

DeepComputing

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

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Deep Computing

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Founder

a core software guy

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



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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



Challenges Faced for RISC-V SoC

- **Unknown Target Market**
- **Unknown Required Compute Power**
- **Limited Resource Constraint**
- **Limited Time Constraint**

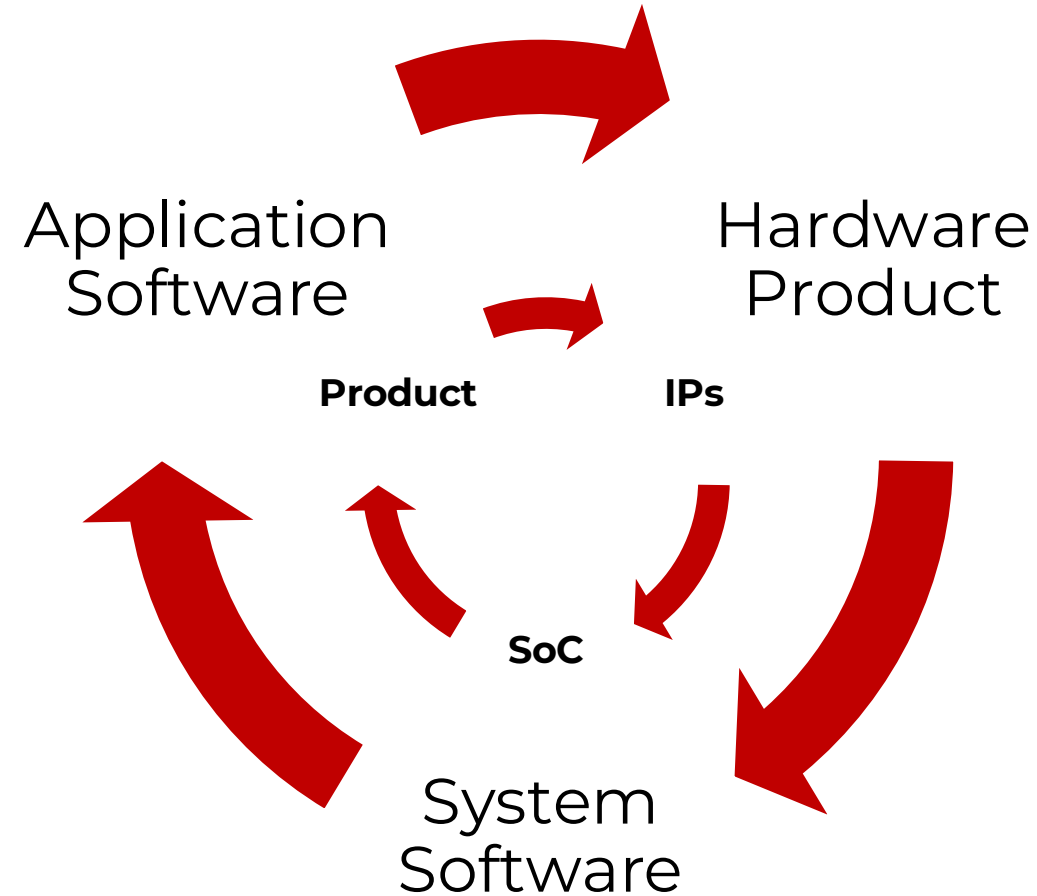
RISC-V AI Journey Even Harder

- **Model: From Transformer To Recent DeepSeek**
- **AI Framework:**
 - From CUDA compatible To PyTorch ...
 - All *.cpp (llama/Ollama/Whisper ...)
- **Porting and Optimising Endless ...**

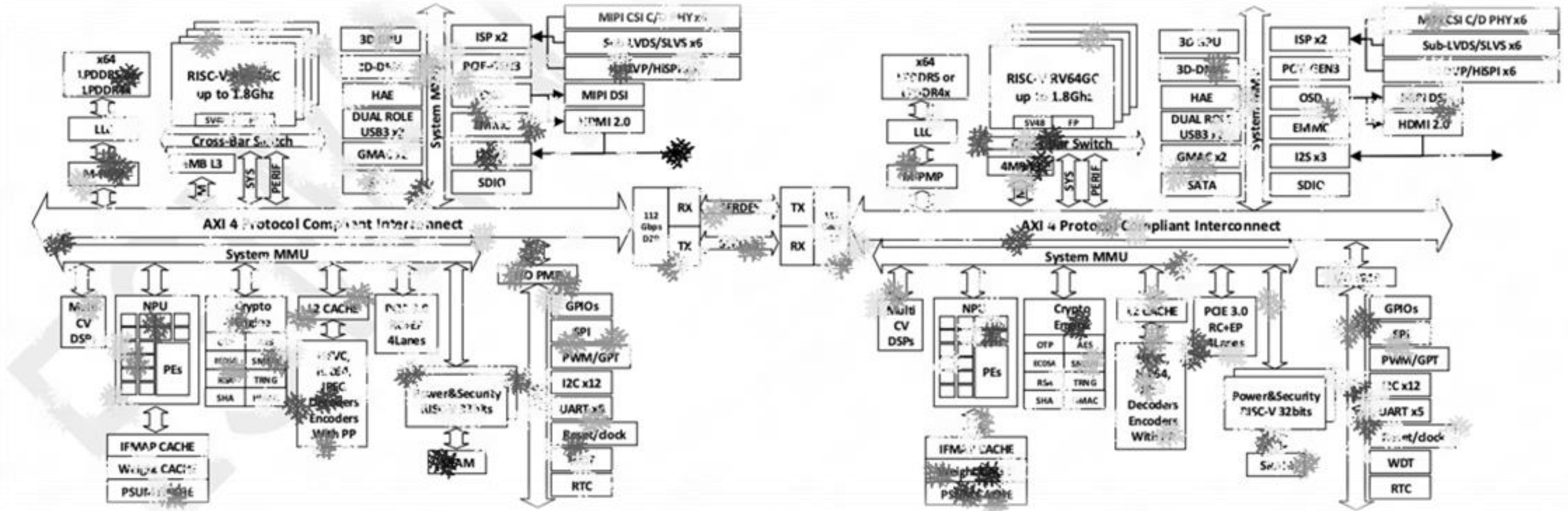
Making RISC-V AI a Successful Reality

- 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? Product Level**

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

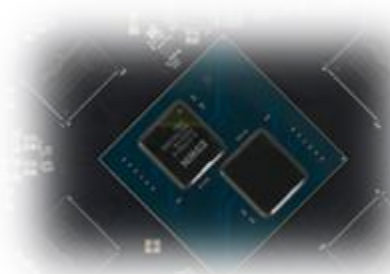


Chiptlet Solution: an ESWIN 7702



First RISC-V Chiptlet AI SoC in the world.

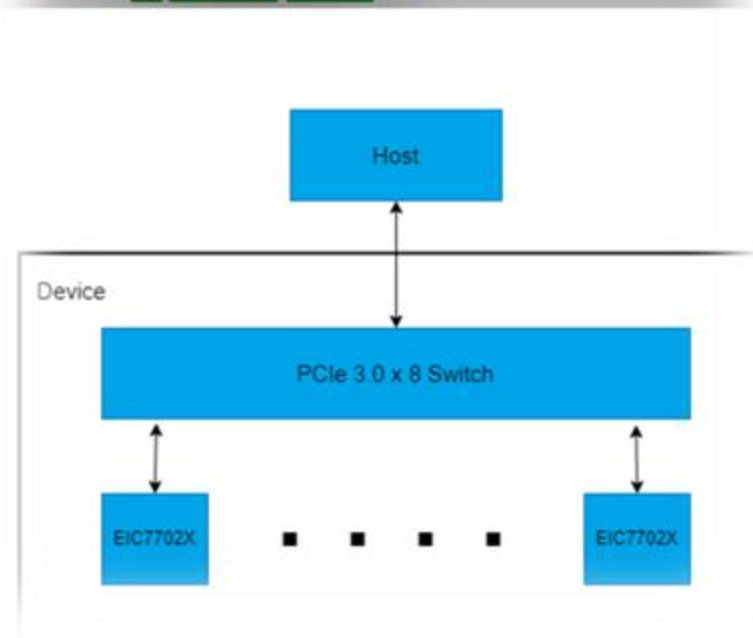
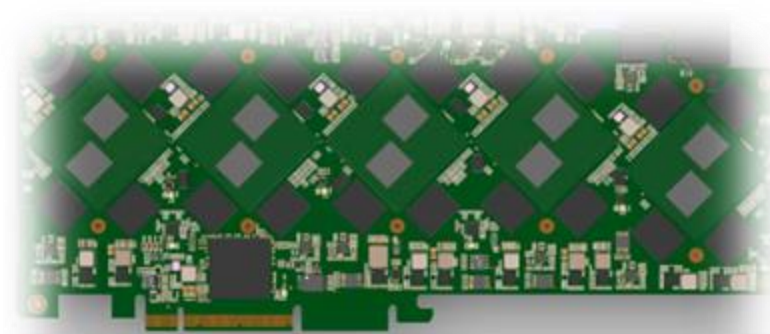
- Chiptlet 2-DIE, 2GHz 8-Core.
- 64G LPDDR5
- 50 TOPS AI (NPU+GPU+CPU)
- 8K@50fps Encoding
- RVV 1.0 on DSP
- PCIe 3.0 (Host/Device)



PCIE Solution: An example: ESWIN 7702X

First RISC-V Chiplet AI SoC in the world.

- First RISC-V Chiplet AI SoC in the world
 - NUMA
- PCIE HOST and DEVICE support simultaneously.
 - Ethernet Over PCIE



RISC-V AI Software Ecosystem

Immaturities:

- **Kernel Side NUMA**
- **vLLM/*.cpp (lama/whisper/ollama)**
 - **NPU/RVV 1.0/DSP/GPU**
- **Killer Applications with Models Integration**
 - **VLC**
 - **Chromium**
 - **...**

Framework RISC-V AI-PC Product Portfolio

DeepComputing x Framework

Nirav Patel
CEO
framework

Company Confidential: Please do not distribute.

DeepComputing

RISC-V
SUMMIT
NORTH AMERICA

DeepComputing x Framework Partnership 2024

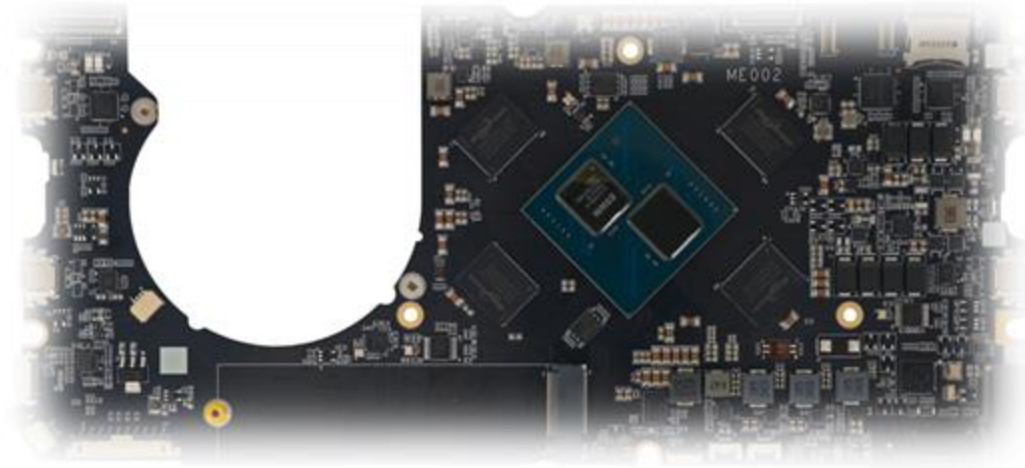
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Framework RISC-V AI-PC Product Portfolio



Laptop 13" RISC-V

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



Framework RISC-V AI-PC Product Portfolio



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

Framework RISC-V AI-PC Product Portfolio



Desktop RISC-V

- 16-24 Core 2GHz, <196G LPDDR5
- 100 TOPS AI Local Compute
- **Q4, \$700+**



Framework RISC-V AI-PC Product Portfolio



Framework 16" RISC-V Extension

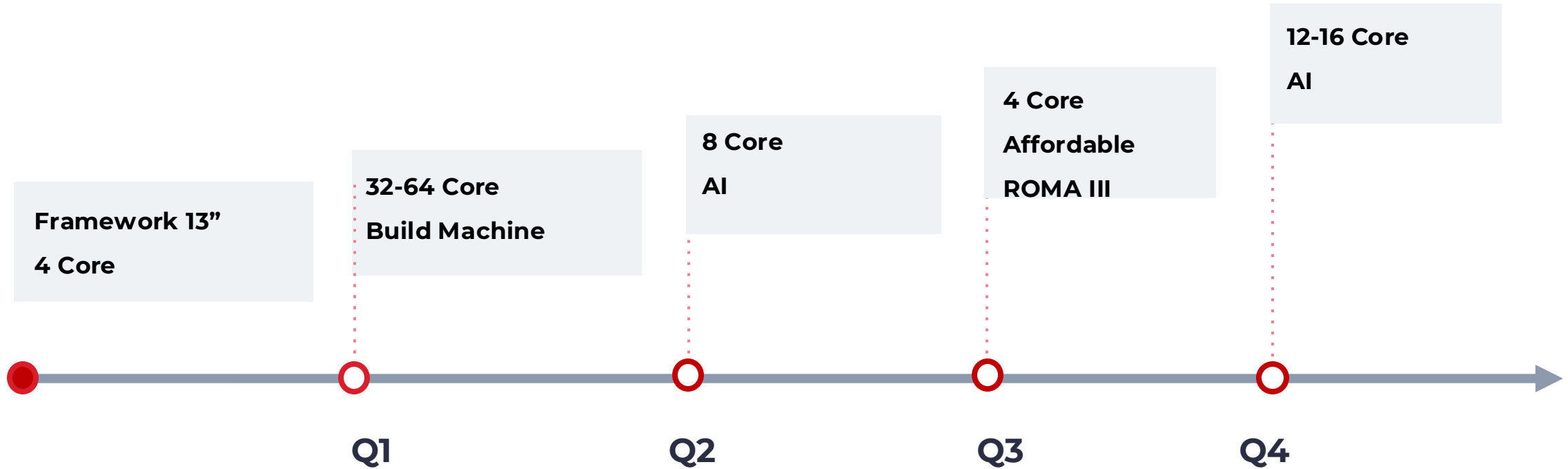
- 8-12 Core 2GHz, <96G LPDDR5
- 100 TOPS AI Local Compute
- Q3, \$300+



Framework 16" Extension Example ONLY

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Exciting 2025 Roadmap



A Plea: help for RISC-V Real Success

- **New Technology Innovation,**
- **Further more affordable daily usable End User Product,**
- **People Daily Usage/Feedback/Contribute and Especially RISC-V Members!!**
 - **Software Ecosystem to be mature**
- **Further Open and Sharing Attitude**
 - **Upstreaming!!!**
 - **Soc & Software Ecosystem to grow with FUTURE NOT PAST**

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Thank You



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