

UBS Investment Research: IT Hardware Conference Call “Which Server Platforms Will Win?”

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Analyst certification and required disclosures begin on page 21 This report has been prepared by: UBS Securities LLC

Which Server Platforms Will Win?

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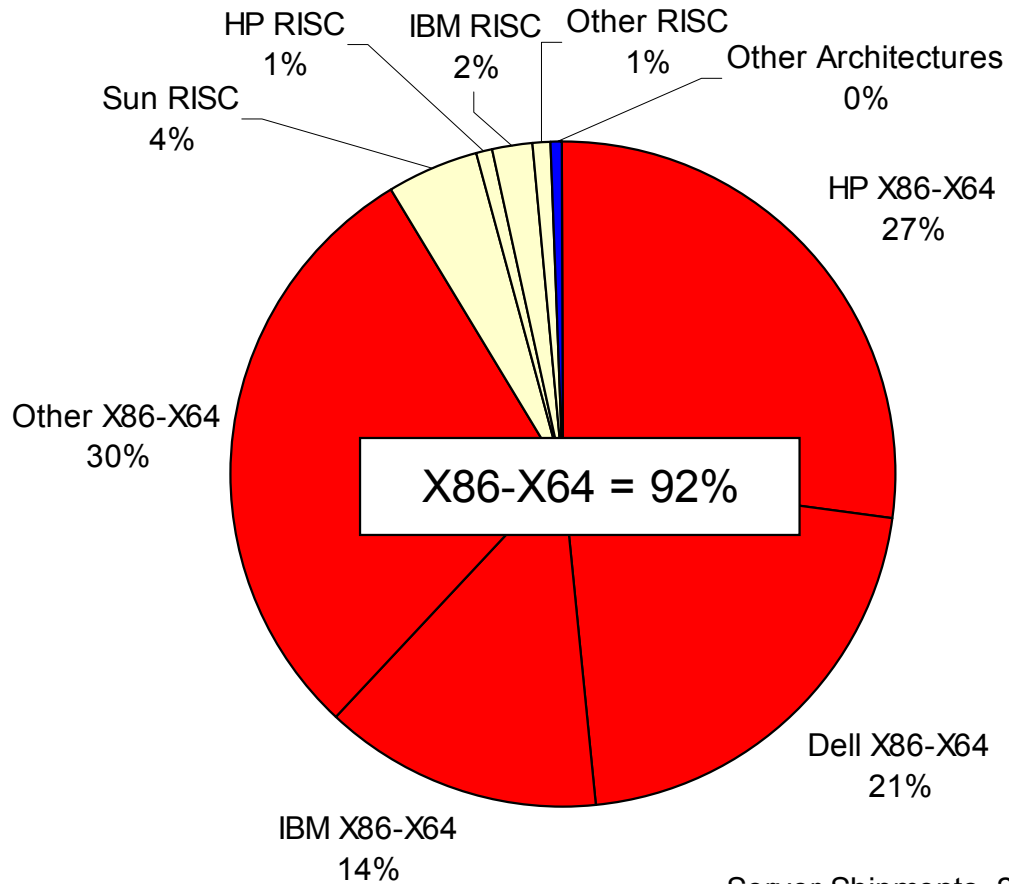
Surely Not *Platforms*, But *Platform*?

- Intel EMT64 and AMD Opteron X86-64 Win.
- No questions? Conference Call Over.
- Have a Nice Day...

Well, it is not really this simple. But it sometimes feels like it is.



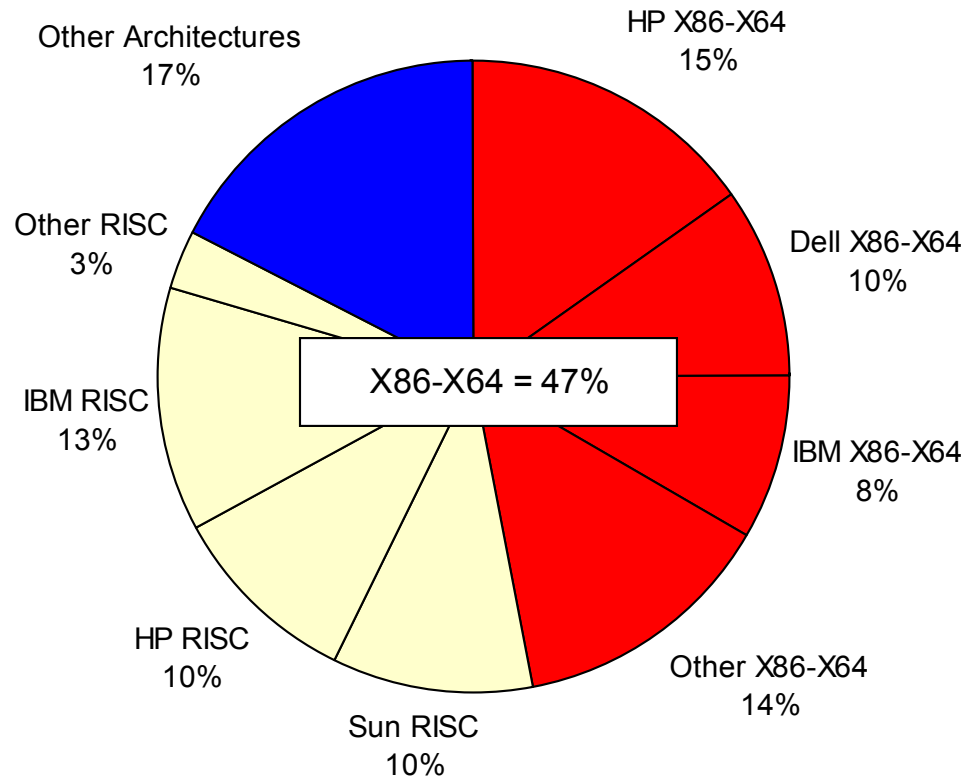
This Pie Chart Is Pretty Convincing



Server Shipments, 2004 (Source: Gartner)



But It's Money That Matters



Server Revenues, 2004 (Source: Gartner)



Server Sales Since the 2001 Bust

Server Revenues Over Time			Growth		Growth
	2002	2003	2002-2003	2004	2003-2004
HP X86-X64	\$5,108 M	\$6,628 M	29.8%	\$7,559 M	14.0%
Dell X86-X64	\$3,217 M	\$3,976 M	23.6%	\$4,756 M	19.6%
IBM X86-X64	\$2,838 M	\$3,393 M	19.5%	\$4,175 M	23.0%
Other X86-X64	\$5,220 M	\$5,833 M	11.8%	\$6,698 M	14.8%
Sun RISC	\$6,522 M	\$5,417 M	-16.9%	\$5,083 M	-6.2%
HP RISC	\$5,741 M	\$5,706 M	-0.6%	\$4,815 M	-15.6%
IBM RISC	\$5,873 M	\$6,435 M	9.6%	\$6,310 M	-1.9%
Other RISC	\$1,550 M	\$1,475 M	-4.8%	\$1,412 M	-4.3%
Other Architectures	\$7,024 M	\$7,261 M	3.4%	\$8,700 M	19.8%
TOTAL	\$43,093 M	\$46,123 M	7.0%	\$49,509 M	7.3%
Server Shipments Over Time					
	2002	2003	2002-2003	2004	2003-2004
HP X86-X64	1,319,830	1,530,739	16.0%	1,833,484	19.8%
Dell X86-X64	852,332	1,105,251	29.7%	1,407,978	27.4%
IBM X86-X64	557,447	751,457	34.8%	924,170	23.0%
Other X86-X64	1,397,804	1,619,804	15.9%	1,971,086	21.7%
Sun RISC	271,917	273,410	0.5%	301,832	10.4%
HP RISC	69,141	64,126	-7.3%	58,423	-8.9%
IBM RISC	98,993	118,082	19.3%	132,837	12.5%
Other RISC	39,298	40,279	2.5%	52,903	31.3%
Other Architectures	5,039	53,524	962.2%	31,824	-40.5%
TOTAL	4,611,801	5,556,672	20.5%	6,714,537	20.8%
Source: Gartner					



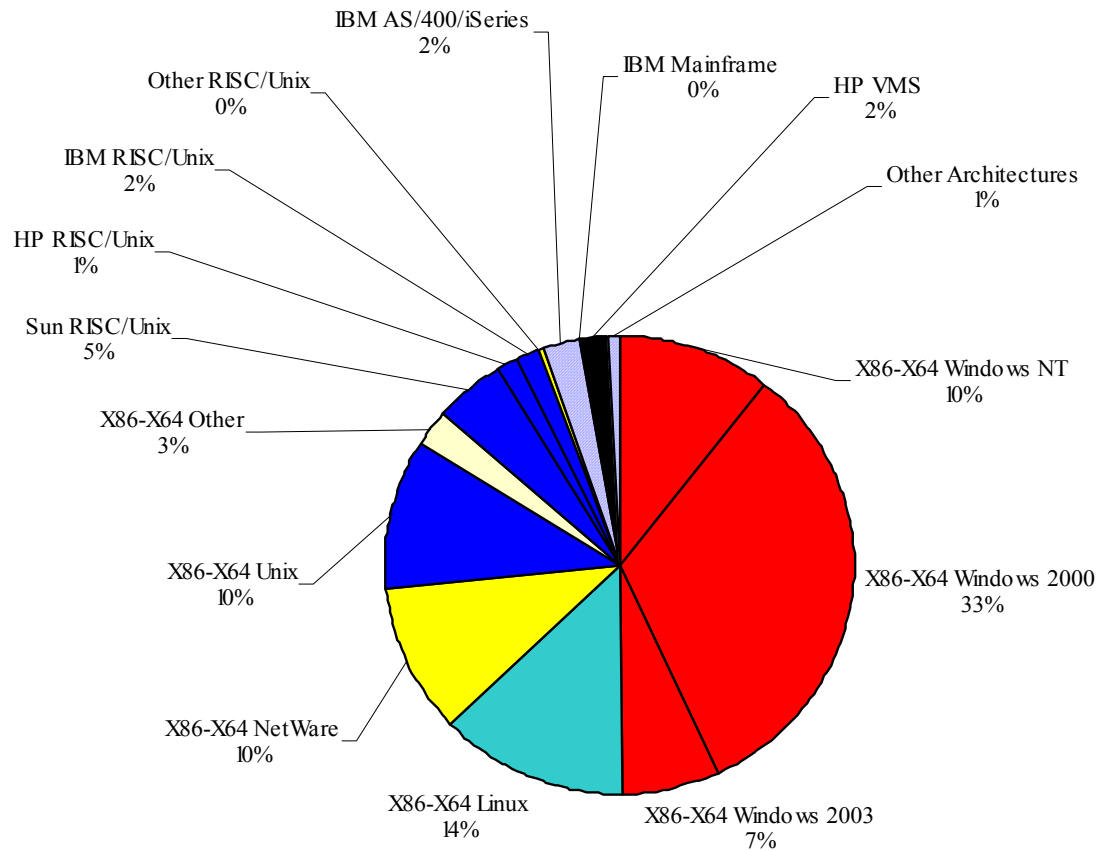
The Problem with Projections

Server and OS Sales								
Source: Gartner Group, Late 2000								CAGR
	1999	2000	2001	2002	2003	2004	2005	1999-2005
Solaris	\$6.1 B	\$6.6 B	\$6.7 B	\$7.2 B	\$7.0 B	\$6.9 B	\$6.6 B	1.60%
AIX	\$3.1 B	\$3.5 B	\$4.1 B	\$4.0 B	\$4.3 B	\$4.5 B	\$4.7 B	8.70%
SCO	\$1.9 B	\$1.6 B	\$1.3 B	\$1.0 B	\$0.7 B	\$0.5 B	\$0.3 B	-31.00%
Tru64	\$1.2 B	\$1.4 B	\$1.5 B	\$1.6 B	\$1.5 B	\$1.4 B	\$1.1 B	-1.70%
HP-UX	\$5.9 B	\$6.0 B	\$6.4 B	\$6.7 B	\$6.8 B	\$6.3 B	\$5.5 B	-1.40%
Linux	\$0.5 B	\$1.3 B	\$1.8 B	\$2.2 B	\$2.7 B	\$3.4 B	\$3.8 B	50.00%
Other Unix	\$1.5 B	\$1.3 B	\$1.1 B	\$0.8 B	\$0.7 B	\$0.4 B	\$0.2 B	-33.20%
Netware	\$2.9 B	\$2.8 B	\$2.5 B	\$1.6 B	\$1.6 B	\$1.3 B	\$1.1 B	-17.50%
Windows NT/2K	\$8.9 B	\$11.0 B	\$12.5 B	\$12.9 B	\$13.4 B	\$15.1 B	\$19.3 B	16.70%
OS/390 and z/OS	\$8.5 B	\$7.9 B	\$7.5 B	\$7.1 B	\$7.0 B	\$6.8 B	\$6.6 B	-4.90%
OS/400	\$3.6 B	\$4.3 B	\$4.1 B	\$3.8 B	\$3.7 B	\$3.5 B	\$3.2 B	-2.30%
Other	\$6.1 B	\$5.7 B	\$5.0 B	\$5.1 B	\$4.9 B	\$4.6 B	\$4.3 B	-6.80%
Total	\$50.2 B	\$53.4 B	\$54.5 B	\$54.0 B	\$54.3 B	\$54.7 B	\$56.7 B	2.50%

- They are rarely entirely accurate, although they are always precise.
- They capture current trends well, but their assumptions can be invalid because of drastic changes in the market.



The Worldwide Server Beach Ball



Server Installed Base, Early 2004 (Source: IT Jungle)

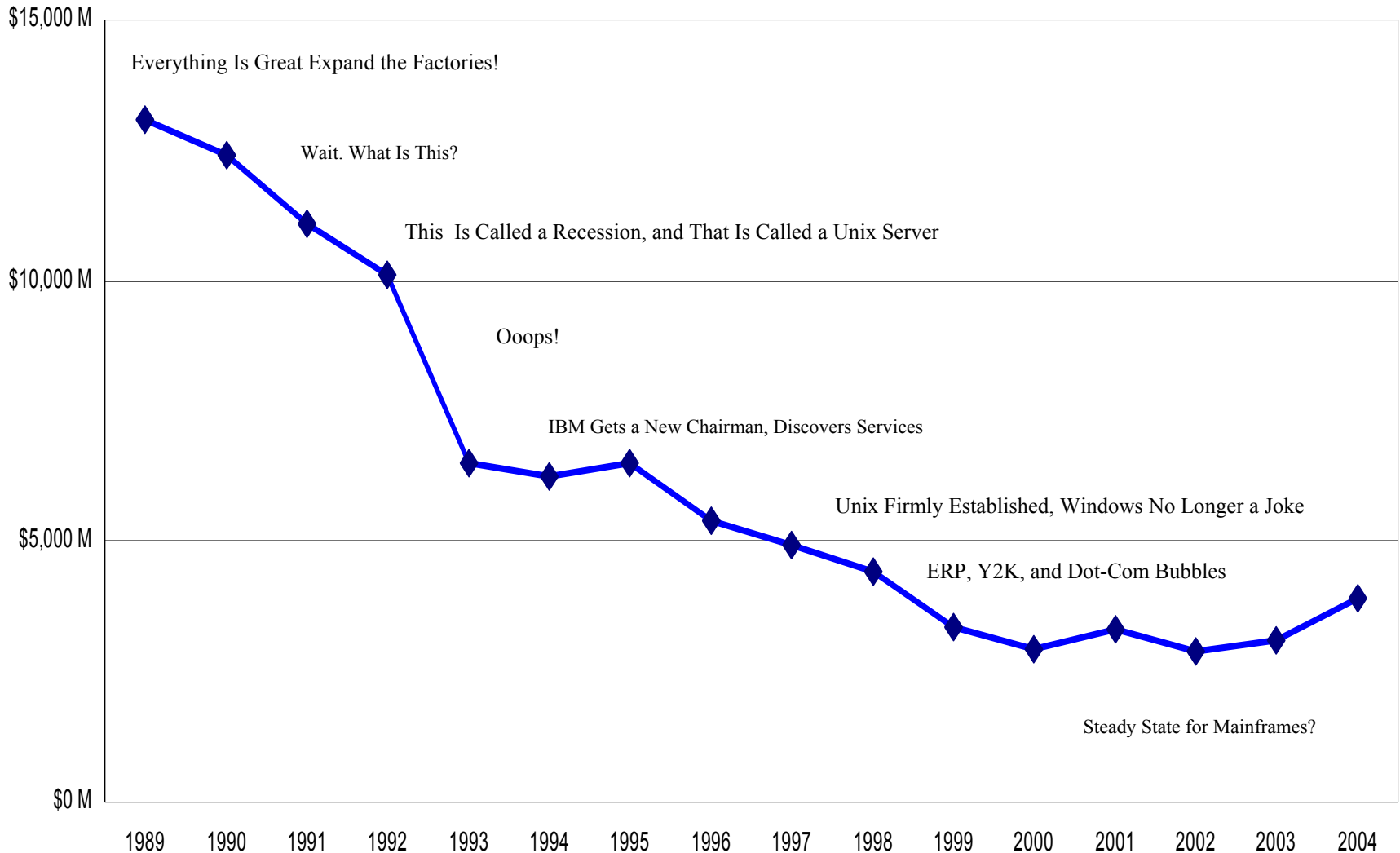


Worldwide Server Installed Base

Worldwide Server Installed Base, Early 2004		
X86-X64 Windows NT	2,000,000	
X86-X64 Windows 2000	6,200,000	
X86-X64 Windows 2003	1,300,000	
X86-X64 Linux	2,500,000	
X86-X64 NetWare	2,000,000	
X86-X64 Unix	2,000,000	
X86-X64 Other	500,000	16,500,000
Sun RISC/Unix	960,000	
HP RISC/Unix	240,000	
IBM RISC/Unix	310,000	
Other RISC/Unix	90,000	1,600,000
IBM AS/400/iSeries	450,000	
IBM Mainframe	20,000	
HP VMS	375,000	
Other Architectures	150,000	995,000
TOTAL	19,095,000	
Source: IT Jungle		



The Mainframe Slide



Supplemental Information

IT Hardware

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May 31st, 2005

Speaker information — Ben Reitzes



Ben Reitzes, Analyst IT Hardware & Imaging Technology

Ben Reitzes is a managing director in the technology group of UBS Investment Research. An analyst since 1995, Mr. Reitzes specializes in IT hardware and imaging technology companies. In 2004, Mr. Reitzes was named a runner-up in the IT Hardware Category on the Institutional Investor All-America Research Team in his first full year covering the sector. For the past six years he has been recognized as one of the top Imaging Technology analysts by Institutional Investor including being ranked first in the Imaging Technology category for the past three years.

Key research products include the unique UBS Server Technologies Forum and proprietary studies analyzing Dell's impact on the printer industry.

Prior to the UBS AG acquisition of PaineWebber Incorporated, Mr. Reitzes was the Imaging Technology industry analyst for PaineWebber.

Mr. Reitzes holds a B.S. in economics from Vanderbilt University.

Sector Team

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IBM (IBM-\$77.14) Buy 1

Target: \$92
Yield: 0.9%

KEY POINTS

- The strategic “integrated solution” vendor
- Major restructuring could help
- Must improve services margins and bookings
- Potential mainframe cycle next year
- \$92 price target reflects 17x 2006 EPS

<u>FY End December</u>	<u>2004A</u>	<u>2005E</u>	<u>2006E</u>
Revenue (Mil.)	\$96,293	\$91,885	\$94,355
<i>% change</i>	8%	-5%	3%
Annual EPS	\$4.50	\$4.67	\$5.35
Growth rate		4%	15%
L-T growth rate: 5-10%			
<i>Consensus</i>		\$4.83	\$5.39

DESCRIPTION: IBM provides computer solutions through the use of advanced information technology. The solutions include technologies, systems, products, services, software, and financing.

Dell (DELL-\$40.40) Buy 1

Target: \$45
Yield: 0.00%

KEY POINTS

- Direct business model unmatched
- U.S. share 30%+, only 12%+ share overseas
- Can gain share through calendar 2006 despite a potential deceleration in the PC market.
- Printer foray is a smart move
- Target of \$45 is based on 21x our FY07 EPS estimate excl. interest income & adding back cash.

<u>FY End January</u>	<u>2005A</u>	<u>2006E</u>	<u>2007E</u>
Revenue (Mil.)	\$49,205	\$57,366	\$65,980
% change	19%	17%	15%
Annual EPS	\$1.29	\$1.60	\$1.92
Growth rate	28%	24%	20%
L-T growth rate: 20%			
<i>Consensus</i>		\$1.61	\$1.90

DESCRIPTION: Dell designs, develops, manufactures, markets, services, and supports a variety of computer systems including desktops, notebooks, workstations, servers and storage.

Hewlett-Packard (HPQ-\$23) Neutral 2

Target: \$25
Yield: 1.75%

KEY POINTS

- Must turn around the enterprise
- Restructuring across all business units likely
- Would like to see bold moves to unlock value
- Printer business seeing significant challenges
- New leadership a plus
- Target of \$25 is based on a sum of the parts analysis, which is based on a lower execution discount of 10%

<u>FY End October</u>	<u>2004</u>	<u>2005E</u>	<u>2006E</u>
Revenue (Mil.)	\$79,905	\$86,085	\$88,991
% change	9%	8%	3%
Annual EPS	\$1.35	\$1.44	\$1.56
Growth rate	16%	6%	8%
L-T growth rate: 8%			
<i>Consensus</i>		\$1.47	\$1.67

DESCRIPTION: HP is a global enterprise technology solution provider with a leading imaging and printing business. The company competes in both the consumer and commercial markets.

Sun Microsystems (SUNW-\$3.82) Neutral 2

Target: \$4.15
Yield: 0.00%

KEY POINTS

- Highly leveraged to proprietary (UNIX) systems, faces challenges both secularly and competitively
- OPEX too high - - estimated \$0.09/share spent on SPARC development alone
- Solaris 10 is key
- \$4.15 price target reflects less than 1X EV/Sales

<u>FY End June</u>	<u>2004</u>	<u>2005E</u>	<u>2006E</u>
Revenue (Mil.)	\$11,185	\$11,094	\$11,470
% change		-1%	3%
Annual EPS	\$(0.24)	\$(0.01)	\$0.05
Growth rate		N/M	N/M
L-T growth rate: 8%			
<i>Consensus</i>		<i>\$0.00</i>	<i>\$0.06</i>

DESCRIPTION: Sun Microsystems supplies network computing products, including desktop systems, storage subsystems, network switches, servers, software, microprocessors and a full range of services and support. Its software utilizes the UNIX operating system.

EMC (EMC-\$14.14) Buy 1

Target: \$16
Yield: 0.00%

KEY POINTS

- Strong storage fundamentals long-term, EMC well positioned as market leader
- Software could provide the hidden leverage
- Momentum in mid-range
- Competitive “bark” worse than bite – HDS & IBM
- Target of \$16 based on 3x EV/sales, which is at the lower end of historical trading ranges.

<u>FY End January</u>	<u>2004</u>	<u>2005E</u>	<u>2006E</u>
Revenue (Mil.)	\$8,229	\$9,588	\$10,765
% change	32%	17%	12%
Annual EPS	\$0.36	\$0.51	\$0.63
Growth rate	84%	41%	23%
L-T growth rate: 20%			
<i>Consensus</i>		\$0.51	\$0.62

DESCRIPTION: EMC designs, makes, markets and supports a wide range of storage related hardware, software and service products for the open systems, mainframe and network attached information storage and retrieval system market.

Apple (AAPL-\$40.74) Buy 2

Target: \$54
Yield: 0.00%

KEY POINTS

- Mac story taking shape
- Significant operating leverage
- Reinvigorated brand with “iPod Multiplier Effect”
- Valuation factors in cash and margin expansion potential
- Target of \$54 is based on EV/sales of slightly more than 2x

<u>FY End September</u>	<u>2004</u>	<u>2005E</u>	<u>2006E</u>
Revenue (Mil.)	\$8,279	\$13,772	\$16,127
% change	33%	66%	17%
Annual EPS	\$0.38	\$1.33	\$1.60
Growth rate	272%	250%	20%
L-T growth rate: 15-20%			
<i>Consensus</i>		\$1.31	\$1.51

DESCRIPTION: Apple designs, manufactures and markets microprocessor-based personal computers and related personal computing and communicating solutions for sale mainly to education, creative, home, business and government customers.

Risk Statement

Investing in technology stocks involves a high degree of risk because of rapid changes in technology and competitor actions. A significant portion of HPQ's revenue is exposed to the volatile enterprise hardware market and the company faces risk from other well-financed competitors who may possess certain critical intellectual property. Hewlett-Packard is also in the final phases of merging with Compaq and while the merger is mostly complete, additional restructuring is possible. Also, we believe Hewlett-Packard could initiate another acquisition or merger which could pose another layer of integration risk.

Our estimates of Hewlett-Packard's, Dell's and IBM's future business prospects include multiple variables, many of which are difficult if not impossible to determine with high degree of accuracy. And both company use Linux and license UNIX puts it in the crosshairs of recent litigation between The SCO Group and the Linux and UNIX community.

Hewlett-Packard's, Dell's and IBM's PC businesses faces formidable competition from each other and from other vendors. Hewlett-Packard's migration of all its server lines to Itanium poses significant transition risk as development efforts will require spending and there is no guarantee that existing customers will follow the company's product roadmap and migration agenda which could impact the revenue outlook in the enterprise space.

While IBM has a well developed global services offering, Hewlett-Packard is still in the early stages of building a services business which we believe is critical to the company's long term success. On the printer front, Hewlett-Packard's crown jewel printing business continues to gain share and make progress versus the competition and we note Dell's entry into the space as a potential game changer two to three years out. All three of the above mentioned companies have financing business (or interests in a financing business) that are subject to interest rate risk and credit risk. And the company's international presence makes them subject to currency fluctuations and other geopolitical risks.

The companies mentioned are subject to risks associated with sales of technology hardware that can be quite volatile. In addition, the companies all have significant overseas exposure and are subject to international currency risks. IBM and HP are in the process of integrating acquisitions, which can also sometimes lead to volatility in performance if goals are not met. The technology services businesses at these companies also face competition from lower cost geographies, where computer programmers and call center employees cost far less. IBM, Dell and HP all have significant investments in the open source movement or Linux. SCO Systems is suing IBM for patent infringement claiming that Linux software sold by IBM contains pieces of Unix code under contract by SCO. Microsoft has signed a deal to license Unix from SCO, attempting to legitimize SCO's claims. We cannot predict the outcome of this lawsuit and its impact on proliferation of the Linux operating system, which is key to server growth at all of the companies mentioned above. While our experience and research leads us to believe that the SCO situation may turn out to be immaterial, we are watching it closely and the outcome could impact the hardware sector.

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UBS rating	Definition	UBS rating	Definition	Rating category	Coverage ¹	IB services ²
Buy 1	FSR is > 10% above the MRA, higher degree of predictability	Buy 2	FSR is > 10% above the MRA, lower degree of predictability	Buy	37%	30%
Neutral 1	FSR is between -10% and 10% of the MRA, higher degree of predictability	Neutral 2	FSR is between -10% and 10% of the MRA, lower degree of predictability	Hold/Neutral	52%	32%
Reduce 1	FSR is > 10% below the MRA, higher degree of predictability	Reduce 2	FSR is > 10% below the MRA, lower degree of predictability	Sell	11%	25%

1: Percentage of companies under coverage globally within this rating category.

2: Percentage of companies within this rating category for which investment banking (IB) services were provided within the past 12 months.

Source: UBS; as of 31 March 2005.

KEY DEFINITIONS

Forecast Stock Return (FSR) is defined as expected percentage price appreciation plus gross dividend yield over the next 12 months.

Market Return Assumption (MRA) is defined as the one-year local market interest rate plus 5% (an approximation of the equity risk premium).

Predictability Level The predictability level indicates an analyst's conviction in the FSR. A predictability level of '1' means that the analyst's estimate of FSR is in the middle of a narrower, or smaller, range of possibilities. A predictability level of '2' means that the analyst's estimate of FSR is in the middle of a broader, or larger, range of possibilities.

Under Review (UR) Stocks may be flagged as UR by the analyst, indicating that the stock's price target and/or rating are subject to possible change in the near term, usually in response to an event that may affect the investment case or valuation.

Rating/Return Divergence (RRD) This qualifier is automatically appended to the rating when stock price movement has caused the prevailing rating to differ from that which would be assigned according to the rating system and will be removed when there is no longer a divergence, either through market movement or analyst intervention.

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Global ratings: Definitions and allocations (continued)

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Companies Mentioned – Ratings & Prices

Company Name	Reuters	Rating	Price	Price date/time
Apple Computer Inc. ^{8,16}	AAPL.O	Buy 2	US\$40.74	26 May 2005 19:36 EDT
Dell Inc. ^{4a,6c,6a,6b,7,16,22}	DELL.O	Buy 1 (RRD)	US\$40.40	26 May 2005 19:36 EDT
EMC Corporation ^{4b,6a,6b,7,16,22}	EMC.N	Buy 1 (RRD)	US\$14.14	26 May 2005 19:36 EDT
Hewlett-Packard Co. ^{4b,6a,7,16}	HPQ.N	Neutral 2	US\$23.00	26 May 2005 19:36 EDT
IBM Corp. ^{2,3,4a,5,6a,6b,7,16,22}	IBM.N	Buy 1	US\$77.14	26 May 2005 19:36 EDT
Sun Microsystems ¹⁶	SUNW.O	Neutral 2	US\$3.82	26 May 2005 19:36 EDT

Source: UBS. EDT: Eastern daylight time.

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