



Bringing RISC-V to Everyone

Shenzhen MilkV Technology Co., Ltd

Company Today

Founded in 2023 by a passionate group of RISC-V enthusiasts

Shenzhen: China's Silicon Valley,
boasting a complete and advanced
electronic technology industry chain.

30+

Stuff

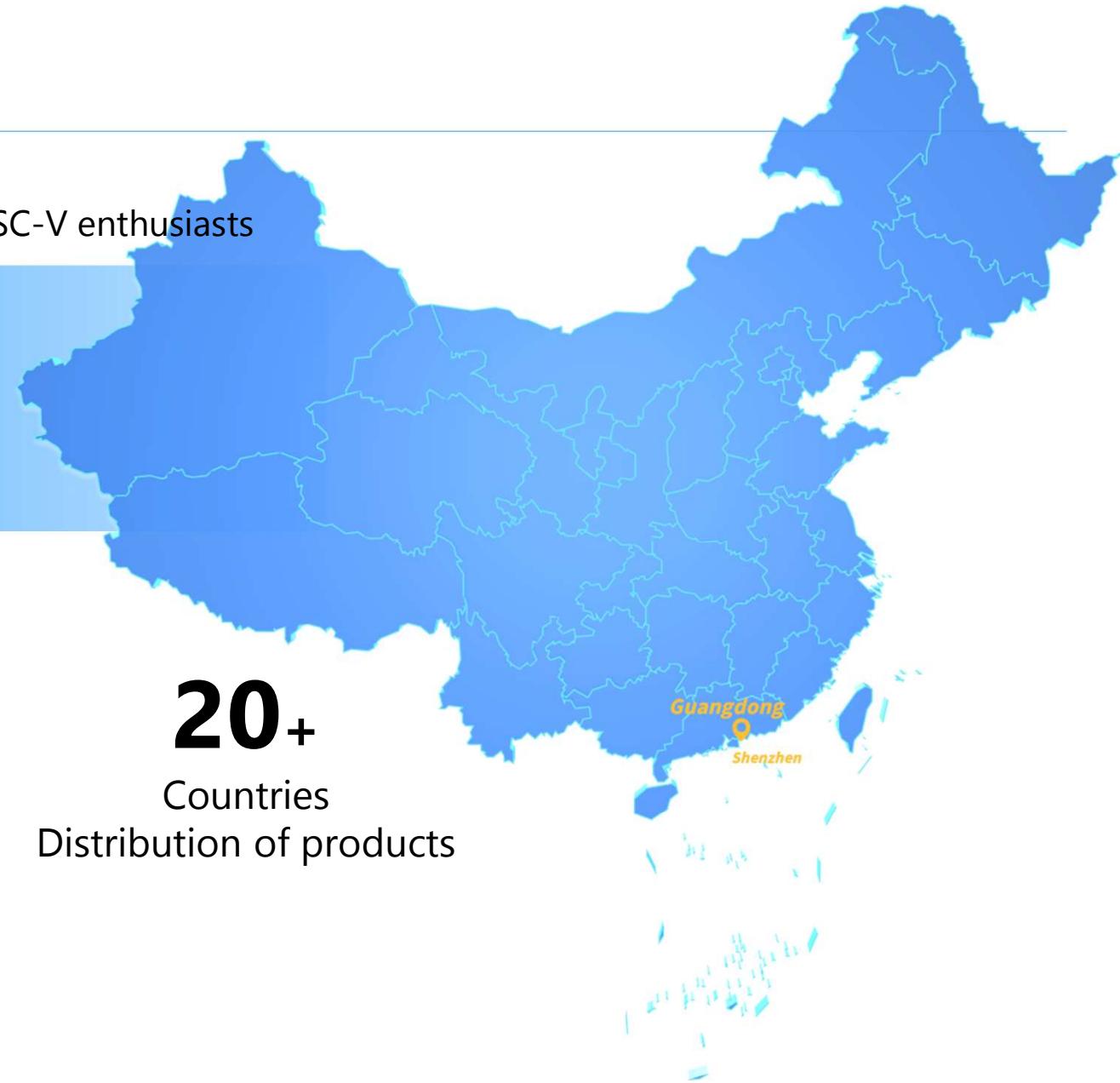
500000+

User

20+

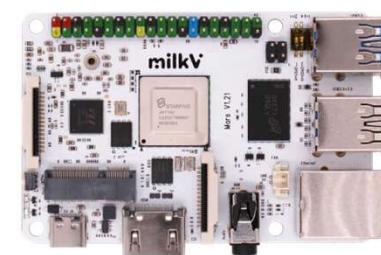
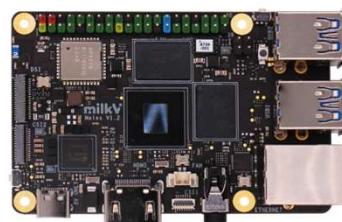
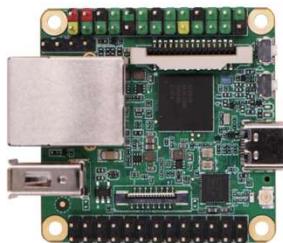
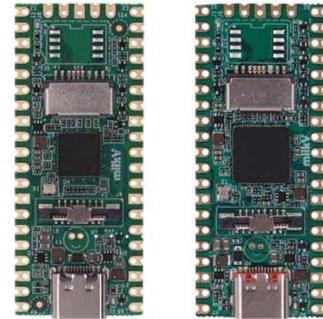
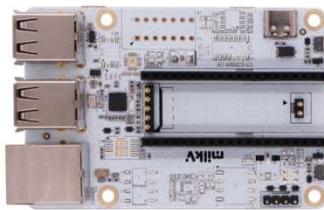
Countries

Distribution of products



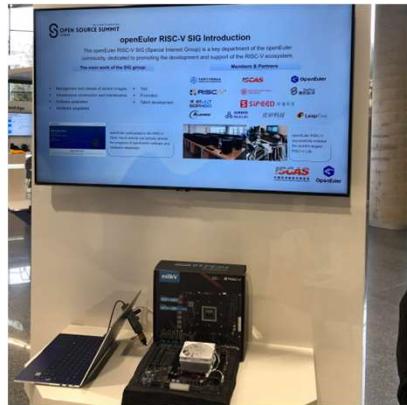
Products

milkV



Milk-V Pioneer

milkV



01

A 2023 high-performance RISC-V workstation affordable for developers



02

More than 80% of open-source software packages compiled by Milk-V Pioneer



03

More than 90% of RISC-V operating system compiled by Milk-V Pioneer



04

Mainstream media coverage 60+ times



05

Global high-performance RISC-V representative device

Promoted the development of the RISC-V software ecosystem

Milk-V Duo/Duo256M

milkV

500000+

Users choose Milk-V Duo Series

70% of them are new to RISC-V devices

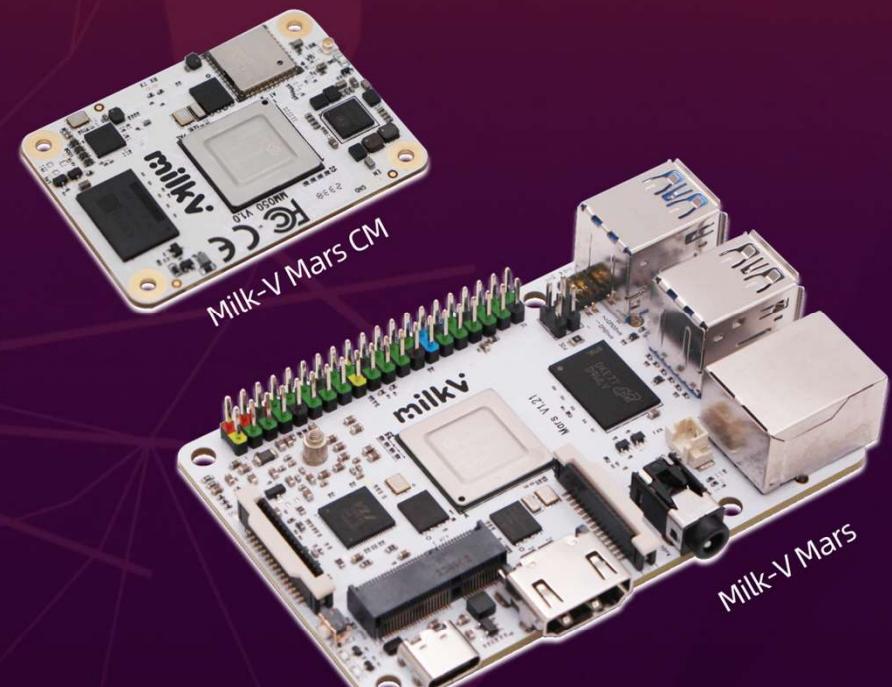
Making RISC-V devices accessible to a wider audience

Milk-V Mars/Mars CM



Strategic cooperation agreement with Canonical

Establish Ubuntu as the premier operating system
for RISC-V architecture

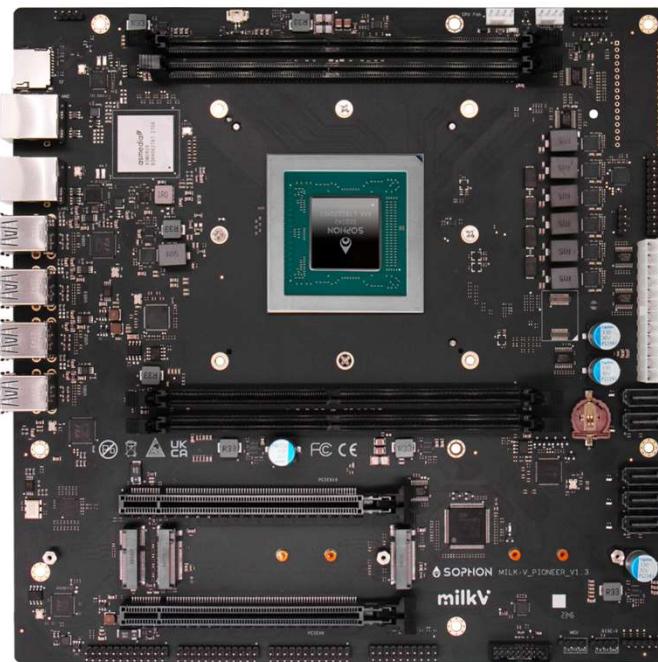


Linux Mainline Support

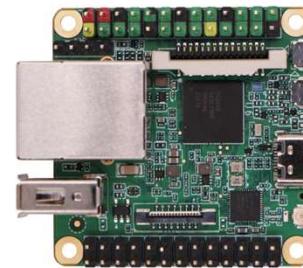


5+ Products Receive Linux Mainline Support

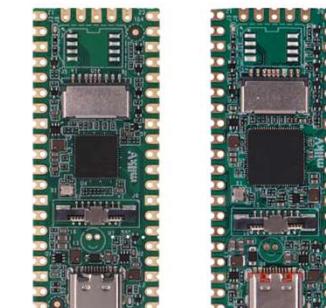
Milk-V Pioneer



Milk-V Duo S



Milk-V Mars CM



Milk-V Duo

Milk-V Duo 256M



Milk-V Mars



Milk-V Duo Module 01





How to Bring RISC-V to the Mainstream?



Milk-V Jupiter, powered by the Spacemit K1/M1 SoC, is the world's first Mini ITX device to support both RVA22 and RVV1.0. This device integrates a standard PCIe connector, supporting common PCIe devices such as graphics cards, PCIe to SATA adapters, and network cards. It features dual Gigabit Ethernet interfaces, onboard Wi-Fi 6/BT 5.2, and supports NVMe SSDs, making it an ideal choice for an entry-level RISC-V desktop.



Milk-V Jupiter

Milk-V Jupiter	Detailed specifications
SoC	SPACEMIT K1/M1, Octa-core X60™(RV64GCVB), RVA22, RVV1.0
AI-Power	2.0TOPS
RAM	4GB / 8GB / 16GB LPDDR4X
GPU	IMG BXE-2-32@819MHz, 32KB SLC OpenGL ES 1.1/3.2 EGL1.5 OpenCL 3.0 Vulkan 1.3
Multimedia	H.265/H.264/VP8/VP9/MPEG4/MPEG2 decoder 4K@60fps H.265/H.264/VP8/VP9 encoder 4K@30fps Support simultaneously processing encoding - 1080P@60fps and decoding - 1080P@60fps Support simultaneously - processing H264/H265 encoding - 1080P@30fps and H264/H265 - decoding 4K@30fps
Storage	1x SPI Flash for boot 1x M.2 M Key Connector for M.2 NVMe SSD (PCIe 2.0 x2) 1x eMMC Connector 1x microSD Card Slot
Ethernet	2x Gigabit RJ45 Port with PoE support(Additional PoE Module Required)
Wireless	WI-FI6/BT5.2 Onboard
USB	2x USB 3 Type-A HOST Ports 2x USB 2 Type-A HOST Ports 1x Type-C (USB2 OTG, for Firmware Download), Support PD power supply 2x USB 3.0 Interface via Front USB header 2x USB 2.0 Interface via Front USB header
Display	1x Standard HDMI, up to 1920x1440@60Hz
Audio	1x Headphone Jack 1x Microphone Jack
PCIe	1x PCIe x8 Slot (PCIe 2.1, 2-lane), Supports Graphic Cards and PCIe to SATA, etc.
Others	1x PWM fan Connector 1x RTC Socket(CR1220 battery) 1x Front Panel header for Power Button / Reset Button / Status LED / Power LED 2x SATA Power Connector(4P) 1x SoC Uart Debug(3P) 1x Debug(4P)
Power	1x 12V DC Power Jack(55x25mm) 1x Standard 24-Pin ATX Power Supply Interface 1x Type-C PD Power supply
OS	Ubuntu / Fedora / Bianbu
Size	170mm x 170 mm (Standard Mini-ITX)



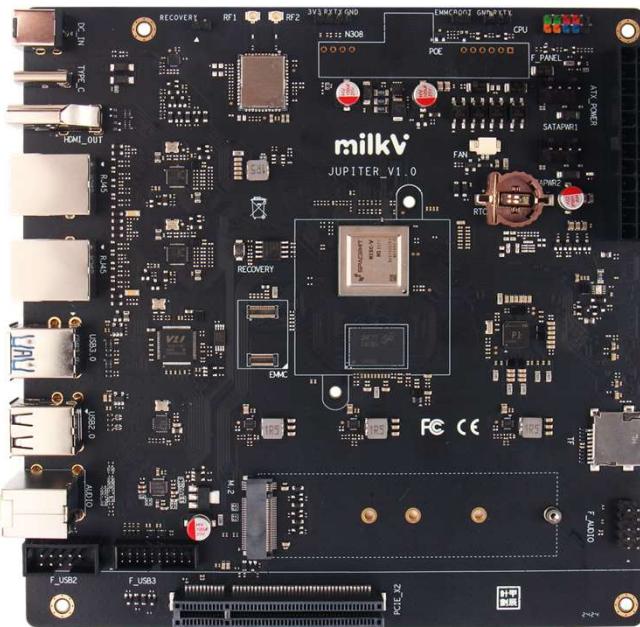
Milk-V Jupiter



milkV



The PC industry is changing: RISC-V goes mainstream



Powered by Spacemit K1/M1
8-Core X60

Milk-V Jupiter

Start from only \$60



The PC industry is changing: RISC-V goes mainstream

Jeff Geerling 745K subscribers Join Subscribed

8.1K Share Download Thanks Clip ...

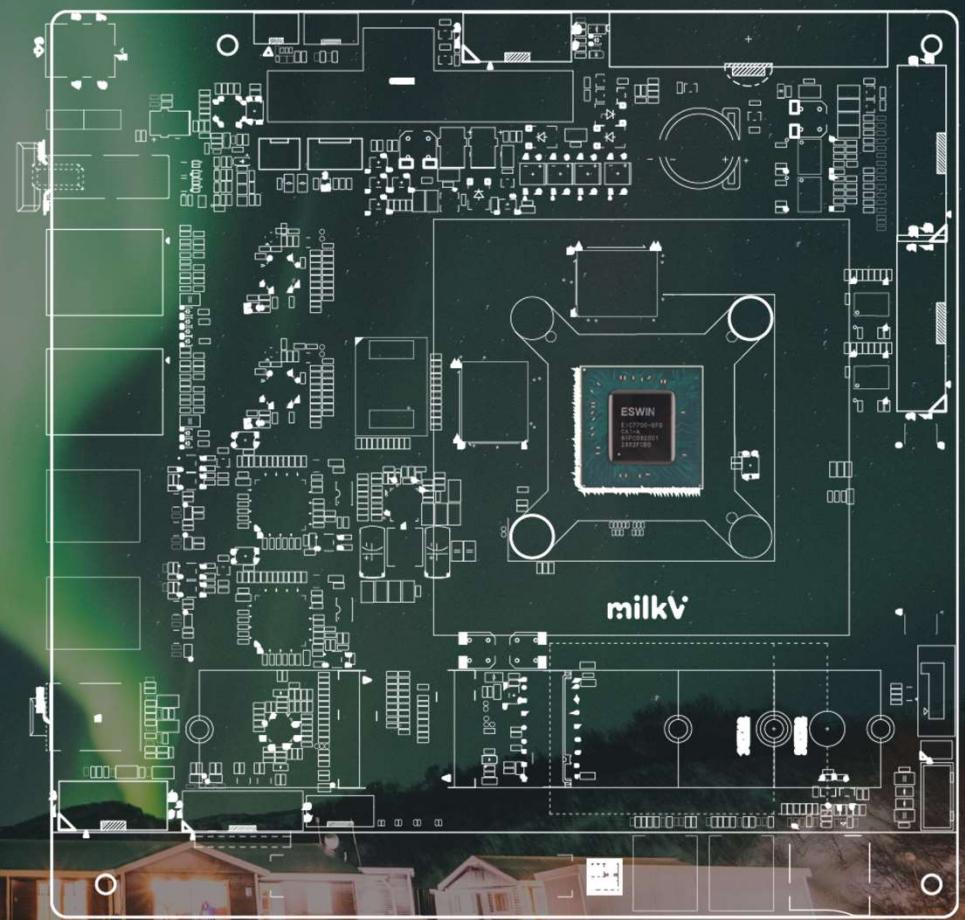
World's First Mini-ITX Device with RVA22 and RVV1.0

milkV

Milk-V Megrez

Another RISC-V AI PC Milestone

Quad Core SiFive P550
Built-in 19.95TOPS NPU



Powered by EIC7700X

Quad Core SiFive P550(RV64GC), up to 1.8GHz
L1 Cache 32KB(I) + 32KB(D)
L2 Cache 256KB
L3 Cache 4MB

Video Decoding

H.265 up to 8K@50fps
or
32 channels of 1080P@30fps

Video Encoding

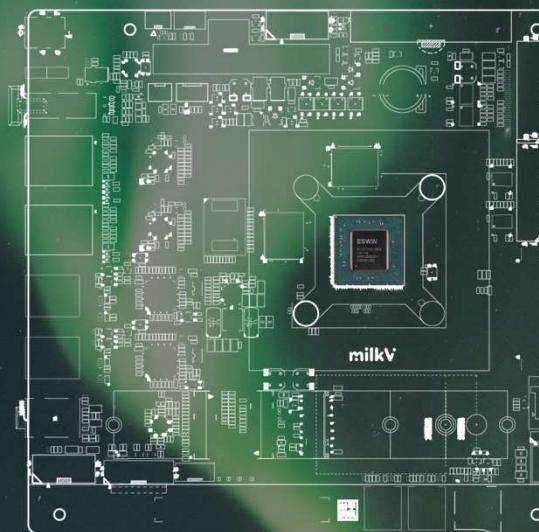
Up to 8K@25fps
or
13 channels of 1080P@30fps

Extreme AI computing power

Built-in 19.95TOPS@INT8 NPU

Built-in GPU

Support OpenGL ES 3.2, EGL 1.4, OpenCL 1.2 and 2.1 EP2 • Vulkan 1.2



USB

Quad USB3 Host
Dual F_USB

Form Factor

170mm*170mm
Standard Mini-ITX

PCI 
EXPRESS[®]

Native PCIe Gen3 4-lane



How to make RISC-V more appealing to commercial clients

Featured

Taiwan Veterans General hospital deploys real-time AI risk prediction for kidney patients

Blog

Featured

NVIDIA Jetson AGX Orin Series
A Giant Leap Forward for Robotics and Edge AI Applications
Technical Brief

Solution Brief

Jetson AGX Orin Series Technical Brief

Featured

Building the Next Generation of Autonomous Machines
Powered by NVIDIA Jetson

Ebook

Jetson Partner Solutions Ebook

Blog

Drone Startup Delivers Pizza, Meds and Side of Excitement

Solution Showcase

Pegasus Technology
Building an autonomous special vehicles infrastructure powered by NVIDIA Jetson-based computing.

Solution Brief

Building an autonomous special vehicles infrastructure powered by NVIDIA Jetson-based...

Blog

Healthcare AI Startup Analyzes Cancer Cells in the Operating Room

Blog

7 NVIDIA Jetson Users Win Big at CES 2023 in Las Vegas

Blog

EMVision's lightweight brain-scanning device diagnose brain stroke in minutes

Blog

Cheers to AI: Monarch Tractor Launches First Commercially Available Electric, "Driver..."

Blog

Unearthing Data: Vision AI Startup Digs Into Digital Twins for Mining and Construction

Blog

Students at SMU in Dallas build baby supercomputer with NVIDIA Jetson edge AI platform

Blog

Cartken is using Jetson-enabled AMRs to enable deliveries for companies like Starbucks and...



How did the NVIDIA Jetson series achieve success?

SOM+Baseboard
Easily integrate
into various
scenarios

**Powerful
computing
capabilities**
In the AI era, we
all need them.

milkV

Milk-V Jupiter NX

Replace your Jetson NANO

Industrial-grade
RVA22 & RVV1.0



milkV

Compatible with Jetson NANO
Baseboard



2 TOPS general AI compute power
Supports all AI models

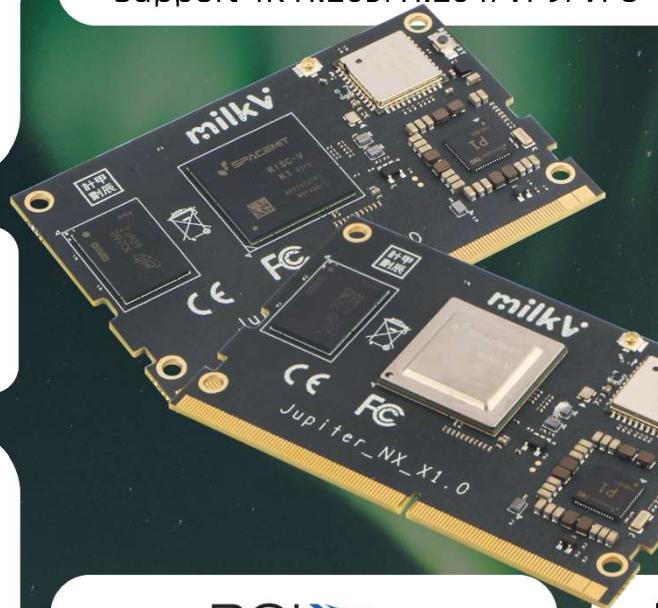
RVV1.0
&
RVA22

Spacemit K1/M1
8-core RISC-V AI CPU

50KDMIPS CPU Power
2 TOPS AI Computing power

Powerful multimedia

Support OpenCL3.0, OpenGL ES 1.1/3.2,
Vulkan1.3
Support 4K H.265/H.264/VP9/VP8



PCI
EXPRESS®
PCIe Gen2
1x 2-lane + 1x 1-lane

All in Jupiter NX

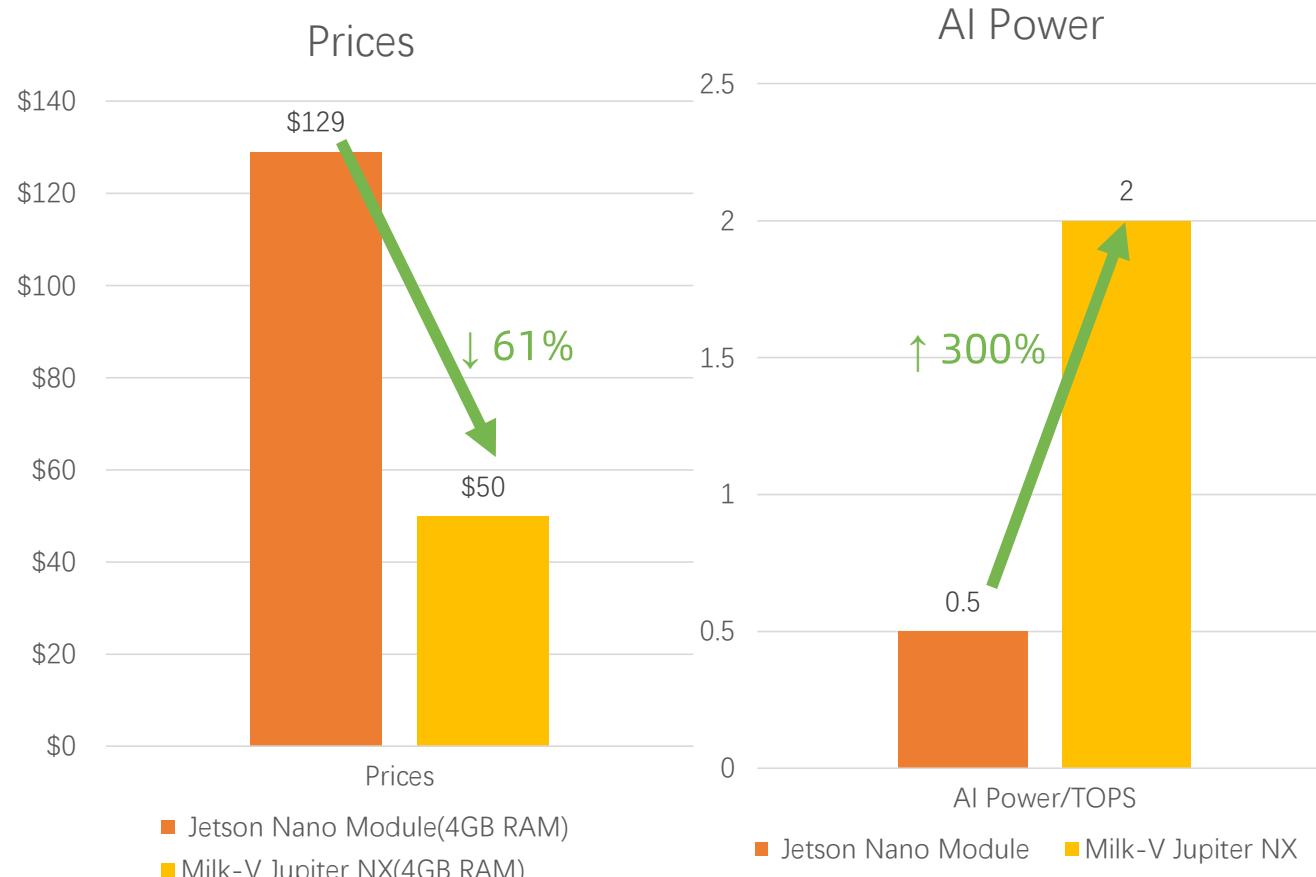
WIFI5/BT5 Onboard
eMMC Onboard

Supports dual-screen
output, up to
1920x1440@60FPS
1x MIPI DSI 4-lane
1x HDMI

Supports triple camera input
single camera up to 16MP
1x MIPI CSI 4-lane
2x MIPI CSI 2-lane

Meets industrial-grade standards

Stable and reliable operation in
temperatures from -40°C to 85°C



Half the price,
4 times the AI performance

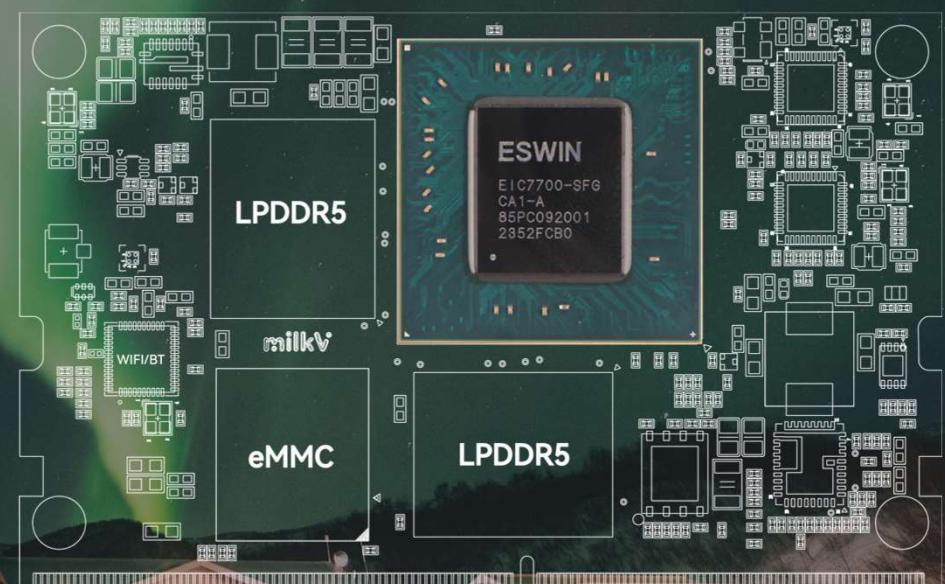


milkV

Milk-V Megrez NX

Comparable to NVIDIA Jetson Xavier NX

Quad Core SiFive P550
Built-in 19.95TOPS NPU



milkV

Extreme AI computing power

Built-in 19.95TOPS@INT8 NPU

Compatible with Jetson Xavier NX Baseboard



Built-in GPU

Support OpenGL ES 3.2, EGL 1.4, OpenCL 1.2 and 2.1 EP2 • Vulkan 1.2

Form Factor

70mm*45mm
260-Pin SO-DIMM Connector

Video Decoding

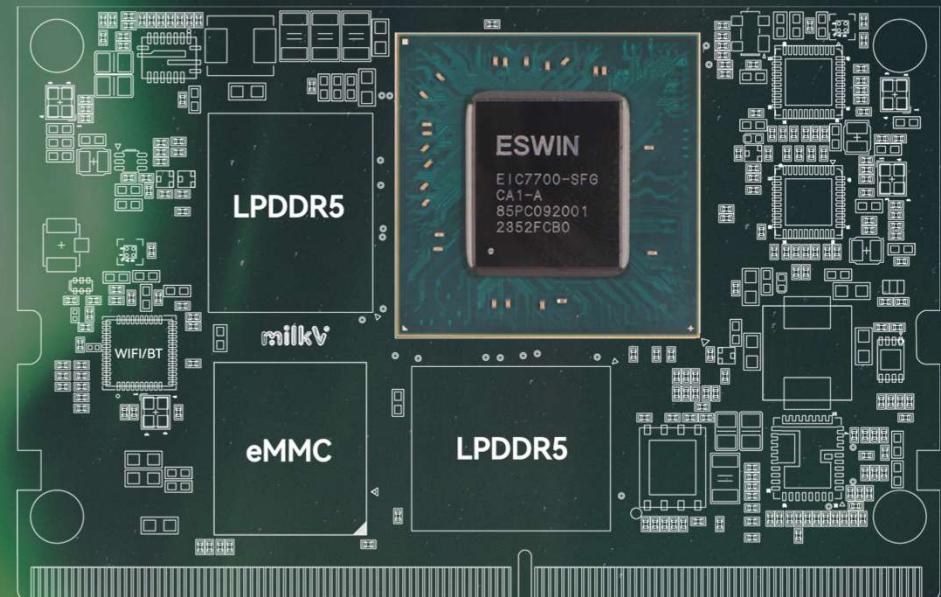
H.265 up to 8K@50fps
or
32 channels of 1080P@30fps

Video Encoding

Up to 8K@25fps
or
13 channels of 1080P@30fps

All in Megrez NX

WIFI5/BT5 Onboard
eMMC Onboard



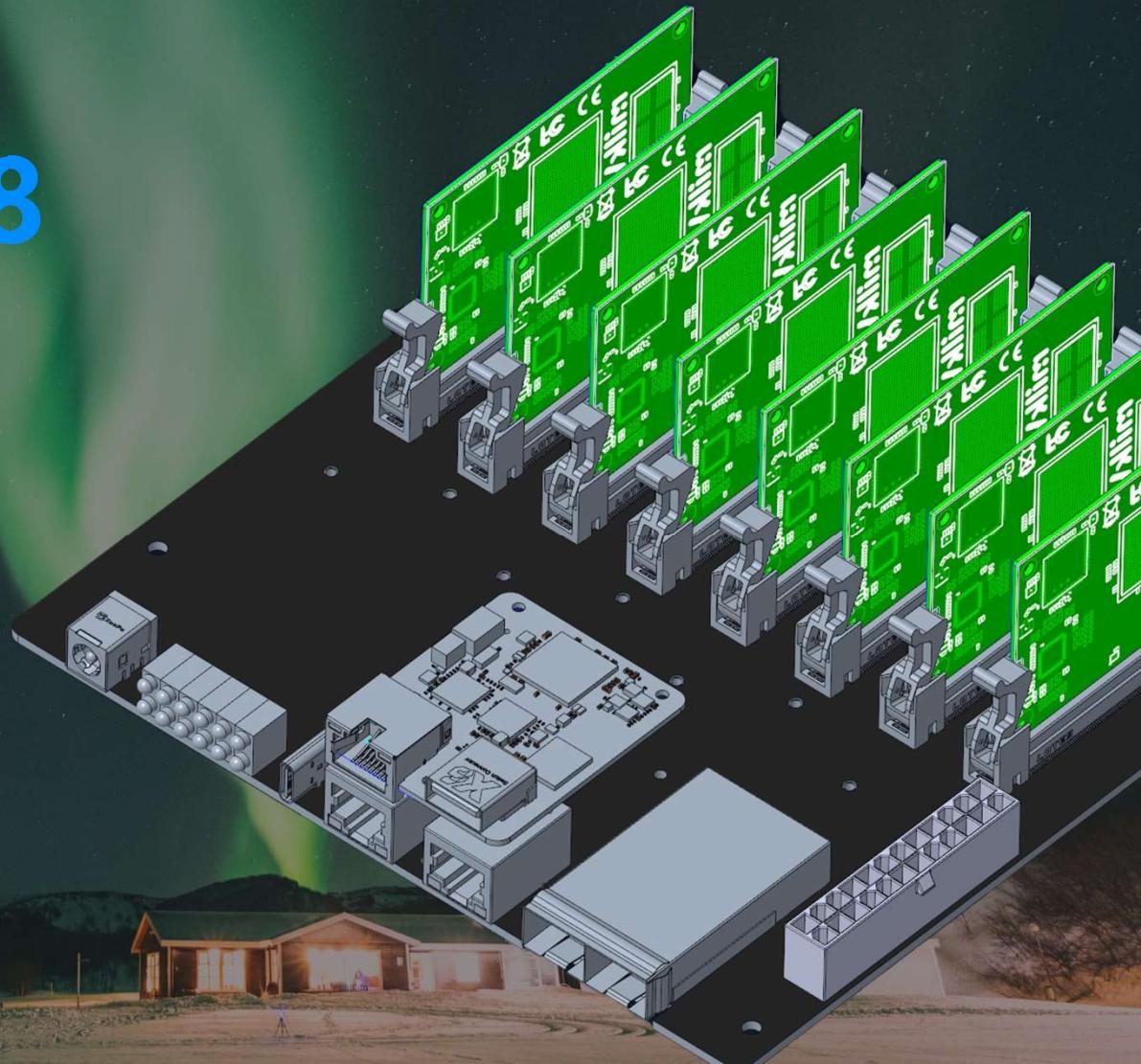


How to bring RISC-V into the cloud market?

milkV

Milk-V Cluster 08

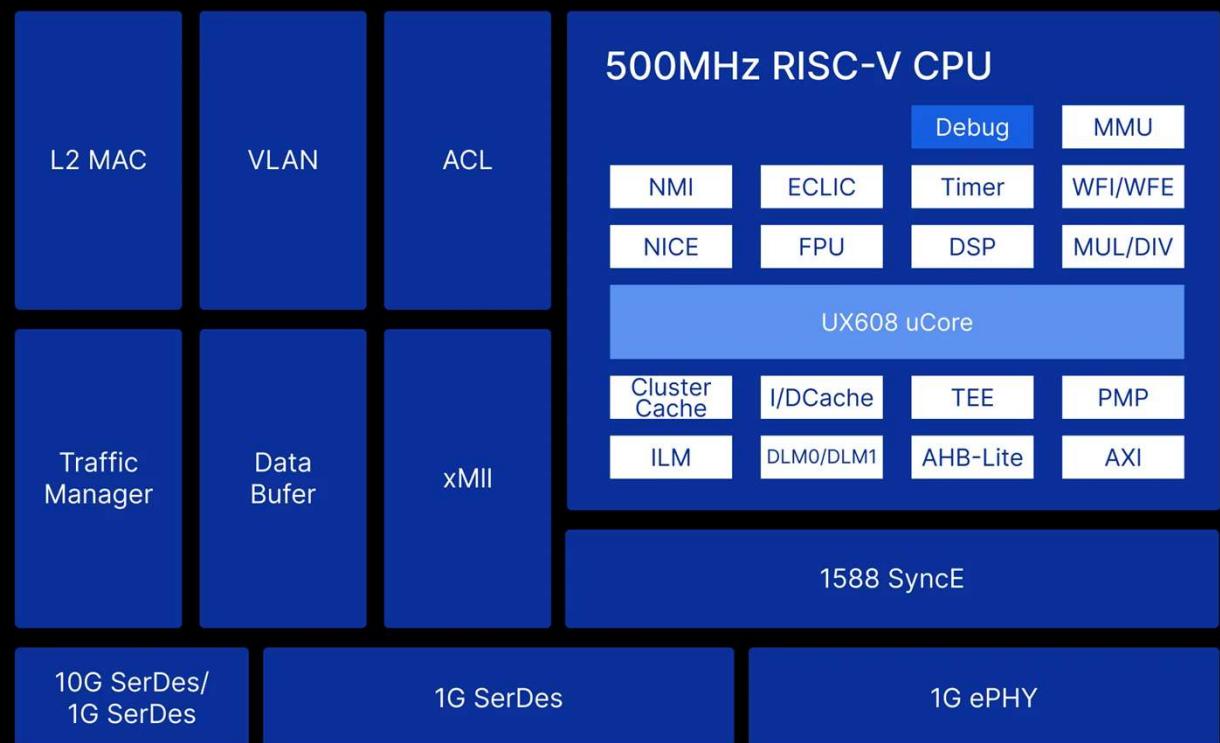
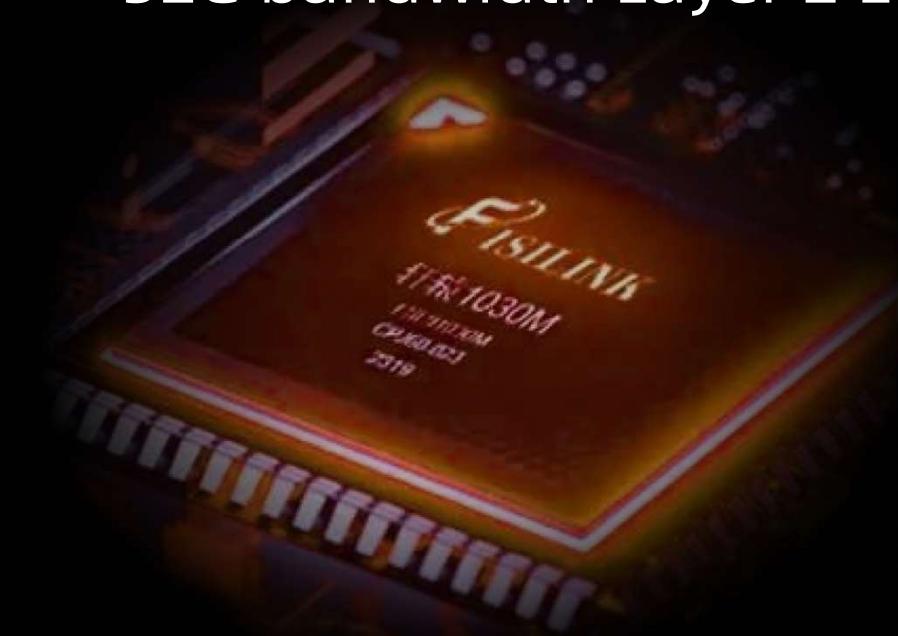
Full Stack RISC-V Cluster



RISC-V Powered Interconnection

FSL1030M

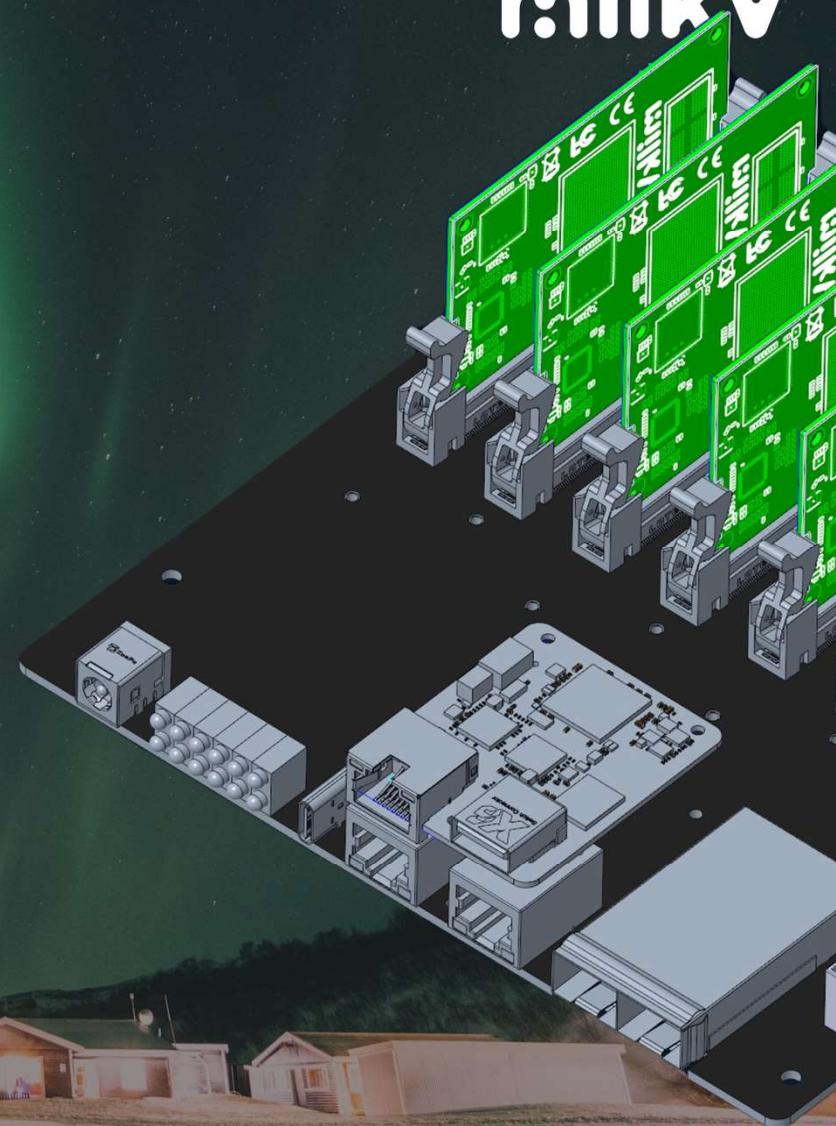
32G bandwidth Layer 2 Ethernet switch chip



milkV

Cluster-wide Bandwidth
Up to **32Gbps**

Overall node Bandwidth
Up to **16Gbps**



Milk-V BMC 08

RISC-V Powered BMC

Up to 8 Nodes Management

- Remote management with serial port access
- Remote flashing for any node
- Simultaneous firmware updates for 8 nodes

Support KVM Function

- Remote desktop access
- Simulates keyboard and mouse

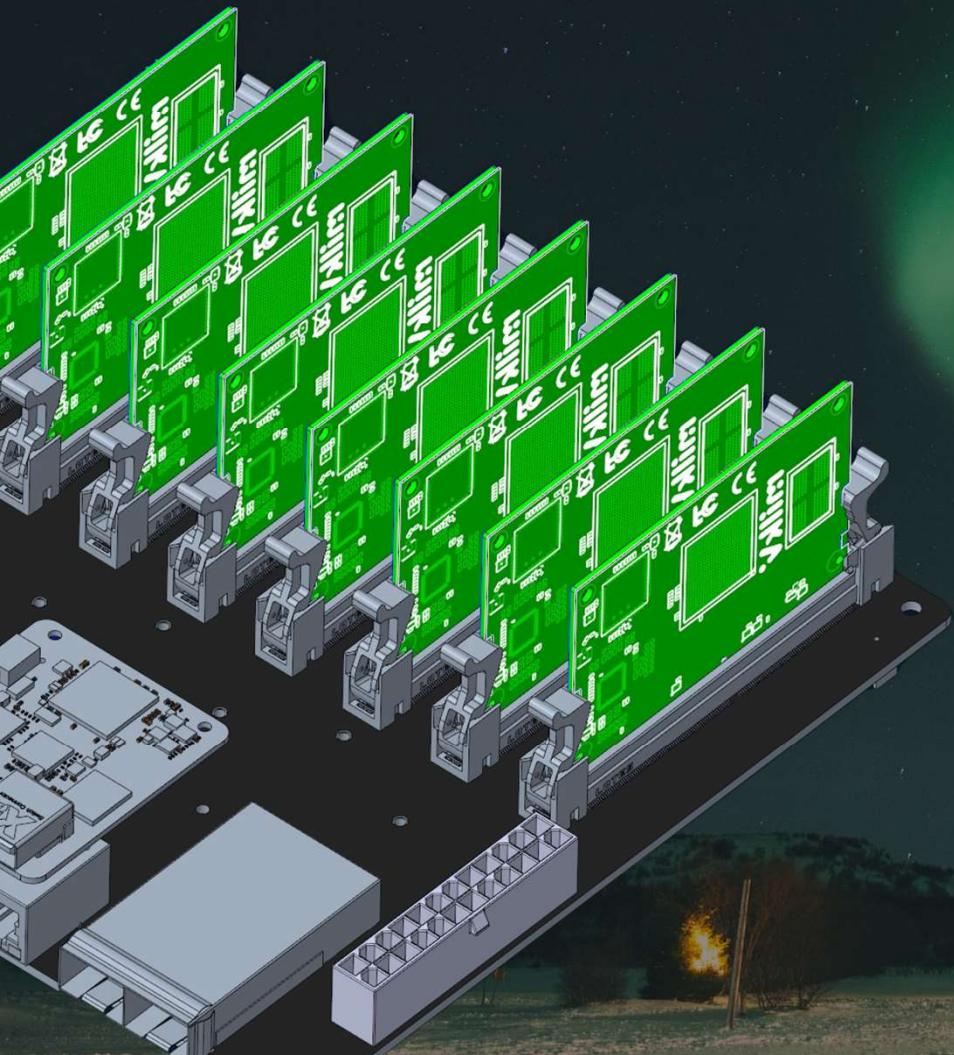
Pluggable Design

- Easily embedded for BMC functionality
- Open source pin definition
- Open source 2D and 3D designs





RISC-V Computing Nodes

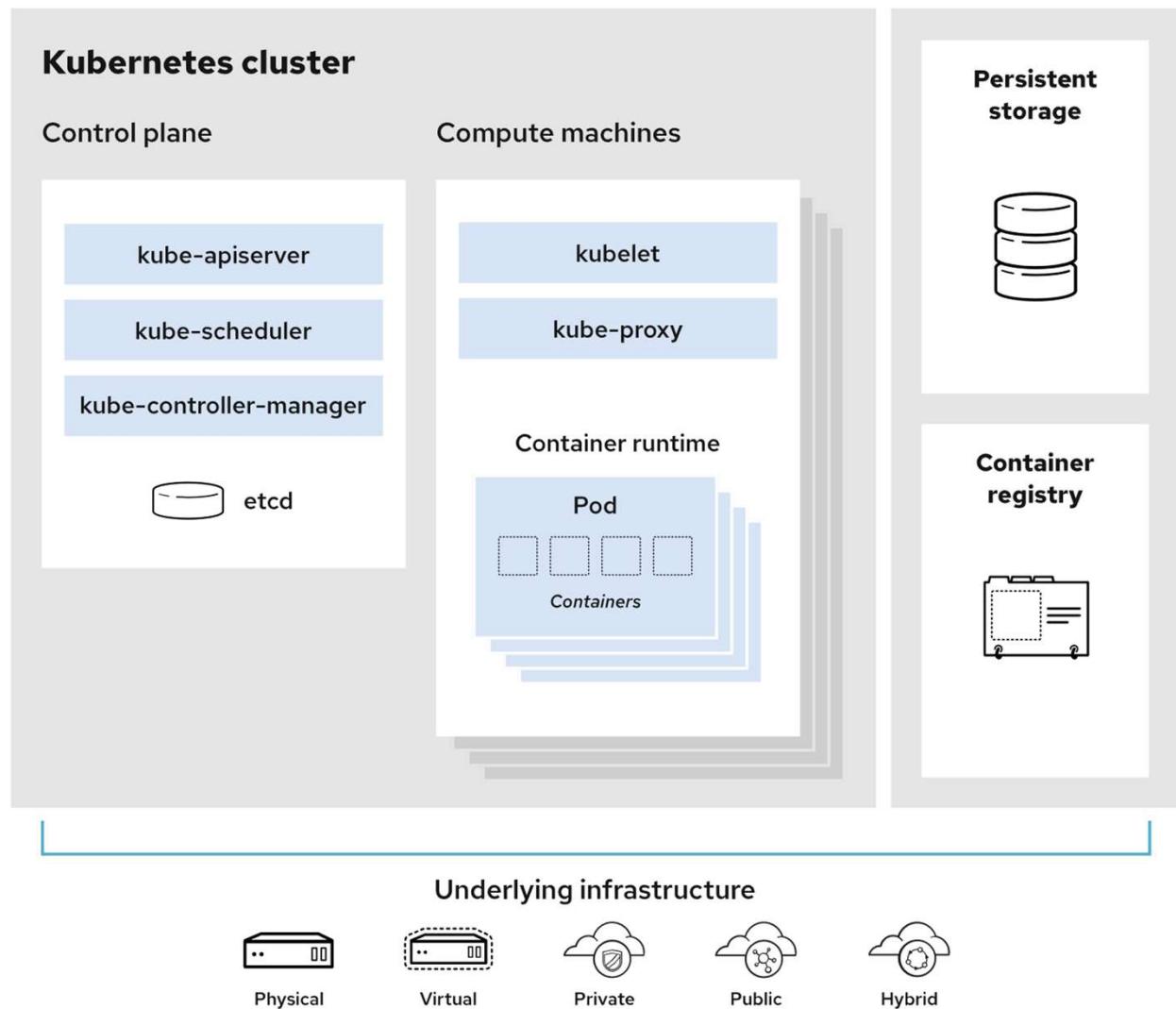


Supports
Jupiter NX & Megrez NX

Each Node Supports
NVMe SSD Installation

8 Megrez NX nodes,
up to **159.6 TOPS**.

milkV



kubernetes

Supports cross-architecture inference

Fusion inference capabilities



Fusion Middleware

arm

RISC-V®

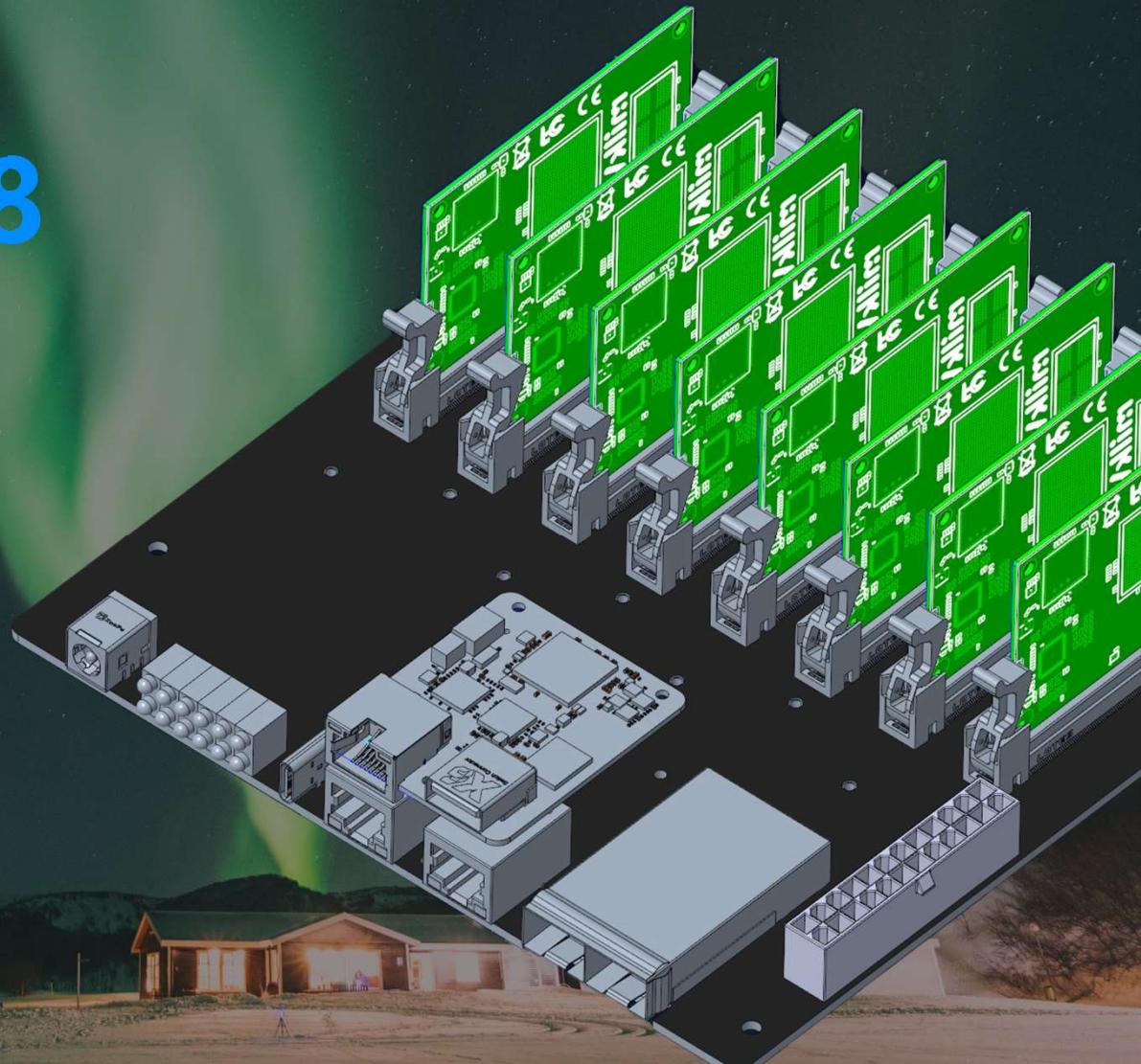
x86

Distributed CV and LLM Inference

milkV

Milk-V Cluster 08

Full Stack RISC-V Cluster





Open-source CPUs

Are they really usable?



In 2019, with the support of the Chinese Academy of Sciences (CAS), the Institute of Computing Technology (ICT) of CAS initiated the "XiangShan" high-performance open-source RISC-V processor project. The project successfully developed the XiangShan processor core, which is currently one of the highest-performing open-source RISC-V processor cores worldwide. A consortium of 16 companies has jointly initiated an open-source chip innovation alliance, collaborating on further development around XiangShan to create demonstration applications and accelerate the RISC-V ecosystem. The nonprofit organization [Beijing Institute of Open Source Chip \(BOSC\)](#) was founded with industry-leading companies as its founding members. Working closely with the industry, BOSC will further develop XiangShan.

The second generation (Nanhu architecture) supports the RV64GCBK instruction set and completed RTL code freezing in February 2023. The GDSII is fixed in June 2023. It has been taped out in November 2023, achieving a frequency of 2GHz on a 14nm process node. The source code is [here](#). Nanhu V2 adds support for more functionalities such as MBIST. Its design has been frozen in February 2023, and it was taped out in April 2023. The chip was back and brought up in October 2023. It is currently being further tested. The source code of Nanhu v2 is [here](#). Nanhu V3 will include more microarchitecture and PPA improvements and is currently in progress.

The world's first laptop powered by
a open-source RISC-V processor



Powered by



"XiangShan" high-
performance open-
source RISC-V
processor

Ruyi Book



inchi
英麒智能

milkV

The world's first laptop powered by
a open-source RISC-V processor



Powered by



XIANGSHAN

"XiangShan" high-
performance open-
source RISC-V
processor

Ruyi Book



Ruyi Book

CPU	"XiangShan Nanhu" (RV64GCBK), up to 2.5GHz
Memory	8GB DDR5 4800MT/s
GPU	AMD RX 550
USB	2x USB3
Ethernet	2x 2.5Gbps Ethernet Port
Display	1x 14-inch LCD Display 1x HDMI, up to 4K
TouchPad	Support 9 kinds of gesture operation
Audio	Built-in high-quality speakers.
Dimensions	315*233*25mm

inchi
英麒智能

milkV

甲辰计划

2024甲辰英雄榜

由 甲辰计划 牵头， Milk-V 承作的2024甲辰英雄榜

这是一副有产品经理的牌

- 不轻不重，刚刚好：310g/m²
- 高级的纹理，好看：日本进口黑心纸
- 告别指纹、汗渍：双面涂层，耐打的牌才是好牌
- 牌背立体质感，让你爱不释手



甲辰计划

2024甲辰英雄榜

感谢来自 算能 和 Deepin深度社区 的赞助支持



A7-Milk-V 展位为大家免费赠送500副
活动余下的经费将作为甲辰计划的开发板采购经费,一切为了开发者



Bringing RISC-V to Everyone

Shenzhen MilkV Technology Co., Ltd