Accelerating software development for high performance compute using VDKs

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Drivers for Virtualization

- Growing System Complexity
- Proving Hardware and Software Cohesion
- Obtain Pre-Silicon Confidence

"Hardware must support all software functionality"

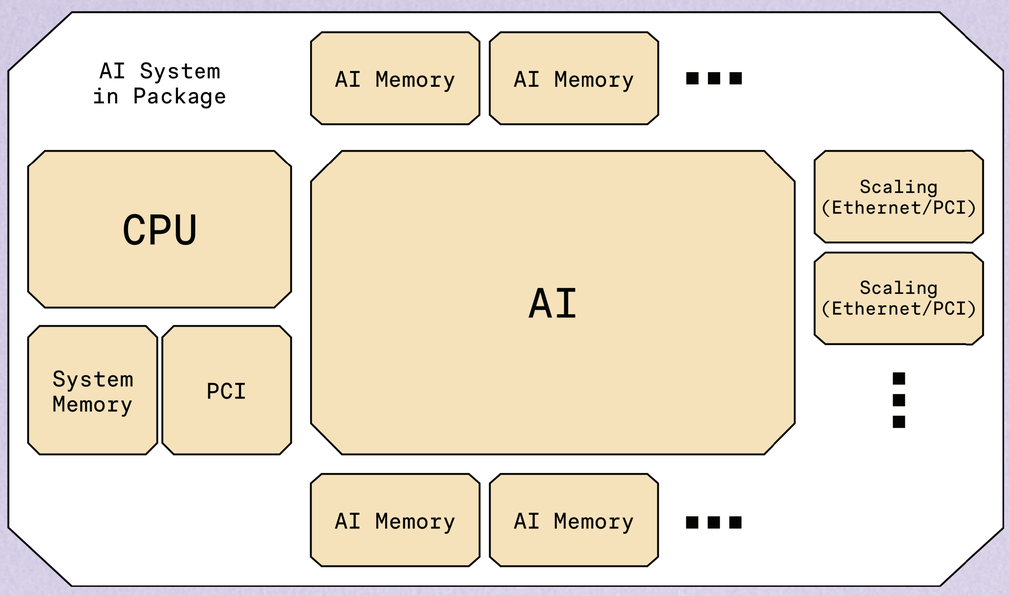
- Left-shift software development and silicon validation
- Decrease time to market

Co-development of VDKs

Synopsys' Virtualizer provides a complete virtual prototyping environment.

VDK includes:
- SystemC Models
- TLM compliant
- Complete development environment
- Library of components, debug and analysis

Extending software collaboration from hardware and software architects all the way to end customers.



Abstract model of Systems in a Package (SiPs)

Tenstorrent's AI SiPs compose of:
- CPU
- ML
- Memory
- Scale out chiplets

Virtual Models and VDK Creation

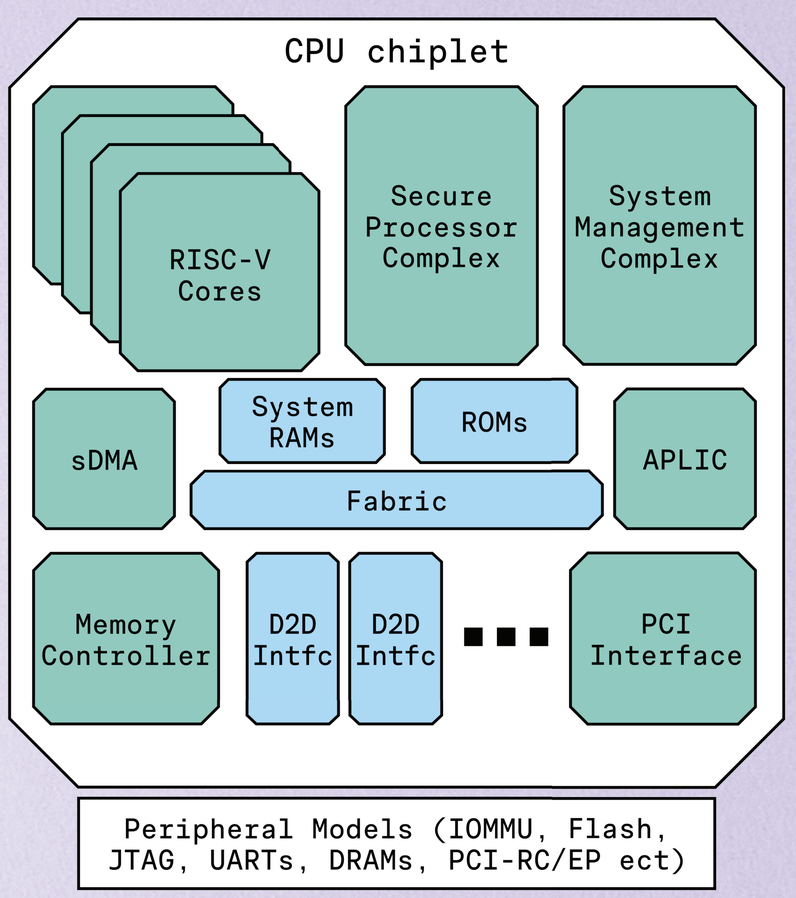
- Chiplet models follow modularization
- Abstracts out complexities
- Retains software relevant components

Outcomes

- Booted Linux (linus-6.12.1) on CPU chiplet model
- Used open-source GNU RISC-V cross compiler to build software images
- Boot times are acceptable (minutes)

Next Steps

- Workflows in development to allow software to enhance boot code
- Add firmware and requisite drivers
- Secure Linux Boot



- Green – Software faithful models
- Blue – Approximate and simplified