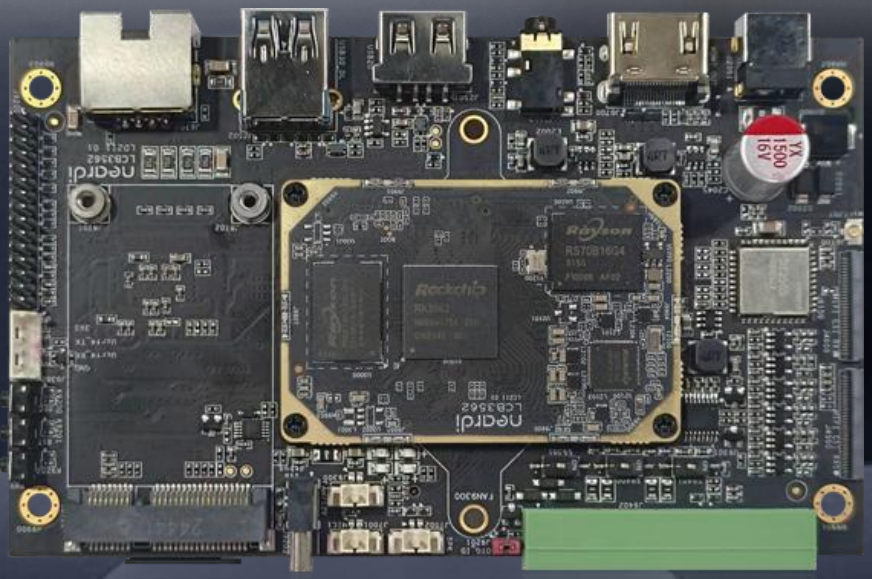
neardi

LKB3562 Development Board

Product Manual

V1.0



Shanghai Neardi Technology Co., Ltd

www.neardi.cn

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:

Shanghai Neardi Technology Co., Ltd.
Phone: +86 021-20952021
Website: www.neardi.cn
Email: sales@neardi.com

Version History

Version	Date	Description
V1.0	2025/8/13	Initial version

contents

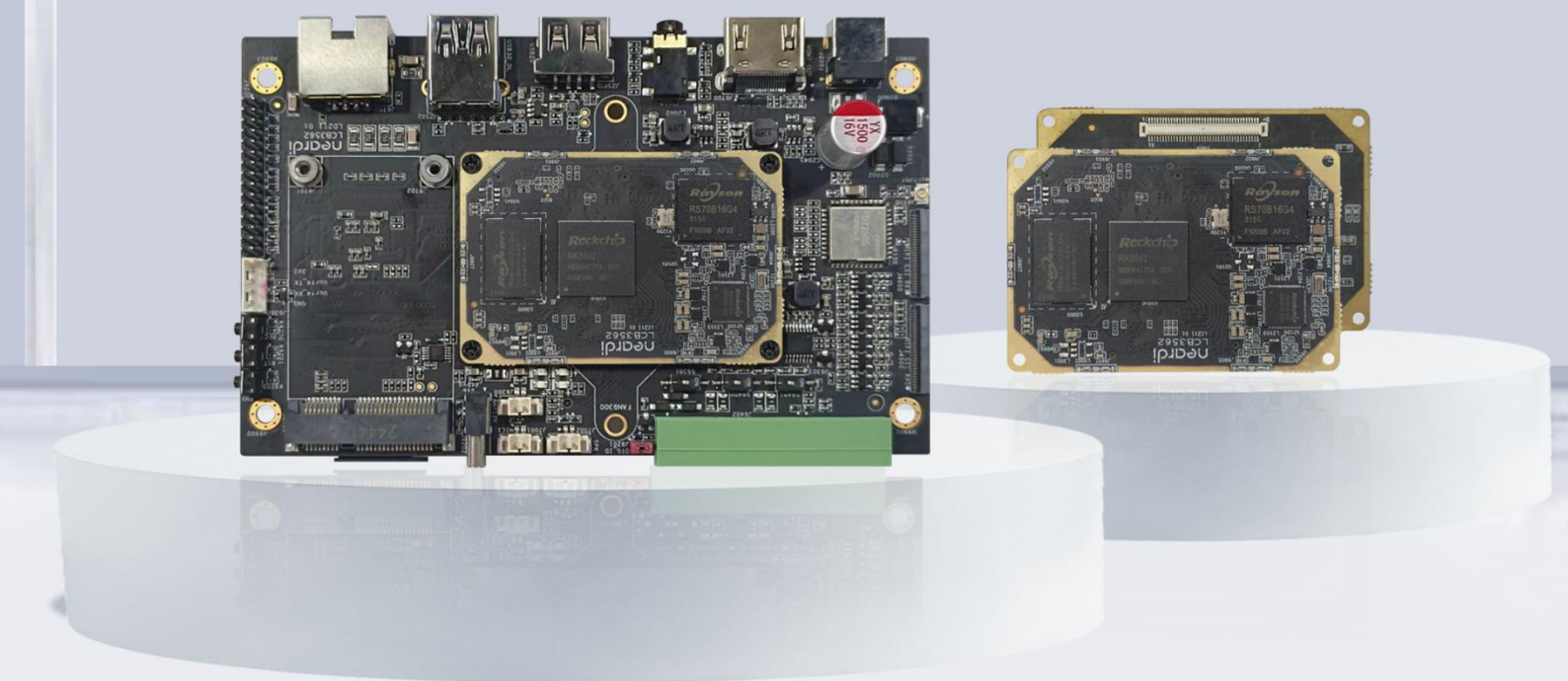
1.Product Introduction

The LKB3562 development board is a multi-functional industrial application board elaborately designed based on the Rockchip RK3562 chip platform. It consists of our company's LCB3562 core module and baseboard, which are connected via a B2B connector for stability and reliability. Featuring diverse functions, rich interfaces, a compact size, and a thin, flat design, the entire board is suitable for product implementation in various scenarios.

The LKB3562 supports multiple video encoding and decoding formats, including H.264, H.265, and VP9, with a maximum support for 4K@30fps video decoding and 1080p@60fps video encoding. In addition, it also features high-quality JPEG encoding and decoding capabilities. In terms of display, the RK3562 supports MIPI-DSI, LVDS, and RGB video outputs, with a maximum resolution of 2048x1080@60Hz.

The LKB3562 is powered by a 12V2A power supply, featuring 1 onboard USB3.0 port, 1 USB2.0 port, and 1 mini-PCIe interface for external 4G/5G modules. Additionally, it supports dual-band Wi-Fi 6, Bluetooth 5.4, 1 Gigabit Ethernet port, and common communication module interfaces such as ADC and I2C, as well as industrial interfaces including UART, CAN, RS485, and RS232. It also provides 1 HDMI display interface and 2 MIPI-CSI video input interfaces.

The LKB3562 supports the Linux system and boasts advantages such as high performance, high reliability, and high scalability, with the system source code open to users. Users can conduct secondary development and customization based on this product. Our company provides comprehensive technical support for developers and enterprise users, enabling them to efficiently complete R&D work and significantly shorten the product development and mass production cycle.



2. Function Overview

High-Performance Processor

CPU	4-core 64-bit ARM Cortex-A53 architecture, high performance, low power
GPU	ARM Mali-G52 GPU
NPU	1TOPS
VPU	4K video decode, 1080P video encode
DDR	LPDDR4/4x, optional 1 GB / 2 GB / 4 GB
eMMC	eMMC 4.51, optional 8 GB / 16 GB / 32 GB

Rich Interfaces

1 HDMI OUT port

1 Type-A USB3.0 (OTG) port，1 Type-A USB2.0 (Host) port

1 Type-C USB2.0 Debug port

1 Gigabit Ethernet port, dual-band Wi-Fi 6, Bluetooth 5.4

1 MIPI PCIe interface (supports 4G/5G module expansion)

2 MIPI-CSI interfaces

UART，CAN，RS485，RS232，SARADC，I2C，GPIO

OS

Ubuntu、Buildroot、Debian

Open-source Resources

WIKI https://wiki.neardi.net/docs/welcome/

Quick Start

Firmware Upgrade

Linux Development

Kernel Drivers

DEMO

System Customization

Accessories

Frequently Asked Questions

Release Notes

Hardware Documentation

Chip Datesheet

Core Board Pin Definition

Baseboard Reference Schematic

Baseboard Reference Schematic

Key Bill of Materials

Product 2D/3D Drawings

Software Documentation

Flashing Tools and Drivers

U-Boot and Kernel Source Code

Ubuntu System Files

3.Specifications

Basic Parameters

SOC	RK3562/RK3562J；4*A53 2.0GHz
GPU	ARM Mali-G52 GPU；OpenGL ES 1.1/2.0/3.2, OpenCL 2.0, and Vulkan 1.1.； The 2D hardware engine maximizes display performance and ensures smooth operation.
NPU	1TOPS；int4/int8/int16/FP16
VPU	Supports almost full-format 1080p@60fps H.264 decode and 4K@30fps H.265 decode. Supports 1080p@60fps H.264 encoding.
DDR	LPDDR4/4x, optional 1 GB / 2 GB / 4 GB
eMMC	eMMC 4.51, optional 8 GB / 16 GB / 32 GB
PMU	RK809
OS	Ubuntu / Buildroot / Debian

Hardware Parameters

Power	DC12V - 2A (DC Jack 5.5*2.1mm)
USB	1*Type-A USB3.0 OTG
	1*Type-A USB2.0 Host
	1*Type-C USB2.0 Debug

Display output	HDMI OUT up to 1080P@60HZ
Audio	φ3.5mm earphone Jack with L/R audio out
	PH1.25mm 2pin wafer with Mic in
	PH1.25mm 2pin wafer Stereo Speaker output
Display input	2*MIPI-CSI Camera Interface（4 data lanes）
Mini-PCIe	1*mini PCIe for 2G/3G/4G/5G module
SIM&SD card	Micro SIM Card&Micro SD Card
RJ-45	1*10/100/1000 Ethernet
Others	UART，CAN，RS485，RS232，SARADC，I2C，GPIO

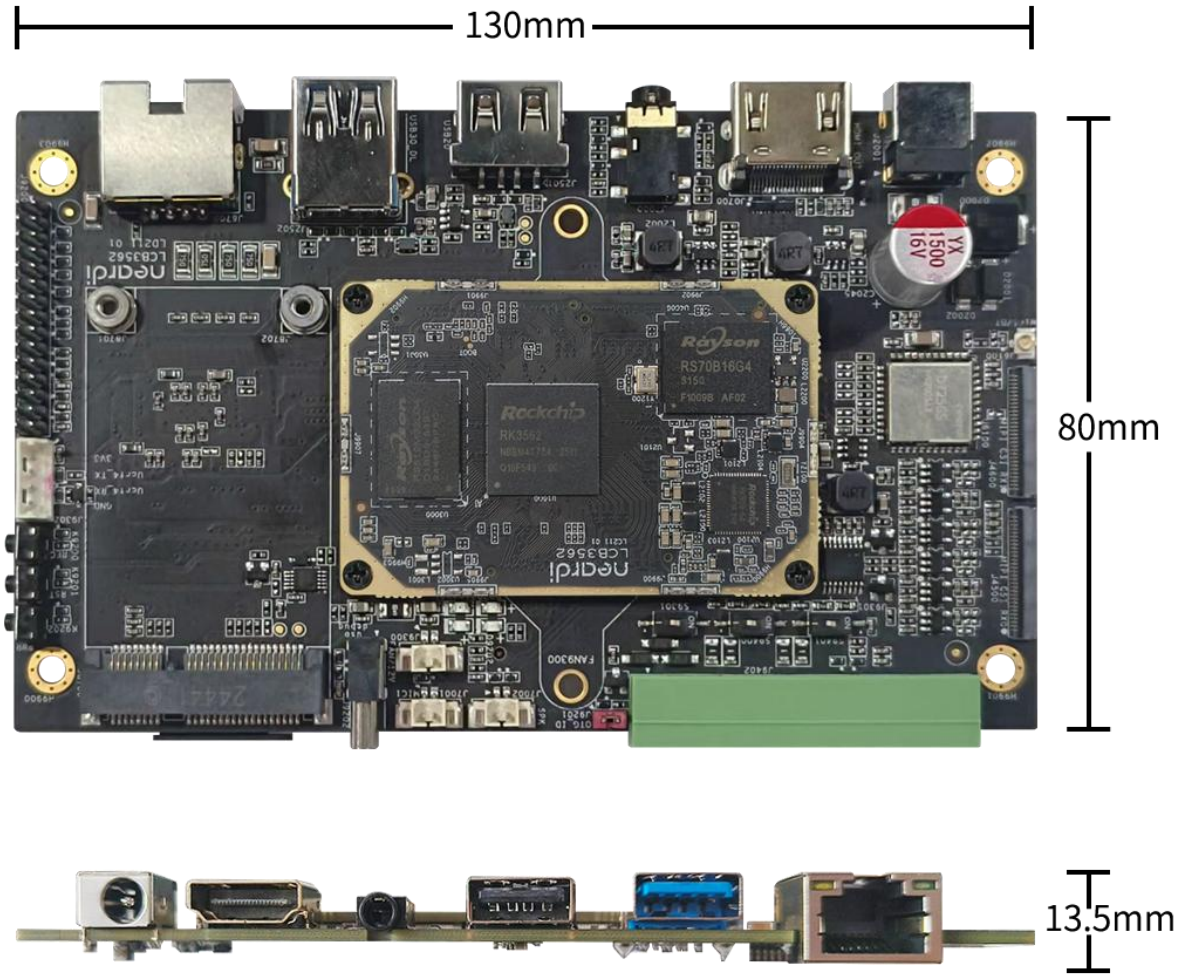
Other Parameters

Size	L*W*H(mm) 130*80*13.5
Operating temperature	-20℃~ 75℃ (Commercial) -40℃~ 85℃ (Industrial)
Weight	Approximately 88.7g (excluding peripherals)
Static Power	1.02W
Dynamic Power	4.128W

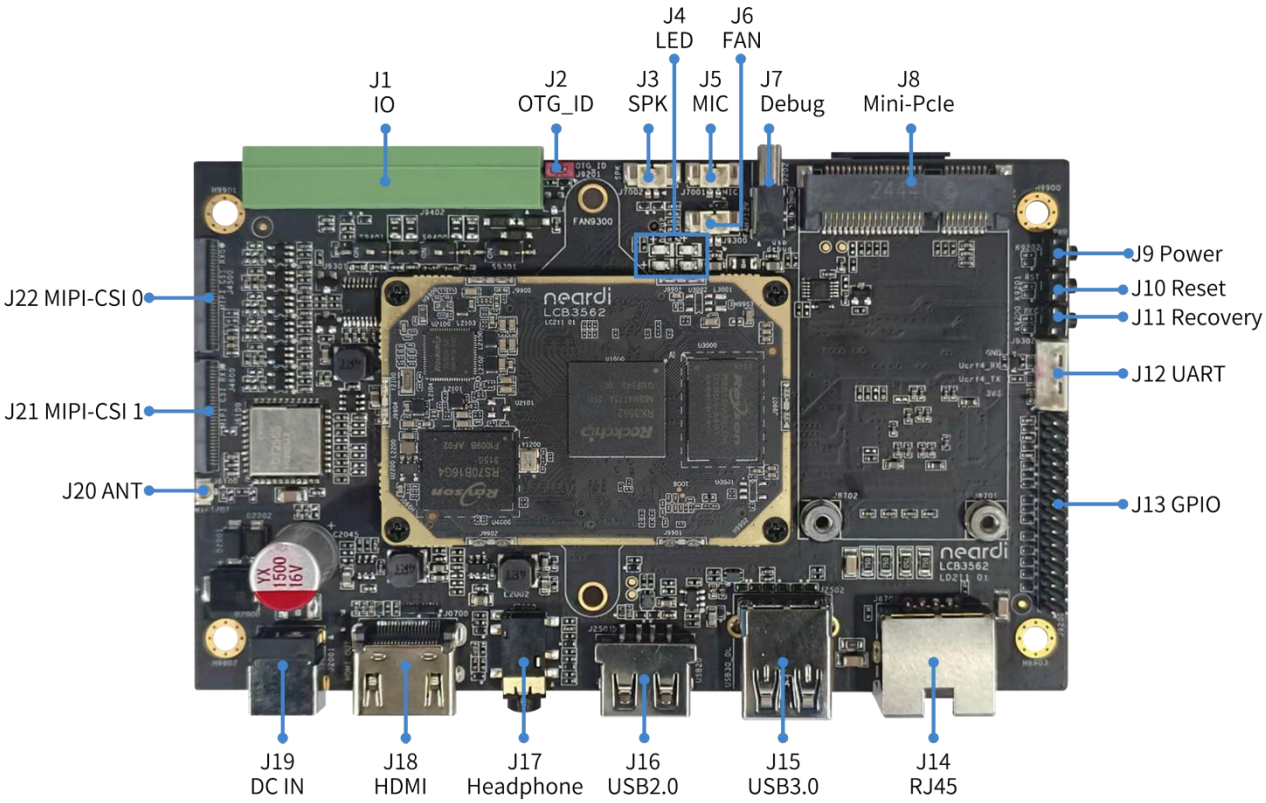
Static Power Consumption: Refers to the power consumption when the system is started, the development board is not connected to other external modules, and no programs are executed.

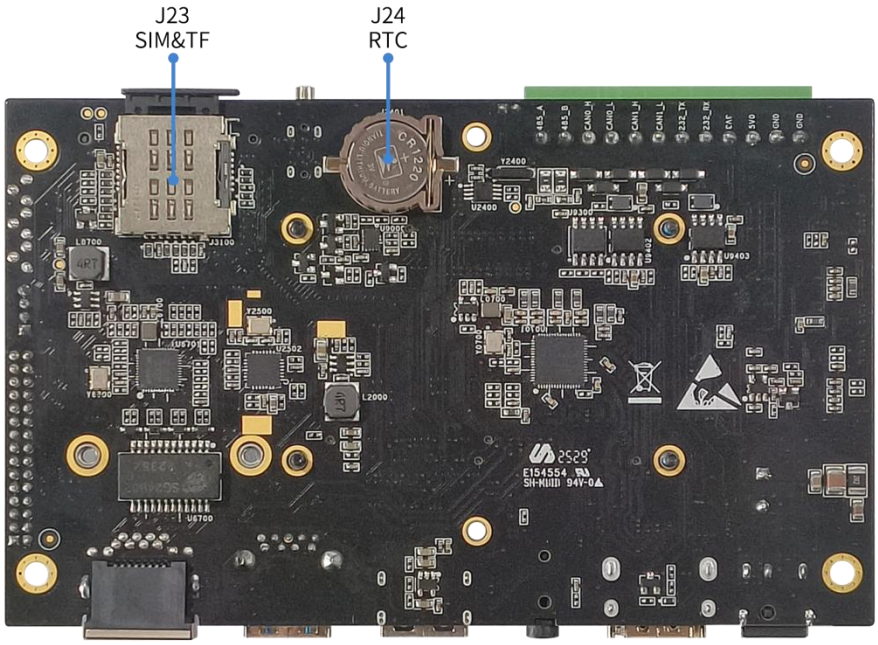
Dynamic Power Consumption: Refers to the power consumption when the device is in an active state, such as simulating the operation of applications, playing videos, or running games.

4. Appearance and Dimensions



5.Interface Definition

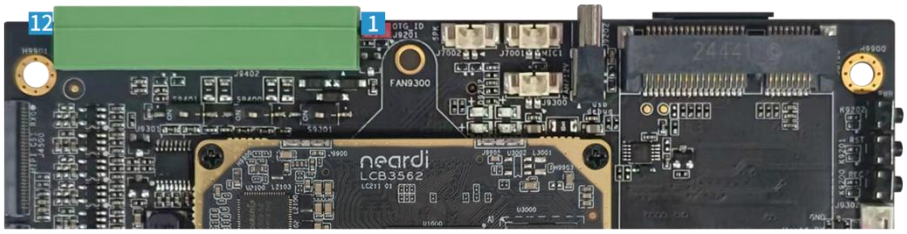




Part reference	Part Name	Part Specifications	Part Description
J1	IO	3.5mm 12pin wafer	CANBUS&RS485&RS232 signals
J2	OTG_ID	PH2.0mm 2pin wafer	USB30_OTG0_ID
J3	SPK	PH1.25mm 2pin wafer	Speaker Output 1.3W8Ω
J4	LED	0805 LED	Power,STA,work,4G
J5	MIC	PH1.25mm 2pin wafer	Micphone In
J6	FAN	PH1.25mm 2pin wafer	Fan
J7	Debug	Type-C USB2.0	DebugUart0 to USB
J8	mini-PCIe	Mini-PCIe 52pin socket	For 2G/3G/4G LTE module used
J9	Power	push-button	Key for system power
J10	Reset	push-button	Key for system Reset
J11	Recovery	push-button	Key for system recovery
J12	UART	PH2.0mm 4pin wafer	UART connector
J13	GPIO	PH2.0mm 2x15pin header	SARADC&I2C&GPIO connector
J14	RJ45	Gigabit Ethernet	10/100/1000-Mbps data transfer rates
J15	USB3.0	Type-A USB3.0	USB3.0 OTG
J16	USB2.0	Type-A USB2.0	USB2.0 Host
J17	Headphone	φ3.5mm 3-pole Jack	L/R audio out
J18	HDMI	Type-A HDMI connector	HDMI out
J19	DC-IN	DC 5.5*2.1mm	Main power supply, DC12V
J20	Ant	I-PXE	WL_BT_ANT
J21	MIPI-CSI1	30pin 0.5pitch FPC Socket	MIPI-CSI 4lane or 2*2Lane for external cameras
J22	MIPI-CSI0	30pin 0.5pitch FPC Socket	MIPI-CSI 4lane or 2*2Lane for external cameras
J23	SIM &TF	Push-Push SIM&TF socket	SIM Card&TF Card
J24	RTC	RTC socket	RTC battery power input 3.0V

6.Pin Definition

IO (J1)



Pin number	Pin name	Voltage level	Notice
1	RS485_A	-	-
2	RS485_B	-	-
3	CAN0_H	3.3V	-
4	CAN0_L	3.3V	-
5	CAN1_H	3.3V	-
6	CAN1_L	3.3V	-
7	RS232_TX1	-	-
8	RS232_RX1	-	-
9	VCC3V3_EXT	3.3V	-
10	VCC5V0_EXT	5V	-
11	GND	GND	-
12	GND	GND	-

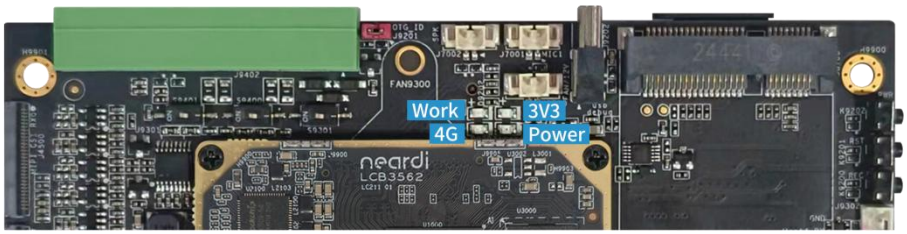
OTG_ID (J2)

Pin number	Pin name	Voltage level	Notice
1	USB30_OTG_EN	-	-
2	GND	GND	-

SPK (J3)

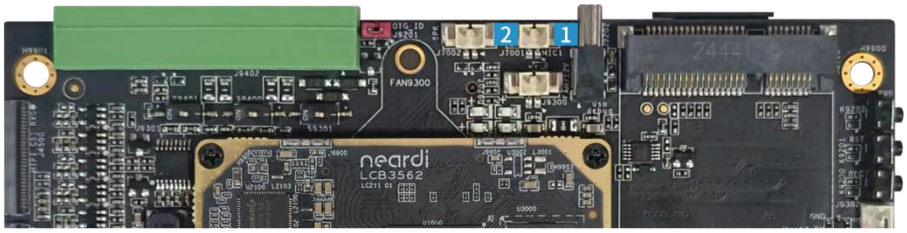
Pin number	Pin name	Voltage level	Notice
1	SPKP_OUT	-	-
2	SPKN_OUT	-	-

LED (J4)



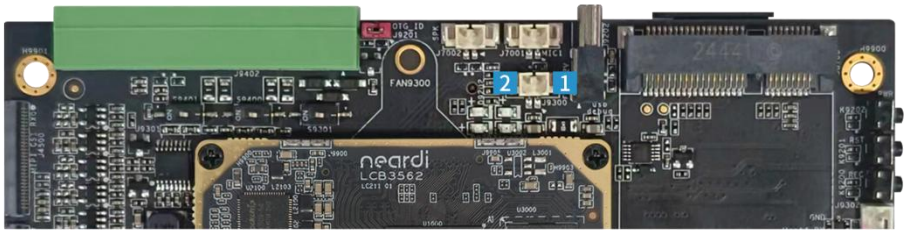
Pin number	Pin name	Voltage level	Notice
D9202	WORKING_LEDEN_H	3.3V	Status Indicator: Can reflect the system working status and application layer heartbeat, blinking when normal.
D9203	4G_LED_SINK	3.3V	4G Indicator: Its behavior is defined by the dial-up module used (e.g., Quectel EC20). For example: Steady on: Network registered Blinking: Dialing in progress or data transmission in progress Off: No signal or module not initialized
D9201	VCC3V3_PMU	3.3V	System Status Indicator: Blinks periodically during normal operation, indicating that the system main controller is running properly.
D9200	VCC12V_DCIN	12V	Power Indicator: Steady on indicates that the device is powered on and the power supply is working normally.

MIC (J5)



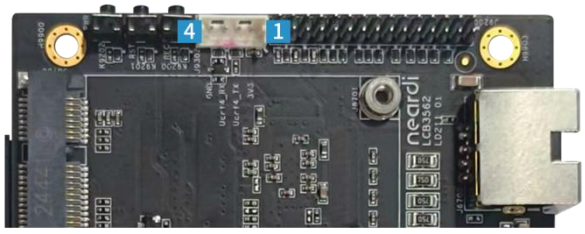
Pin number	Pin name	Voltage level	Notice
1	MIC1_IN	-	-
2	GND	GND	-

FAN (J6)



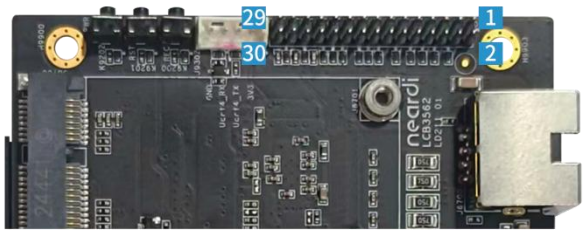
Pin number	Pin name	Voltage level	Notice
1	FAN_12V	12V	-
2	GND	GND	-

UART (J12)



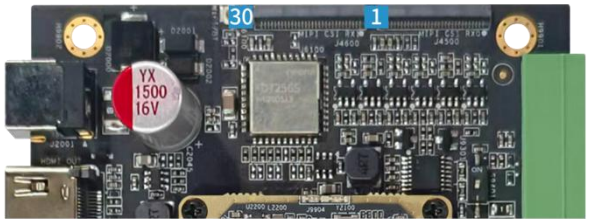
Pin number	Pin name	Voltage level	Notice
1	VCC3V3_EXT	3.3V	-
2	UART4_TX_M0_OUT	3.3V	-
3	UART4_RX_M0_OUT	3.3V	-
4	GND	GND	-

GPIO (J13)



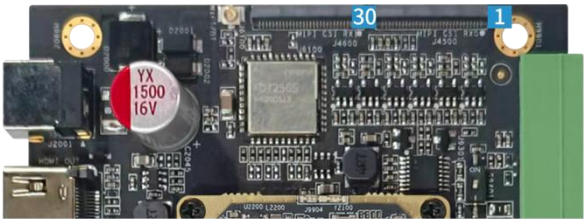
Pin number	Pin name	Voltage level	Notice
1	GND	GND	-
2	GND	GND	-
3	SARADC0_IN2_HW_ID	-	-
4	GND	GND	-
5	SARADC0_IN3	-	-
6	WIFI_REG_ON_H	-	-
7	SARADC0_IN5	-	-
8	LCD_BL_PWM	-	-
9	SARADC0_IN6	-	-
10	GND	GND	-
11	SARADC0_IN7	-	-
12	I2C1_SCL_TP	-	-
13	SARADC1_IN0	-	-
14	I2C1_SDA_TP	-	-
15	SARADC1_IN1	-	-
16	PCIE20_CLKREQn_M0	-	-
17	SARADC1_IN2	-	-
18	PCIE20_REFCLKP	-	-
19	SARADC1_IN3	-	-
20	PCIE20_REFCLKN	-	-
21	SARADC1_IN4	-	-
22	PMIC_32KOUT_WIFI	-	-
23	SARADC1_IN5	-	-
24	VCC_1V8	1.8V	-
25	SARADC1_IN6	-	-
26	VCC3V3_EXT	3.3V	-
27	SARADC1_IN7	-	-
28	VCC5V0_SYS	5V	-
29	GND	GND	-
30	GND	GND	-

MIPI-CSI1 (J21)



Pin number	Pin name	Voltage level	Notice
1	GND	GND	-
2	MIPI_CSI_RX1_D0P	-	-
3	MIPI_CSI_RX1_D0N	-	-
4	GND	GND	-
5	MIPI_CSI_RX1_D1P	-	-
6	MIPI_CSI_RX1_D1N	-	-
7	GND	GND	-
8	MIPI_CSI_RX1_CLK0N	-	-
9	MIPI_CSI_RX1_CLK0P	-	-
10	GND	GND	-
11	MIPI_CSI_RX1_D2P	-	-
12	MIPI_CSI_RX1_D2N	-	-
13	GND	GND	-
14	MIPI_CSI_RX1_D3P	-	-
15	MIPI_CSI_RX1_D3N	-	-
16	GND	GND	-
17	MIPI_CSI_RX1_CLK1P	-	-
18	MIPI_CSI_RX1_CLK1N	-	-
19	GND	GND	-
20	CAM_CLK1_OUT	-	-
21	CAM_RST1_L_CON	-	-
22	CAM_PDN1_L	-	-
23	NC	-	-
24	NC	-	-
25	I2C5_SCL_M0	-	-
26	I2C5_SDA_M0	-	-
27	VCC1V8_DOVDD_DVP1	1.8V	-
28	VDD1V2_DVDD_DVP1	1.2V	-
29	VCC2V8_DVP1	2.8V	-
30	VCC2V8_AVDD_DVP1	2.8V	-

MIPI-CSI0 (J22)



Pin number	Pin name	Voltage level	Notice
1	GND	GND	-
2	MIPI_CSI_RX0_D0P	-	-
3	MIPI_CSI_RX0_D0N	-	-
4	GND	GND	-
5	MIPI_CSI_RX0_D1P	-	-
6	MIPI_CSI_RX0_D1N	-	-
7	GND	GND	-
8	MIPI_CSI_RX0_CLK0N	-	-
9	MIPI_CSI_RX0_CLK0P	-	-
10	GND	GND	-
11	MIPI_CSI_RX0_D2P	-	-
12	MIPI_CSI_RX0_D2N	-	-
13	GND	GND	-
14	MIPI_CSI_RX0_D3P	-	-
15	MIPI_CSI_RX0_D3N	-	-
16	GND	GND	-
17	MIPI_CSI_RX0_CLK1P	-	-
18	MIPI_CSI_RX0_CLK1N	-	-
19	GND	GND	-
20	CAM_CLK0_OUT	-	-
21	CAM_RST0_L_CON	-	-
22	CAM_PDN0_L	-	-
23	NC	NC	-
24	NC	NC	-
25	I2C4_SCL_M0	-	-
26	I2C4_SDA_M0	-	-
27	VCC1V8_DOVDD_DVP0	1.8V	-
28	VDD1V2_DVDD_DVP0	1.2V	-
29	VCC2V8_DVP0	2.8V	-
30	VCC2V8_AVDD_DVP0	2.8V	-

7.Application Scenarios

AI

Machine Vision

Industrial Control

Energy and Power

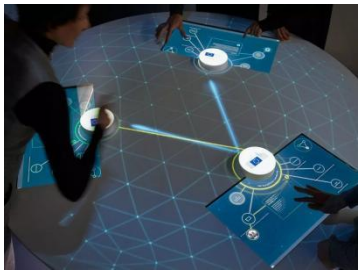
Smart Tablet

VR

Smart Logistics

New Retail

Smart Commercial



Object Recognition

Vehicle terminal

Security Surveillance

8. Ordering Model

Product Model	Status	CPU	DDR	eMMC	Operating Temperature
LZ21110801	ACTIVE	RK3562	1GB	8GB	-20℃ - 75℃
LZ21121601	ACTIVE	RK3562	2GB	16GB	-20℃ - 75℃
LZ21143201	ACTIVE	RK3562	4GB	32GB	-20℃ - 75℃
LZ211108J1	ACTIVE	RK3562J	1GB	8GB	-40℃ - 85℃
LZ211216J1	ACTIVE	RK3562J	2GB	16GB	-40℃ - 85℃
LZ211432J1	ACTIVE	RK3562J	4GB	32GB	-40℃ - 85℃

*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-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

Development Board

Embedded Computer

HISI

NVIDIA

Vehicle Terminal

WIFI Module