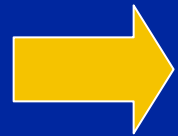# IA-64 Software Programs Overview

Mike Pope

Director of Enterprise Programs

Intel Architecture Content Group
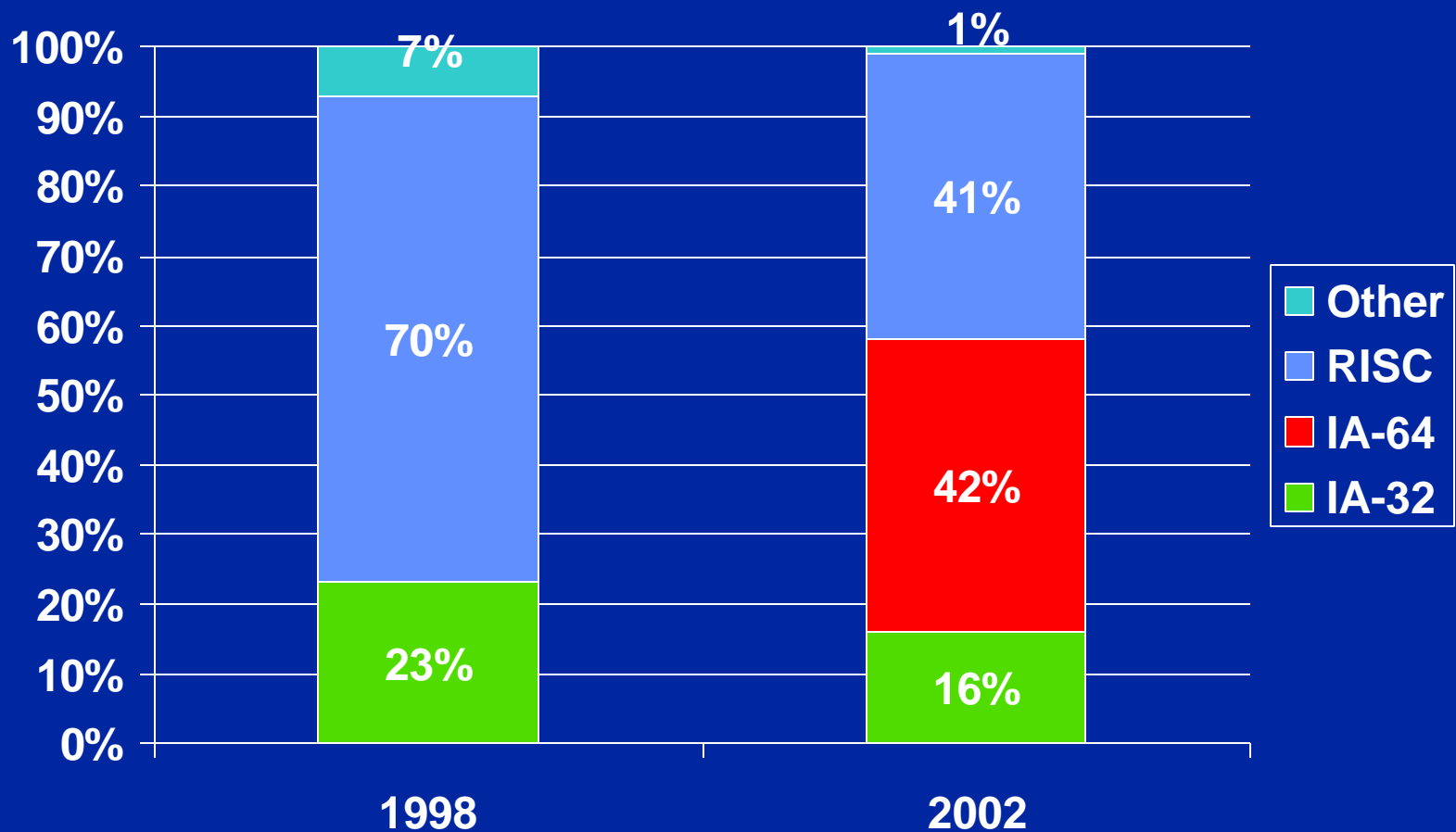
Intel Corporation

August 31,1999

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Agenda

- **IA-64 Server & Workstation Strategy**
- **IA-64 Software Programs**
- **Leading OSVs/ISVs IA-64 Status**
- **Call to Action**

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IA-64 Server Opportunity
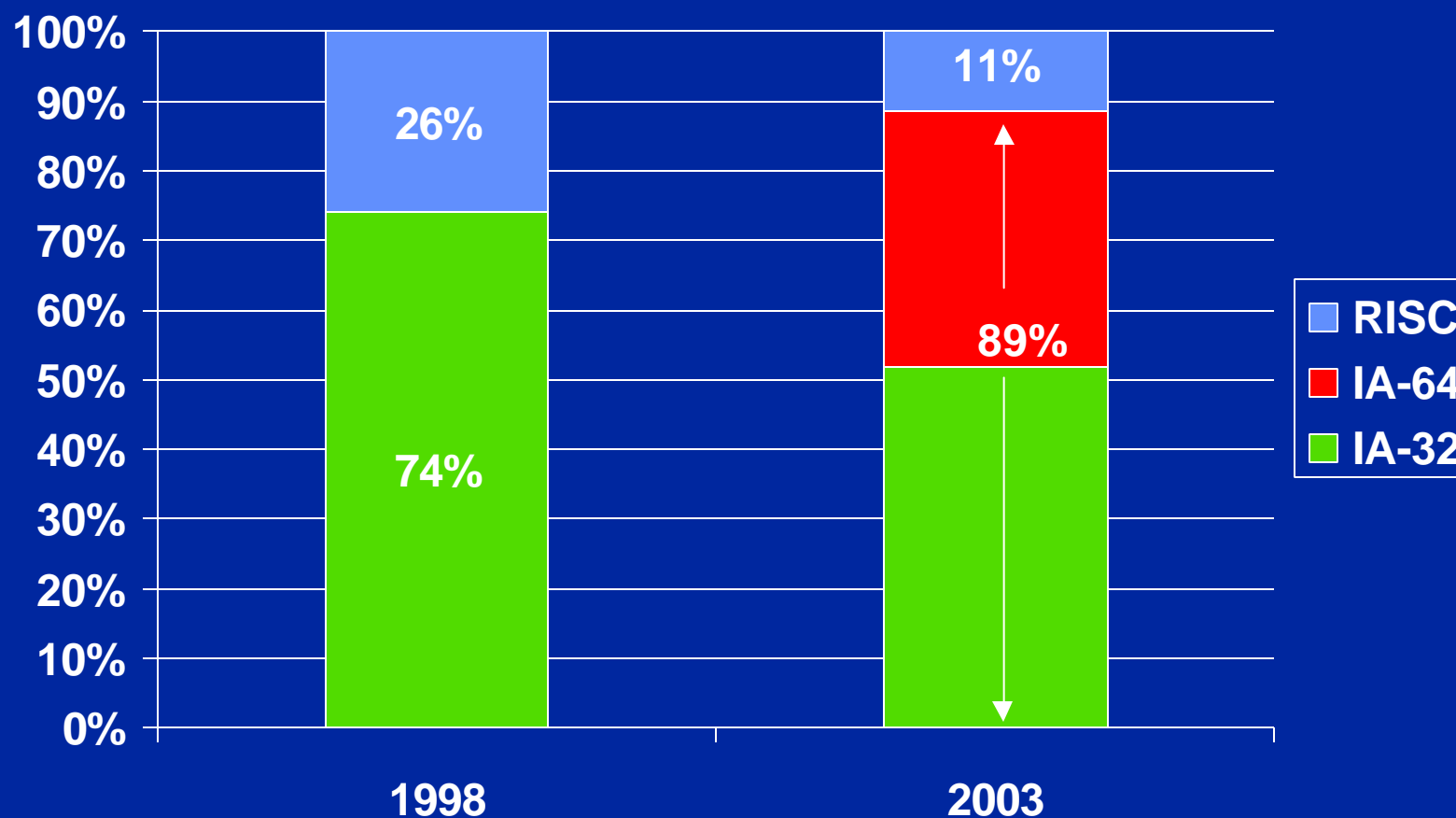
WW server units >$25K

Legend:
- **Other** (teal)
- **RISC** (light blue)
- **IA-64** (red)
- **IA-32** (green)

1998:
- Other: 7%
- RISC: 70%
- IA-32: 23%

2002:
- Other: 1%
- RISC: 41%
- IA-64: 42%
- IA-32: 16%

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IA-64 Workstation Opportunity

Workstation Market Segment Growth
(Units Shipped)

Legend:
- RISC
- IA-64
- IA-32

1998: RISC 26%, IA-32 74%
2003: RISC 11%, IA-64 89%

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Solution Stacks

End User

End User

OLAP

DW

Database

Middleware

OS

OEM System

OLAP Sol. Stack

Mold Design

Analysis

Surface Modeling

PDM/EDM

CAM

OS

OEM System

MDA Sol. Stack
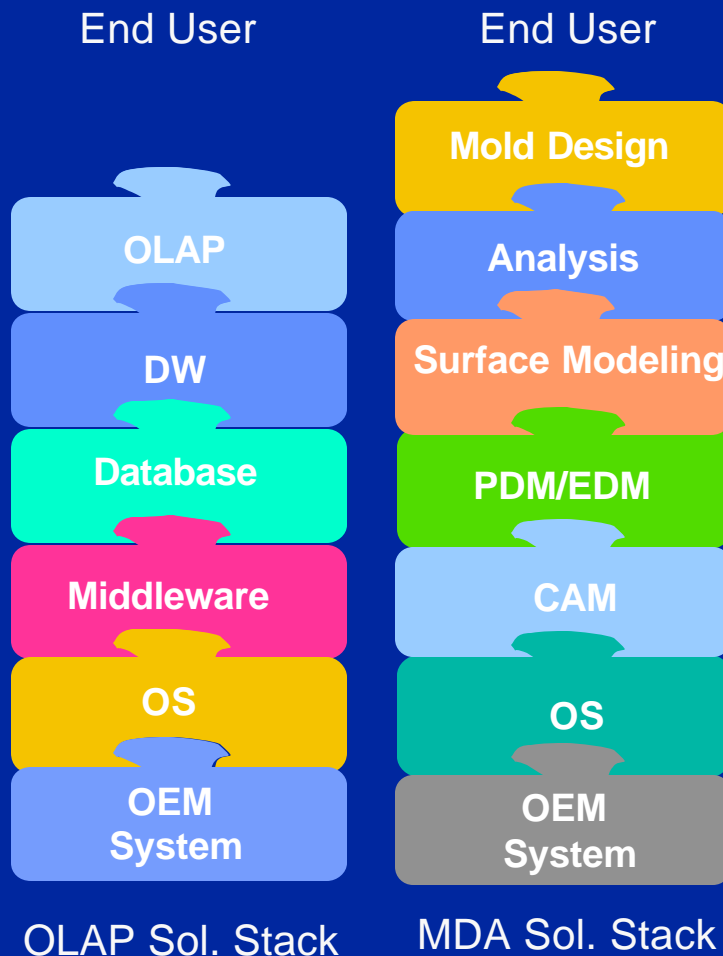
- **Solution Stacks for Itanium™ :**
  - ◆ Demonstrate IA-64 benefits
  - ◆ Offer high volume opportunity
  - ◆ Emerging as key segments for e-business solutions

Get <u>Real</u> Solutions to Launch

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Server Solution Stacks

Business Intelligence
- Data Mining
- Data Visualization
- Data Warehousing
- OLTP

ERP/Extended ERP
- CRM
- Supply Chain Management

E-Commerce
- E-Store front Catalog
- Online Procurement

Telephony/Security

IA-64

Scalability
64-bit Addressing
FP Performance
Performance Headroom

IA-32

Consolidate Messaging
- Messaging/Collaboration

Internet Infrastructure
- Application Server
- Directory Server
- Proxy/Cache Server
- Web Server

Telephony/Security

Workstation Solution Stacks

Digital Content Creation

- **Video Editing**
- **Compositing/Effects**
- **3D Animation**
- **3D Rendering**

E-Business & Finance

- **Emerging Services**
- **Risk Analysis**

IA-64
Scalability
64-bit Addressing
FP Performance
Performance Headroom

IA-32

Scientific/Engineering Applications

- **Computer Aided Design**
- **Electronic Design Automation**
- **Finite Element Analysis**
- **Fluid Dynamic Solutions**
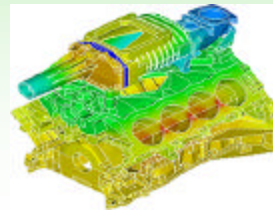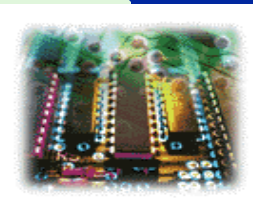
DCC   **Finance**   **MDA**   **EDA**

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IA-64 Milestones

- **Finish IA-64 Clean Code work**
  - ◆ <u>Understanding the IA-64 ISA:</u>
    http://developer.intel.com/design/ia64/architecture.htm
  - ◆ <u>Getting Software Ready for IA-64:</u>
    http://developer.intel.com/design/ia64/devinfo.htm

- **Finish recompile & debug**
  - ◆ Review the <u>Compiler Technology</u> presentation for more information on IA-64 compilers: http://developer.intel.com/design/ia64/devinfo.htm

- **Application optimization**

- **Application release**

<u>Begin Work:</u>	<u>Test:</u>	<u>Tune:</u>	
• **Commit to IA-64**	• **Compile**	• **Tuning**	*Product Release*
• **Get app ready for IA-64**	• **Debug**		
• **Identify dep apps**	• **Start Opt.**	• **Certification**	

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IA-64 Developer Resources

Intel
Tools and Tech
Support

Intel 64 Fund

Monterey
Funds

Training (IDF,
Web-based)

High-end
Platform
Enhancements

Enterprise & Internet Computing Solutions

Operating
Systems

Itanium™
Development Systems

Application
Solution Centers

Developer's
Interface Guides
for IA-64

More to Come...

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IA-64 Developer Enabling Model

High	**Segment Leaders**	**Direct Support, SDKs, SDVs, ASCs, Direct Training, Marketing Inclusion, Launch Presence, Demo Support, Access to private web site, DIG, IDF**
Med	**Emerging Companies Dependency Apps**	**SDKs access, SDVs access, Training, Engineering Support, Intel 64 Fund, Potential Demo Support, Access to private web site, DIG, IDF, ASCs**
Low	**All Others**	**Web Site Access, Intel 64 Fund, Limited SDV access, Web-based Training, IDF, Potential presence on Intel web site**

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Web-based Developer Information

- **IA-64 Home Page (http://developer.intel.com/design/IA64/)**
  - Links to public technical documents, web based training, etc.

Web-based Developer Information

- New software developer site for ISVs (http://developer.intel.com/design/servers/softdev/)
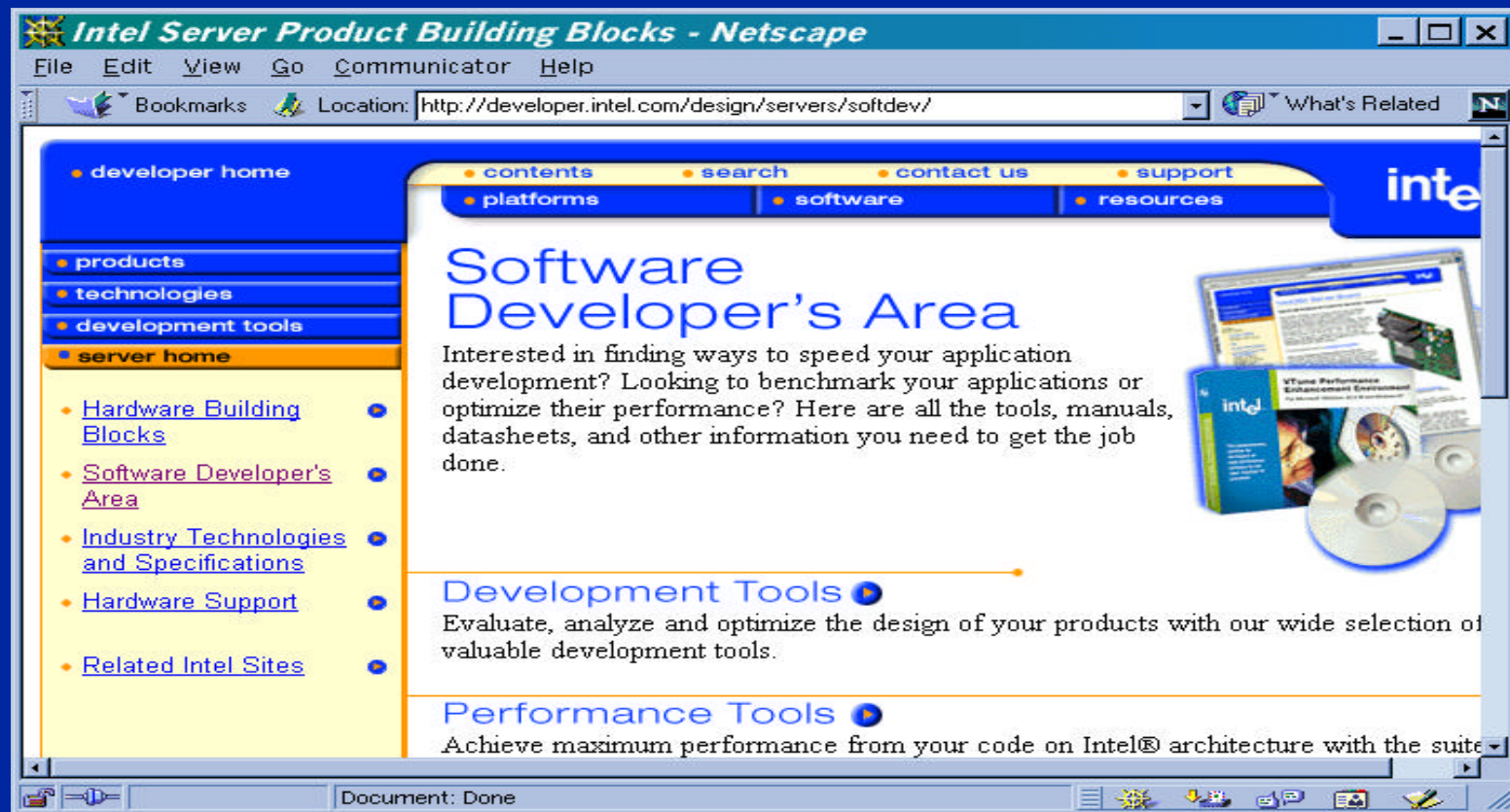
Application Solution Centers

- **IA-64 architecture/tools training**
- **Assistance in porting effort**

intel — Hillsboro, OR
intel — Dupont, WA
IBM — Hursley, UK
intel — Moscow
DELL — Limerick
ORACLE — Redwood City, CA
IBM — Waltham, MA
ORACLE — Dublin
FUJITSU — Tokyo
DELL — Shanghai
COMPAQ — Boston, MA
SIEMENS — Munich
intel® — Shanghai
IBM — San Mateo, CA
SIEMENS — Paderborn
intel®
HITACHI — Tokyo
IBM — Raleigh, NC
DELL — Austin, TX
sgi — Mt View, CA
NEC — Tokyo
UNISYS — Mission Viejo, CA
intel — Santa Clara, CA

http://developer.intel.com/software/asc

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Application Solution Center Speedups

*Data for WW ASCs

Server Segment by Speed up

Segment	Speed up
Other Server	2.57
E-Commerce	2.05
Enterprise	4.32
Messaging/ Network svcs	4.66
Database	3.83
Data Warehousing	2.52
Web Internet	3.54
Java	5.75
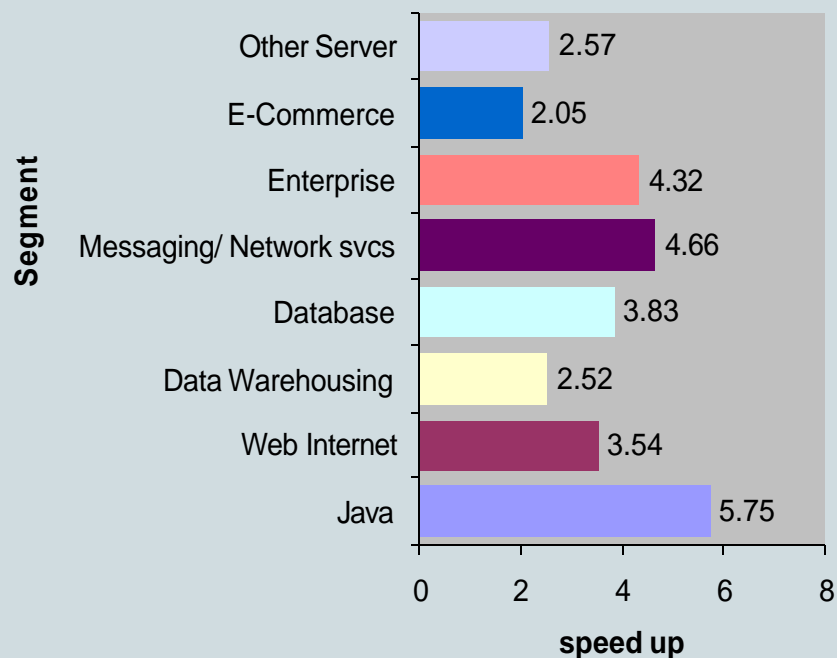
Workstation Segments by Speed up

Segment	Speed up
Other Workstation	3.48
SWE	3.4
MDA - Mechanical Design Automation	2.51
Finance	2.18
EDA -Electronic Design & Automation	1.56
DCC -Digital Content Creation	2.25
CAE - Computer Aided Engineering	1.19
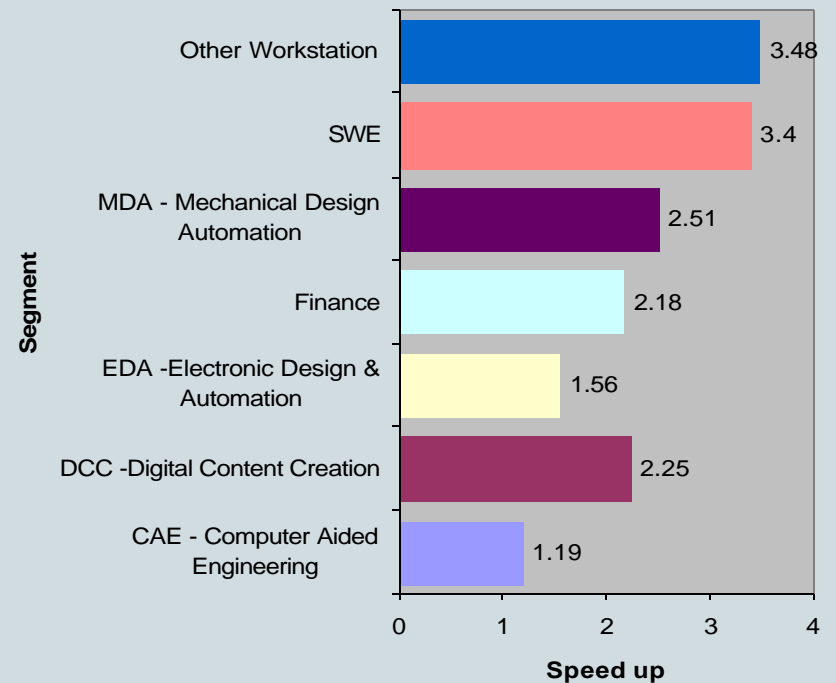
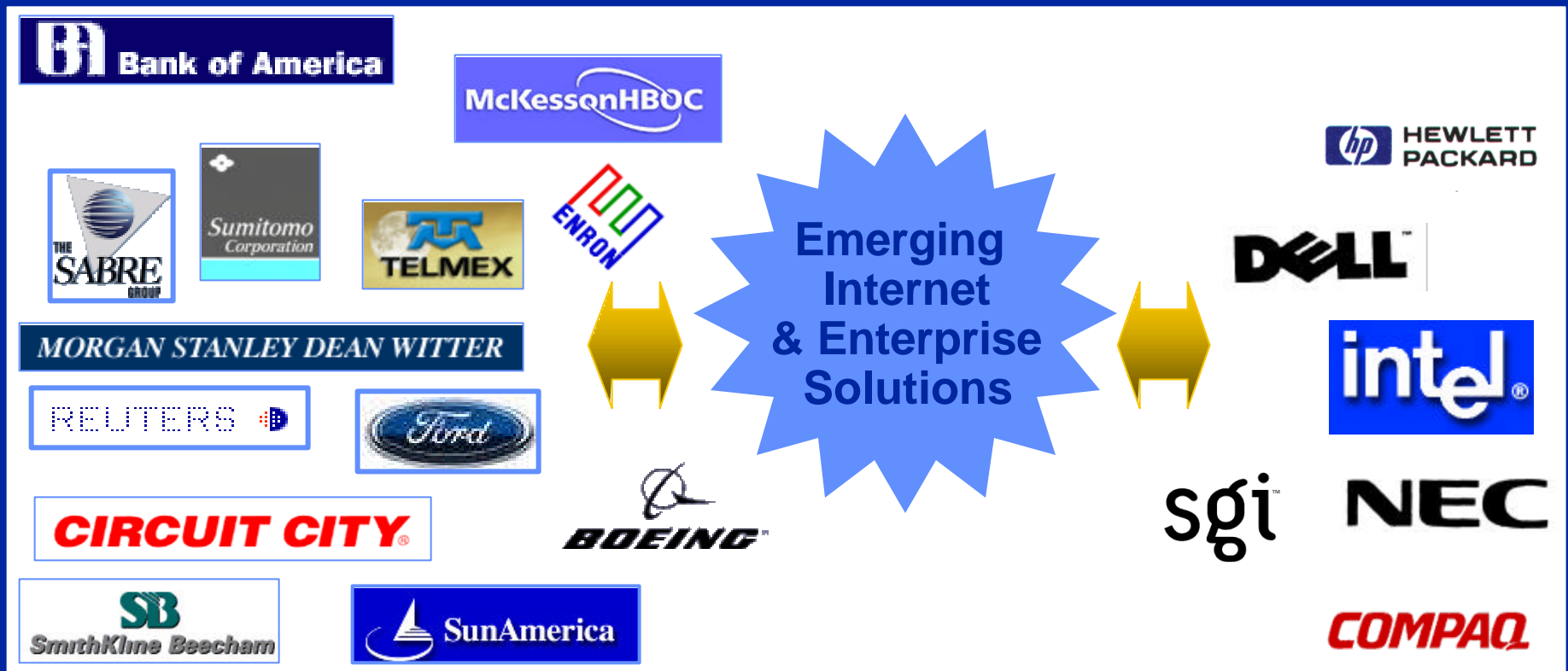## Outstanding performance gains across all segments

Source: Intel ASC Program, 1999. Data by Segment through June '99

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Intel 64 Fund

- A $250m equity fund formed to accelerate the adoption of IA-64 based <u>high volume</u> server and workstation solutions.

Bank of America

McKessonHBOC

HEWLETT PACKARD

THE SABRE GROUP

Sumitomo Corporation

TELMEX

ENRON

Emerging Internet & Enterprise Solutions

DELL

MORGAN STANLEY DEAN WITTER

intel.

REUTERS

Ford

CIRCUIT CITY

BOEING

sgi

NEC

SmithKline Beecham

SunAmerica

COMPAQ

http://www.intel64fund.com

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Early IA-64 Developer Tools

- **Purpose: Ensure quality tools for first Itanium™ based systems**
- **Intel SDK**
  - For clean code, compiling, linking & initial run-time debugging
- **Intel DDK**
  - For device driver development& run-time debugging
- **Pre-production Itanium™ based systems**

We're working with a small number of vendors to improve IA-64 developer tools

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OSV Status

Microsoft — *Win64*

IBM/SCO — *Monterey Unix*

Novell — *Modesto*

HEWLETT PACKARD — *HP-UX*

Linux

Sun microsystems — *Solaris*

- **Microsoft (Win64)**
  - Booting with EFI loader; ACPI HAL is now default
  - WOW64 executing simple IA-32 instructions
  - Public Demo at WinHec
- **IBM/SCO (Monterey64)**
  - Multi-user OS booting on Simulator
  - Key device drivers ported (Kbd, Mouse, Video, Disk, NIC)
- **IA-64 Linux**
  - Trillian team formed to port Linux to IA-64 (VA Linux, IBM, Intel, HP, SGI, Cygnus)
  - IA-64 Linux booted and Apache web server running on Simulator

- **Novell (Modesto)**
  - OS booting, NetFire JVM & Proxy Cache server executing on Simulator
  - Public demos at BrainShare (US/Europe)
  - EPC providing tools/compiler
- **Hewlett Packard (HP-UX)**
  - Multi-user boot on Simulator
  - Key device drivers ported (Kbd, Mouse, Video, Disk, NIC)
  - Several applications running on Simulator
- **Sun (Solaris)**
  - Multi-user OS booting on Simulator
  - Key device drivers ported (Kbd, Mouse, Video, Disk, NIC)

OSVs on track for Itanium™!

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IA-64 Server ISV Status

Segment	ISV Commit	Eng. Team in place	Eng. Team trained	Clean Code	Debug & Compile	Validation & Certification

Leading ISVs on track to complete "Clean Code" by Q4

IA-64 Workstation ISV Status

Segment	ISV Commit	Engr. team in place	Engr. team trained	Code Clean	Debug & Compile	Validation & Certificaiton
MDA						
DCC						
EDA						
Finance						
Other						

Leading ISVs on track to complete "Clean Code" by Q4

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Partial List of ISVs on the Itanium™ Simulator

- **Server ISVs**
  - ◆ **Apache**
  - ◆ **Microsoft**
  - ◆ **Novell**
  - ◆ **Oracle**
  - ◆ **SAP**
  - ◆ **SAS Institute, Inc.**

- **Workstation ISVs**
  - ◆ **MSC**
  - ◆ **Mental Ray**
  - ◆ **Kinetix**
  - ◆ **Mentor Graphics**

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Agenda

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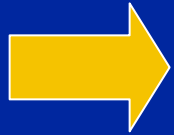
Call-to-Action

- **Get your software ready for IA-64 (i.e. "Code Cleaning")**
  - Use existing IA-64 developer resources
- **Identify dependency applications**

Intel Tools and Tech Support

Intel 64 Fund

Monterey Funds

Training (IDF, Web-based)

High-end Platform Enhancements

Enterprise & Internet Computing Solutions

Operating Systems

Itanium ™ Development Systems

Application Solution Centers

Developer's Interface Guides for IA-64

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