

LPR3588 Embedded Computer

Product Manual

V1.0



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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.com

Email: sales@neardi.com

Version History

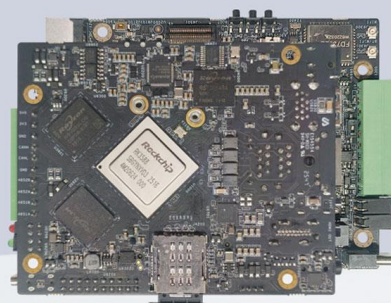
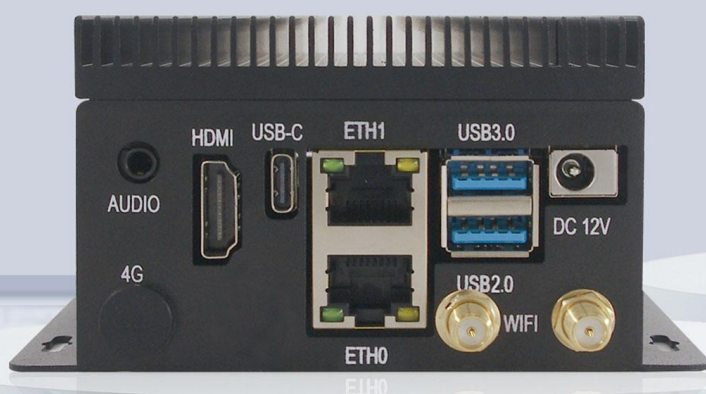
Version	Date	Description
V1.0	2026/3/25	Initial version

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1.Product Introduction

LPR3588 is an intelligent computer meticulously designed based on the Rockchip RK3588 chip platform. It adopts the Neardi PI4 multi-function development board, featuring an octa-core 64-bit big.LITTLE architecture with 4 high-performance Cortex-A76 cores and 4 energy-efficient Cortex-A55 cores, supporting dynamic task allocation to balance performance and power consumption. It integrates an ARM Mali-G610 MP4 GPU, supporting graphics APIs including OpenGL ES 3.2 and Vulkan 1.2. The built-in neural processing unit (NPU) delivers up to 6 TOPS of computing power, supporting INT4/INT8/INT16 hybrid computing and accelerating model inference for frameworks such as TensorFlow and PyTorch. It supports 8K@60fps H.265/VP9 hardware decoding and 4K@60fps encoding, as well as HDR and dynamic metadata processing.



2. Function Overview



SOC

CPU	RK3588, 8nm process, 8-core 64-bit architecture
GPU	ARM Mali-G610 MC4 GPU, Dedicated 2D Graphics Acceleration Module
NPU	6TOPS
VPU	8K Video Codec, 8K Display Output
DDR	LPDDR5,4/8/16GB
eMMC	eMMC 5.1,32/64/128GB



Interfaces

1 x HDMI Output
3 x MIPI-CSI Interfaces and 1 x MIPI-DSI Interface
2 x Gigabit Ethernet Ports, Dual-band Wi-Fi 6, BT 5.4
1 x Mini PCIe Interface, expandable for 4G/5G Module
1 x M.2 M-Key Interface, supports external NVMe 2242 SSD
1 x Type-A USB 3.0, 1 x Type-A USB 2.0, 2 x Type-C
CAN, 2*RS485, I2C, UART, SPI
1 x MIC, 1 x Headphone, 1 x Speaker



os

Android

Linux (Buildroot / Debian / Ubuntu)



Open Source Resources

WIKI

Quick Start

Firmware Upgrade

Android Development

Linux Development

Kernel & Driver

DEMO

System Customization

Accessories

FAQ

Release Notes

Hardware Documentation

Datesheet

Product 2D/3D Drawings

Software Documentation

Flashing Tool & Drivers

Android Source & Images

U-Boot & Kernel Source

Debian/Ubuntu/Buildroot System Files

3.Specifications

Basic Specifications

SOC	RK3588,8nm; 8-core 64-bit processor (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; High-performance 2D graphics acceleration module
NPU	6TOPS; int4/int8/int16/FP16/BF16/TF32
VPU	Supports H.265/H.264/AV1/VP9/AVS2 video decoding, up to 8K@60fps Supports H.264/H.265 video encoding, up to 8K@30fps
DDR	LPDDR5, 4GB/8GB/16GB
eMMC	eMMC 5.1, 64GB/128GB
PMU	RK806
OS	Android / Ubuntu / Buildroot / Debian

Hardware Parameters

Power	DC12V - 3A (DC Jack 5.5*2.1mm)
USB	1*Type-A USB3.0
	1*Type-A USB2.0
	1* Type-C USB
	1*Type-C USB Debug
Display	1*Type-A HDMI up to 8K@30fps or 4K@120fps

	1*MIPI-DSI 4Lane
Audio	φ3.5mm earphone Jack with L/R audio out
	1.25mm 2pin Micphone In
	speaker out with L/R channel
Camera	3* MIPI-CSI 4Lane
Mini-PCle	mini PCle for 2G/3G/4G/5G module
M.2	M.2 NGFF (M-KEY) PCIE V2.0 x1lane with NVMe 2242 SSD
SIM&SD card	Micro sim slot for Mini-PCle 4G/5G LTE module
	Micro SD slot for SD
Ethernet	2*10/100/1000-Mbps data transfer rates
RTC	RTC power supply interface
Serial port	CAN2.0,2*RS485,I2C,UART,SPI
Keys	4* keys (Power,Reset,Recovery,Boot)

Other Parameters

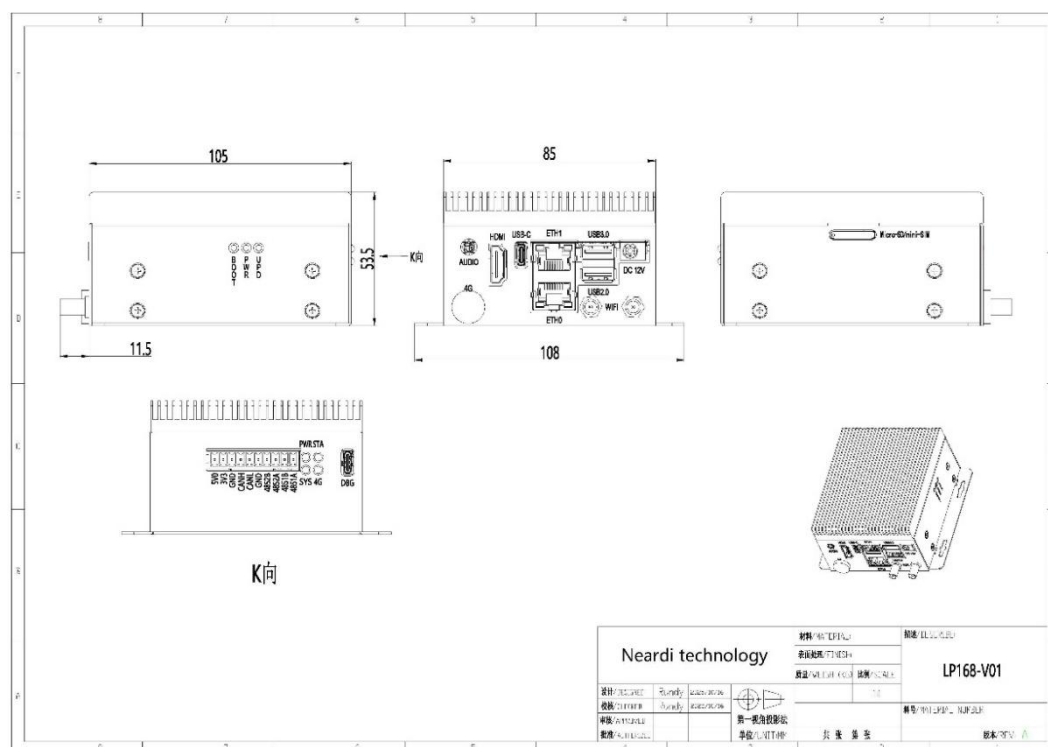
Dimensions	L*W*H(mm) 108*105*53.5
Temperature	-20 ~ 75°C (Business)
	-40 ~ 85°C (Industrial)
Weight	Approx. 689g (without peripherals)

4. Appearance and Dimensions

4.1 Appearance



4.2 Dimension



5.Application Scenarios



AI



Machine Vision



Industrial Control



Energy and Power



Tablet PC



VR



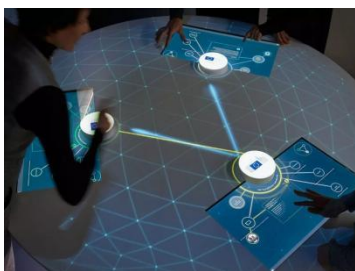
Smart Logistics



New Retail



Commercial Display



Object Recognition



Vehicle Terminal



Security Monitoring

6.Order Model

Model	Status	CPU	DDR	eMMC	Temp
LP16846401	MP	RK3588	4GB	32GB	-20°C - 75°C
LP16886401	MP	RK3588	8GB	64GB	-20°C - 75°C
LP1689A801	MP	RK3588	16GB	128GB	-20°C - 75°C

*Non-standard custom → contact by email: sales@neardi.com

FCC Warning

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

-Reorient or relocate the receiving antenna.

- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Radiation Exposure Statement

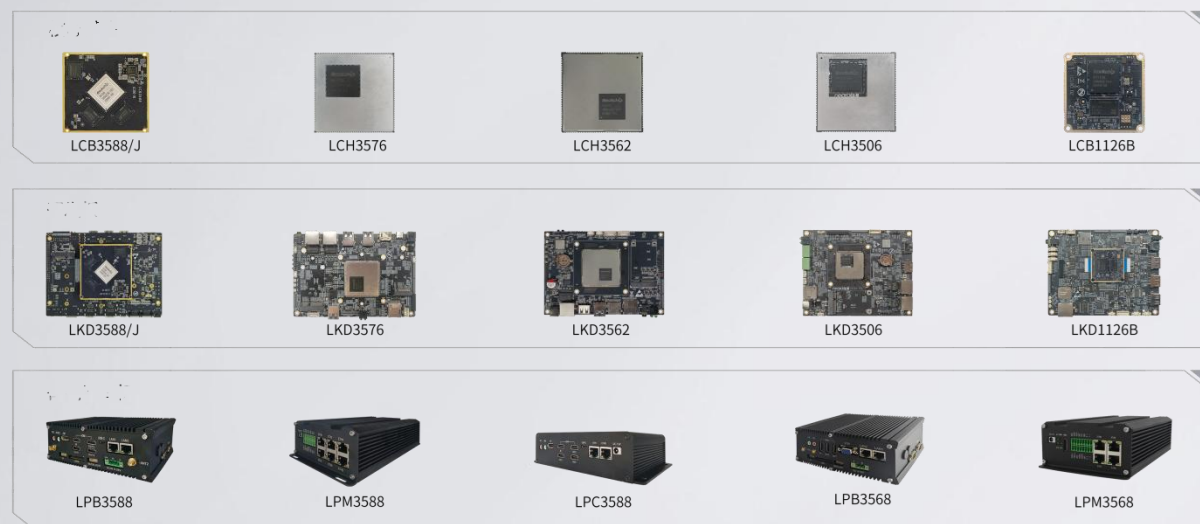
This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator and your body.

7.About

Founded in 2014, **Shanghai Neardi Technologies Co., Ltd.** is a national high-tech enterprise in China. We specialize in the R&D and manufacturing of enterprise-level open-source hardware platforms, providing customers with core modules, industrial boards, development kits, touch panels, and industrial control hosts.

Adhering to the core philosophy of technological innovation and professional service, we leverage our technical advantages and industry experience to help partners achieve rapid mass production of products.

Rockchip



HiSi



NVIDIA



Vehicle Terminal



WIFI6 Module

