升级固件

Android 开发

Linux 开发

内核驱动

DEMO

系统定制

配件

常见问题

发布说明

硬件资料

芯片 Datasheet

核心板引脚定义

底板参考原理图

底板参考 PCB

关键物料清单

产品 2/3D 图

软件资料

烧写工具及驱动

Android 源码及镜像

uboot 及内核源码

Debian/Ubuntu/Buildroot 的系统文件

3.规格参数

基本参数

SOC	RK3588 8nm; 8核 64位架构处理器 (4*A76+4*A55)
GPU	ARM Mali-G610 MC4; OpenGL ES 1.1/2.0/3.1/3.2; Vulkan 1.1/1.2 OpenCL 1.1/1.23/2.0; 高性能 2D 图像加速模块
NPU	6TOPS 算力 / 3核架构; 支持 int4/int8/int16/FP16/BF16/TF32
VPU	支持 H.265/H.264/AV1/VP9/AVS2 视频解码, 最高支持 8K60FPS 支持 H.264/H.265 视频编码, 最高支持 8K30FPS
DDR	LPDDR4, 可选 4GB/8GB/16GB
eMMC	eMMC 5.1, 可选 32GB/64GB/128GB
PMU	RK806
系统	Android / Ubuntu / Buildroot / Debian

硬件参数

Power	DC12V - 3A (DC Jack 5.5*2.1mm / PH2.0 wafer connector)
USB	3*Type-A USB3.0 HOST 1* Type-C USB3.1 OTG 1*4Pin PH2.0 USB2.0 HOST
Display	2*Type-A HDMI 2.1 up to 8K@60fps or 4K@120fps 1*Type-A HDMI 1.4 up to 1080P@60fps

	Duel channel LVDS up to 1080P@60HZ
	1* DP1.4 (8K@30fps, 与 type-C 复用)
	1*DP1.2 2Lane Output
	1*HDMI-IN (4K@60fps), 支持 HDCP 2.3
Audio	φ3.5mm earphone Jack with L/R audio out
	φ3.5mm microphone Jack with Mic in
	1*HDMI audio out
	2*2.7W/4Ω speaker out with L/R channel
Camera	2* MIPI CSI (4 Lane) 或者 4*MIPI CSI (2 Lane) + 2* MIPI CSI (4 Lane)
Mini-PCIe	mini PCIe for 2G/3G/4G/5G module
	RK1808 AI computing card
M.2	M.2 NGFF (M-KEY) PCIE V3.0 x4 with NVMe SSD supported
SD card	Compatible with SDIO 3.0 protocol, system boot up supported
SIM card	Micro sim slot for Mini-PCIe 4G LTE module
RJ-45	2*10/100/1000-Mbps data transfer rates
RTC	RTC power on and off supported
Serial port	3*Uart, 1*I2C
Keys	3* keys (power, reset, update)
Power output	12V, 5V, 3.3V,1.8V
Others	5*ADC,1*I2C,2*SATA

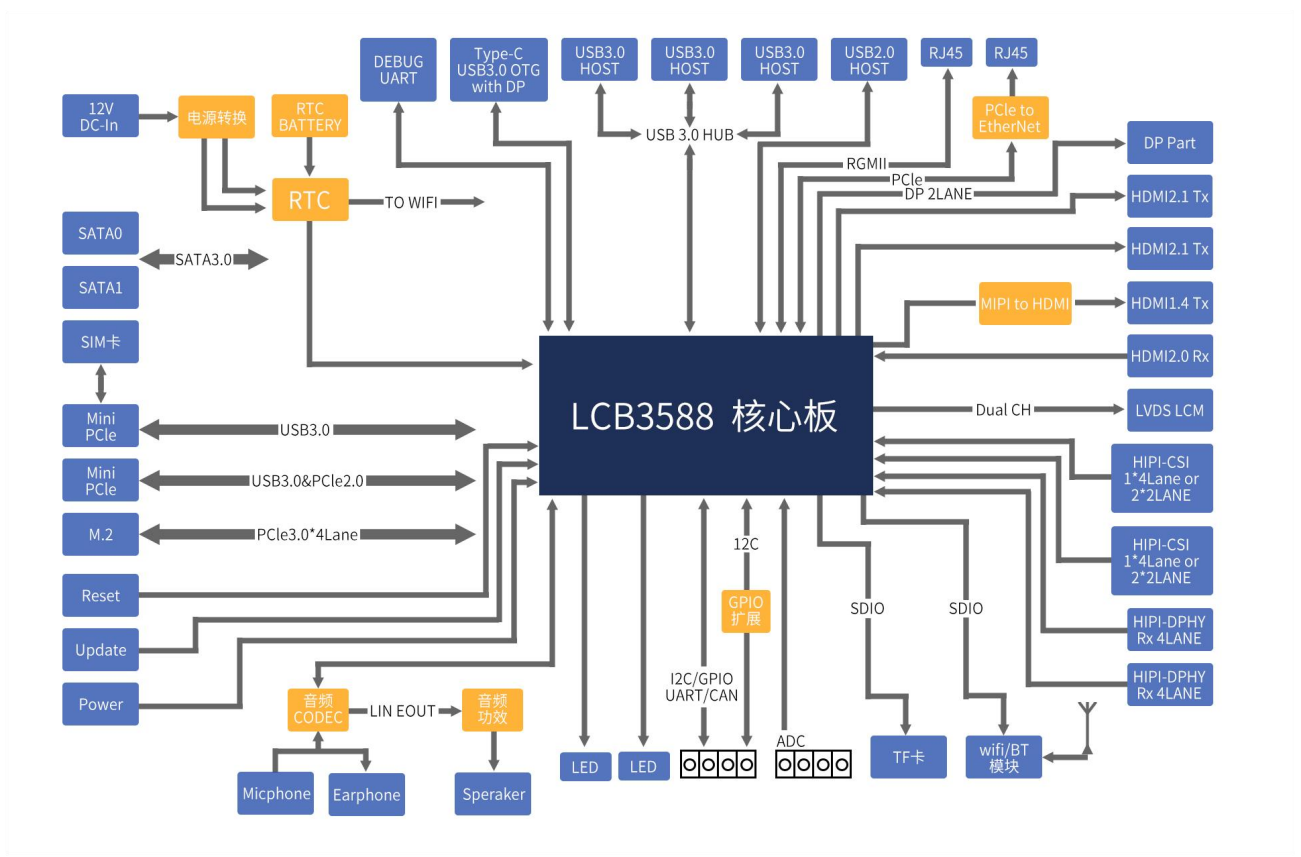
其他参数

尺寸 L*W*H(mm) 160*115*28.25

温度 工作温度 -10 - 70°C

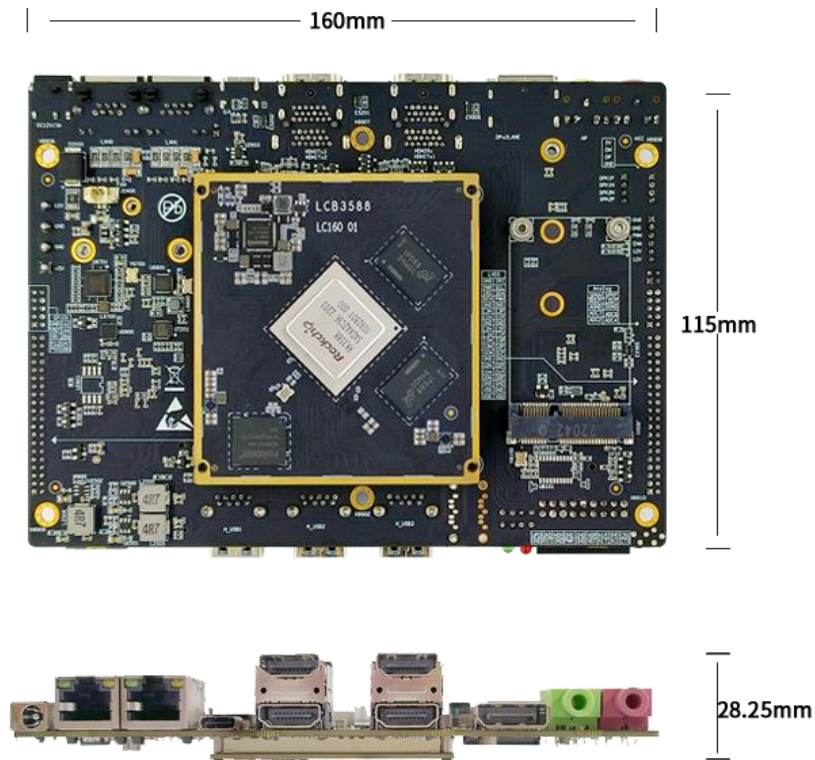
重量 约 200g (不含外设)

产品框图

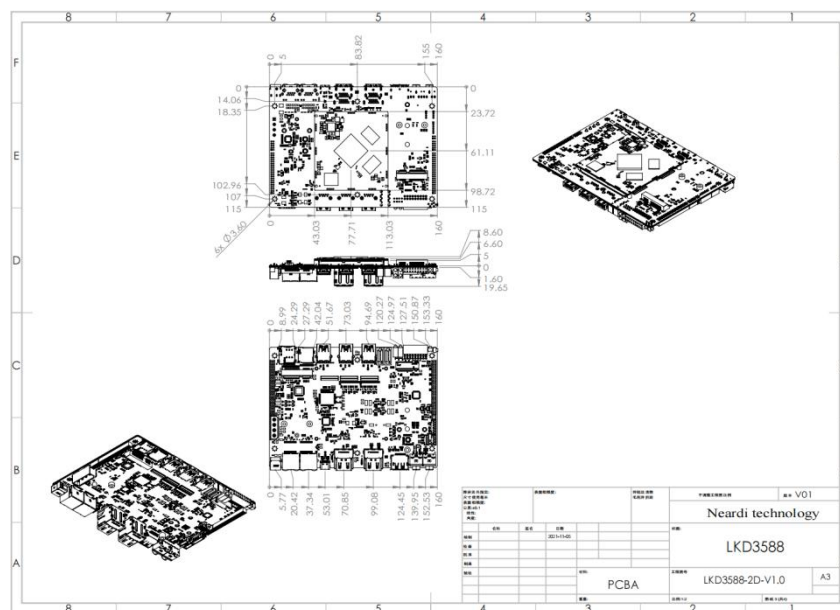


4. 外观和尺寸

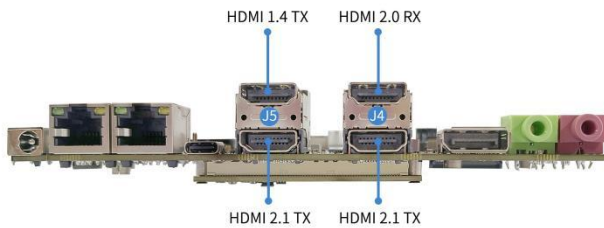
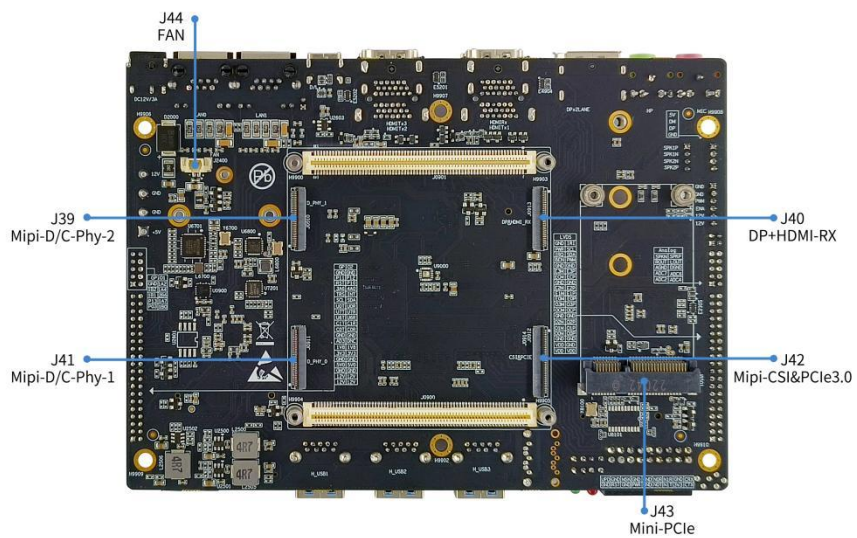
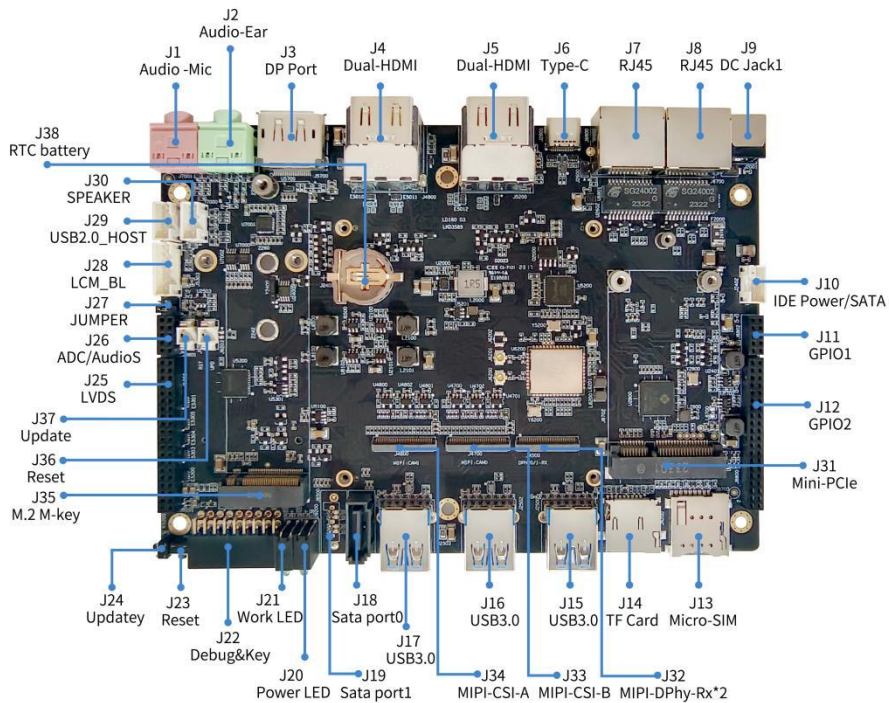
4.1 外观



4.2 尺寸



5.接口定义



Part reference	Part Name	Part Specifications	Part Description
J1	Audio Jack-Mic	φ3.5mm 3-L Jack	Micphone In
J2	Audio Jack-Ear	φ3.5mm 3-L Jack	L/R audio out
J3	DP Port	DisplayPort Socket	DP 2-Lane
J4	Dual-HDMI	Type-A HDMI 2in1	HDMI2.0 Rx + HDMI2.1 Tx
J5	Dual-HDMI	Type-A HDMI 2in1	HDMI1.4 Tx + HDMI2.1 Tx
J6	Type-C	Type-C Socket	Type-C with USB3.0 or Display port
J7	RJ45	Gigabit Ethernet	10/100/1000-Mbps data transfer rates
J8	RJ45	Gigabit Ethernet	10/100/1000-Mbps data transfer rates
J9	DC Jack1	DC 5.5*2.1mm	Main power supply, DC12V – 3A
J10	IDE Power	5.08mm pitch 4pin	Power for IDE/SATA Harddisk
J11	GPIO1	PH2.0mm 2x5pin header	GPIO for external usage
J12	GPIO2	PH2.0mm 2x20pin header	GPIO and Power for external usage
J13	Micro-SIM	Push-Push Micro SIM Socket	For Micro SIM Card (1.8/3.3V)
J14	TF Card	Push-Push TF socket	TF Card
J15	USB3.0	Type-A USB3.0 HOST	USB3.0 HOST
J16	USB3.0	Type-A USB3.0 HOST	USB3.0 HOST
J17	USB3.0	Type-A USB3.0 HOST	USB3.0 HOST
J18	Sata port0	7-pin SATA Port	SATA 3.0 Port
J19	Sata port1	7-pin SATA Port	SATA 3.0 Port
J20	Power LED	Red and Green LEDs	Power status indicate
J21	Work LED	Green led *2	Work status and 3G/4G Module Status Indicator
J22	Debug&Key	PH2.54mm 2x9pin Receptacle	Debug and Key and 3.3V out
J23	Reset	push-button	Key for system reset
J24	Update	push-button	Key for system recovery or other function
J25	LVDS	PH2.0mm 2x20pin header	Dual channel 24bit LVDS output
J26	ADC/Audio	PH2.0mm 2x5pin header	ADC In and Audio Out
J27	JUMPER	PH2.0mm 2x2pin header	Voltage Select for LVDS Panel Power
J28	LCM_BL	PH2.0mm 6pin wafer	LCM backlight control

J29	USB2.0_HOST	PH2.0mm 4pin wafer	USB2.0 host for external devices
J30	SPEAKER	PH2.0mm 4pin wafer	Dual channel audio Output for Speaker
J31	Mini-PCle	Mini-PCle 52pin socket	For 2G/3G/4G LTE module used
J32	MIPI-DPhy-Rx*2	30pin 0.5mm pitch FPC connector	Dual MIPI 4Lane Rx
J33	MIPI-CSI-B	30pin 0.5mm pitch FPC connector	MIPI-CSI 4lane or 2*2Lane for external cameras
J34	MIPI-CSI-A	30pin 0.5mm pitch FPC connector	MIPI-CSI 4lane or 2*2Lane for external cameras
J35	M.2 M-key	Standard M.2 M-key connector	M.2 NGFF (M-KEY) with PCIE V3.0*4Lane
J36	Reset	PH2.0mm 2pin wafer	Connector for external Reset key
J37	Update	PH2.0mm 2pin wafer	Connector for external update key
J38	RTC battery	CR1220 Socket	RTC battery power input 3.0V
J39	Mipi-D/C-Phy-2	30pin 0.5mm pitch FPC connector	Signals come from CoreBoard
J40	DP+HDMI-RX	30pin 0.5mm pitch FPC connector	Signals come from CoreBoard
J41	Mipi-D/C-Phy-1	30pin 0.5mm pitch FPC connector	Signals come from CoreBoard
J42	Mipi-CSI&PCle3.0	30pin 0.5mm pitch FPC connector	Signals come from CoreBoard
J43	Mini-PCle	Mini-PCle 52pin socket	For External NPU module
J44	FAN	PH2.0mm 2pin wafer	12V Output for FAN Power

6. 引脚定义

Audio Jack-Mic (J1)

Pin number	Pin name	Voltage level	Notice
1	GND	GND	-
2	Mic in	-	Vp-p < 0.8V
3	NC	-	-
4	NC	-	-
5	Mic in	-	Vp-p < 0.8V

Audio Jack-Earphone (J2)

Pin number	Pin name	Voltage level	Notice
1	GND	GND	-
2	EarPhone right out	-	0.5V RMS @32Ohm Load
3	NC	-	Not Connected
4	Detect	-	Low-Plug Out; High-Plug In
5	EarPhone right out	-	0.5V RMS @32Ohm Load

DP Port – 2Lane data (J3)

Pin number	Pin name	Voltage level	Notice
1	Lane0+	-	Data0 plus
2	GND	GND	-
3	Lane0-	-	Data0 minus
4	GND	GND	-
5	Lane1+	-	Data1 plus
6	GND	GND	-
7	Lane1-	-	Data1 minus
8	GND	GND	-
9	NC	-	Not Connected
10	NC	-	Not Connected
11	GND	GND	-
12	NC	-	Not Connected
13	Config0	-	Pull Down by 1M resistor
14	Config1	-	Pull Down by 1M resistor
15	AUXP	-	AUX plus
16	GND	GND	-
17	AUXN	-	AUX minus
18	HPD	-	Hot Plug Detect(GPIO3_D5_d)
19	GND	GND	-
20	3V3	3.3V	3.3V Output

Dual-HDMI (J4)

Pin number	Pin name	Voltage level	Notice
U1	D2P	-	HDMI2.1 Output 0

U2	D2_GND	GND	-
U3	D2N	-	HDMI2.1 Output 0
U4	D1P	-	HDMI2.1 Output 0
U5	D1_GND	GND	-
U6	D1N	-	HDMI2.1 Output 0
U7	D0P	-	HDMI2.1 Output 0
U8	D0_GND	GND	-
U9	D0N	-	HDMI2.1 Output 0
U10	CLKP	-	HDMI2.1 Output 0
U11	CLK_GND	GND	-
U12	CLKN	-	HDMI2.1 Output 0
U13	NC	-	Not Connected
U14	AUXP	-	AUXP for eARC
U15	SCL	5V	I2C-SCL for HDMI2.1 Tx0(GPIO4_B7_u)
U16	SDA	5V	I2C-SDA for HDMI2.1Tx0(GPIO4_C0_u)
U17	GND	GND	-
U18	+5V	+5V	-
U19	AUXN	-	AUXN for eARC
D1	D2P	-	HDMI 2.0 Rx
D2	D2_GND	-	-
D3	D2N	-	HDMI 2.0 Rx
D4	D1P	-	HDMI 2.0 Rx
D5	D1_GND	-	-
D6	D1N	-	HDMI 2.0 Rx
D7	D0P	-	HDMI 2.0 Rx
D8	D0_GND	-	-
D9	D0N	-	HDMI 2.0 Rx
D10	CLKP	-	HDMI 2.0 Rx
D11	CLK_GND	-	-
D12	CLKN	-	HDMI 2.0 Rx
D13	NC	-	-
D14	NC	-	-
D15	SCL	5V	I2C-SCL for HDMI 2.0 Rx(GPIO3_D2_d)
D16	SDA	5V	I2C-SCL for HDMI 2.0 Rx(GPIO3_D5_d)
D17	GND	-	-
D18	+5V	-	-
D19	HPD	-	HPD for HDMI 2.0 Rx(GPIO3_D4_d)

Dual-HDMI (J5)

Pin number	Pin name	Voltage level	Notice
U1	D2P	-	HDMI2.1 Output 1
U2	D2_GND	GND	-

U3	D2N	-	HDMI2.1 Output 1
U4	D1P	-	HDMI2.1 Output 1
U5	D1_GND	GND	-
U6	D1N	-	HDMI2.1 Output 1
U7	D0P	-	HDMI2.1 Output 1
U8	D0_GND	GND	-
U9	D0N	-	HDMI2.1 Output 1
U10	CLKP	-	HDMI2.1 Output 1
U11	CLK_GND	GND	-
U12	CLKN	-	HDMI2.1 Output 1
U13	NC	-	Not Connected
U14	AUXP	-	AUXP for eARC
U15	SCL	5V	I2C-SCL for HDMI2.1 Tx0(GPIO3_C6_u)
U16	SDA	5V	I2C-SDA for HDMI2.1Tx0(GPIO3_C5_u)
U17	GND	GND	-
U18	+5V	+5V	-
U19	AUXN	-	AUXN for eARC
D1	D2P	-	HDMI 2.0 Rx
D2	D2_GND	-	-
D3	D2N	-	HDMI 1.4 Tx
D4	D1P	-	HDMI 1.4 Tx
D5	D1_GND	-	-
D6	D1N	-	HDMI 1.4 Tx
D7	D0P	-	HDMI 1.4 Tx
D8	D0_GND	-	-
D9	D0N	-	HDMI 1.4 Tx
D10	CLKP	-	HDMI 1.4 Tx
D11	CLK_GND	-	-
D12	CLKN	-	HDMI 1.4 Tx
D13	NC	-	-
D14	NC	-	-
D15	NC	5V	Pulled Up by 4.7K Resistor
D16	NC	5V	Pulled Up by 4.7K Resistor
D17	GND	-	-
D18	+5V	-	-
D19	HPD	-	Hot Plug Detect for HDMI 1.4 Tx
Type-C (J6)			
Pin number	Pin name	Voltage level	Notice
A1	GND	GND	-
A2	TYPEC0TX1P	-	-
A3	TYPEC0TX1N	-	-

A4	VBUS5V0_TYPEC	+5V	-
A5	TYPEC0_CC1	-	-
A6	TYPEC0_OTGDP	-	-
A7	TYPEC0_OTGDM	-	-
A8	TYPEC0_AUXP	-	-
A9	VBUS5V0_TYPEC	+5V	-
A10	TYPEC0RX2N	-	-
A11	TYPEC0RX2P	-	-
A12	GND	GND	-
B1	GND	GND	-
B2	TYPEC0TX2P	-	-
B3	TYPEC0TX2N	-	-
B4	VBUS5V0_TYPEC	+5V	-
B5	TYPEC0_CC2	-	-
B6	TYPEC0_OTGDP	-	-
B7	TYPEC0_OTGDM	-	-
B8	TYPEC0_AUXM	-	-
B9	VBUS5V0_TYPEC	+5V	-
B10	TYPEC0RX1N	-	-
B11	TYPEC0RX1P	-	-
B12	GND	GND	-

RJ45 (J7)

Pin number	Pin name	Voltage level	Notice
1	DA+	-	-
2	DA-	-	-
3	DB+	-	-
4	DC+	-	-
5	DC-	-	-
6	DB-	-	-
7	DD+	-	-
8	DD-	-	-

RJ45 (J8)

Pin number	Pin name	Voltage level	Notice
1	DA+	-	-
2	DA-	-	-
3	DB+	-	-
4	DC+	-	-
5	DC-	-	-
6	DB-	-	-
7	DD+	-	-
8	DD-	-	-

DC Jack1 (J9)

Pin number	Pin name	Voltage level	Notice
------------	----------	---------------	--------

1	DC-IN	12V	DC 12V/3A Input
2	GND	GND	-
3	GND	GND	-
4	EARTH	-	Connected to GND by 1M Resistor//1nF
5	EARTH	-	Capacitor
6	NC	NC	Not Connected

IDE Power (J10)

Pin number	Pin name	Voltage level	Notice
1	+5V	GND	-
2	GND	GND	-
3	GND	+5V	+5V/2.5A Output
4	+12V	+12V	+12V Output

GPIO1 (J11)

Pin number	Pin name	Voltage level	Notice
1	EXTIO_P0_3	3.3V	Extended IO from AW9523
2	MIPI_CAM4_PDN_L	1.8V	GPIO1_B0_u
3	EXTIO_P1_3	3.3V	Extended IO from AW9523
4	MIPI_CAM3_PDN_L	1.8V	GPIO1_A7_u
5	MIPI_CAM4_PWREN_H	1.8V	GPIO0_B1_d
6	MIPI_CAM3/4_RESET_L	1.8V	GPIO2_B6_d
7	MIPI_CAM3_PWREN_H	1.8V	GPIO1_B2_d
8	MIPI_CAM2_PDN_L	1.8V	GPIO1_A4_d
9	GND	GND	-
10	MIPI_CAM1_PDN_L	1.8V	GPIO1_A2_d

GPIO2 (J12)

Pin number	Pin name	Voltage level	Notice
1	VCC12V_DCIN	12V	+12V Input/Output
2	VCC12V_DCIN	12V	
3	VCC12V_DCIN	12V	
4	VCC12V_DCIN	12V	
5	GND	GND	-
6	GND	GND	-
7	VCC_5V0	5V	+5V Output (2A)
8	VCC_5V0	5V	
9	GND	GND	-
10	GND	GND	-
11	VCC3V3_EXT	3.3V	+3.3V Output (2A)
12	VCC3V3_EXT	3.3V	
13	VCC1V8_EXT	1.8V	+1.8V Output (0.2A)
14	VCC1V8_EXT	1.8V	
15	SARADC_VIN3_HP_HO OK	0~1.8V	ADC input
16	NC	-	Not Connected

17	GND	GND	-
18	GND	GND	-
19	CAN0_TX_3V3	3.3V	CAN0-Tx-M0/GPIO0_B7_d
20	CAN0_RX_3V3	3.3V	CAN0-Rx-M0/GPIO0_C0_d
21	CAN1_TX_M1	3.3V	CAN1-TX-M1/GPIO4_B3_u
22	CAN1_RX_M1	3.3V	CAN1_RX_M1/GPIO4_B2_u
23	UART6_TX_M2_3V3	3.3V	GPIO1_D0_d
24	UART6_RX_M2_3V3	3.3V	GPIO1_D1_d
25	UART7_TX_M0_3V3	3.3V	GPIO2_B5_u
26	UART7_RX_M0_3V3	3.3V	GPIO2_B4_u
27	UART0_TX_M2_3V3	3.3V	GPIO4_A3_d
28	UART0_RX_M2_3V3	3.3V	GPIO4_A4_d
29	I2C6_SCL_M0_3V3	3.3V	GPIO0_D0_d
30	I2C6_SDA_M0_3V3	3.3V	GPIO0_C7_d
31	TP_RST_L_3V3	3.3V	GPIO3_C1_d
32	TP_INT_L_3V3	3.3V	GPIO3_C0_d(In:3.3V/Out:1.8V)
33	GPIO3A6D_1V8	1.8V	GPIO3_A6_d
34	SPK_CTRL_H_3V3	3.3V	GPIO4_A0_d
35	MIPI_CAM1/2_RESET_L	1.8V	GPIO1_A3_d
36	EXTIO_P1_0	3.3V	Extended IO from AW9523
37	EXTIO_P1_1	3.3V	Extended IO from AW9523
38	EXTIO_P1_2	3.3V	Extended IO from AW9523
39	GND	GND	-
40	GND	GND	-

Micro-SIM (J13)

Pin number	Pin name	Voltage level	Notice
1	CD	SIM_VCC	SimCard insert detect - Low:SIM card plugged in; High: SIM card pulled out.
2	NC	-	-
3	NC	-	-
4	SIM-IO	SIM_VCC	Data of SIM Card
5	SIM-Clock	SIM_VCC	Clock of SIM Card
6	NC	-	-
7	SIM-Reset	SIM_VCC	Reset of SIM Card
8	GND	-	-
9	SIM-VCC	-	1.8V/3.3V Auto Switched

TF Card (J14)

Pin number	Pin name	Voltage level	Notice
1	Data2	VCCIO_SD	GPIO4_D2_u
2	Data3	VCCIO_SD	GPIO4_D3_u
3	CMD	VCCIO_SD	GPIO4_D4_u
4	VDD	VCCIO_SD	-

5	CLK	VCCIO_SD	GPIO4_D5_d
6	GND	GND	-
7	Data0	VCCIO_SD	GPIO4_D0_u
8	Data1	VCCIO_SD	GPIO4_D1_u
9	Card-Detect	1.8V	GPIO0_A4-u

USB3.0 Host (J15)

Pin number	Pin name	Voltage level	Notice
1	VBUS	+5V	5V/1A Output
2	D-	GND	USB 1.1/2.0 DP
3	D+	-	USB 1.1/2.0 DM
4	GND	GND	-
5	RX-	-	USB3.0 SSRX-
6	RX+	-	USB3.0 SSR+
7	GND	GND	-
8	TX-	-	USB3.0 SSTX-
9	TX+	-	USB3.0 SSTX+

USB3.0 Host (J16)

Pin number	Pin name	Voltage level	Notice
1	VBUS	+5V	5V/1A Output
2	D-	GND	USB 1.1/2.0 DP
3	D+	-	USB 1.1/2.0 DM
4	GND	GND	-
5	RX-	-	USB3.0 SSRX-
6	RX+	-	USB3.0 SSR+
7	GND	GND	-
8	TX-	-	USB3.0 SSTX-
9	TX+	-	USB3.0 SSTX+

USB3.0 Host (J17)

Pin number	Pin name	Voltage level	Notice
1	VBUS	+5V	5V/1A Output
2	D-	GND	USB 1.1/2.0 DP
3	D+	-	USB 1.1/2.0 DM
4	GND	GND	-
5	RX-	-	USB3.0 SSRX-
6	RX+	-	USB3.0 SSR+
7	GND	GND	-
8	TX-	-	USB3.0 SSTX-
9	TX+	-	USB3.0 SSTX+

Sata port0 (J18)

Pin number	Pin name	Voltage level	Notice
1	GND	GND	-
2	TXP	-	Transmit differential signal for Sata 3.0
3	TXN	-	

4	GND	GND	-
5	RXN	-	Receive differential signal for Sata 3.0
6	RXP	-	
7	GND	GND	-

Sata port1 (J19)

Pin number	Pin name	Voltage level	Notice
1	GND	GND	-
2	TXP	-	Transmit differential signal for Sata 3.0
3	TXN	-	
4	GND	GND	-
5	RXN	-	Receive differential signal for Sata 3.0
6	RXP	-	
7	GND	GND	-

Note: If this socket is used, the PCIe2.0 function in "J41 " can not be used.

Power LED (J20)

Pin number	Pin name	Voltage level	Notice
1	LED1+	-	Red LED for Power OK
2	LED1-	-	-
3	LED2+	-	Green LED for system status
4	LED2-	-	-

Work LED (J21)

Pin number	Pin name	Voltage level	Notice
1	LED1+	-	Green LED for 3G/4G Modue
2	LED1-	-	-
3	LED2+	-	Green LED for system status
4	LED2-	-	-

Debug&Key (J22)

Pin number	Pin name	Voltage level	Notice
1	CPU_DBG_TX	3.3V	1.5M bps Datarate/GPIO0_B5_d
2	CPU_DBG_RX	3.3V	1.5M bps Datarate/GPIO0_B6_d
3	VCC3V3_EXT	3.3V	3.3V/1A Output
4	GND	GND	-
5	NPU1_TX	3.3V	UART From PCIe Slot(J41)
6	NPU1_RX	3.3V	UART From PCIe Slot(J41)
7	NPU2_TX	3.3V	UART From PCIe Slot(J33)
8	NPU2_RX	3.3V	UART From PCIe Slot(J33)
9	GND	GND	-
10	GND	GND	-
11	PWR_KEY	+3.3V	Pulled up internally by 30K Ohm resistor
12	GND	GND	-

13	GND	-	-
14	BOOT_SARADC_IN0_IO	-	Pulled up internally. Pull Low to make system enter USB download mode
15	RST_KEY	-	Pulled up internally. Pull Low to reboot the entire system.
16	GND	GND	-
17	GND	GND	-
18	UPDATE_KEY	-	Key for system recovery or other function

Reset Key (J23)

Pin number	Pin name	Voltage level	Notice
1	RESETn	-	Push to Reset the system

Update (J24)

Pin number	Pin name	Voltage level	Notice
1	SARADC_VIN1	0~1.8V	Key for system recovery or other function

LVDS (J25)

Pin number	Pin name	Voltage level	Notice
1	VCC_LVDS	3.3V/5V	-
2	VCC_LVDS	optional by	-
3	VCC_LVDS	J27	-
4	GND	GND	-
5	GND	GND	-
6	GND	GND	-
7	RX00M	-	-
8	RX00P	-	-
9	RX01M	-	-
10	RX01P	-	-
11	RX02M	-	-
12	RX02P	-	-
13	GND	GND	-
14	GND	GND	-
15	RX0CM	-	-
16	RX0CP	-	-
17	RX03M	-	-
18	RX03P	-	-
19	RXE0M	-	-
20	RXE0P	-	-
21	RXE1M	-	-
22	RXE1P	-	-
23	RXE2M	-	-
24	RXE2P	-	-
25	GND	GND	-

26	GND	GND	-
27	RXECM	-	-
28	RXECP	-	-
29	RXE3M	-	-
30	RXE3P	-	-
31	GND	-	-
32	GND	-	-
33	LVDS_BL_EN	1.8V	GPIO2_C1_d
34	LVDS_BL_PWM0	1.8V	GPIO4_C6_d
35	LVDS_IRQ	3.3V	Connected to GM8775
36	I2C_SDA_LVDS	1.8V	I2C2_SDA_M4/GPIO1_A0_d
37	LVDS_PWR_EN	1.8V	GPIO1_D6_u
38	I2C_SCL_LVDS	1.8V	I2C2_SCL_M4/GPIO1_A1_d
39	GND	-	-
40	NC	-	Not Connected

ADC/Audio (J26)

Pin number	Pin name	Voltage level	Notice
1	SARADC_VIN2	0~1.8V	ADC Input Channel 5
2	SARADC_VIN4	0~1.8V	ADC Input Channel 4
3	SARADC_VIN7	0~1.8V	ADC Input Channel 7
4	SARADC_VIN6	0~1.8V	ADC Input Channel 6
5	HP_GND	Analog GND	-
6	GND	GND	-
7	HPR_OUT	Analog	HeadPhone Right Channel Output
8	HPL_OUT	Analog	HeadPhone Left Channel Output
9	SPKN_OUT	Analog	Speaker Output N (3W @4 Ohm Load)
10	SPKP_OUT	Analog	Speaker Output P (3W @4 Ohm Load)

JUMPER (J27)

1	1,2 shorted	+3.3V	LVDS Panel Power(J22): +3.3V
2	3,4 shorted	+5V	LVDS Panel Power(J22): +5V

LCM_BL (J28)

Pin number	Pin name	Voltage level	Notice
1	GND	GND	-
2	GND	GND	-
3	BL_ADJ	1.8V	GPIO4_C6_d
4	BL_EN	1.8V	GPIO2_C1_d
5	VCC12V_BL	12V	12V Output for BackLight
6	VCC12V_BL	12V	12V Output for BackLight

USB2.0_HOST (J29)

Pin number	Pin name	Voltage level	Notice
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1	+5V	+5V	5V/1A Output
2	D-	-	-
3	D+	-	-
4	GND	GND	-

SPEAKER (J30)

Pin number	Pin name	Voltage level	Notice
1	SPK_OUT_R+	-	3W ClassD audio Output
2	SPK_OUT_R-	-	
3	SPK_OUT_L-	-	3W ClassD audio Output
4	SPK_OUT_L+	-	

Mini-PCIe (J31)

Pin number	Pin name	Voltage level	Notice
2,24,39,41,52	VCC3V6_4G	+3.6V	Power Supply for 4G module
4,9,15,18,21,26,27,29,34,35,37,40,43,50	GND	GND	-
8	SIM_VCC	1.8/3.3V	Depending on the Module
10	4G_SIM_SIO	SIM_VCC	-
12	4G_SIM_CLK	SIM_VCC	-
14	4G_SIM_RST	SIM_VCC	-
22	4G_RESET	OC	GPIO2_D0_d Active High
36	4G_USB_DM	-	-
38	4G_USB_DP	-	-
42	4G_LED	Current Sink	-
17	4G_USB_SSRXN	-	-
19	4G_USB_SSRXP	-	-
31	HOST_WAKEUP_4G	OC	GPIO2_D1_d Active High
49	4G_USB_SSTXN	-	-
51	4G_USB_SSTXP	-	-
All the other pins	NC	-	Not Connected

MIPI-DPhy-Rx*2 (J32)

Pin number	Pin name	Voltage level	Notice
3,6,9,12,15,18,21,24,27,30	GND	GND	-
1	MIPI_DPHY0_RX_CLKP	-	-
2	MIPI_DPHY0_RX_CLKN	-	-
4	MIPI_DPHY0_RX_D0P	-	-
5	MIPI_DPHY0_RX_D0N	-	-
7	MIPI_DPHY0_RX_D1P	-	-
8	MIPI_DPHY0_RX_D1N	-	-
10	MIPI_DPHY0_RX_D2P	-	-
11	MIPI_DPHY0_RX_D2N	-	-
13	MIPI_DPHY0_RX_D3P	-	-

14	MIPI_DPHY0_RX_D3N	-	-
16	MIPI_DPHY1_RX_CLKP	-	-
17	MIPI_DPHY1_RX_CLKN	-	-
19	MIPI_DPHY1_RX_D0P	-	-
20	MIPI_DPHY1_RX_D0N	-	-
22	MIPI_DPHY1_RX_D1P	-	-
23	MIPI_DPHY1_RX_D1N	-	-
25	MIPI_DPHY1_RX_D2P	-	-
26	MIPI_DPHY1_RX_D2N	-	-
28	MIPI_DPHY1_RX_D3P	-	-
29	MIPI_DPHY1_RX_D3N	-	-

MIPI-CSI-B (J33)

Pin number	Pin name	Voltage level	Notice
1,4,7,10,13,16,19	GND	GND	-
2	MIPI_CAM2_RX_D0P	-	-
3	MIPI_CAM2_RX_D0N	-	-
5	MIPI_CAM2_RX_D1P	-	-
6	MIPI_CAM2_RX_D1N	-	-
8	MIPI_CAM2_RX_CLK0N	-	-
9	MIPI_CAM2_RX_CLK0P	-	-
11	MIPI_CAM2_RX_D2P	-	-
12	MIPI_CAM2_RX_D2N	-	-
14	MIPI_CAM2_RX_D3P	-	-
15	MIPI_CAM2_RX_D3N	-	-
17	MIPI_CAM2_RX_CLK1P	-	-
18	MIPI_CAM2_RX_CLK1N	-	-
20	MIPI_CAM2_CLK	1.8V	GPIO1_B7-u
21	CAMB_RST1	1.8V	GPIO2_B6-d
22	CAMB_PDN1_L	1.8V	GPIO1_A7-u
23	CAMB_RST2	1.8V	GPIO2_B6-d
24	CAMB_PDN2_L	1.8V	GPIO1_B0-u
25	I2C_SCL_CAM2	1.8V	I2C2_SCL_M4/GPIO1_A1-d
26	I2C_SDA_CAM2	1.8V	I2C2_SDA_M4/GPIO1_A0-d
27	VCC1V8_DOVDD_DVP0	1.8V	1.8V Output (300mA)
28	VDD1V2_DVDD_DVP0	1.2V	1.2V Output (300mA)
29	VCC2V8_DVP0	2.8V	2.8V Output (300mA)
30	VCC2V8_AVDD_DVP0	2.8V	2.8V Output (300mA)

Note: This MIPI can be used as a 4-Lane or 2*2Lane input.

MIPI-CSI-A (J34)

Pin number	Pin name	Voltage level	Notice
1,4,7,10,13,16,19	GND	GND	-
2	MIPI_CAM1_RX_D0P	-	-

3	MIPI_CAM1_RX_D0N	-	-
5	MIPI_CAM1_RX_D1P	-	-
6	MIPI_CAM1_RX_D1N	-	-
8	MIPI_CAM1_RX_CLK0N	-	-
9	MIPI_CAM1_RX_CLK0P	-	-
11	MIPI_CAM1_RX_D2P	-	-
12	MIPI_CAM1_RX_D2N	-	-
14	MIPI_CAM1_RX_D3P	-	-
15	MIPI_CAM1_RX_D3N	-	-
17	MIPI_CAM1_RX_CLK1P	-	-
18	MIPI_CAM1_RX_CLK1N	-	-
20	MIPI_CAM1_CLK	1.8V	GPIO1_B6-u
21	CAMA_RST1	1.8V	GPIO1_A3-d
22	CAMA_PDN1_L	1.8V	GPIO1_A2-d
23	CAMA_RST2	1.8V	GPIO1_A3-d
24	CAMA_PDN2_L	1.8V	GPIO1_A4-d
25	I2C_SCL_CAM1	1.8V	I2C3_SCL_M0/GPIO1_C1-z
26	I2C_SDA_CAM1	1.8V	I2C3_SDA_M0/GPIO1_C0-z
27	VCC1V8_DOVDD_DVP0	1.8V	1.8V Output (300mA)
28	VDD1V2_DVDD_DVP0	1.2V	1.2V Output (300mA)
29	VCC2V8_DVP0	2.8V	2.8V Output (300mA)
30	VCC2V8_AVDD_DVP0	2.8V	2.8V Output (300mA)

Note: This MIPI can be used as a 4-Lane or 2*2Lane input.

M.2 M-key (J35)

Pin number	Pin name	Voltage level	Notice
1,3,9,15,21,27,33,39,45,51,57,63,65,67	GND	GND	-
2,4,12,14,16,18,62,64,66	VCC3V3	+3.3V	+3.3V Power Output
5	PCIE30_RX3N	-	-
7	PCIE30_RX3P	-	-
11	PCIE30_TX3_N	-	-
13	PCIE30_TX3_P	-	-
17	PCIE30_RX2N	-	-
19	PCIE30_RX2P	-	-
23	PCIE_TX2_N	-	-
25	PCIE_TX2_P	-	-
29	PCIE30_RX1N	-	-
31	PCIE30_RX1P	-	-
35	PCIE30_TX1N	-	-
37	PCIE30_TX1P	-	-
41	PCIE30_RX0N	-	-

43	PCIE30_RX0P	-	-
47	PCIE30_TX0N	-	-
49	PCIE30_TX0P	-	-
53	PCIE30_REFCLKN	-	-
55	PCIE30_REFCLKN	-	-
50	PCIE30X2_PERSTn_3V3_L	3.3V	GPIO4_B6_d
52	PCIE30X2_CLKREQn_3V3_L	3.3V	GPIO4_B4_u
54	PCIE30X2_WAKEn_3V3_L	3.3V	GPIO4_B5_d
60	PCIE_CLK_32K	3.0V	32K Clock from RTC Chip
All the other pins	NC	-	Not Connected

Reset for external key(J36)

Pin number	Pin name	Voltage level	Notice
1	RESETn	-	Push to Reset the system
2	GND	GND	-

Update for external key (J37)

Pin number	Pin name	Voltage level	Notice
1	SARADC_VIN1	0~1.8V	Key for system recovery or other function
2	GND	GND	-

RTC Battery (J38)

CR1220 lithium battery Socket 3V

Mipi-D/C-Phy-2 (J39)

This connector is used by core board, can NOT be used by customer! See 3588 Coreboard manual for more details.

DP+HDMI-RX (J40)

This connector is used by core board, can NOT be used by customer! See 3588 Coreboard manual for more details.

4.2.41 Mipi-CSI&PCIe3.0 (J41)

This connector is used by core board, can NOT be used by customer! See 3588 Coreboard manual for more details.

Mipi-CSI&PCIe3.0 (J42)

This connector is used by core board, can NOT be used by customer! See 3588 Coreboard manual for more details.

Mini-PCIe for AI Card(J43)

Pin number	Pin name	Voltage level	Notice
2,24,39,41,52	VCC3V6_4G	+3.6V	Power Supply for 4G module
4,9,15,18,21,26,27,29,34,35,37,40,43,50	GND	GND	-
22	4G_RESET	OC	GPIO2_D0_d Active High
36	4G_USB_DM	-	-

38	4G_USB_DP	-	-
42	4G_LED	Current Sink	-
17	4G_USB_SSRXN	-	-
19	4G_USB_SSRXP	-	-
31	HOST_WAKEUP_4G	OC	GPIO2_D1_d Active High
49	4G_USB_SSTXN	-	-
51	4G_USB_SSTXP	-	-
All the other pins	NC	-	Not Connected

4.2.44 Fan Power(J44)

Pin number	Pin name	Voltage level	Notice
1	Fan Power out	+12V	+12V out for fan power
2	GND	GND	-

7.应用场景



人工智能



机器视觉



工业控制



能源电力



智慧平板



虚拟现实 VR



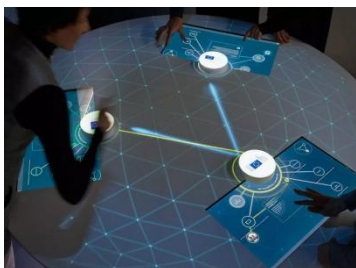
智慧物流



新零售



智慧商显



物体识别



车载终端



安防监控

8. 订购型号

产品型号	状态	CPU 型号	DDR 容量	eMMC 容量	工作温度
LZ16243200	ACTIVE	RK3588	4GB	32GB	-10°C - 70°C
LZ16286400	ACTIVE	RK3588	8GB	64GB	-10°C - 70°C
LZ1629A800	ACTIVE	RK3588	16GB	128GB	-10°C - 70°C

*非标定制请邮件咨询 sales@neardi.com

9.关于临滴

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公众号



淘宝店铺



B 站

Rockchip-产品线

核心模块



LCB3588/J



LCB3568/J



LCB3566



LCB3399Pro



LCB3399

开发板/行业板



LKD3588/J



LKD3568/J



LKD3566



LKD3399Pro



LKD3399

嵌入式智能计算机



LPB3588



LPM3588



LPC3588



LPB3568



LPB3399Pro

BST 黑芝麻-产品线



SOM-A-A1000



SOM-π-A1000



SOM-B-A1000



SOM-A1000 开发者套件

车载终端-产品线



LPA3588



LPA3568



LPA3399Pro



LPS3399Pro

WIFI 模块-产品线



FD7256S



FD7255S



FD7256U



FD7155U