



# **Enterprise SERVER**

**Mike Fister**

Senior Vice President & General Manager  
Enterprise Platforms Group



# 2003 Milestone Year for Itanium<sup>®</sup> 2

50+ SYSTEMS SHIPPING



>1,000 APPLICATIONS and TOOLS IN PRODUCTION

END-USERS



## Pushing the Envelope on All Four Corners

### **PERFORMANCE**

\$6 #1 Benchmark Rankings  
On track for 2X higher performance than Xeon™

### **COST**

Expanded DP offerings for lower cost  
Platform cost parity with Xeon via common platform

### **VOLUME**

>100,000 CPUs in '03  
On track to exceed RISC competitors in next 3-4 years

### **TECHNOLOGY**

Dual Core / Multi-core, Multi-thread  
Foxton, Pellston Technology, Power Management





# Montecito/Bayshore

Next Step for Itanium® Processor Family

**PELLSTON  
TECHNOLOGY**  
Cache Reliability

...plus new Intel  
**Bayshore Platform**  
**DDR2, PCI-Express,  
Faster System Bus**

**POWER MANAGEMENT**  
Demand-Based Switching  
Automatic Power  
Consumption Control

**ARCHITECTURE**  
Dual Core  
Multi-thread  
24 MB cache

**FOXTON  
TECHNOLOGY**  
Performance Feature

# Long Term Itanium® Roadmap Strength

## PERFORMANCE LOWEST COST OF OWNERSHIP

Multi-Processor (MP) Capable

**Itanium 2**

1.5GHz, 6M; 1.4GHz, 4M;  
1.3GHz, 3M

**Itanium 2**

(Madison 9M)  
**1.70Hz, 9M**

**Montecito**

Dual Core, 24MB,  
90nm Technology

LEADING PERFORMANCE

**Tukwila**

Multi-Core, Developed  
with ex-Alpha team

Dual Processor (DP) Capable

**Itanium 2**

1.4GHz, 1.5M, DP

**Fanwood**  
1.6GHz, 3M, DP

**Millington**

DP, Montecito based

LEADING \$/FLOP

**Dimona**

DP, Tukwila based

Dual Processor (DP) Capable

**LV Itanium 2†**

1.0GHz, 1.5M, DP

**LV Fanwood**

1.20Hz, 3M, DP

**LV Millington**

DP, Low Voltage  
Montecito based

LOWER POWER

**LV Dimona**

DP, Low Voltage  
Tukwila based

2004

2005

Next Generation

† Low Voltage Intel Itanium 2 processor



## What is 64-bit Extension Technology?

For more information go to:

[developer.intel.com/technology/64bitextensions/](http://developer.intel.com/technology/64bitextensions/)

### FEATURES



Extended Memory Addressability  
64-bit Pointers, 64-bit Registers

Additional Registers  
8-SSE & 8-Gen Purpose

Double Precision (64-bit)  
Integer Support

Flat Virtual  
Address Space Support



### MODES

Legacy  
32/32

Compatibility  
64/32

64-bit  
64/64



With 64-Bit Extension  
Technology

Evolutionary IA-32 architectural enhancements to support extended memory starting in mid-2004

## Intel Platforms Spanning the Enterprise

Workstations  
(Client)

Front Tier  
(Edge)

Mid Tier  
(Enterprise)

Back End  
(Databases)

High Performance Computing

Capacity

Capability



SCALE OUT

SCALE UP

SCALE OUT

SCALE UP





**Shane Robison**  
Chief Strategy &  
Technology Officer

## Market leadership

HP ships 1 out of every 3 servers worldwide

- #1 UNIX systems
- #1 Windows systems
- #1 industry standard servers
- #1 Linux systems
- #1 Fault-tolerant systems
- #1 High performance computing
- #1 Disk storage systems
- #1 External storage systems
- #1 Tape drives and automation
- #1 Storage area networks
- #1 Virtualization technology
- #1 Laptops
- #1 Handhelds
- #2 Desktops
- #2 Workstations
- **Manufacturing**
  - 3 out of top 10 automotive suppliers
- **Transportation**
  - 4 out of world's 5 largest airlines
- **Financial**
  - 65% world's securities transactions
- **Telecom**
  - 60% Europe's mobile billing and traffic
- **Utilities**
  - 65% world's energy infrastructure

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Business and IT synchronized to capitalize on change

Business

Information technology

Built on a foundation of industry-standard architectures

© 2000



## HP's server direction with Intel

3 product lines with 2 industry-standard architectures

### Current

HP NonStop  
viper

HP Integrity  
evolution

HP 9000 /  
e3000  
(PA-RISC)

HP AlphaServer  
alpha

HP ProLiant  
L-Class

Enabling larger investment  
in focused innovation

### Future

#### Industry-standard

HP NonStop  
(x86-64 based)

HP Integrity  
(x86-64 based)

HP ProLiant  
(x86-64 based)

- Common  
technologies
- Management
  - Virtualization
  - HA
  - Storage
  - Clustering





## Itanium platforms' 64-bit superior performance



- Scalable, mission-critical, self-healing systems
- Complex technical applications and business critical availability
- Scalability for demanding commercial applications
  - OLTP, database query, sorting
- 2X performance of IA-32, for faster:
  - Image manipulation
  - Voice encoding/recognition
  - Security and encryption



## Itanium-based HP server momentum



- 5X increase in 2003 of Itanium server market
- Expanded Integrity server portfolio (1-64 way)
- World-record Integrity performance across workloads & OE's
- **NonStop boots on Itanium**







Next-generation Xeon + Itanium = choice and advantage for HP customers



HP is committed to bringing choice in industry-standard architectures to all tiers of the Adaptive Enterprise

# Xeon™ Roadmap Acceleration Increased Value

**PERFORMANCE**  
**LOWEST COST OF OWNERSHIP**

## Multi-Processor (MP) Capable

Intel® Xeon Processor MP  
(4MB L3 Cache)

Existing Platforms

Potomac

Intel® Twin Cascade 4S Enabled  
>4M L3 Cache

Tulsa

Intel® Twin Cascade 4S Enabled  
Dual Core

New Platforms

Future

## Dual Processor (DP) Capable

Intel Xeon  
Processor  
(3.20 GHz,  
>1M)

Existing  
533 MHz

Nocona (3.6 GHz, 1M)/Jayhawk

"Lindenhurst" "Tumwater"  
800 MHz Platforms

"Jayhawk"/Future

New Platforms

Future

2004

2005

Next Generation



# Enterprise Platform Technologies

Customer Solutions – Competitive Advantage

**Silvertale  
Technology**

**VIRTUALIZATION**



**Meaningful, differentiated  
end-user value**

Multicore,  
Multi-threading  
**Foxton**

**PERFORMANCE**

**Pellston**

**RELIABILITY**

DDR2  
**Fully buff. DIMM  
64-bit Ext. Tech.**

**MEMORY**

PCI Express I/O  
and Storage Silicon

**I/O and STORAGE**

DBS  
ACPC

**POWER MANAGEMENT**

EFI  
("Tiano")

**SOFTWARE**

All technologies, features, projected benefits and data are preliminary and subject to change without notice.



**Kevin Kettler**  
Chief Technology Officer

## Platform Leadership Ahead of the Competition

### CUSTOMER CHALLENGES

Power and  
Cooling  
Reduction

Lower  
Operations  
Costs

Flexible  
Infrastructure

### POWER MANAGEMENT

Demand-based Switching (DBS)  
Auto Control  
of Power Consumption (ACPC)

### MANAGEABILITY

Integrated Management (ESB?)  
CIM/CL Industry Standards

### VIRTUALIZATION

Improve Server Utilization  
Dynamic Allocation

### ADDRESSING CUSTOMERS' GROWING NEEDS

### BRINGING IT ALL TOGETHER AT THE PLATFORM



### Modular IA Server Platforms

Strong TCO benefits – gaining momentum  
IA offering comprehensive and competitive  
Key vehicle for new IA platform capabilities





**Susan Whitney**  
General Manager, eServer xSeries



**Mainframe Inspired  
Technologies**



**Investment in  
Innovation**



**Award-winning Systems  
Management**



## **In Conclusion...**

**Complementary Xeon™ (now enhanced)  
& Itanium® product lines continue**

**Computer platform is key**

**Focused collaboration with the largest  
computer manufacturers in the world**



# **END-to-END ENTERPRISE**

**Bill Siu**

Vice President & General Manager  
Desktop Platforms Group

**Mike Fister**

Senior Vice President & General Manager  
Enterprise Platforms Group