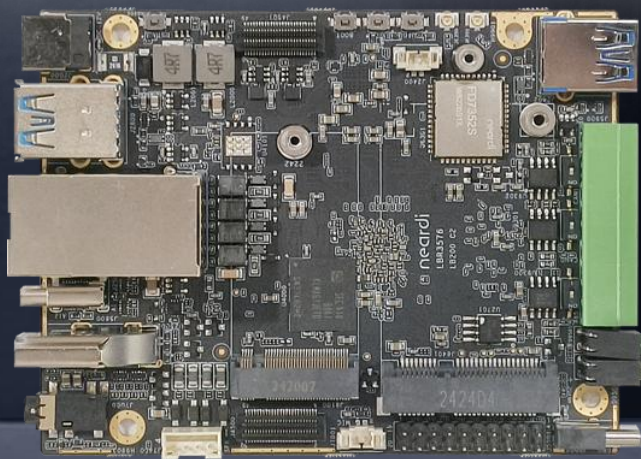




Neardi Pi 3-3576 Development Board

Datasheet

V1.1



Shanghai Neardi Technology Co., Ltd.

www.neardi.com

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Notes: All contents 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. What's more, 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	2024/10/29	Initial version
V1.1	2025/10/10	Update operating system

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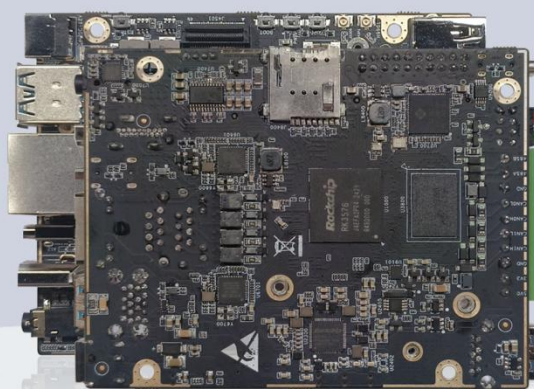
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1.Product Introduction

The Neardi Pi 3-3576 is a versatile development evaluation board meticulously designed based on the Rockchip RK3576 chip platform, featuring a quad-core A72 and a quad-core A53, with an integrated NPU offering up to 6 Tops of computing power, supporting up to 8K30fps decoding and 4K60fps encoding.

The Neardi Pi 3-3576 comes with 3 onboard Type-A USB 3.0 ports and 2 Type-C USB ports; it has 1 mini-PCIe interface for external 4G/5G modules; it reserves an eMMC connector and a UFS socket, 1 M.2 key M interface for 2242 SSD storage expansion; the Neardi Pi 3 also supports dual-band WiFi 6, BT 5.4; 2 Gigabit Ethernet ports, UART, I2C, RS485, CANFD, UART, SPI, and other common communication interfaces, supporting 1 HDMI output; additionally, it can support multiple MIPI CSI camera interfaces for input and MIPI DSI interface for output.

The Neardi Pi 3-3576 supports Android, buildroot, Debian, and Ubuntu systems, offering high performance, high reliability, and high expandability, and provides users with open system source code. Users can develop and customize based on this product, and our company provides comprehensive technical support for developers and enterprise users, enabling them to efficiently complete research and development work and significantly shorten the product development and mass production cycle.



2. Function Overview



High-Performance Processor

CPU	Octa-core 64-bit architecture (4A72 + 4A53), high performance, low power consumption
GPU	ARM Mali-G52 MC3 GPU, dedicated 2D graphics acceleration module
NPU	6TOPS computing power for AI-related tasks.
VPU	8K30fps decoding, 4K60fps encoding
DDR	LPDDR4/4X, with options for 2/4/8/16GB
eMMC	eMMC , with options for 8/16/32/128GB



Rich Interfaces

- 1 HDMI output
- 2 MIPI CSI interfaces, supporting up to 6 MIPI camera inputs
- 2 Gigabit Ethernet ports, dual-band WIFI 6.
- 1 MIPI PCIe interface, expandable for 4G/5G modules
- 1 M.2 M-Key interface, supporting external NVMe protocol 2242 form factor.
- 3 Type-A USB 3.0 ports, 2 Type-C ports
- 2 CANFD, 1 RS485, I2C, UART, SPI
- 1 MIC and 1 LINE, 1 Speaker



Operating System

Android

Linux (Buildroot / Debian / Ubuntu)

OpenEuler



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

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	Octa-core 64-bit architecture processor (4A76+4A53)
GPU	Mali-G52 MC3, 2D Graphics Engine, RGA dual core, VDPP, VPSS, 16M ISP, JPEG Encoder/Decoder
NPU	6 TOPS computing power; supports int4/int8/int16/FP16/BF16/TF32
VPU	Supports 8K30fps/4K120fps decoding (H265/HEVC, VP9, AVS2, AV1) and 4K60fps decoding (H264/AVC) Supports 4K60fps video encoding (H265/HEVC, H264/AVC)
DDR	LPDDR4/4X, with options for 2GB/4GB/8GB/16GB
eMMC	eMMC , with options for 16GB/32GB/64GB/128GB
PMU	RK806
OS	Android / Ubuntu / Buildroot / Debian/OpenEuler

Hardware Specifications

Power	DC12V - 3A (DC Jack 5.5*2.1mm / PH2.0 wafer connector)
USB	3*Type-A USB3.0
	1* Type-C USB
	1*Type-C USB Debug
Display	1*Type-A HDMI up to 8K@30fps or 4K@120fps
Audio	φ3.5mm earphone Jack with L/R audio out

	2*10W/8Ω speaker out with L/R channel
Camera	3* MIPI CSI (4 Lane) 或者 4*MIPI CSI (2 Lane) + 1*MIPI CSI (4 Lane)
Mini-PCle	mini PCle for 2G/3G/4G/5G module
M.2	M.2 NGFF (M-KEY) PCIE V2.0 x1lane with NVMe SSD supported
SIM card	Micro sim slot for Mini-PCle 4G/5G LTE module
RJ-45	2*10/100/1000-Mbps data transfer rates
RTC	RTC power on and off supported
Serial port	2*CAN,1*RS485,I2C,UART,SPI
Keys	4* keys (power, reset, update,Boot)

Other Parameters

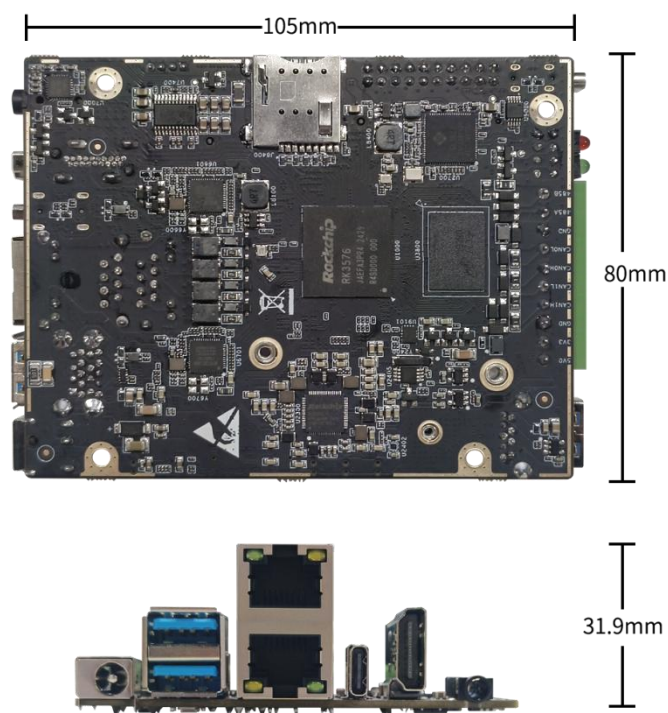
Dimensions	Length * Width * Height (mm) 100*80*31.9
Operating Temperature	-20 ~ 75°C (Commercial)
Temperature	-40 ~ 85°C (Industrial)
Weight	Approximately 92g (excluding peripherals)
Static power	1.392W
Dynamic power	6.756W

Static power: The system is powered on, but the development board is not connected to any external modules and is not running any programs.

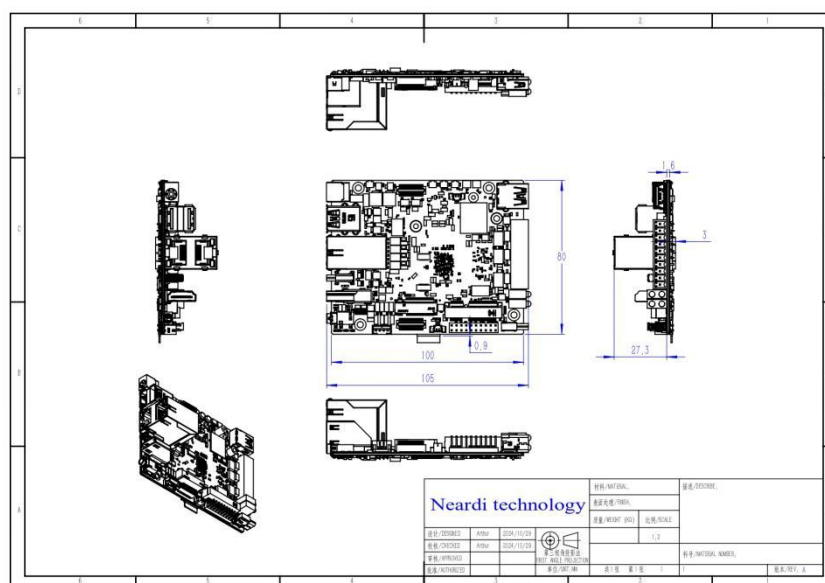
Dynamic power: The power consumption of the device when it is actively running applications, playing videos, gaming, or in other active states.

4. Appearance and Dimensions

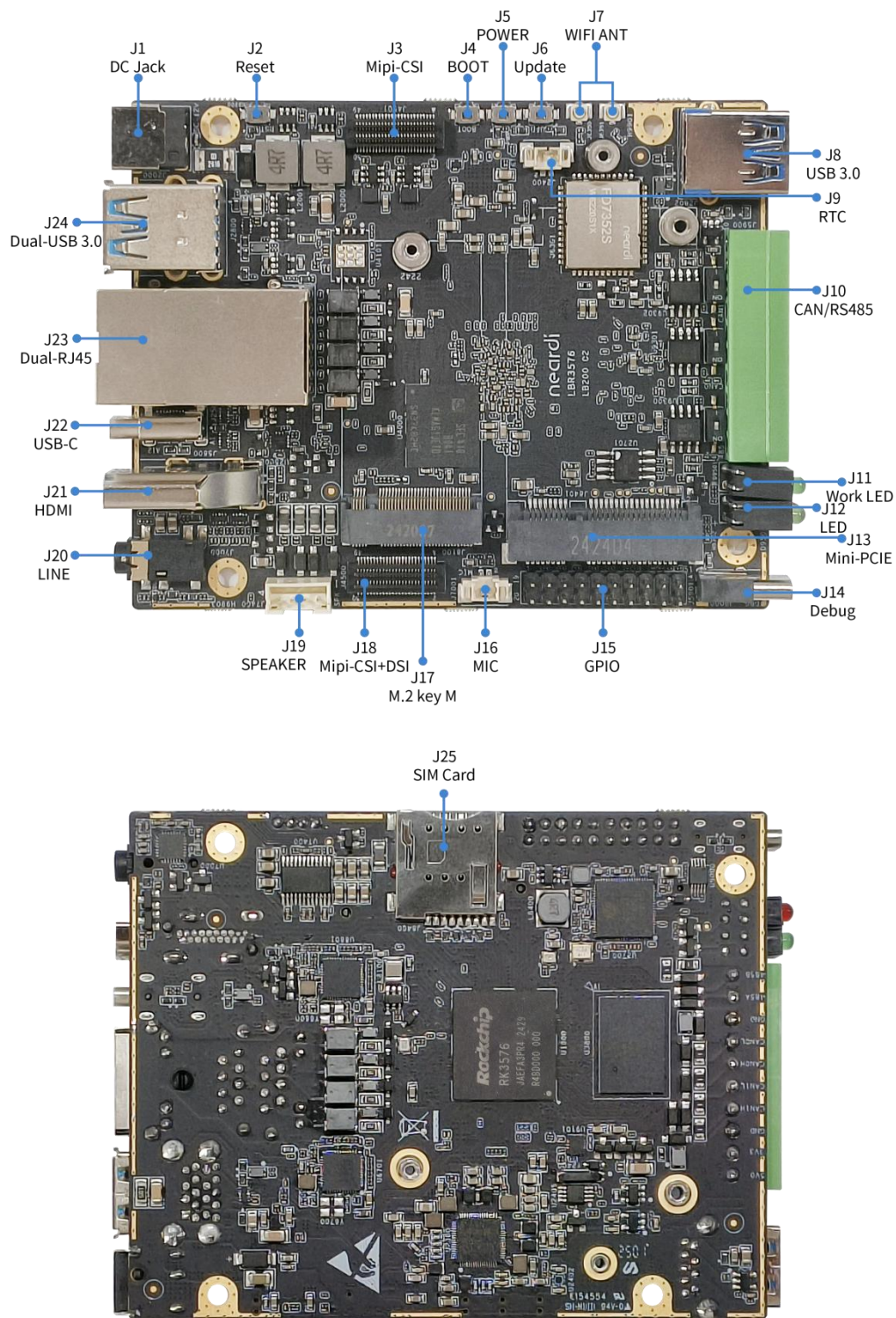
4.1 Appearance



4.2 Dimensions



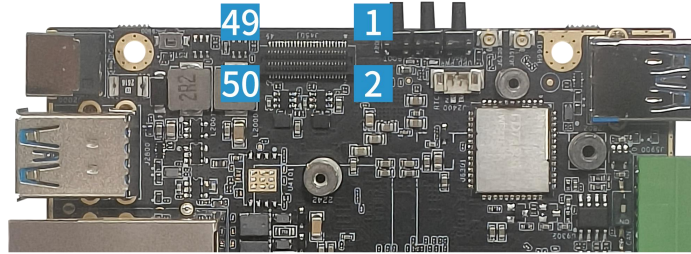
5.Interface Definition



Part reference	Part Name	Part Specifications	Part Description
J1	DC jack	DC 5.5*2.1mm	Main power supply, DC12V – 3A
J2	Reset	push-button	Key for system reset
J3	MIPI-CSI	0.5mm B2B connector	0.5mm B2B connector
J4	BOOT	push-button	Key for system boot
J5	Power	push-button	Key for system Power
J6	Update	push-button	Key for system update
J7	WIFI ANT	ANT_JACK	WIFI ANT
J8	USB3.0	Type-A USB3.0	USB3.0
J9	RTC	1.25mm 2pin wafer	RTC battery power input 3.0V
J10	CAN/RS485	3.5mm 10pin wafer	CANBUS and RS485 Bus signals
J11	Work LED	Green led *2	Work status and 3G/4G Module Status Indicator
J12	LED	Red and Green LEDs	Power status indicate
J13	MINI-PCle	Mini-PCle 52pin socket	For External 4G/5G module
J14	Debug	Type-C Socket	USB 2.0 Debug
J15	GPIO	PH2.54mm 2*10pin header	I2C ,UART,SPI signals
J16	MIC	1.25mm 2pin wafer	Micphone In
J17	M.2 key M	Standard M.2 M-key connector	M.2 NGFF (M-KEY) with PCIE V2.0*1Lane
J18	MIPI-CSI+DSI	0.5mm B2B connector	0.5mm B2B connector
J19	Speaker	PH2.0mm 4pin wafer	Dual channel audio Output for Speaker
J20	LINE	φ3.5mm 3-L Jack	L/R audio out
J21	HDMI	Type-A HDMI	HDMI Tx
J22	USB-C	Type-C Socket	Type-C with USB3.0
J23	Dual-RJ45	Gigabit Ethernet	10/100/1000-Mbps data transfer rates
J24	Dual-USB3.0	Type-A USB3.0	USB3.0
J25	SIM Card	Push-Push Micro SIM Socket	For Micro SIM Card (1.8/3.3V)

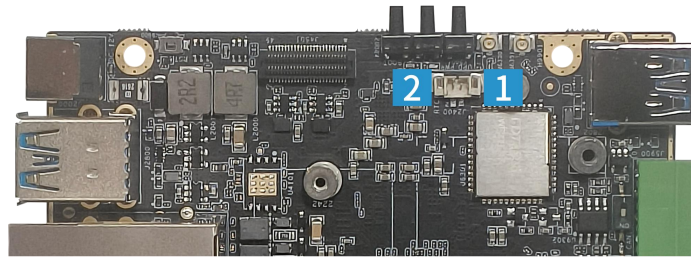
6. Pin Definition

MIPI-CSI (J3)

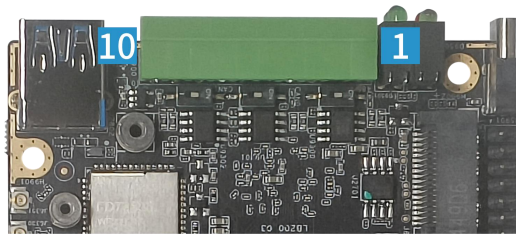


Pin number	Pin name	Voltage level	Notice
1/2/11/12/17/18/27/28/31/34/35/38/39/49	GND	-	-
3	MIPI_DPHY_CSI0_RX_D0N	-	-
4	MIPI_DPHY_DSI_TX_D0N	-	-
5	MIPI_DPHY_CSI0_RX_D0P	-	-
6	MIPI_DPHY_DSI_TX_D0P	-	-
7	MIPI_DPHY_CSI0_RX_D1N	-	-
8	MIPI_DPHY_DSI_TX_D1N	-	-
9	MIPI_DPHY_CSI0_RX_D1P	-	-
10	MIPI_DPHY_DSI_TX_D1P	-	-
13	MIPI_DPHY_CSI0_RX_CLKN	-	-
14	MIPI_DPHY_DSI_TX_CLKN	-	-
15	MIPI_DPHY_CSI0_RX_CLKP	-	-
16	MIPI_DPHY_DSI_TX_CLKP	-	-
19	MIPI_DPHY_CSI0_RX_D2N	-	-
20	MIPI_DPHY_DSI_TX_D2N	-	-
21	MIPI_DPHY_CSI0_RX_D2P	-	-
22	MIPI_DPHY_DSI_TX_D2P	-	-
23	MIPI_DPHY_CSI0_RX_D3N	-	-
24	MIPI_DPHY_DSI_TX_D3N	-	-
25	MIPI_DPHY_CSI0_RX_D3P	-	-
26	MIPI_DPHY_DSI_TX_D3P	-	-
29	MIPI_DCPHY_CSI_CAM0_CLKOUT	-	-
30	LCD_BL_PWM1_CH1_M0	-	-
32	GPIO0A0D1V8_LCD_PWREN	-	-
33	MIPI_DPHY_CSI_CAM1_CLKOUT	-	-
36	VCC12V_DCIN	12V	-
37	MIPI_DCPHY_CSI_CAM0_RST_H	-	-

40	I2C5_SCL_M3_MIPI_CAM1/HDMI_RX	-	-
41	I2C4_SCL_M3_MIPI_CAM0/2	-	-
42	I2C5_SDA_M3_MIPI_CAM1/HDMI_RX	-	-
43	I2C4_SDA_M3_MIPI_CAM0/2	-	-
44	MIPI_DPHY_CSI_CAM1_PDN_H	-	-
45	MIPI_DCPHY_CSI_CAM0_PDN_H	-	-
46	MIPI_DPHY_CSI_CAM1_PWREN_H	-	-
47	MIPI_DPHY_CSI_CAM0_PWREN_H	-	-
48	VCC_3V3_S3	3V3	-
50	VCC_3V3_S3	3V3	-
51	NC	-	-
52	NC	-	-

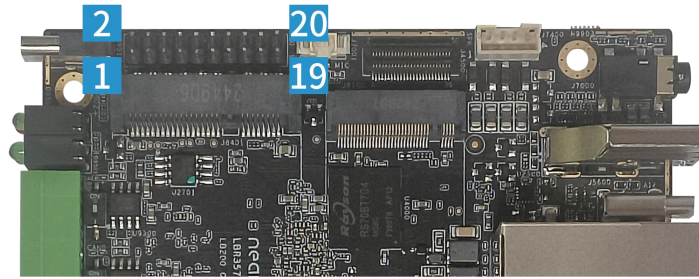
RTC (J9)

1	VCC_RTC	3V3	VCC_3V3_S3
2	GND	-	-

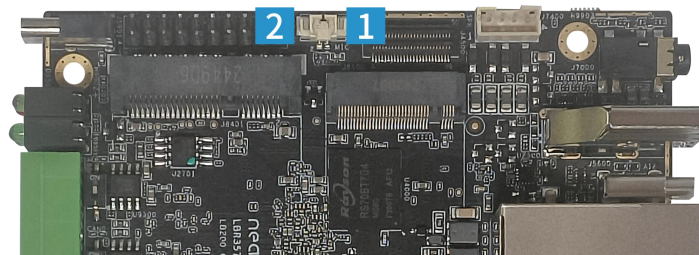
CAN/RS485 (J10)

Pin number	Pin name	Voltage level	Notice
1	RS485-B		
2	RS485-A		
3	GND	-	-
4	CAN0_L		
5	CAN0_H		
6	CAN1_L		
7	CAN1_H		
8	GND	-	-
9	VCC_3V3_EXT	3V3	

10	VCC_5V0_EXT	5V
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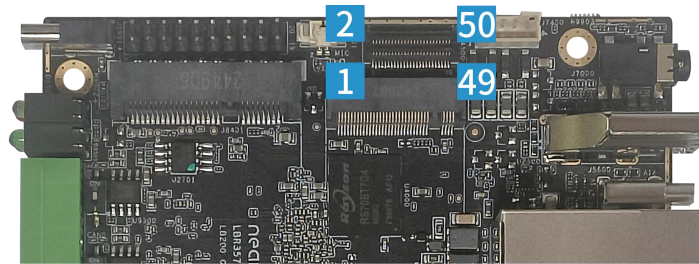
GPIO (J15)

Pin number	Pin name	Voltage level	Notice
1	GND	-	-
2	GND	-	-
3	UART10_TX_M2_3V3	3V3	-
4	I2C0_SCL_M1_TP	-	-
5	UART10_RX_M2_3V3	3V3	-
6	I2C0_SDA_M1_TP	-	-
7	GND	-	-
8	GND	-	-
9	SPI0_CLK_M0_3V3	3V3	-
10	VCCIO_SD_S0	-	-
11	SPI0_MOSI_M0_3V3	3V3	-
12	GND	-	-
13	SPI0_MISO_M0_3V3	3V3	-
14	VCC_3V3_S3	3V3	-
15	SPI0_CSN0_M0_3V3	3V3	-
16	GND	-	-
17	SPI0_CSN1_M0_3V3	3V3	-
18	VCC5V0_DEVICE_S3	5V	-
19	GND	-	-
20	GND	-	-

MIC (J16)

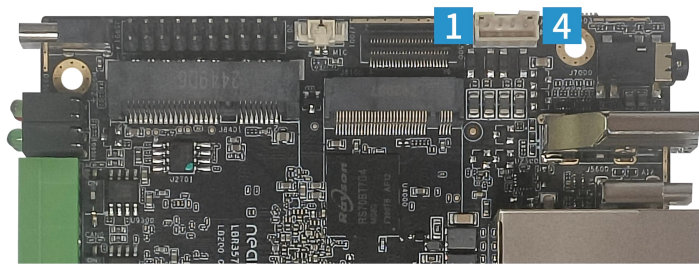
1	MIC2P	3V3	VCCA3V3_CODEC
2	MIC2N	-	-

MIPI-CSI+DSI (J18)



Pin number	Pin name	Voltage level	Notice
1/2/11/12/17/18/27/28/31/34/35/38/39/49	GND	-	-
3	MIPI_DPHY_CSI0_RX_D0N	-	-
4	MIPI_DPHY_DSI_TX_D0N	-	-
5	MIPI_DPHY_CSI0_RX_D0P	-	-
6	MIPI_DPHY_DSI_TX_D0P	-	-
7	MIPI_DPHY_CSI0_RX_D1N	-	-
8	MIPI_DPHY_DSI_TX_D1N	-	-
9	MIPI_DPHY_CSI0_RX_D1P	-	-
10	MIPI_DPHY_DSI_TX_D1P	-	-
13	MIPI_DPHY_CSI0_RX_CLKN	-	-
14	MIPI_DPHY_DSI_TX_CLKN	-	-
15	MIPI_DPHY_CSI0_RX_CLKP	-	-
16	MIPI_DPHY_DSI_TX_CLKP	-	-
19	MIPI_DPHY_CSI0_RX_D2N	-	-
20	MIPI_DPHY_DSI_TX_D2N	-	-
21	MIPI_DPHY_CSI0_RX_D2P	-	-
22	MIPI_DPHY_DSI_TX_D2P	-	-
23	MIPI_DPHY_CSI0_RX_D3N	-	-
24	MIPI_DPHY_DSI_TX_D3N	-	-
25	MIPI_DPHY_CSI0_RX_D3P	-	-
26	MIPI_DPHY_DSI_TX_D3P	-	-
29	MIPI_DCPHY_CSI_CAM0_CLKOUT	-	-
30	LCD_BL_PWM1_CH1_M0	-	-
32	GPIO0A0D1V8_LCD_PWREN	-	-
33	MIPI_DPHY_CSI_CAM1_CLKOUT	-	-
36	VCC12V_DCIN	12V	-
37	MIPI_DCPHY_CSI_CAM0_RST_H	-	-
40	I2C5_SCL_M3_MIPI_CAM1/HDMI_RX	-	-
41	I2C4_SCL_M3_MIPI_CAM0/2	-	-
42	I2C5_SDA_M3_MIPI_CAM1/HDMI_RX	-	-
43	I2C4_SDA_M3_MIPI_CAM0/2	-	-

44	MIPI_DPHY_CSI_CAM1_PDN_H	-	-
45	MIPI_DCPHY_CSI_CAM0_PDN_H	-	-
46	MIPI_DPHY_CSI_CAM1_PWREN_H	-	-
47	MIPI_DPHY_CSI_CAM0_PWREN_H	-	-
48	VCC_3V3_S3	3V3	-
50	VCC_3V3_S3	3V3	-
51	NC	-	-
52	NC	-	-

SPK (J19)

Pin number	Pin name	Voltage level	Notice
1	SPK_OUT_LP	-	-
2	SPK_OUT_LN	-	-
3	SPK_OUT_RP	-	-
4	SPK_OUT_RN	-	-

7.Application Scenarios



AI



Machine Vision



Industrial Control



Energy and Power



Smart Tablet



VR



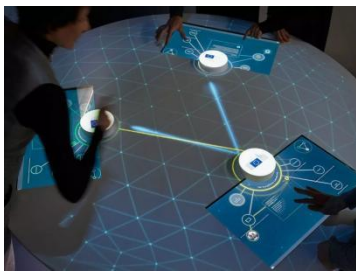
Smart Logistics



New



Smart Commercial



Object Recognition



Vehicle terminal



Security Surveillance

8.Ordering Model

Product Model	Status	CPU	DDR	eMMC	Operating Temperature
LB20021603	Mass production	RK3576	2GB	16GB	-20°C - 75°C
LB20043203	Mass production	RK3576	4GB	32GB	-20°C - 75°C
LB20086403	Mass production	RK3576	8GB	64GB	-20°C - 75°C
LB2009A803	Mass production	RK3576	16GB	128GB	-20°C - 75°C
LB200432J3	Produce on demand	RK3576J	4GB	32GB	-40°C - 85°C
LB200864J3	Mass production	RK3576J	8GB	64GB	-40°C - 85°C
LB2009A8J3	Produce on demand	RK3576J	16GB	128GB	-40°C - 85°C

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

9.About Neardi

Shanghai Neardi Technology Co., Ltd., established in 2014, is a national high-tech enterprise, a strategic partner of Rockchip, and an authorized agent of Black Sesame Technologies. The company supports a variety of chip platforms including Rockchip, HISI, NVIDIA, Black Sesame Technologies, and WiFi modules. It focuses on the research and development and production of enterprise-level open-source hardware platforms, providing customers with core modules, industry boards, development boards, touch panels, and industrial control hosts. Adhering to the core concepts of technological innovation and professional service, the company leverages its technical strengths and industry experience to help partners achieve rapid product mass production.

Company Advantages

Software Design / Custom OS / Product ODM / Bulk Delivery

Products

Rockchip

System On Module



LCB3588/J



LCB3568/J



LCB3566



LCH3576



LCH3562

Development Board



LKD3588/J



LKD3576



LKD3568/J



LKD3566



LKD3562

Embedded Computer



LPB3588



LPM3588



LPC3588



LPB3568



LPM3568

HISI



LCB3403V100



LCB3519AV200



LKD3403V100



LBA3403V100



LPA3403V100

NVIDIA



LKD Orin Nano



LKD Orin NX



LKD Xavier NX



LPD Orin Nano

Vehicle Terminal



LPA3588



LPA3568



LPA3399Pro



LPS3399Pro

WIFI Module



FD7352S



FD7352P



FD7352U



FD7352M



FD7155U



FD7256S