

DeepComputing

Hardware Innovation in the World's First RISC-V 50 TOPS AI Compute for Mass Production Development

July 2025

Yuning Liang

Founder

a core software guy

Java VM (J2ME) / Static Compiler (MIPS' Open64)

People who are really
serious about
software should make
their own hardware.

Alan Kay

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Who are we and What we do

RISC-V Premium Product Pioneer Focusing on

- Consumer Electronics
- Modern Personal Computing Devices
- And Some RISC-V Run & Fun Gadgets



DC-ROMA RISC-V Laptops/Pad



2023

**4-core 1.5GHz
8GDDR**



2024

**8-core 1.75GHz
16G DDR**



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RISC-V Journey

Journey Hard Enough

- x86 on PC/Server from 80s, e.g. Intel/AMD
- Arm on Mobile from 2010s, e.g. Qualcomm/MTK
- RISC-V on What? AI? How? From 2020s?

RISC-V Faith and Destiny, like Linux Kernel?

Past, Present and Future Openness

- x86 from US and driven by US
 - Closed, owned by Intel, and AMD
- ARM from Europe and driven by the global
 - Semi-Close, Semi-Open owned by ARM
- RISC-V from US, migrate to Europe and driven by Asia
 - Open, belong to Humanity

RISC-V Prospect

Dream Big Enough

- Among all the big names and players
- Goal to reach 30% of ISA market against incumbents



Challenges Faced for RISC-V SoC

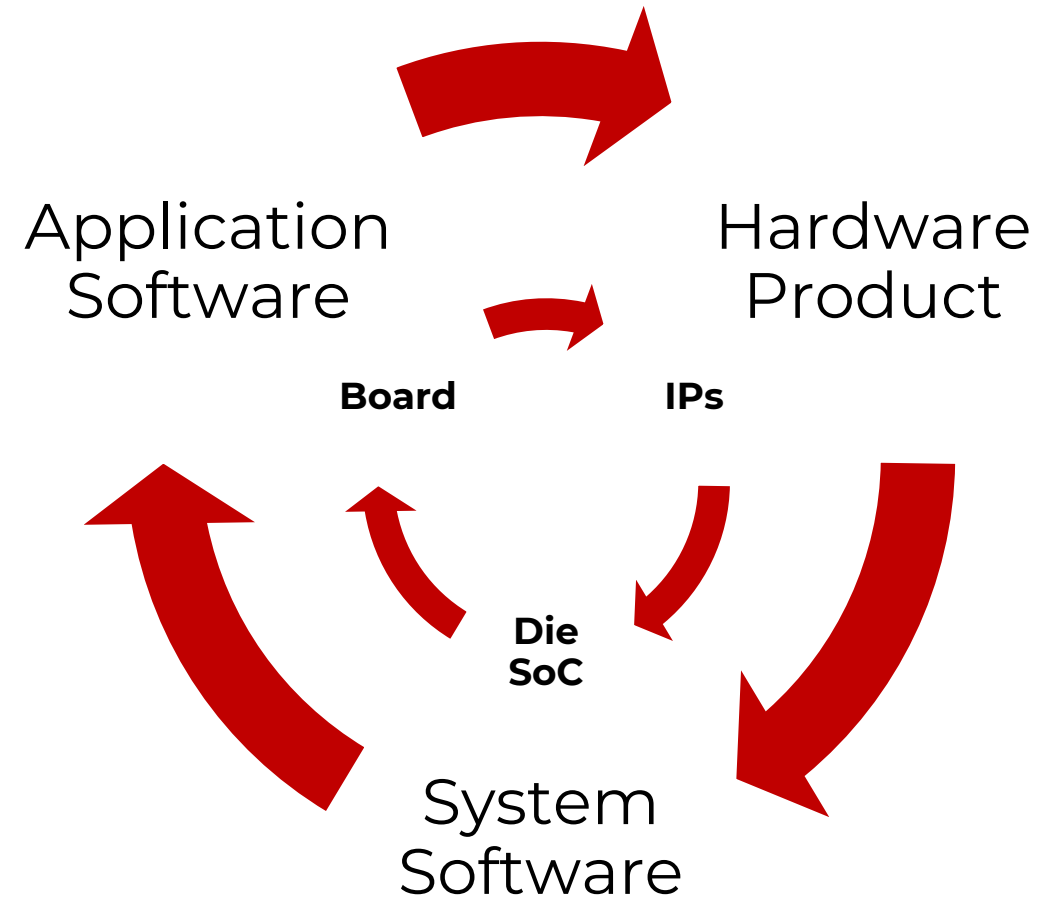
- **Unknown Target Market**
- **Unknown Required Compute Power**
- **Limited Resource Constraint**
- **Limited Time Constraint**
- **Time to All in AI?**

RISC-V AI Journey Even Harder on Software

- **Killer AI Applications:**
 - Video Player/Chrome/Offices/Tools ...
- **Model:**
 - From ResNet, Transformer To Recent DeepSeek ...
- **AI Framework:**
 - From CUDA compatible To PyTorch ...
 - All *.cpp (llama/Ollama/Whisper ...)
 - vLLM ...
- **Porting and Optimising Endless ...**

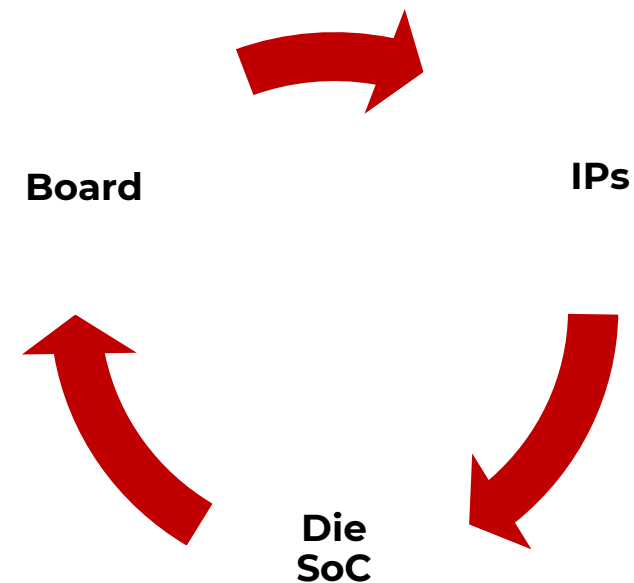
Long Painful Journey Towards Mass Production

**A full development
cycle for high end SoC**
from IP to SoC, Board
System Software, Application,
to a mass produced end user product,
takes 5-7 years!!!

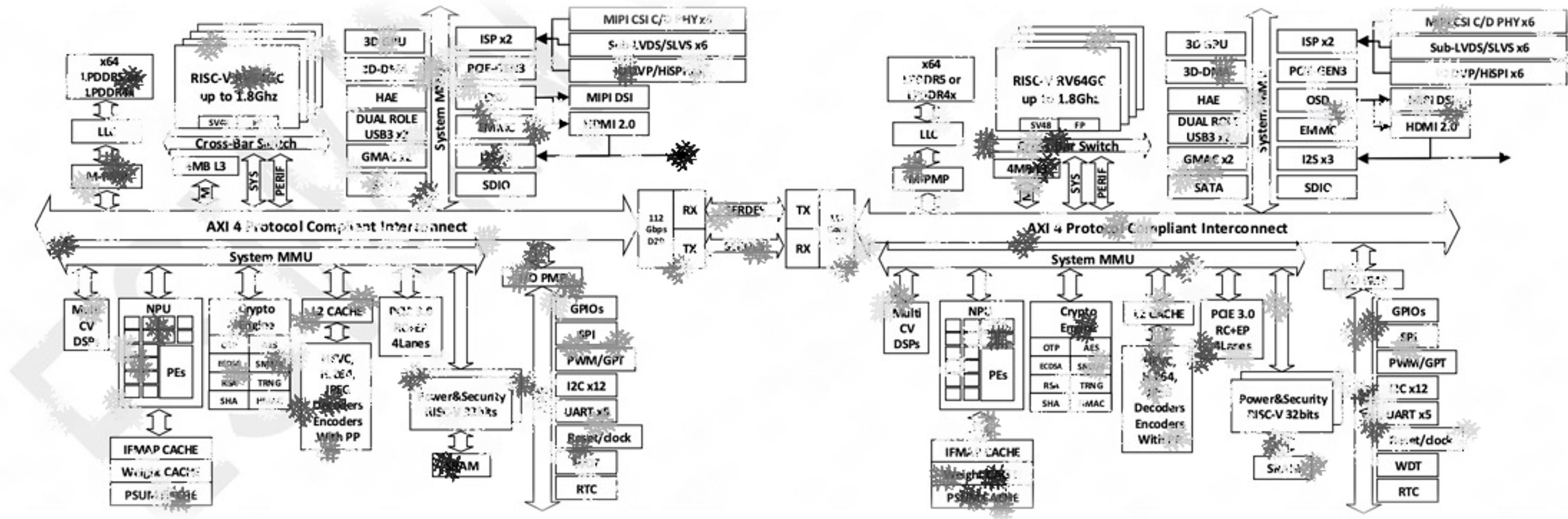


Flexibility for Making RISC-V AI a Successful Reality

- Prepare for the Future Unknown
- A Retro-fit Lego like Approach
- Standard Interface on All Levels
 - **IP/Die: Chiplet**
 - **Die/SoC: PCIe Host/Device**
 - **SoC/Board: Type-C**
 - **What Else? End Product Level**

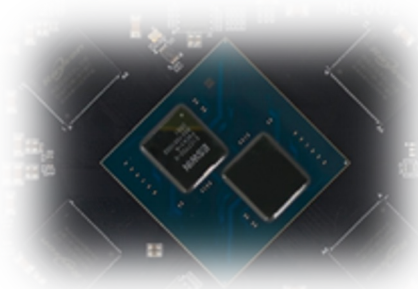


Chiplet Solution: ESWIN 7702x



First RISC-V Chiplet AI SoC in the world.

- Chiplet 2-DIE, 2GHz 8-Core.
- 64G LPDDR5
- 50 TOPS AI (NPU+GPU+CPU)
- 8K@50fps Encoding
- RVV 1.0 on DSP
- PCIE 3.0 (Host/Device)

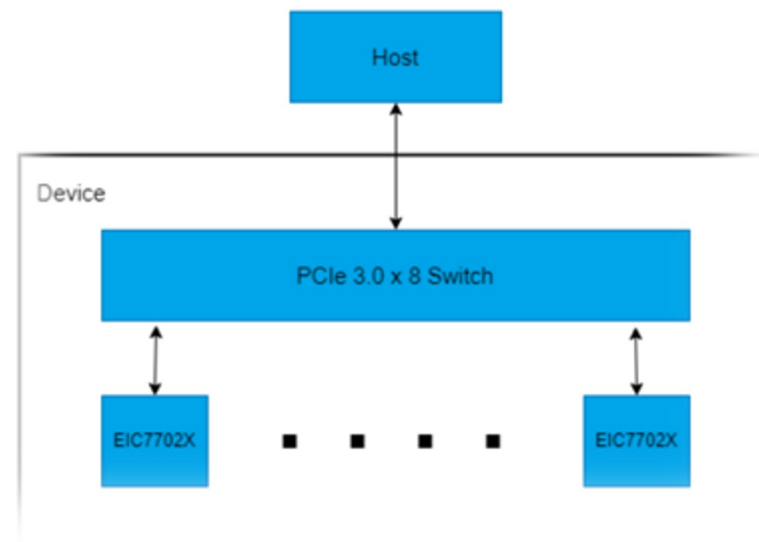
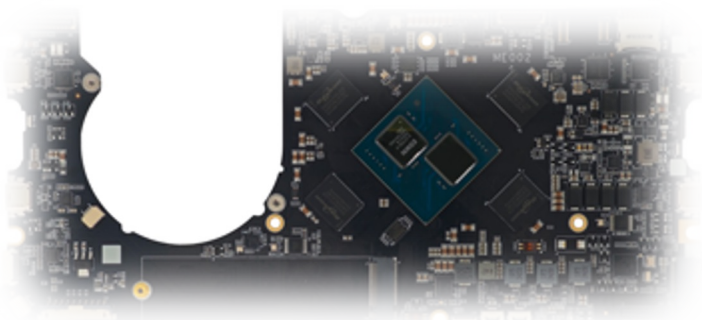
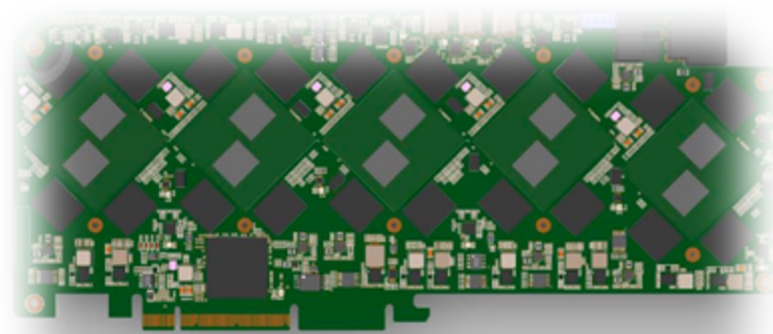


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PCIE Solution: ESWIN 7702x

First RISC-V Chiplet AI in the world.

- Multiple Chiplets AI
 - NUMA
- PCIE HOST and DEVICE support simultaneously.
 - Ethernet Over PCIE



Modular Product Solution: Framework DIY Laptop

DeepComputing x Framework

Nirav Patel
CEO
framework

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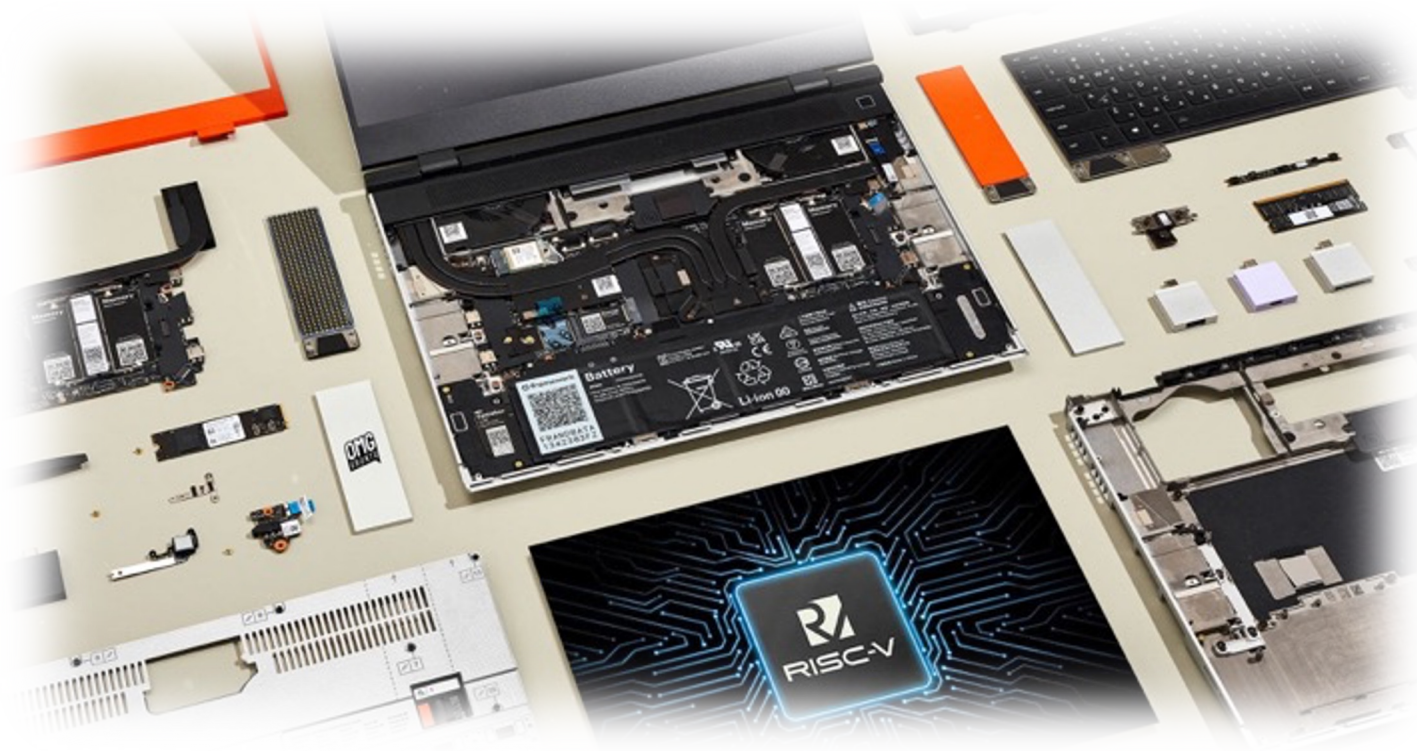
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RISC-V
SUMMIT
NORTH AMERICA

DeepComputing x Framework Partnership 2024

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Modular Product Solution: Framework DIY Laptop



Repairable, Self Replaceable Parts
Upgradable Mainboard
Extendable Innovation

DeepComputing x Canonical @ RISC-V Summit EU 2024

Ubuntu Official Support

24.04 for < RVA23

26.04 for > RVA23



DeepComputing x Redhat @ RISC-V Summit NA 2024

- Linux Kernel Fellows Support
- Redhat/Fedora Official Support
 - Fedora 47 for > RVA23
 - RHEL 10 Dev Preview





Fedora Progress

- **Fedora** is a community Linux distribution project
- **Fedora Remix** program provides branding for Fedora for specific hardware, supported by the creator & the Fedora community
- Strong focus on contributing back **upstream**
- **Framework** laptops already part of Fedora Ready, RISC-V is a fantastic addition to supported platforms
- Congratulations & deep respect to **DeepComputing** for their Fedora Lab!

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Jeffrey Osier-Mixon
Elected RISC-V
Strategic Board
Member,
Red Hat/IBM

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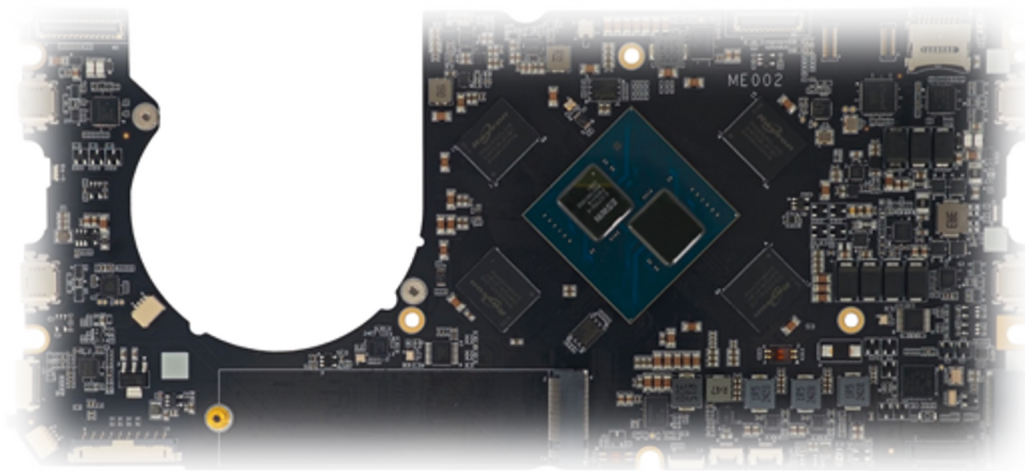


Framework RISC-V AI-PC Product Portfolio



**Desktop and
Laptop 12"/13"/14"/16"**

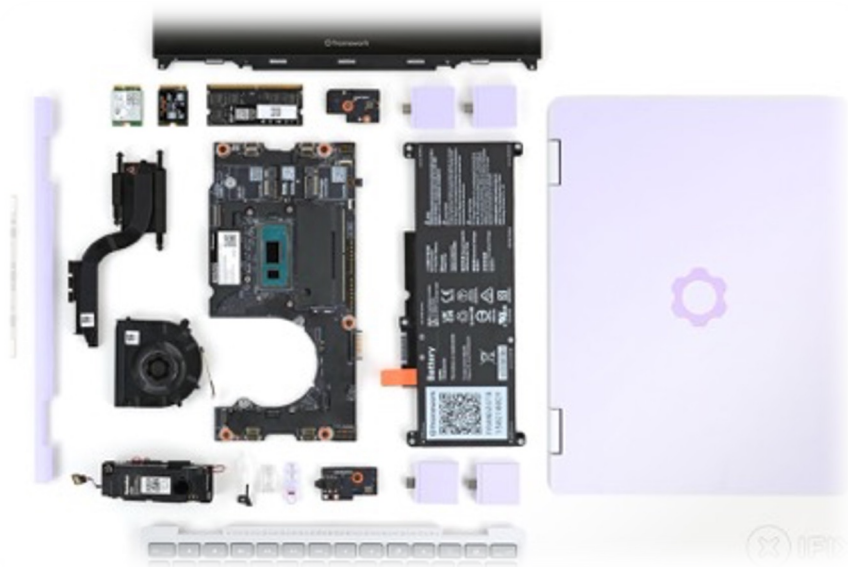
Framework RISC-V AI-PC Product Portfolio



Laptop 13" RISC-V (Professional)

- 8-12 Core 2GHz, <64G LPDDR5
- 50 TOPS AI Local Compute
- **June, \$300+**

Framework RISC-V AI-PC Product Portfolio



Laptop 12" RISC-V (Affordable, Touchable, Turnable, Folder, Colourful)

- 4-8 Core 2GHz, < 16G LPDDR5
- 2026 Q1, \$200+

Framework RISC-V AI-PC Product Portfolio



Desktop RISC-V (Super AI)

- 16-32 Core 2GHz, <256G LPDDR5
- <200 TOPS AI Local Compute
- **Q4, \$900+**

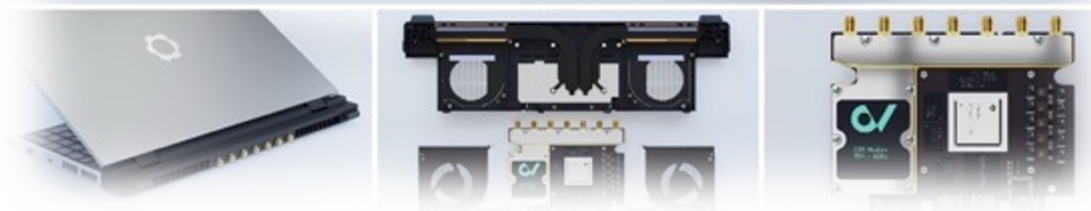
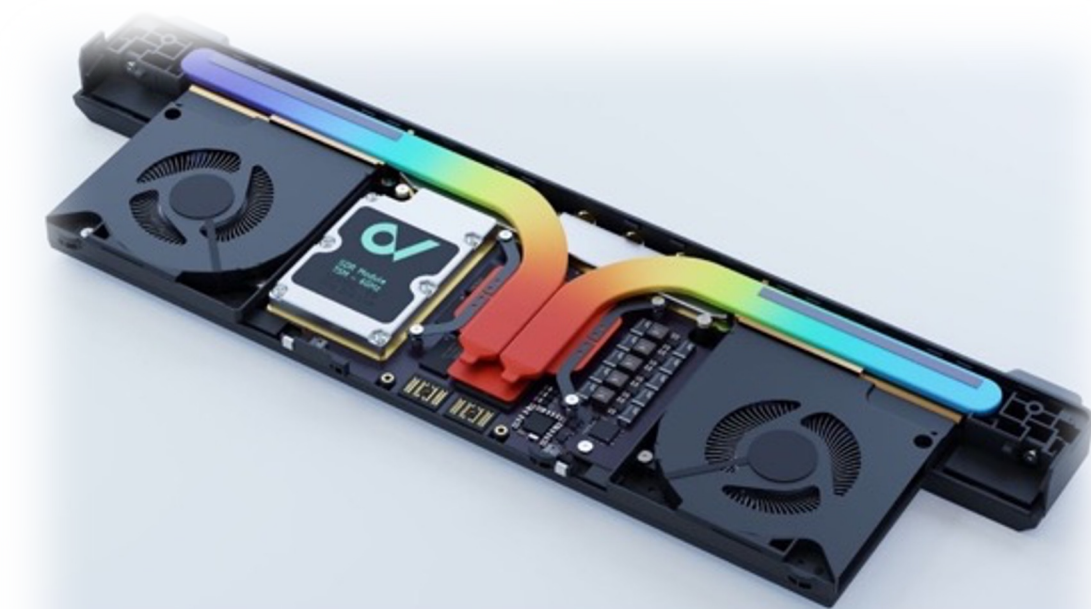


Framework RISC-V AI-PC Product Portfolio



Framework 16" (Multi Arch x86+RISC-V) RISC-V Extension

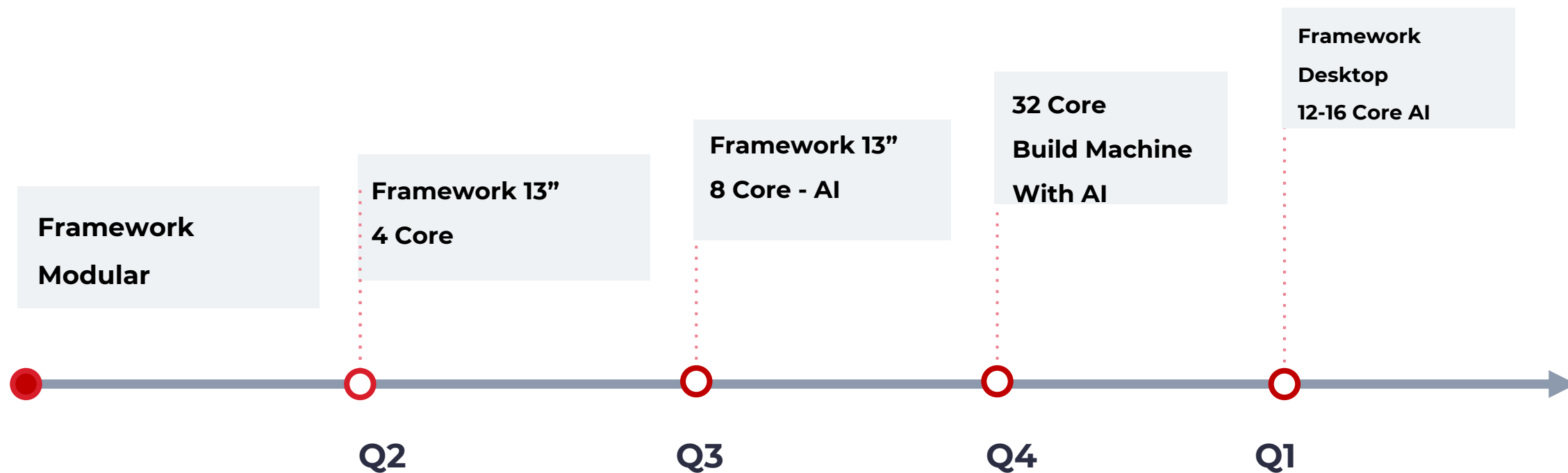
- 8-12 Core 2GHz, <96G LPDDR5
- 100 TOPS AI Local Compute
- **Q4, \$300+**



Framework 16" Extension Example ONLY

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Exciting 2025 Roadmap



A Plea: Help for RISC-V Real Success

- **Use RISC-V More/Feedback/Contribute!!**
 - **Help us to focus on what to fix**
- **Further Open and Sharing Attitude**
 - **Open Source Libraries Improvement**
 - **Kernel Upstreaming!!!**
 - **SoC & Software Ecosystem to grow with FUTURE NOT PAST**



100 Schools/Universities RISC-V Sponsorship

- **1000 New Students Awareness and RISC-V Membership**
- **100 Excellent Student Contributors**

Sponsorship

RISC-V + Framework Eco System Lab/Club

- **Free Courses**
 - IP, SoC, Board, Product Design
 - BSP, System Integration, AI Application Development
- **Free Framework Devices**
- **Award** for Excellent Contribution





Sponsorship: Secure The Future

- **Hackathon**
- **Mentorship with world class famous Engineers**
- **Worldwide Internship along Supply-Chain Partners**
- **Graduate Job Referrals**



100

Open Community Project RISC-V Sponsorship

- **1000** New Contributors Awareness and RISC-V Membership
- **100** Excellent RISC-V Contributors

Sponsorship

RISC-V + Framework

- **Free Framework Devices**
- **Award** for Excellent Contribution
- **Speeches Opportunities on RISC-V Summit and Workshop**





100 AI Startups RISC-V Sponsorship

- **1000** New AI Contributors Awareness and RISC-V Membership
- **100** Excellent RISC-V AI Contributors

Sponsorship

RISC-V + Framework + AI Accelerator

- **Free Framework Devices with AI Compute**
- **Award** for Excellent Contribution
- **Speeches Opportunities on RISC-V Summit and Workshop**



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Thank You



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