

Hot Chips Panel Session

Software or Silicon--

What's the Best Route to Java?

Moderator:

John Wharton, Applications Research

Panel:

John Banning, Silicon Graphics

Brian Case, Consultant/

Microprocessor Report

David S. Hardin, Rockwell Int'l

Marty Hopkins, IBM

Bill Joy, Sun Microsystems

John Novitsky, MicroModule Systems/

Microprocessor Report

Marc Tremblay, Sun Microelectronics

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John Wharton

Hot Chips Panel Session -- 8/19/96

What's the Best Route to Java?

Agenda

Introductions

Issue Overview

Opening Positions

Rebuttals

Panel Discussion

Audience Q&A

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Audience Survey

Raise your hands...

...If you believe in JavaChips™?

...If you DON'T believe in JavaChips?

...If you think it's pretty strange for
engineers to be make design
decisions based on religious
convictions?

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What's the Best Route to Java?

What *is* "Java"?

Language
Proper?

Class Library
Support?

Background
Features?
(G.C., Threads,
Security)

Platform
Independence?

Bytecode
Distribution
Format?

JVM
Specification?

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Conventional Workstation/ PC Design Issues

"Dynamic" Applications

Disk/DRAM-Based

Memory Intensive

Third-Party Binaries

Network Connectivity

Statistical Performance

- Integer

- FPU

Price/Performance

Address Space++

Register Width++

Register Count++

What's the Best Route to Java?

Embedded Controller Design Issues

"Static" Applications

ROM-Based

- Code Density

I/O Intensive

Real-Time

- Multi-Tasking
- Deterministic Performance

In-House Source

System Integration

Adequate Performance

Adequate Address Space

Power-Sensitive

System Cost

Feature Creep

Execution Robustness

Time to Market

Cheapest Adequate CPU Wins

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What's the Best Route to Java?

Custom Silicon Advantages

Die size minimization

Die cost minimization

Power minimization

System integration

Code density?

Security paranoia?

Raises bar for competition?

Inherently \geq "standard"?!?

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What's the Best Route to Java?

Standard Silicon Advantages

Lower Risk

- Off-the-shelf suppliers
- Multiple sources
- Extensibility

Economies of scale

NRE defrayed 10^n ways

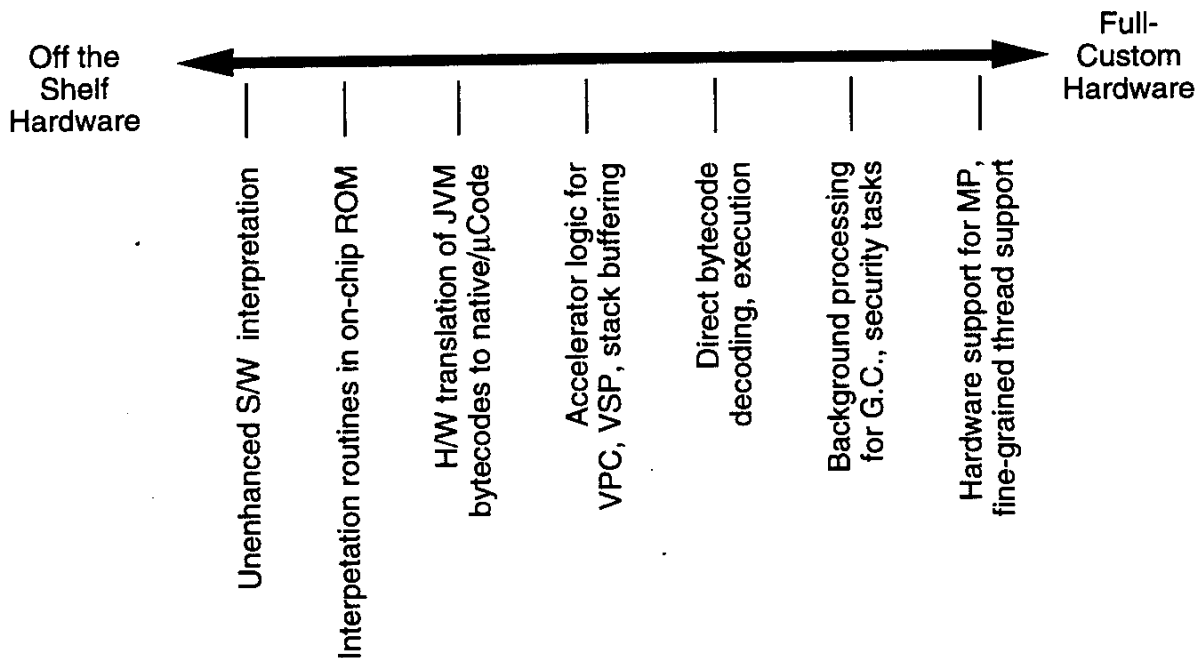
Better die packing, process

Tools, training, documentation...

Foundation of μP philosophy

What's the Best Route to Java?

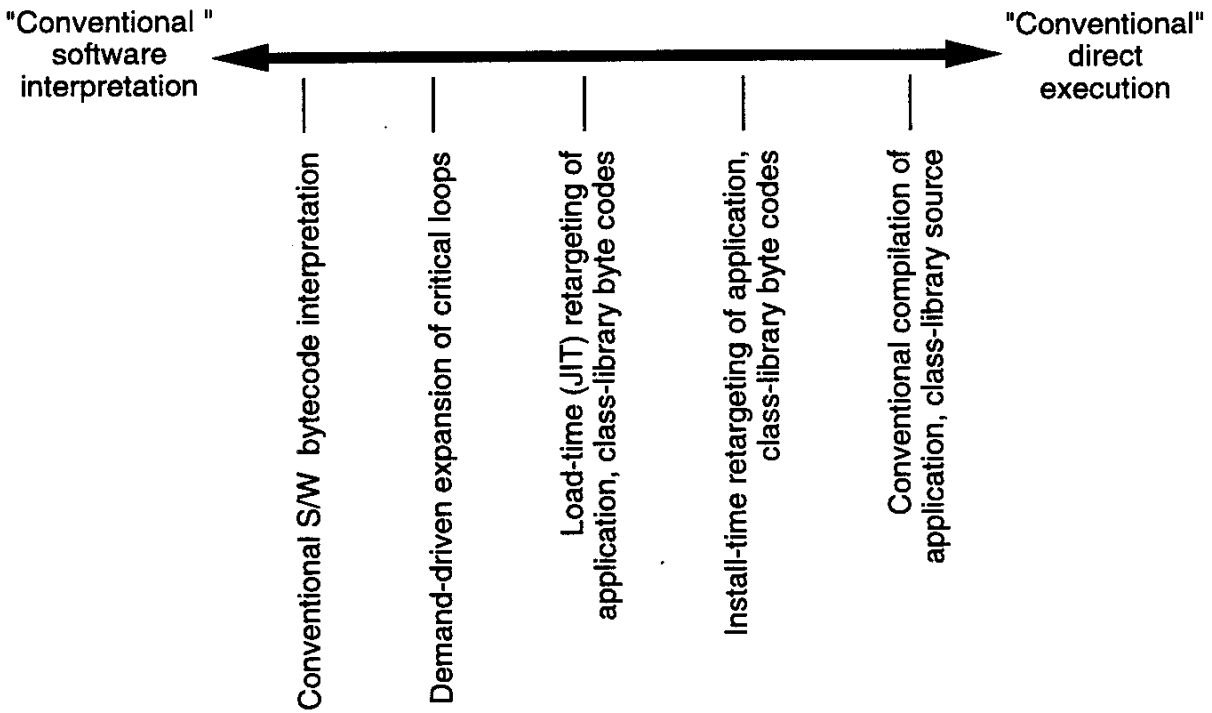
Hardware Enhancement Spectrum



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What's the Best Route to Java?

Software Enhancement Spectrum



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