

**iKOOLCORE<sup>®</sup>**

# Quick Guide

For iKOOLCORE R2

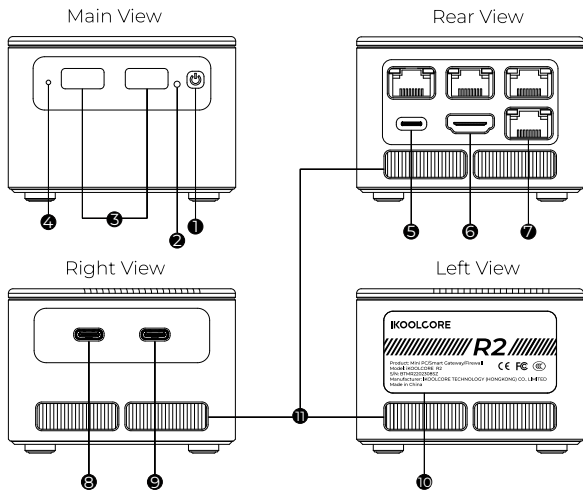
Mini PC/Firewall/Smart Gateway

Learn More: [wiki.ikoolcore.com](http://wiki.ikoolcore.com)

## 1. Packaged Contents:

1 x Unit of R2, 1 x Power Adapter, 1 x Qualification Certificate, 1 x Quick Guide, 1 x Adapter Cable, 1 x VESA Mount, 1 x Package of Screws

## 2. Product Interfaces:



❶ Power Button

❷ Power Indicator

❸ USB 3

❹ Reset Button

❺ Power Input

❻ HDMI

❼ 2.5G Ethernet Port

❽ USB-C Port (eDP1.4a)

❾ Audio Jack

❿ Product Label

⓫ Heat Vent Outlet

### 3. Hardware Specifications:

Key Parameters	Platform	12th Generation Alder Lake-N
	CPU Model	N95/i3-N300
	Memory	LPDDR5 4800MHz 8G/16G
	Storage	M.2 2242 NVMe/SATA(NGFF) Adaptive, Up to 2TB
	Wi-Fi/BT	Standard E-KEY Interface, Support Wi-Fi 6E network modules
External Interfaces	Network	3 x Intel i226-V, 1 x Realtek RTL8156BG
	USB Port	2 x USB 3.1 Gen1(5Gbps), 1 x USB 3.2 Gen2 (10Gbps)
	Display	1 x HDMI 2.0, 1 x DP 1.4a , Support 4K@60Hz Display output
	Power	USB-C Power Delivery Port, Compatible with DC/PD Protocols
	Audio	1 x Type-C Audio Port, RealTek ALC987 Audio Chipset
Scalability	Storage	1 x M.2 2242 SSD, Support NVMe/SATA(NGFF) Protocols
	Wi-Fi/BT	Support Wi-Fi 6E, Recommend AX210, MTK7921
	Display	USB-C Alternate Mode, Support 4K@60Hz
Others	Systems	Windows, Linux, pfSense, OPNsense, OpenWrt etc.
	Dimensions	7.5 x 7.5 x 5.2 cm (2.96 x 2.96 x 2.05 ")
	Weight	400g (881.9 lbs)
	Packaged Weight	830g (1829.8 lbs)
	Plug Type	Automatic inclusion of the corresponding standard plug based on user's region

### 4. BIOS Settings:

#### 1) Shortcuts:

Press the power button and immediately press **F2** to enter the setup interface of UEFI BIOS.

Press the power button and immediately press **F12** to access the boot device selection interface.

## 2) Setting Temperature Limit (Thermal Configuration):

To set the temperature limit, navigate to: *Advanced -> Thermal Configuration -> CPU Thermal Configuration -> Tcc Activation offset*. Adjusting this value will allow you to set a temperature threshold. The maximum temperature is 105°C. It is recommended to set the value to 10, which means that throttling will begin when the temperature reaches 95°C (105°C - 10°C) to ensure it doesn't exceed 95°C. For instance, if you wish to set the temperature threshold to 85°C, modify this value to 20, and so forth.

## 3) Enabling/Disabling Power to Front USB Ports and PCIe LAN Port:

a) Power to USB Ports BIOS Setting: *Chipset -> USB 5V Configuration -> USB 5V ALWAYS*

b) Power to WOL (Wake on LAN) Port BIOS Setting: *Chipset -> PCIE LAN Configuration -> Wake on LAN Enable*, If you are using WOL functionality, set it to Enable mode.

## 4) PWM Temperature-Controlled Fan Configuration:

The R2 is equipped with a high-efficiency cooling system composed of all-copper CNC heat fins and a 50mm dual ball bearing PWM fan. You can configure the fan operating mode in the UEFI BIOS. In the default factory BIOS settings, this configuration option is located at: *Advanced -> Hardware Monitor -> Smart Fan Function -> CPU Fan Configuration*.

We recommend setting this option to the default *Normal Mode*, which is the Intelligent Mode. In this mode, the fan speed will be intelligently controlled based on the readings from the CPU temperature sensor using PWM control.

Alternatively, you can configure this option to *Manual Mode*, allowing you to control the fan speed through a temperature curve strategy that you manually set. Or you can set it to *Full on Mode*, where the fan will operate at a maximum speed of 3000 RPM, generating higher noise but providing optimal cooling performance.

## 5) Restoring BIOS to Default Factory Settings:

Navigate to: *Save & Exit -> Restore Defaults*.

## 5. Important Note:

### 1) BIOS:

In order to enhance user experience or address identified bugs, we may release firmware updates. The BIOS pre-installed as the factory default can provide basic machine performance. Subsequently, we will introduce updated firmware versions based on user feedback to maximize machine efficiency. However, users should be aware that potential risks such as failure to power on due to firmware updates may require them to bear the cost of returning the product to the factory for re-flashing.

### 2) Systems:

This product is a hardware solution designed based on a universal architecture. It is compatible with mainstream X86 systems, including but not limited to Windows, Linux, Proxmox, VMware ESXi, pfSense, OPNsense, iKuai, OpenWrt, etc. Users are required to install the appropriate operating system based on their own needs, as no system or software is pre-installed at the factory. Additionally, our company does not provide any technical support for software or system-related issues that customers may encounter during usage.

### 3) Cooling:

This product features an active cooling system composed of an all-copper heat sink and a PWM temperature-controlled fan. The all-copper heat sink is in direct contact with the metal casing, serving as a passive auxiliary heat sink for overall heat dissipation. In hot weather or high ambient temperatures, the casing may attain some temperature. Please avoid prolonged contact with the casing to prevent potential low-temperature burns.

### 4) Warranty:

Due to the compact and highly integrated design of the machine, please refrain from disassembling the device on your own. All machines are affixed with anti-tamper labels. Once the anti-tamper label is removed, we regret to inform you that free warranty service cannot be provided. In the event of any operational malfunction during normal use, please contact our after-sales email ([jikoolcore@gmail.com](mailto:jikoolcore@gmail.com)). Within the one-year warranty period, we will provide free after-sales repair services. Beyond the warranty period, you can still avail of repair services provided by our company, though there may be associated material and labor costs. Any product damage caused by human error or accidents is not covered under warranty.

## Warranty Card

Product Name		Configuration	
Order Date		Order ID	
Customer Name		Phone	
Address			
Issue Description			

## Repair Record

Repaired Date	
Repair Details:	
	Signature:
Repaired Date	
Repair Details:	
	Signature:
Repaired Date	
Repair Details:	
	Signature:

iKOOlCORE®

# 快速入门指南

适用于硬酷第2代产品

迷你主机、防火墙、智能网关

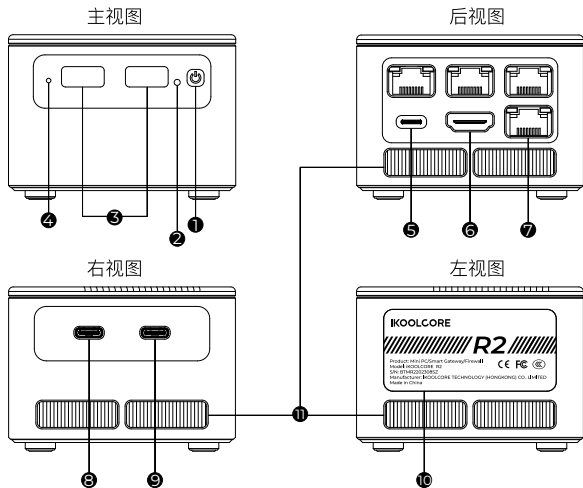
了解更多：[wiki.ikoolcore.com](http://wiki.ikoolcore.com)

△：请在国家或地区法律法规允许范围内使用本产品。

## 1. 包装内容物:

整机 x1, 电源适配器 x1, 产品合格证 x1, 快速入门指南 x1, 转接线 x1,  
VESA支架 x1, VESA螺丝包 x1

## 2. 产品外观和功能接口:



① 电源按钮

② 电源指示灯

③ USB接口

④ 复位重启键

⑤ 12-20V电源输入口

⑥ HDMI口

⑦ 4个2.5G网口

⑧ USB-C多功能接口 (兼容DP1.4显示输出)

⑨ 音频输出口

⑩ 产品铭牌

⑪ 散热出风口



### 3. 硬件参数：

重要参数	处理器平台	12th Generation Alder Lake-N
	处理器型号	N95/i3-N300
	内存大小	LPDDR5 4800MHz 8G/16G
	内部存储	M.2 2242 NVMe/SATA(NGFF) 自适应，最大支持 2TB
	Wi-Fi 与 蓝牙	标准 E-KEY 接口，可支持Wi-Fi 6/6E 网卡和蓝牙模块
外部接口	网络接口	3 x Intel i226-V, 1 x Realtek RTL8156BG
	USB 接口	2 x USB 3.1 Gen1(5Gbps), 1 x USB 3.2 Gen2 (10Gbps)
	显示接口	1 x HDMI 2.0, 1 x DP 1.4a, 均支持 4K@60Hz 显示输出
	电源接口	USB-C 接口，兼容 DC/PD 协议，支持 12-20V 宽压，标配 12V 4A 电源
	音频接口	1 x Type-C 音频输出口，音频芯片RealTek ALC987
功能扩展	存储扩展	内置1 x M.2 2242 硬盘位，兼容 NVMe/SATA(NGFF)
	Wi-Fi扩展	支持 Wi-Fi 6E，推荐 AX210, MTK7921 等模块
	显示扩展	侧面 USB-C 支持显示，兼容 DP 1.4a 协议，支持 4K@60Hz
其他	系统支持	Windows, Linux, pfSense, OPNsense, OpenWrt 等
	整机尺寸	7.5 x 7.5 x 5.2 cm(2.96 x 2.96 x 2.05 英寸)
	整机重量	400克
	包装重量	830克
	电源插头	根据用户地区，将自动标配对应标准的插头

### 4. 系统设置：

#### 1) 快捷键：

按开机键后，立即按 *F2* 以进入 UEFI BIOS 的设置界面

按开机键后，立即按 *F12* 以进入启动盘选择界面

#### 2) 温度墙设定与解除：

为了满足不同用户对机器运行温度的个性化需求，硬酷 R2 允许自定义温度墙

配置项位于: *Adanced -> Thermal Configuration -> CPU Thermal Configuration -> Tcc Activation offset*, 通过设置这个值即可设置温度墙, 最高温度为 105, 建议设置数值为 10, 表示温度达到 95 (105-10) 摄氏度后开始降频以保证温度不会超过 95 摄氏度。如你想设置温度墙为 85, 则修改此值为 20 即可。以此类推。

### 3) USB 与网口带电与否设置:

#### a) USB 带电的 BIOS 设置:

配置项位于: *Chipset -> USB 5V Configuration -> USB 5V ALWAYS*, 如果你要保持关机状态下 USB 接口带电, 则保持为 *Enable* 状态; *Disabled* 状态下关机后 USB 网口不带电。

#### b) 网口带电的 BIOS 设置:

配置项位于: *Chipset -> PCIE LAN Configuration -> Wake on LAN Enable*, 如果你要保持关机状态下网口带电以使用 Wake on LAN 功能, 则应保持为 *Enable* 开启模式; 如不需要设置网口带电和使用 WOL 功能, 则可以设置为 *Disabled* 模式。

### 4) PWM 智能温控的设定:

硬酷 R2 配备全铜 CNC 散热鳍片及 50mm 双滚珠轴承温控风扇组成的高能效散热器。您可以在 UEFI BIOS 中配置风扇工作模式, 出厂 BIOS 设中该配置项位于: *Advanced -> Hardware Monitor -> Smart Fan Function -> CPU Fan Configuration*。

我们推荐您将该选项配置为默认的 *Normal Mode*, 即智能模式, 此时风扇转速将根据 CPU 温度传感器数据实施 PWM 智能控制。

您亦可将该选项配置为 *Manual Mode*, 即手动模式, 此时风扇转速由您手动设置的温度曲线策略控制; 或配置为 *Full on Mode*, 即全速模式, 风扇将以每分钟 3000 转全速运转, 此时将产生较高噪音, 但散热性能最佳。

### 5) BIOS 恢复默认出厂设置:

部分用户如果把 BIOS 调整错误导致不启动后, 可尝试恢复出厂默认的设置, 配置项位于: *Save & Exit -> Restore Defaults*。确认后, BIOS 将恢复出厂默认设置。

## 5. 注意事项：

1). 关于BIOS：为了改善用户体验或修复发现的 Bugs ,我们可能会更新固件；默认出厂标配的 BIOS 能发挥机器的较高性能，后续我们会根据用户的 bugs 反馈推出更新版本固件以优化和解决 bug。请注意：因 BIOS 固件更新导致的机器不开机等故障问题，需用户自行承担返厂重刷所产生的费用。

2). 关于系统：本产品为基于通用架构设计的硬件产品，兼容主流 X86 系统，包括不局限于 Windows, Linux, Proxmox, VMware ESXi, pfSense, OPNsense, iKuai, OpenWrt 等，请用户自行根据自身需求安装对应系统使用，出厂不预装任何系统及软件，本公司也不会针对客户使用过程中的软件和系统问题提供任何技术支持。

3). 关于散热：本产品配备全铜 CNC 散热鳍片及 5010 双滚珠轴承温控风扇组成的高效主动散热器。因全铜散热器紧贴金属外壳，整体外壳为辅助被动散热器，如天气较热或环境温度较高时，外壳可能有一定温度，请勿长时间手握外壳以免低温烫伤。

4). 关于保修：因机设计紧凑小巧，主板集成度高，请切勿自行拆装机器。防拆标签一经撕毁，恕无法提供免费质保服务。如机器正常使用发生故障，请邮件联系我们售后邮箱 ([ikoolcore@gmail.com](mailto:ikoolcore@gmail.com))。一年质保期内我们将免费提供售后维修服务。超出质保期后，您仍可得到本公司提供的维修服务，但我们可能会收取一定的物料成本和人力成本。一切人为或意外造成的产品损坏不在保修范围内。

5). 联系方式：如您有任何疑问，请与我们联系 [ikoolcore@gmail.com](mailto:ikoolcore@gmail.com)。

## 保修卡

产品名称		硬件配置	
购买日期		订单编号	
联系人		联系电话	
退回地址			
故障描述			

## 维修记录

维修日期	
维修内容：	
	维修人员签名：
维修日期	
维修内容：	
	维修人员签名：
维修日期	
维修内容：	
	维修人员签名：