



1998 Worldwide Industry
Analyst Conference

The Future of Alpha

Jesse Lipcon

Vice President and General Manager
High Performance Server Division

The Alpha Plan Continues

- Alpha plan is on-track and continues more aggressively than planned prior to the merger
- Merced slip creates huge opportunity for Compaq
- Alternate Alpha sourcing and architectural licensing plans underway

Intel Agreement

The Results

- Broad-based business relationship
- 10 year patent cross-license agreement

Intel...

... manufacturing Alpha chips for Compaq based on the accelerated long term Alpha roadmap

...bought Hudson FAB - \$700M (book value)

Compaq...

... continues to own and develop Alpha, maintaining all design engineering resources

... sources Alpha from Intel (plus Samsung and others)

Win for Compaq and Our Customers... the Real Story

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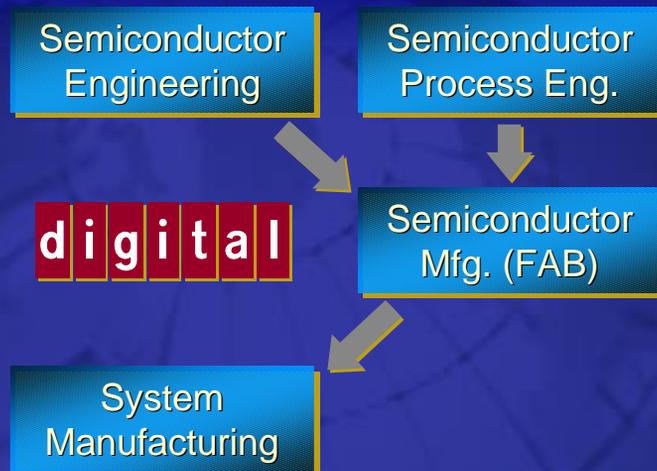


- Long-term viability of Alpha is ensured
 - Plus an *accelerated process roadmap* to extend performance lead
 - *FAB-less model* frees up cash for Compaq to invest in future growth
- DIGITAL UNIX customers using Alpha have *NO migration nightmares* ahead
- OpenVMS propelled by Alpha into the *21st century*
- Alpha gives Compaq the *broadest line* of Windows NT servers

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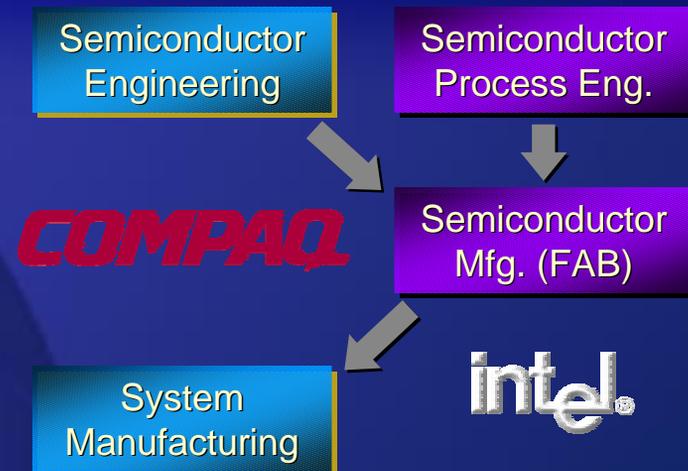
Semiconductor Manufacturing Models for Alpha

Previous FAB Model



- DIGITAL owned design engineers and manufacturing operation
- DIGITAL funded manufacturing and process improvements; pressure to load FAB for efficiency

New FAB-less Model



- Compaq owns and engineers chips - over 500 design engineers
- Intel manufactures chips
- Intel's volumes fill fab; Compaq benefits from Intel's economies of scale

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Alpha roadmap

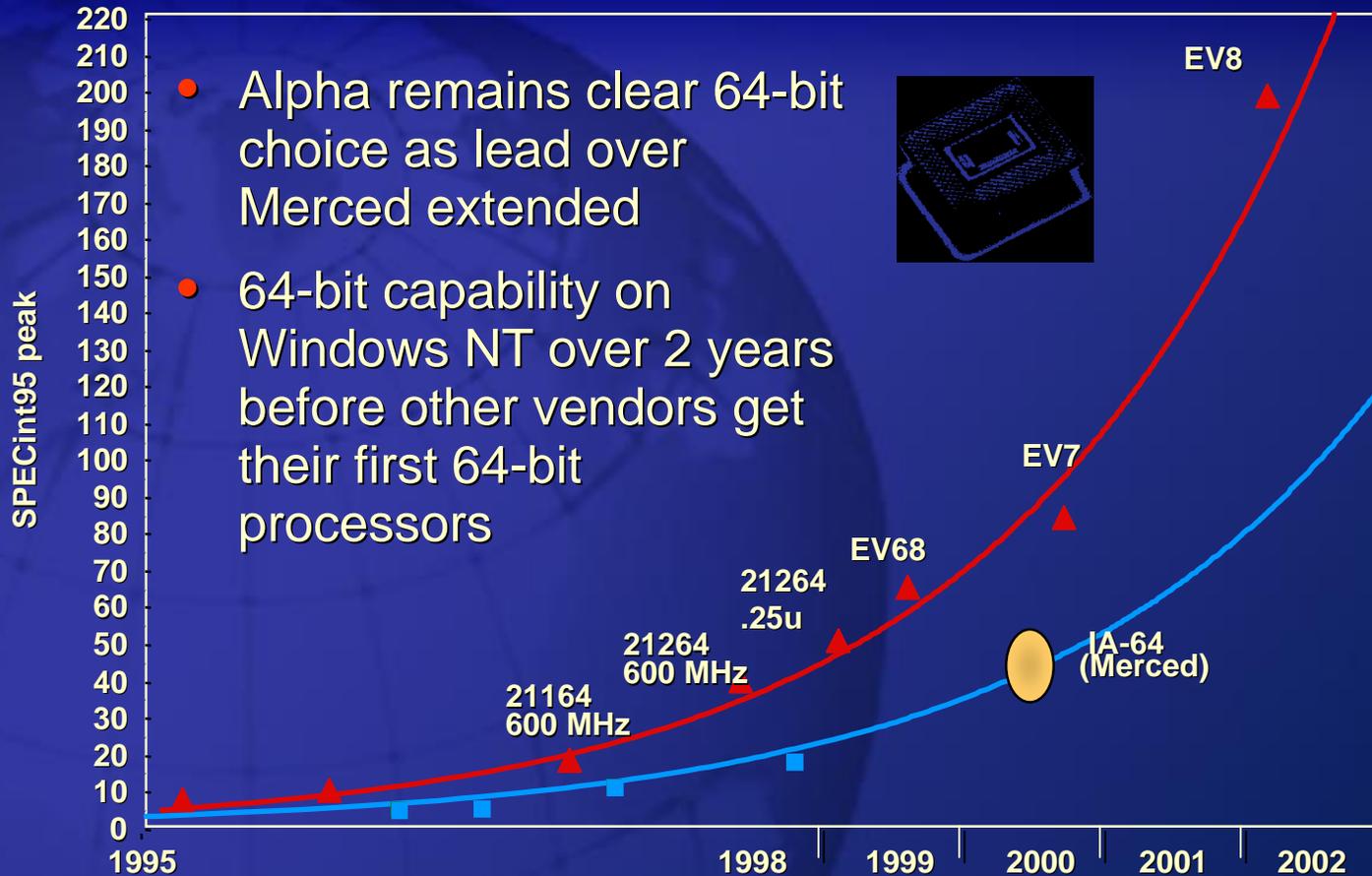
Wafer Size	FAB-4 & FAB-5 6"			FAB-6 8"			Foundry FAB		
	CMOS 3	CMOS 4	CMOS 5	CMOS 6	CMOS 7				
Flagship Chip	1989 Mariah	1991 NVAX/EV4	1995 EV5	1996 EV56	1998 EV6	1999 EV67	1999 EV68	2000 EV7	2001 EV8
Min. Feature	1.0 um	.75 um	.5 um	.35 um	.35 um	.25 um	.18 um	.18 um	.13 um
Clock Rate - MHz	63	200	300	400-600	500-600	600-800	600-1000	600-1000	1200+
Transistors	0.8M	1.5M	9.3M	9.3M	15M	15M	15M	100+M	250M

Benefits of using foundry semiconductor manufacturing:

- Significantly lower chip costs
- Significantly lower manufacturing investment
- Much earlier access to 0.18u & 0.13u CMOS
 - Allows EV7 to include larger on-chip caches
 - Accelerates future Alpha roadmap enhancements

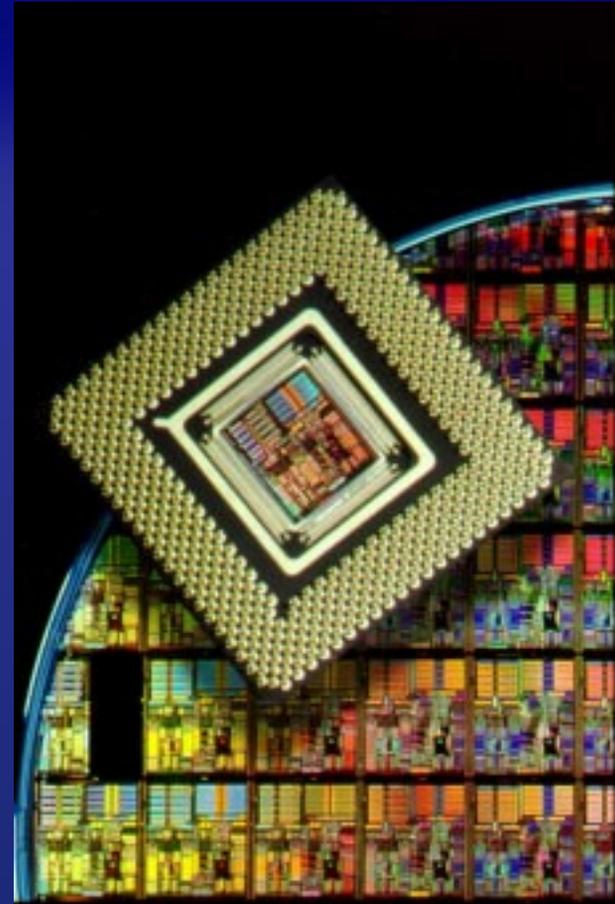
Alpha Roadmap versus Intel

Relative Performance: Integer (SPECint95-peak)



Alpha - Continuing Technology Lead

- Alpha 21264 (EV6) announced in February, 1998
 - Performance 1.5 to 2 times competition, based on SPECint95 and SPECfp95
- Systems based on EV6 begin shipment in November, 1998

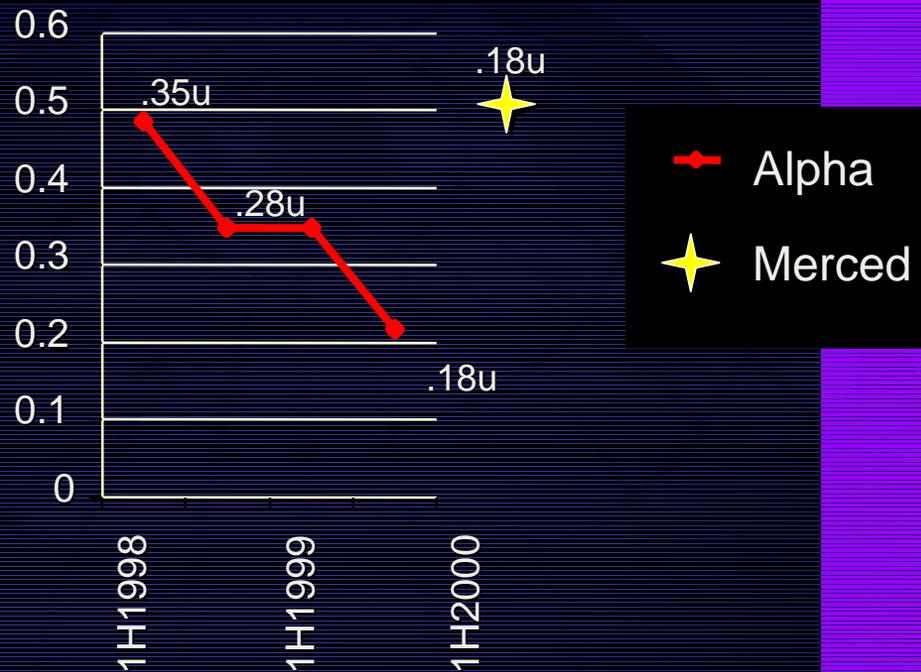


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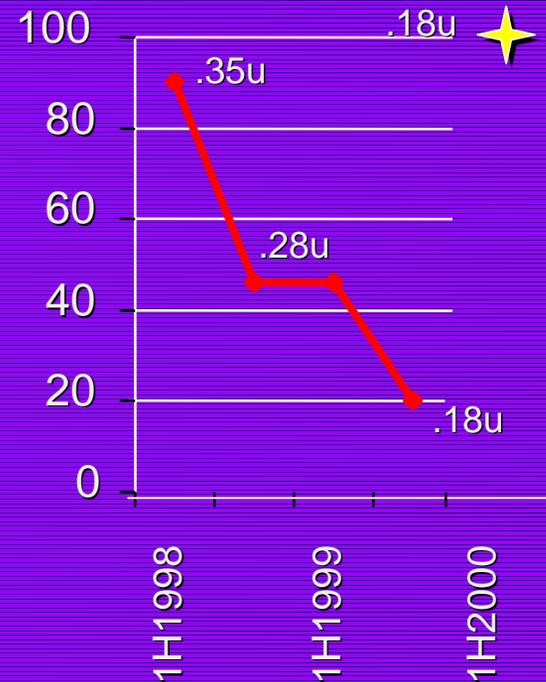
Alpha Versus Merced

50% to 100% higher performance at less than 1/5 cost

Die Size (in²)



% Silicon Cost



- Silicon cost reduces as the square of the die size
- Alpha 21264 in .18 micron <50% Merced's size and <20% of Merced's cost in the same process

The System Is the Silicon... an Evolution

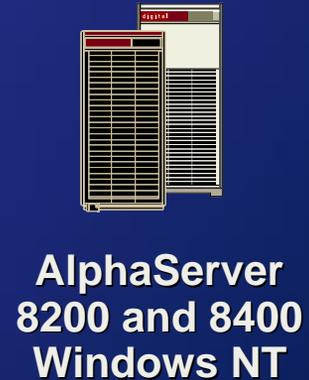
- Reflects new philosophy of coupling chip design to system design
 - Optimize for the system
 - Alpha processor chip design organization now part of same division as AlphaServer systems
- EV7 – On-chip switches
 - Fewer, more powerful chips, another order of magnitude memory bandwidth
- EV8 – Simultaneous multithread approach (SMT)
 - More efficient multi-execution units

Compaq's Alpha-based Server Families Today...

*AlphaServer Family
for DIGITAL UNIX and OpenVMS*



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*DIGITAL Server Family
for Windows NT*

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AlphaServer Systems for DIGITAL UNIX & OpenVMS Directions...

Compaq AlphaServer Series
Next Generation High-end

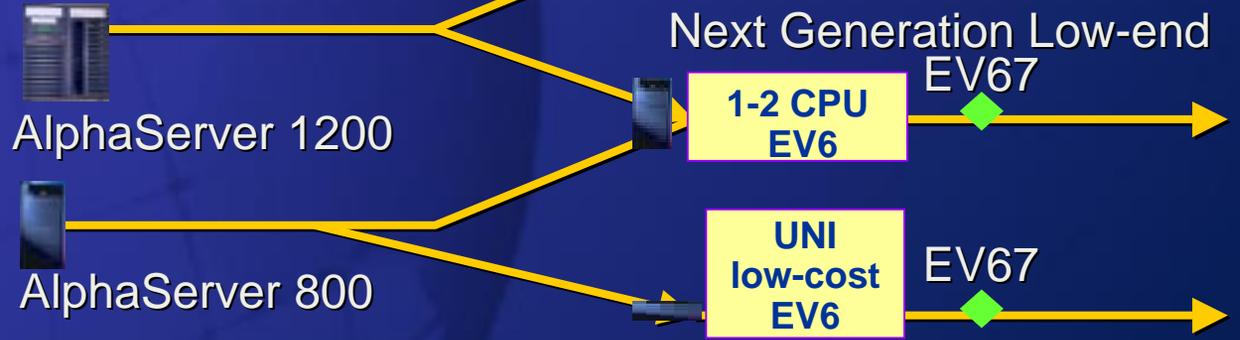
For global solutions
\$100K-\$1M



For enterprise solutions
\$25K-\$200K



For department solutions
Up to \$25K



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CY98

CY99

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Alpha-based Windows NT Servers Directions...

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Future Offering

Compaq ProLiant
Alpha Series

- EV67 2-way

Compaq ProLiant
Alpha Series

- EV67 4-way

Compaq ProLiant
Alpha Series

- EV67 1-way

Product Integration

DIGITAL Server
7300 Series

DIGITAL Server
5300 Series

DIGITAL Server
3300 Series



Current Products

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Alpha-based Workstation Directions...

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DIGITAL Personal WS a/au-series

- EV56 433, 500, 600 MHz
- Universal O/S support: Windows NT, UNIX, OpenVMS



Compaq Professional Workstation XP1000

- Compaq's first Alpha-based Professional Workstation
- EV6 500 MHz

Future Products in the XP line

- EV67, EV7 based systems

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NonStop Himalaya Server

New Processor Architecture

- World's trusted leader in business critical solutions strengthened by Alpha
 - Most reliable system PLUS most powerful processor
- Protects customer investment
 - 100% application compatible
 - Easy upgrade for existing systems
 - Proven transition path
- Compaq fully committed to Alpha as high-end processor platform



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Alpha and Operating System Environments



- Foundation for 64-bit industry standardization
- Design center will remain Alpha

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- *Line extension* and *Only* 64-bit alternative today
- *Microsoft's* 64-bit Windows NT development platform



- Secure path forward into 21st century for very large installed base
- Major opportunity with highest availability (24x365) environments

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Alpha Leads HPTC market

<i>Processor Type</i>	<i>Revenue (\$M)</i>	<i>Share (%)</i>
Alpha	1,342.2	26.4
MIPS	926.6	18.2
IBM Power	915.2	18.0
HP PA-RISC	890.3	17.5
Prop. Vector	636.0	12.5
Sun SPARC	234.9	4.6
Prop. Other	88.6	1.7
Intel x86	53.7	1.1
TOTAL	5,087.6	100.0

Source: IDC -August 1 HPTC research report

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Compaq & Alpha - Leading the Way with 64-bit Computing

Time-to-market

- 6 year head start
- 24+ month Windows NT exclusive

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Standards

- Multiple sources
- Architectural partners
- Microsoft support

Volume

- New markets
 - Media Content Creation
 - Alpha Processor Inc.

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Agreement With Samsung

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- Granted Samsung an Alpha architecture license
- Manages the architectural process to ensure architectural consistency, and will continue to develop future Alpha designs



- Gains access to all Alpha microprocessor intellectual property, including patents and future implementations
- Will make its own versions of the Alpha processor for specific markets
- Created a subsidiary (Alpha Processor Inc.) dedicated to the marketing and sales of Alpha microprocessors

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In Conclusion...

The Alpha Plan Continues

Secure and Accelerated Roadmap for Alpha

- Alpha plan is on-track and continues more aggressively than planned prior to the merger
- Merced slip creates huge opportunity for Compaq
- Alternate Alpha sourcing and architectural licensing plans underway

Good for Our Customers and Partners

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Better answers.

Backup



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Alpha 21264 (EV6) Highlights

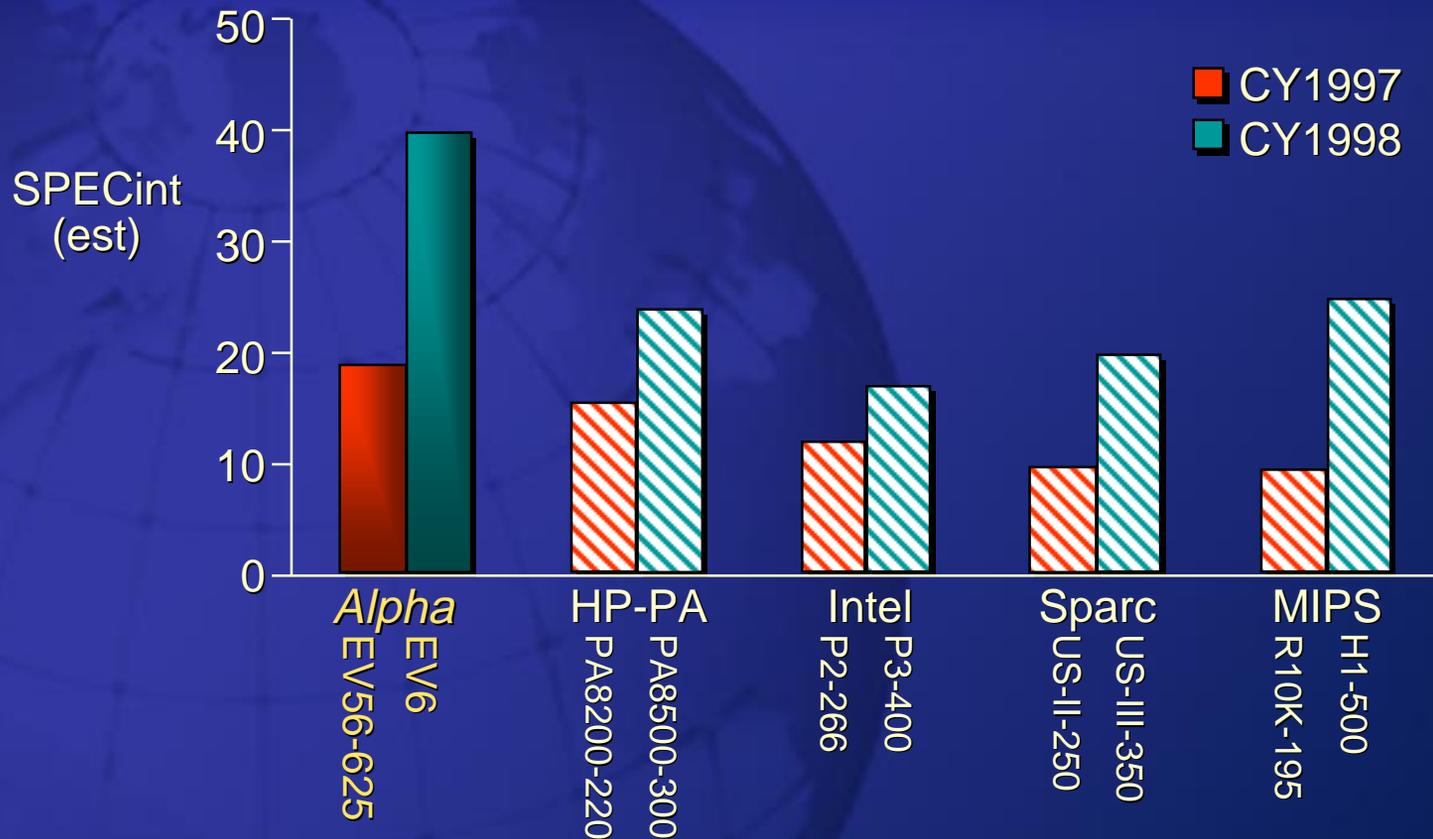
Performance

- 500-600 MHz operating frequency
- 40 SPECint95 (est)
- 60 SPECfp95 (est)
- MPEGII encode in real-time
- Spectacular memory bandwidth
 - 4+ GB/s L2 cache bandwidth
 - 2+ GB/s peak memory bandwidth
 - 900 MFLOPs Linpack 1000x1000

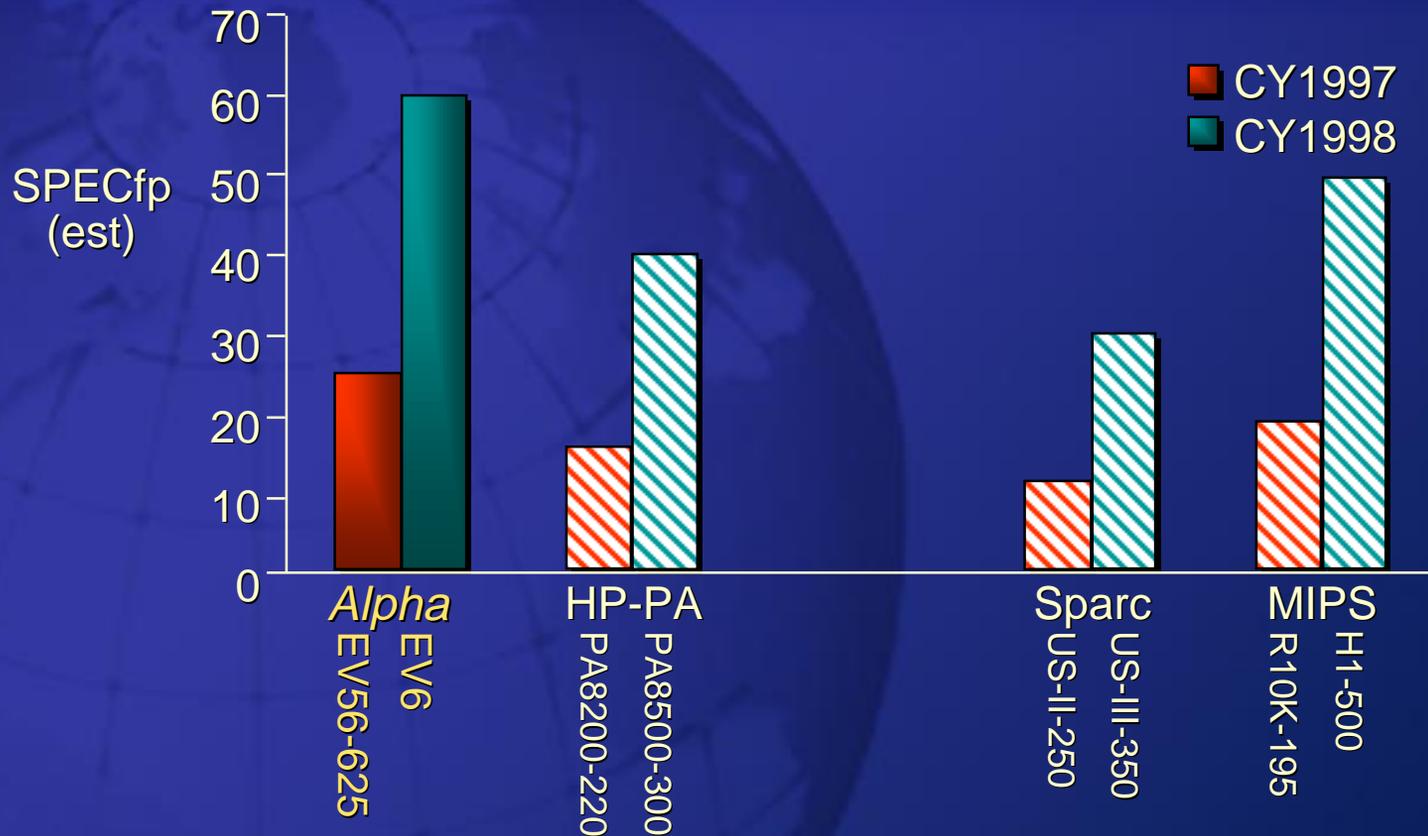
Features

- Four-way instruction map
 - Dynamic execution
 - Register renaming
 - Out-of-order execution
 - Quad integer pipelines
 - Dual floating-point pipelines
- Motion video instructions
- Square root and divide
- 64 KB I-cache — 2-set
- 64 KB D-cache — 2-set
- CMOS6 — 0.35u, 2.0V, 6LM

SPECint95 Performance Comparison



SPECfp95 Performance Comparison

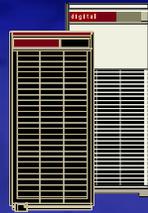


AlphaServer Systems for DIGITAL UNIX & OpenVMS Directions...

AlphaPowered™

For global solutions

- \$100K-\$1M
- Multiprocessing systems, offer highest scalability
- Targets: Enterprise applications, data warehousing, HPTC



AlphaServer 8X00

EV6

Next Generation High-end



For enterprise solutions

- \$25K-\$200K
- 1-4 CPU systems
- Target: enterprise applications and HPTC
- Pedestal and rackmount



AlphaServer 4100

Next Generation Mid-range



For department solutions

- Up to \$25K
- Uni and dual processor systems
- Target: replicated sites, dedicated applications, Internet



AlphaServer 1200

Next Generation Low-end



AlphaServer 800



CY98

CY99

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Alpha-based Workstation Directions...

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DIGITAL Personal WS a/au-series

- EV56 433, 500, and 600 MHz
- Universal O/S support - Windows NT, UNIX, OpenVMS
- Legacy products with a strong following
- Available with Powerstorm graphics



Compaq Professional Workstation XP1000

- Highest performance workstations in the industry
- Compaq's first Alpha-based Professional Workstation
- EV6 500 MHz
- The capstone of the a new multi-line product family
- Also available with Powerstorm graphics

Future Products in the XP line

- EV67, EV7 based systems
- Higher clockspeeds, memory bandwidths, etc.
- Based upon useful innovation around industry standards

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