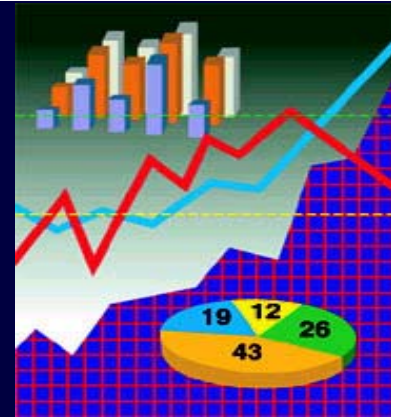


World Market Trends & Challenges



WALT CUSTER
CUSTER CONSULTING GROUP
www.custerconsulting.com
October 2004

Historical Review

2000 - "Bubble demand", double ordering & inventory building

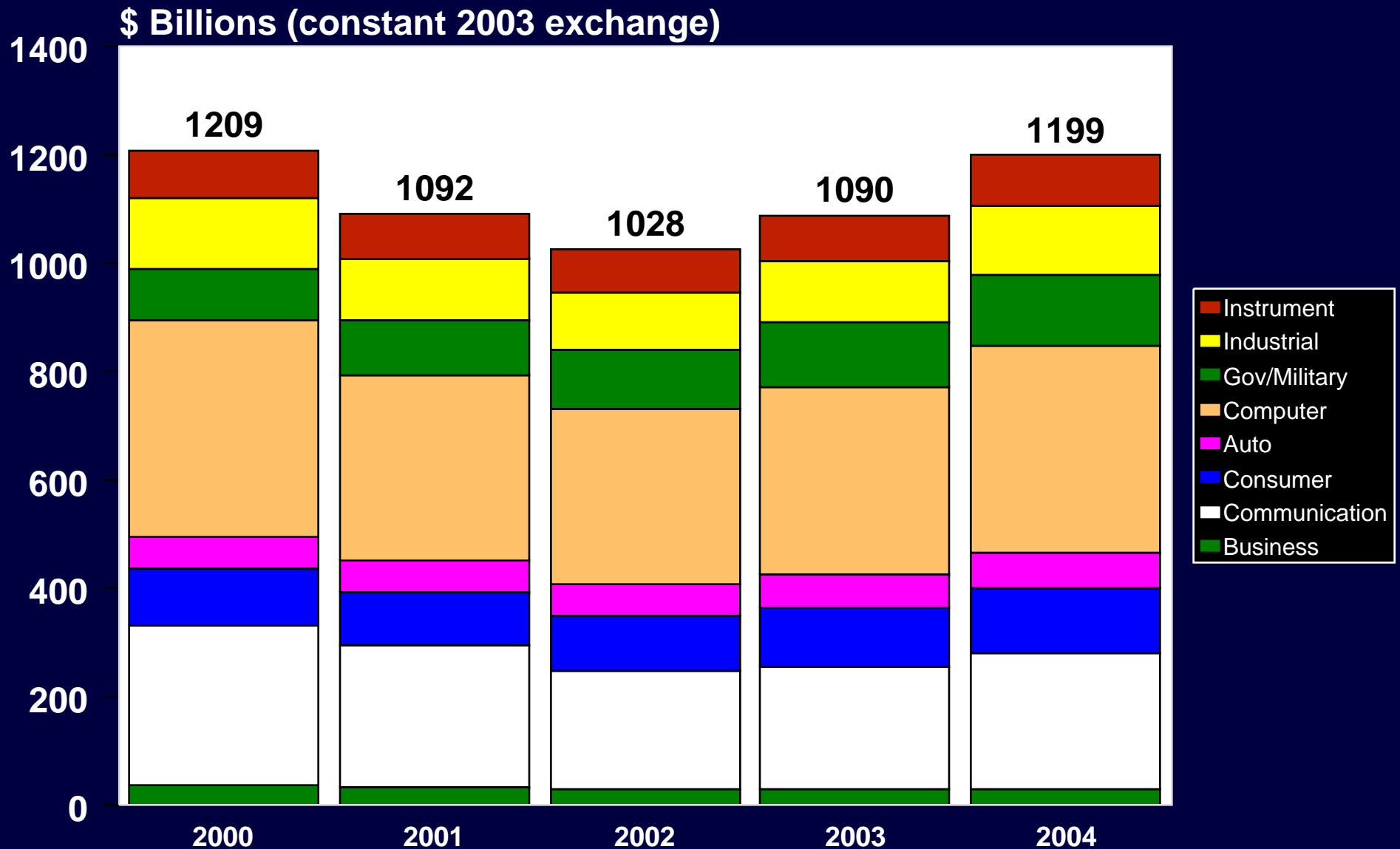
2001 - Dot.com & telecom crash, sharply lower demand, inventory reductions, Sept 11

2002 - declining demand, shift to Asia, N. American & European PCB shutdowns & massive China buildup, overcapacity & price degradation throughout supply chain; strong US\$ vs euro & GBP

2003 - Initial modest improvements slowed by war worries & SARS; recovery accelerated in late 2003; weak US\$; Communications orders drop in Nov/Dec

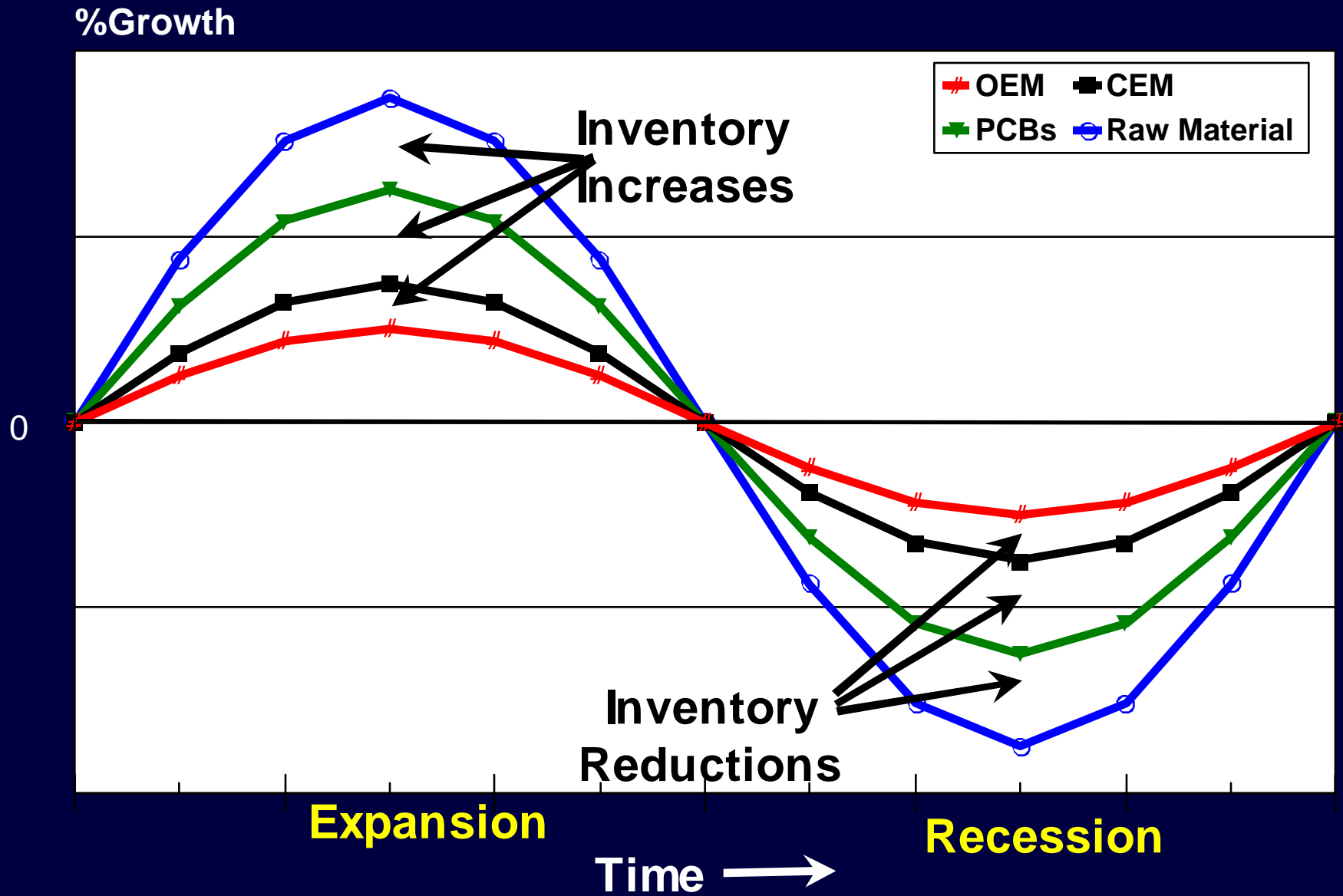
2004 - Strong 1Q'04 - probably with over-ordering & inventory building; Downward "correction" in 2Q'04; Modest

World Electronic Equipment Production by Type



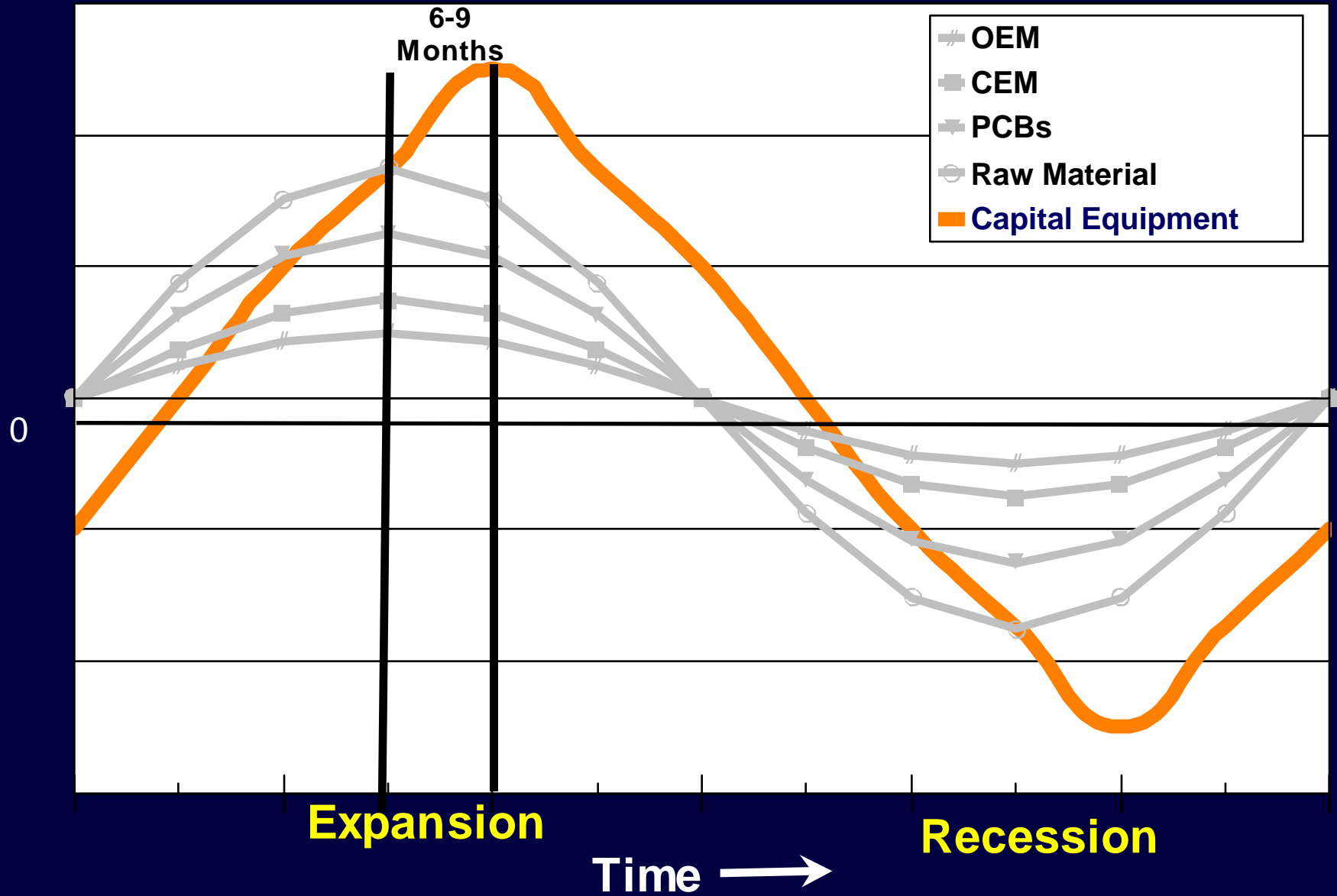
BUSINESS CYCLE

SUPPLY CHAIN EFFECT



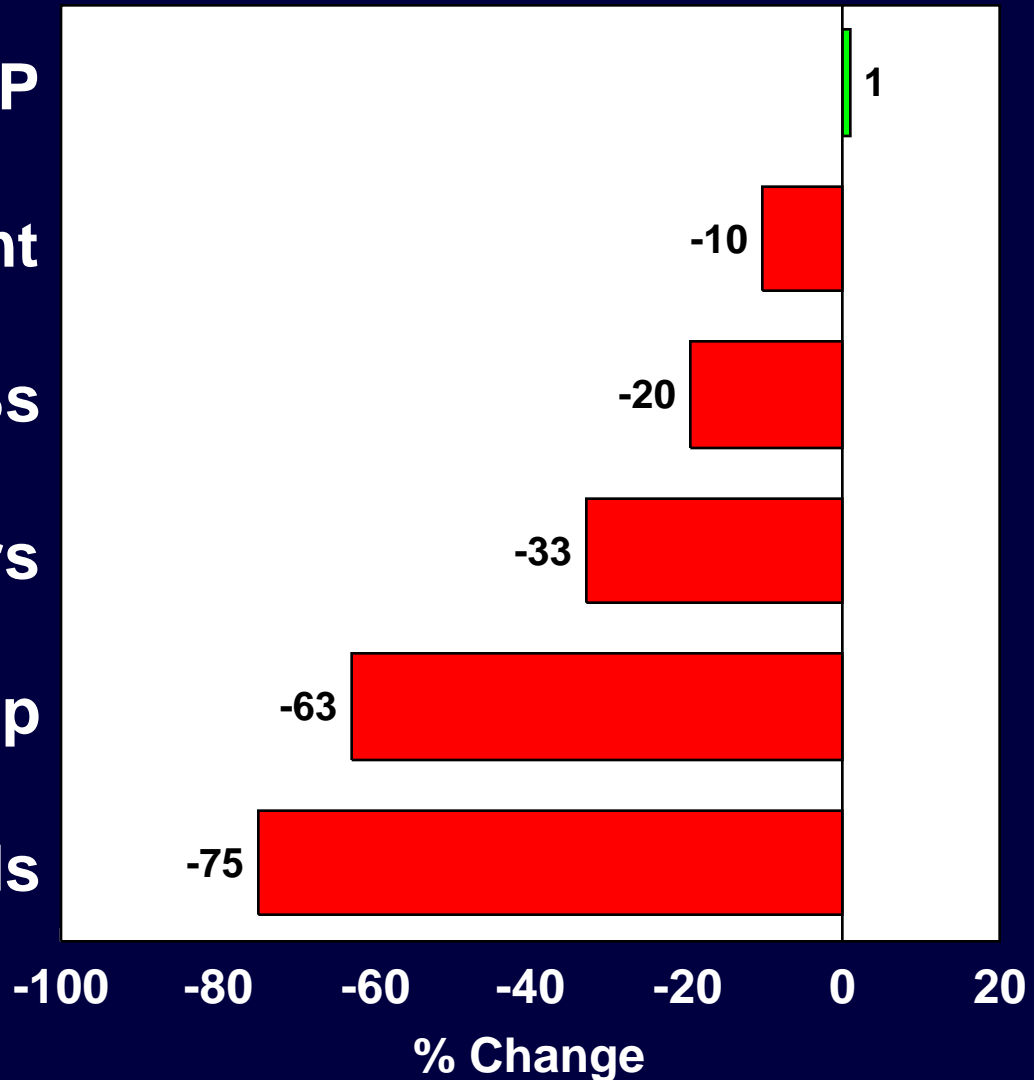
BUSINESS CYCLE

Process Equipment Phase Shift

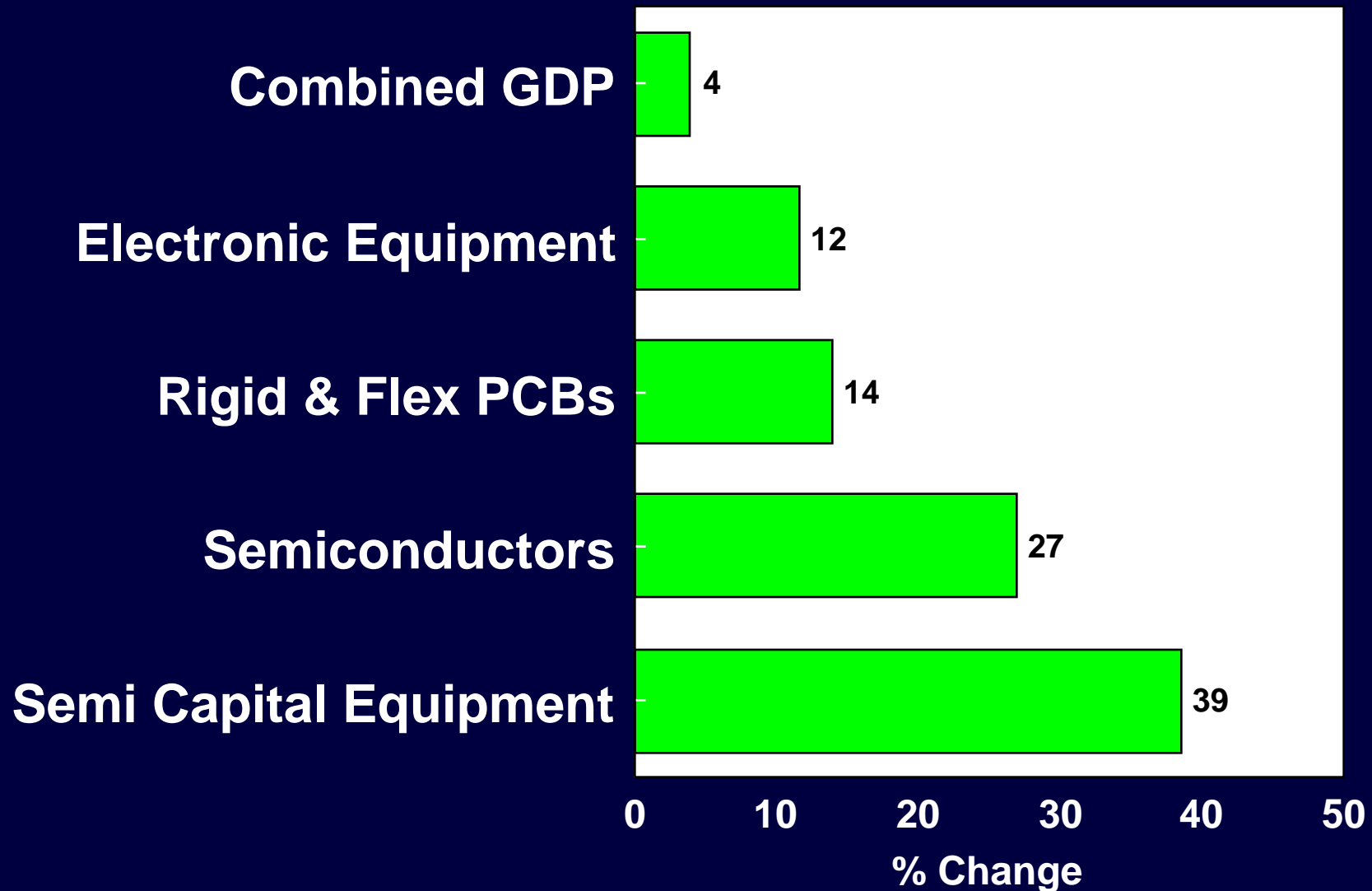


Global Impact 2001 vs 2000

Combined GDP
Electronic Equipment
Rigid & Flex PCBs
Semiconductors
Semi Capital Equip
DRAMs



Global "Electronic Foodchain" Outlook 2004 vs 2003



Current Electronics Situation

INDUSTRIAL PRODUCTION - WORLD

% CHANGE vs ONE YEAR EARLIER

BRITAIN	+0.1 July
CZECH REPUBLIC	+11.0 July
FRANCE	+2.5 July
GERMANY	+2.2 July
ITALY	-1.2 July
NETHERLANDS	+0.2 July
RUSSIA	+6.8 Aug
SPAIN	+0.4 July
EURO area	+2.7 June
CANADA	+5.0 June
USA	+5.2 Aug
CHINA	+15.9 Aug
MALAYSIA	+9.9 July
PHILLIPPINES	+2.7 June
SINGAPORE	+19.0 July
S KOREA	+12.8 July
TAIWAN	+9.5 July
THAILAND	+9.3 July
JAPAN	+5.9 July

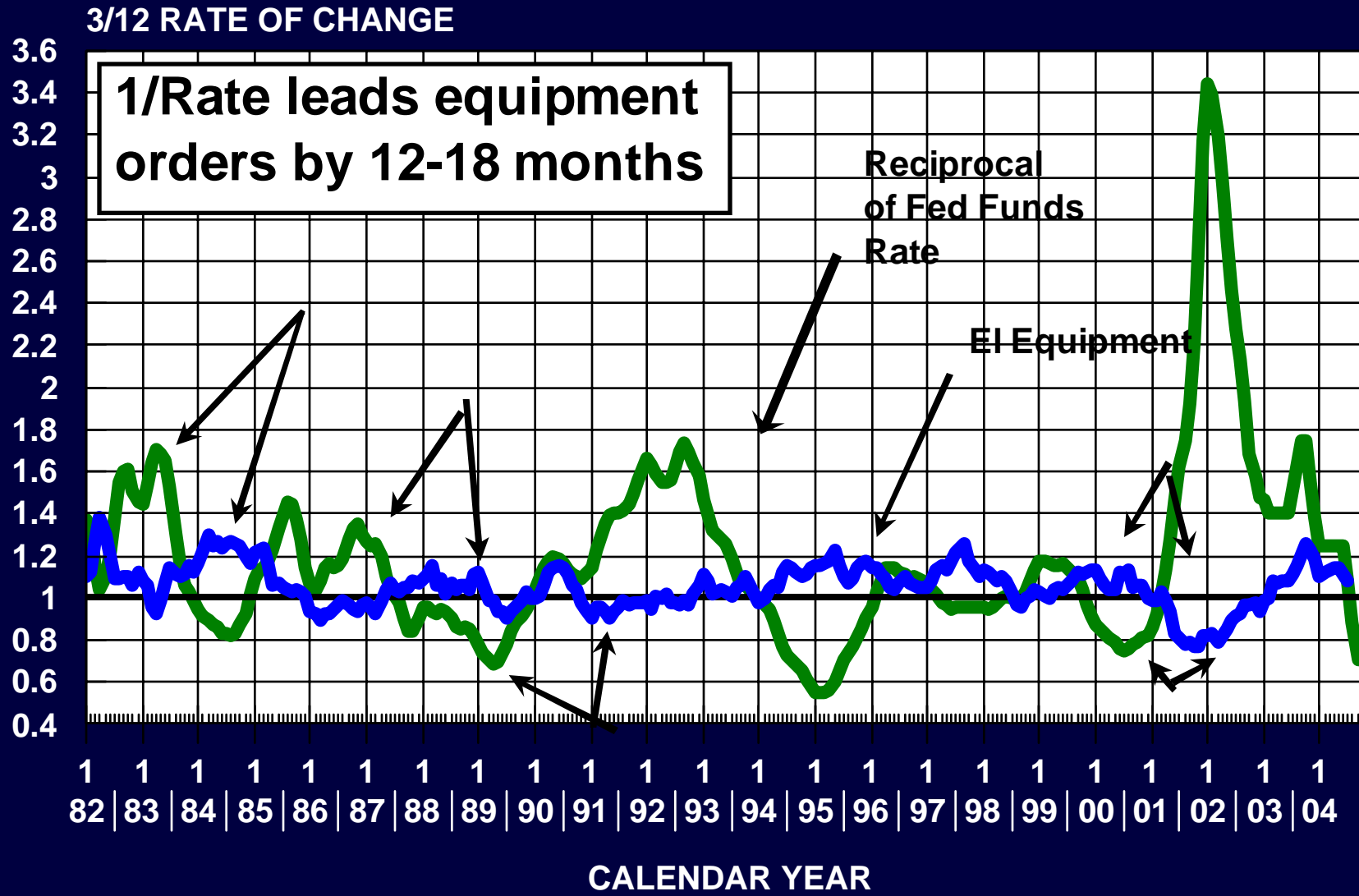
Spot Oil Prices

W Texas Intermediate Crude



<http://research.stlouisfed.org/fred/data/business/oilprice>

Electronic Equipment Orders vs Interest Rates



Data: Dept of Commerce & U.S. Federal Reserve Board
<http://www.federalreserve.gov/releases/h15/data.htm>

Exchange Rates

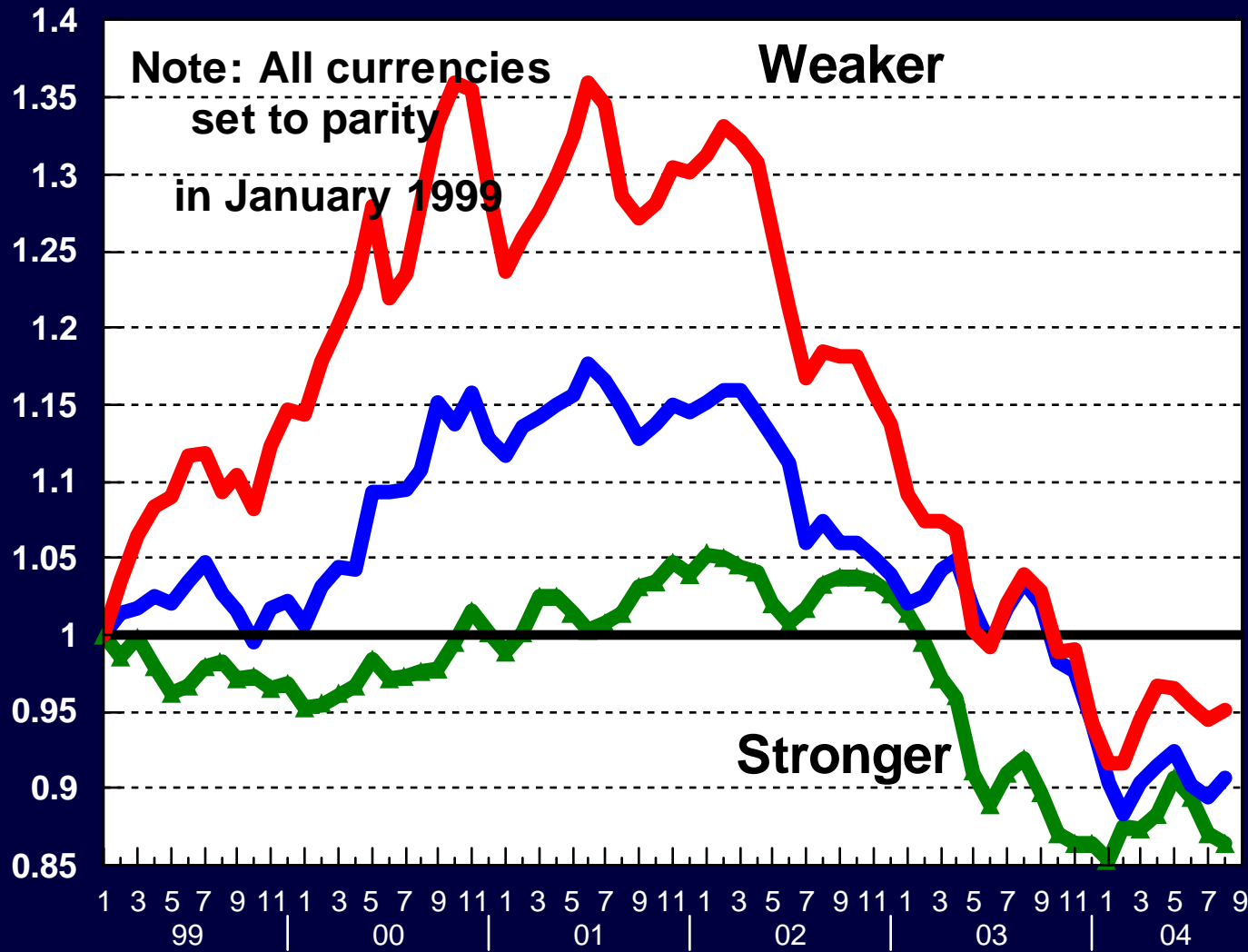
Key European Exchange Rates vs US\$ & China Yuan

1/99 = 1.00

37% change in euro

25% change in GBP

17% change in Canadian \$

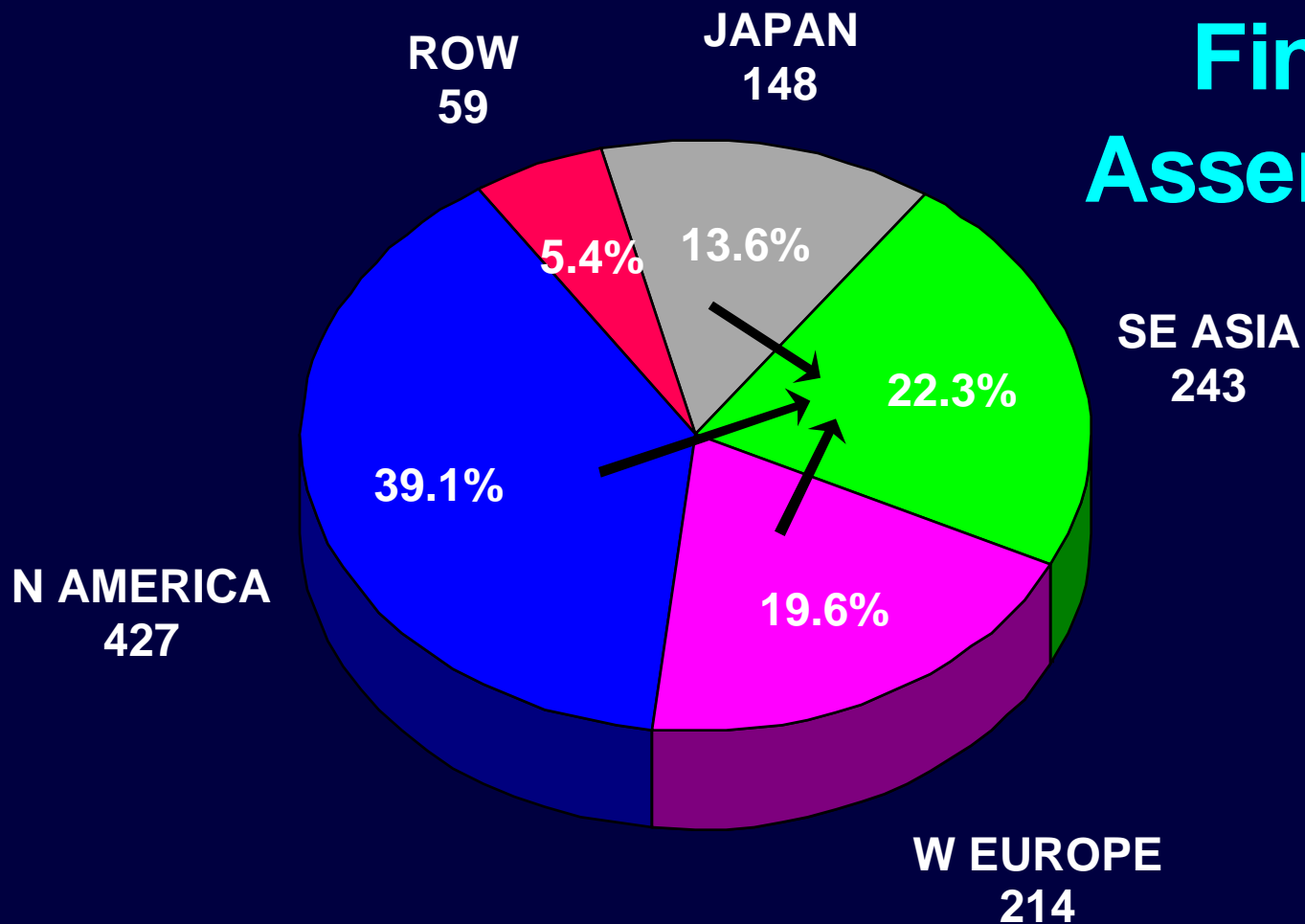


Electronic Equipment

WORLD ELECTRONIC EQUIPMENT PRODUCTION

2003

**Final
Assembly**

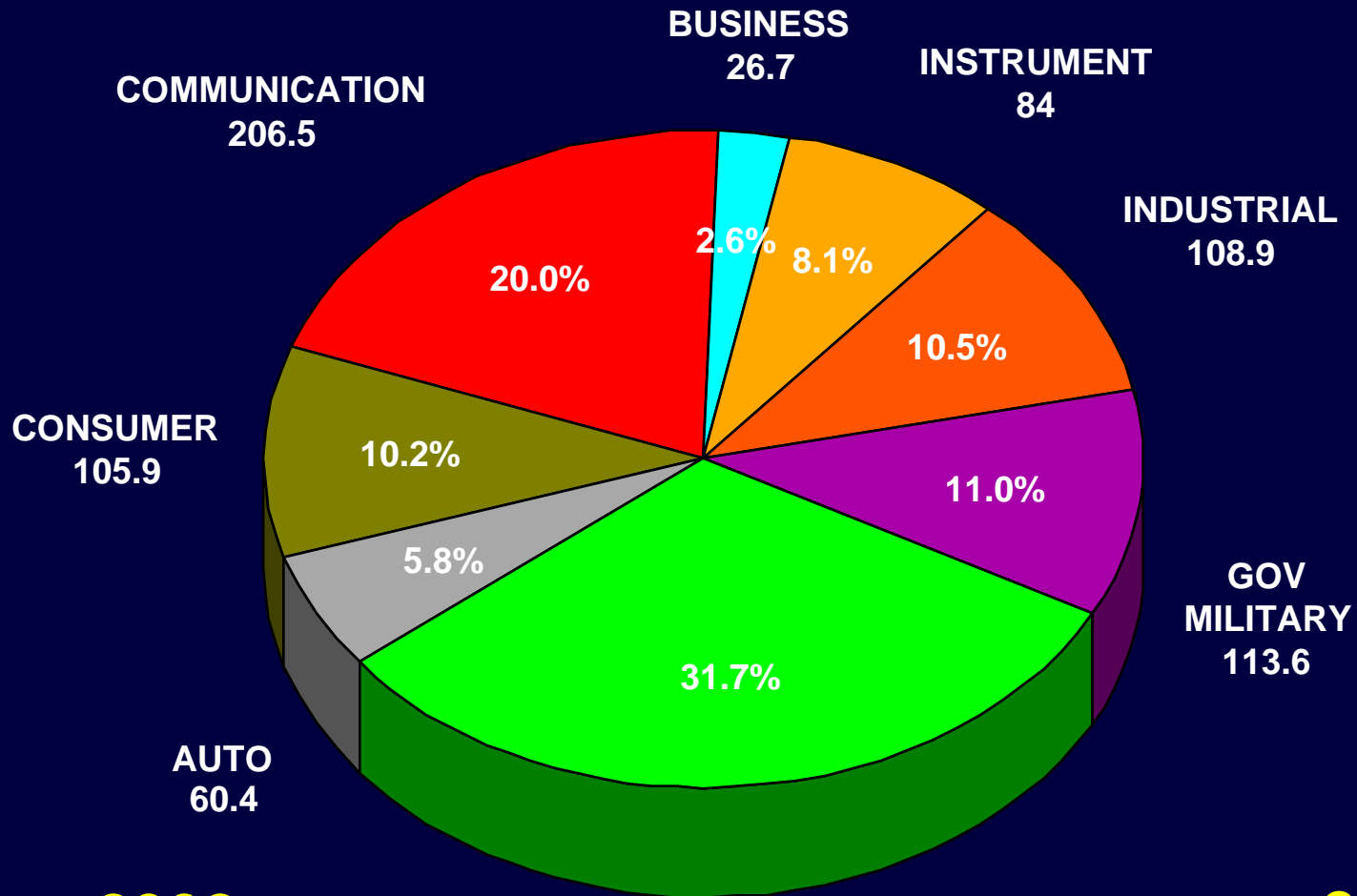


Electronic Outlook
3/04

TOTAL \$1090 Billion

WORLD EQUIPMENT PRODUCTION

2003



2002
\$1027 B

6.1%

COMPUTER
327.6

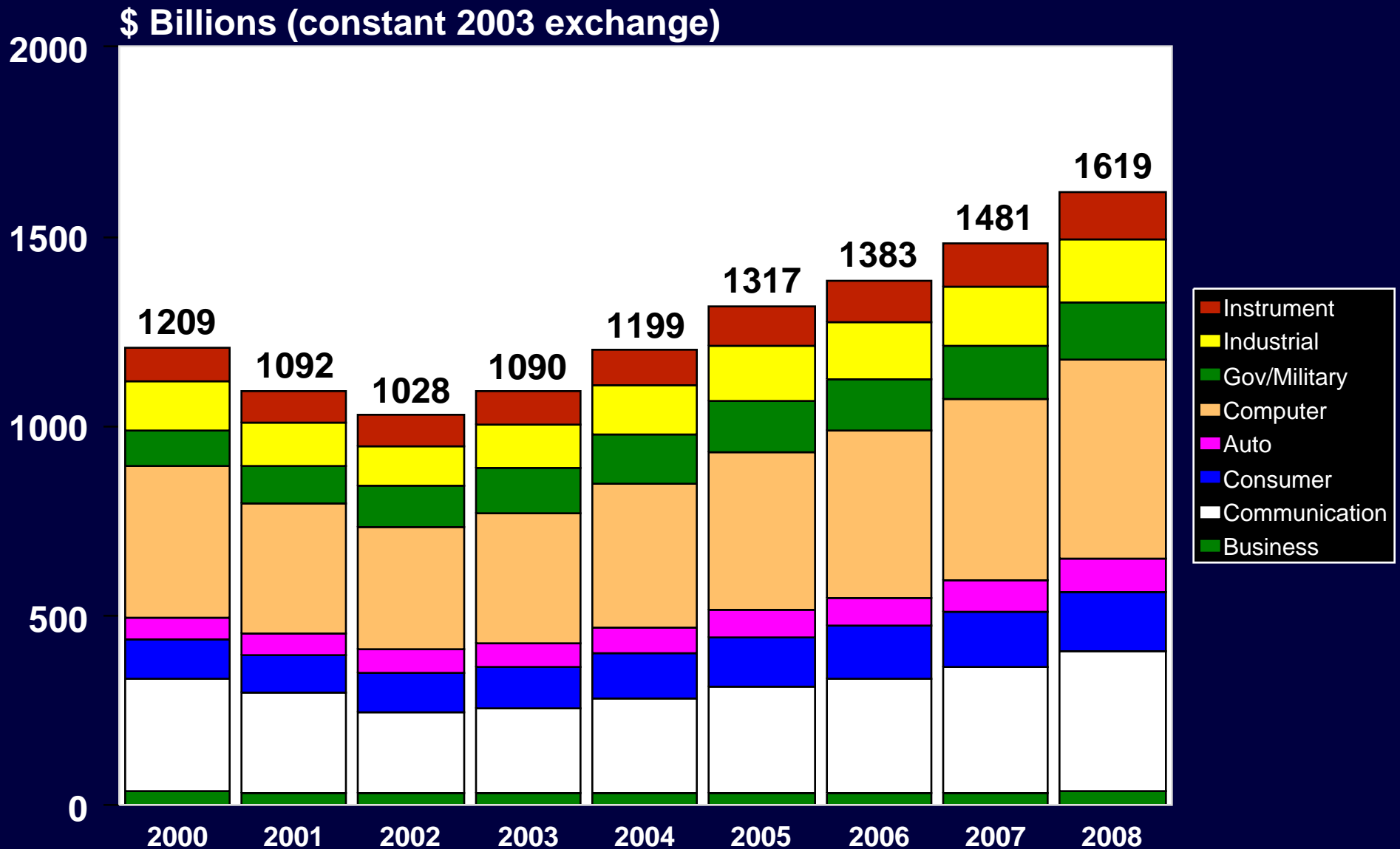
+10.0%

2004
\$1,199B

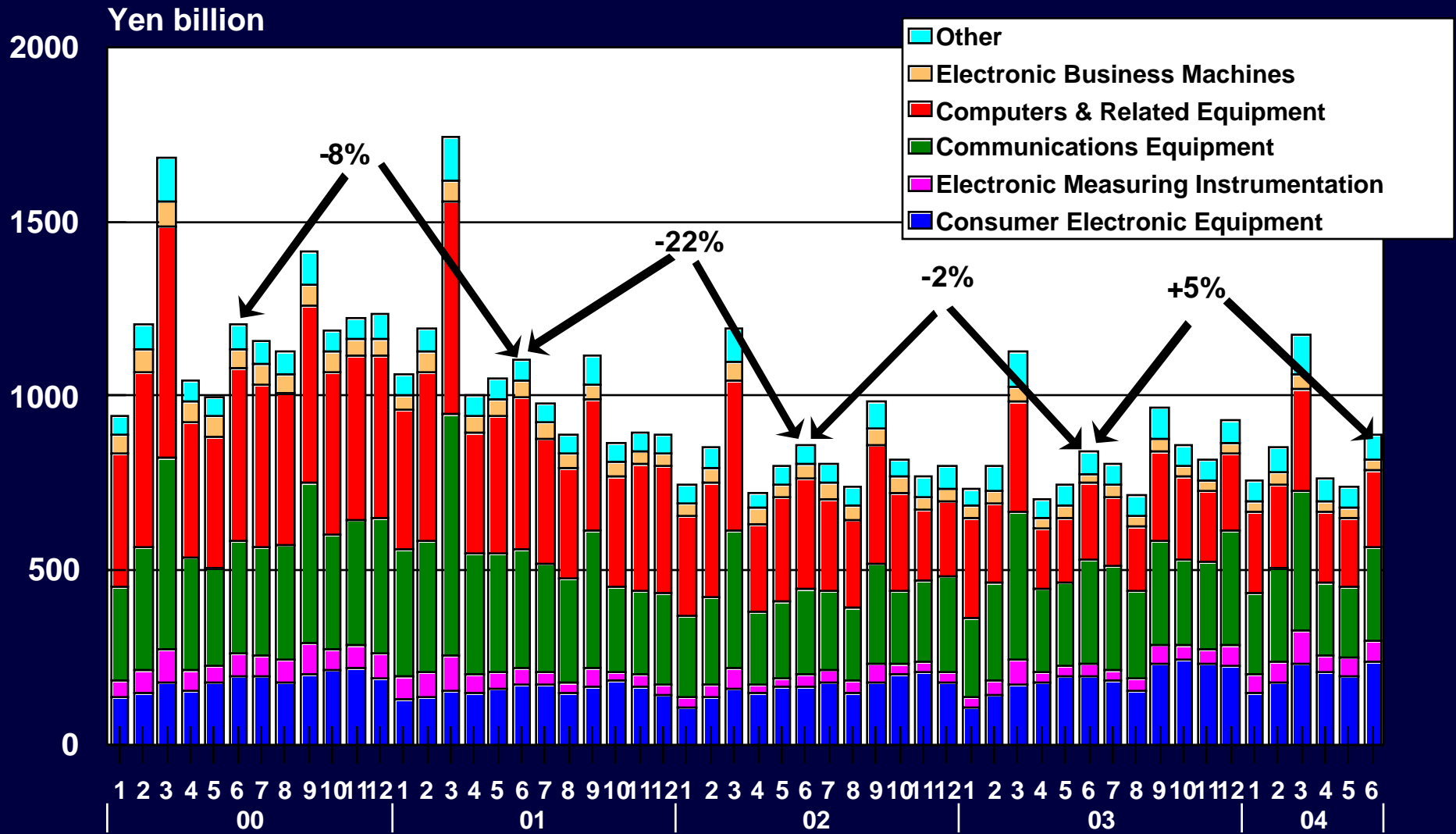
Electronic Outlook 3/04

TOTAL \$1090 B

World Electronic Equipment Production by Type



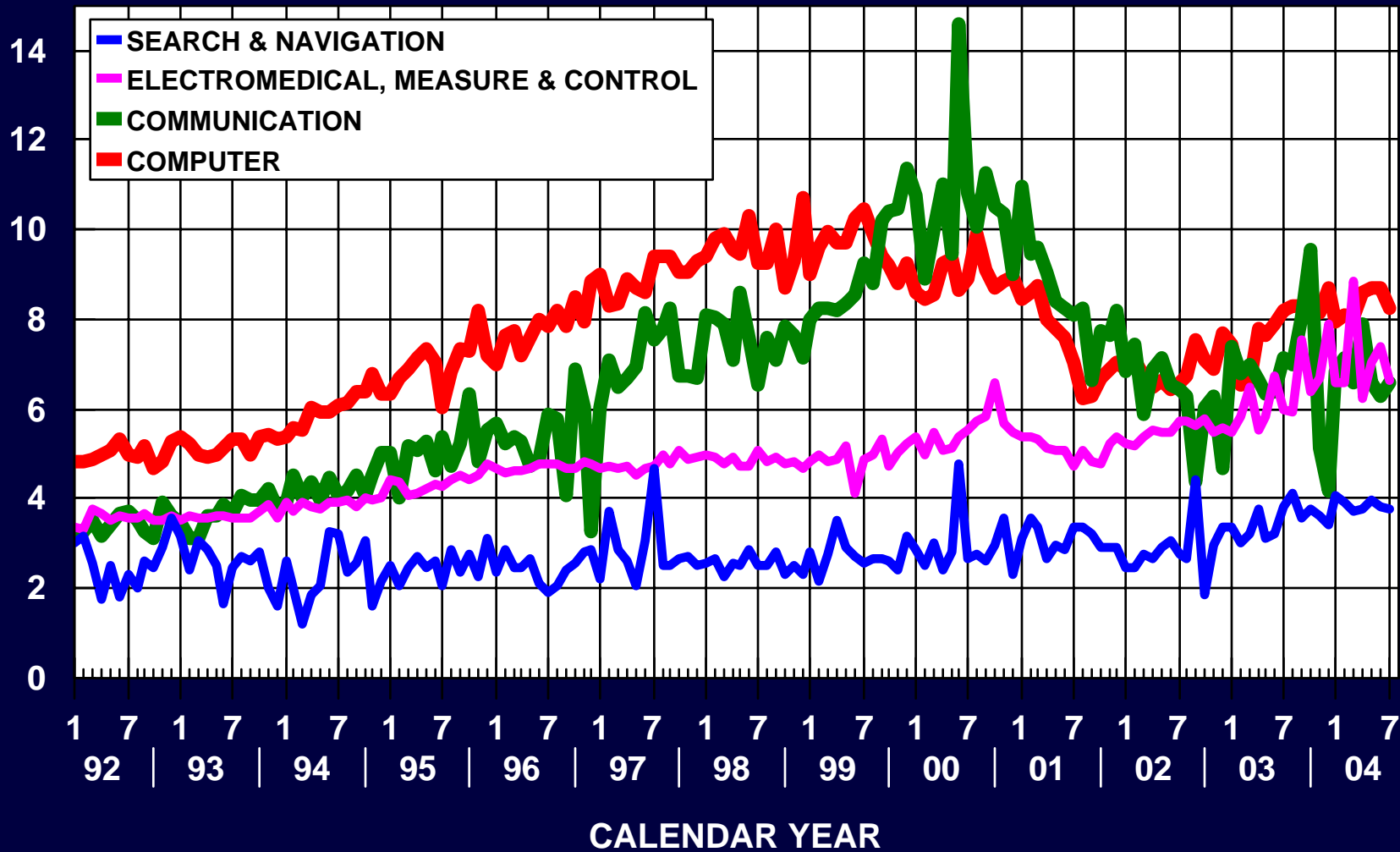
Japan Electronic Equipment Production



US Electronic Equipment Orders

Monthly Data

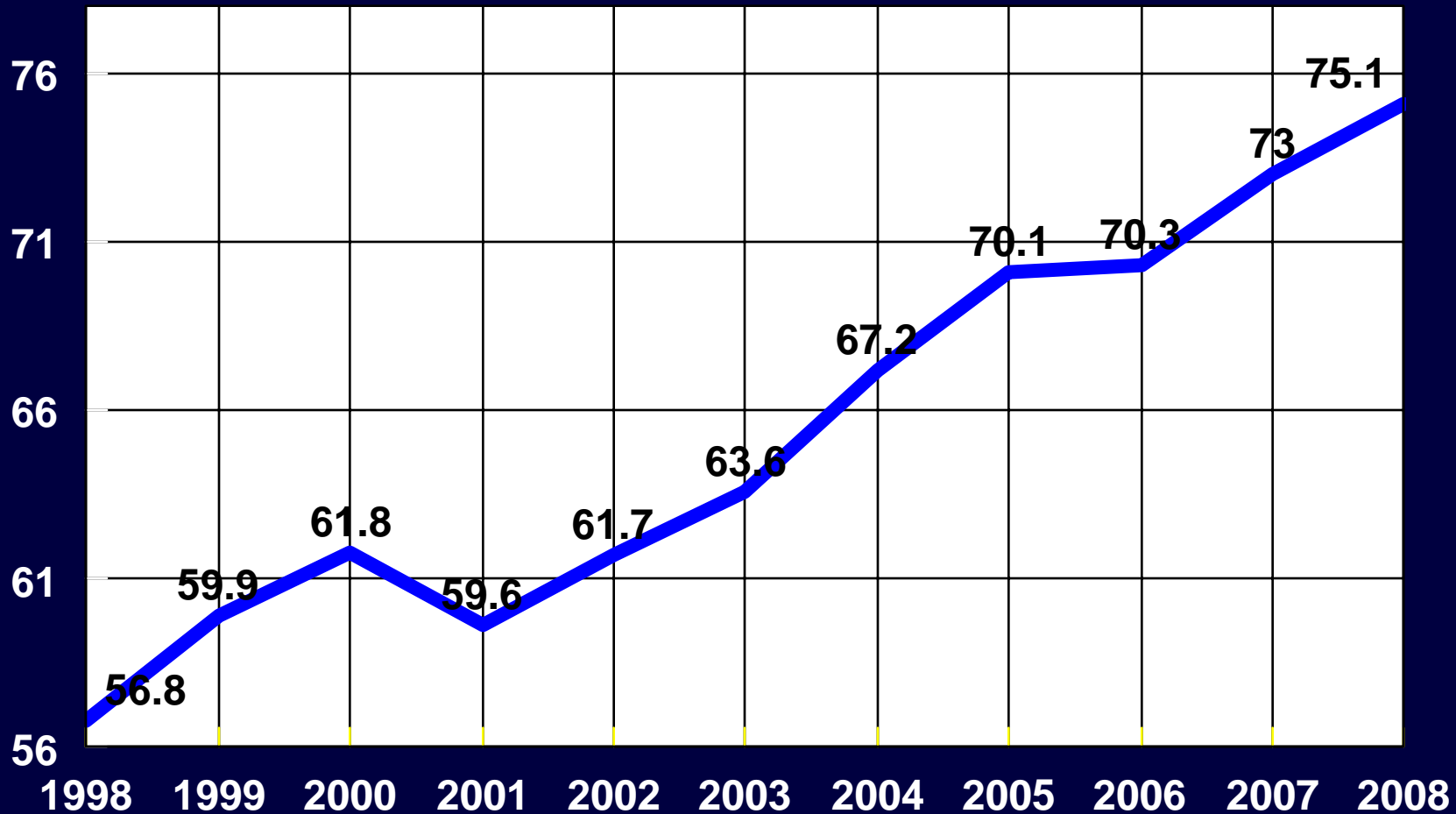
\$ B (Seasonally Adjusted)



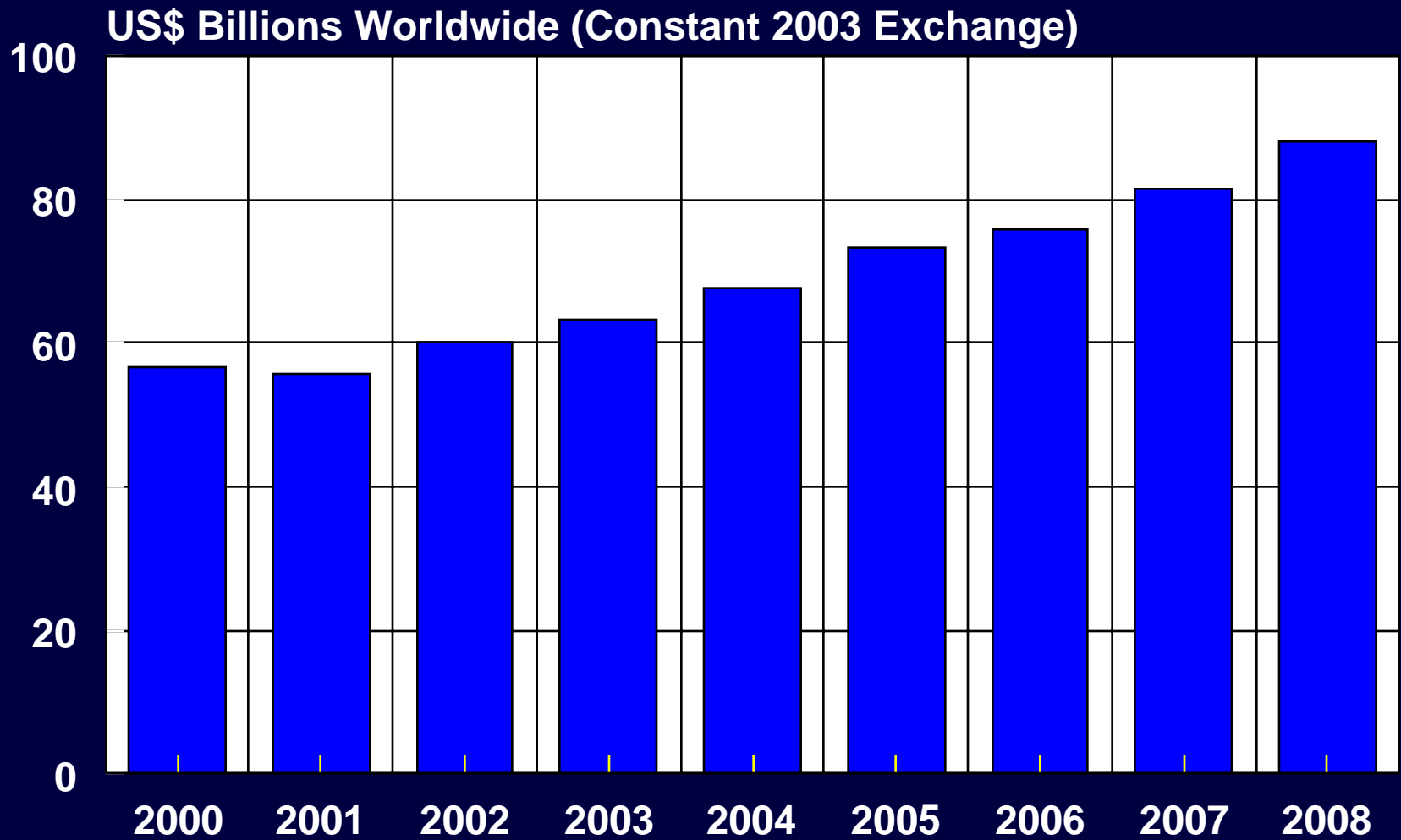
Automotive Electronics

World Motor Vehicle & Automotive Production

UNITS (Millions)



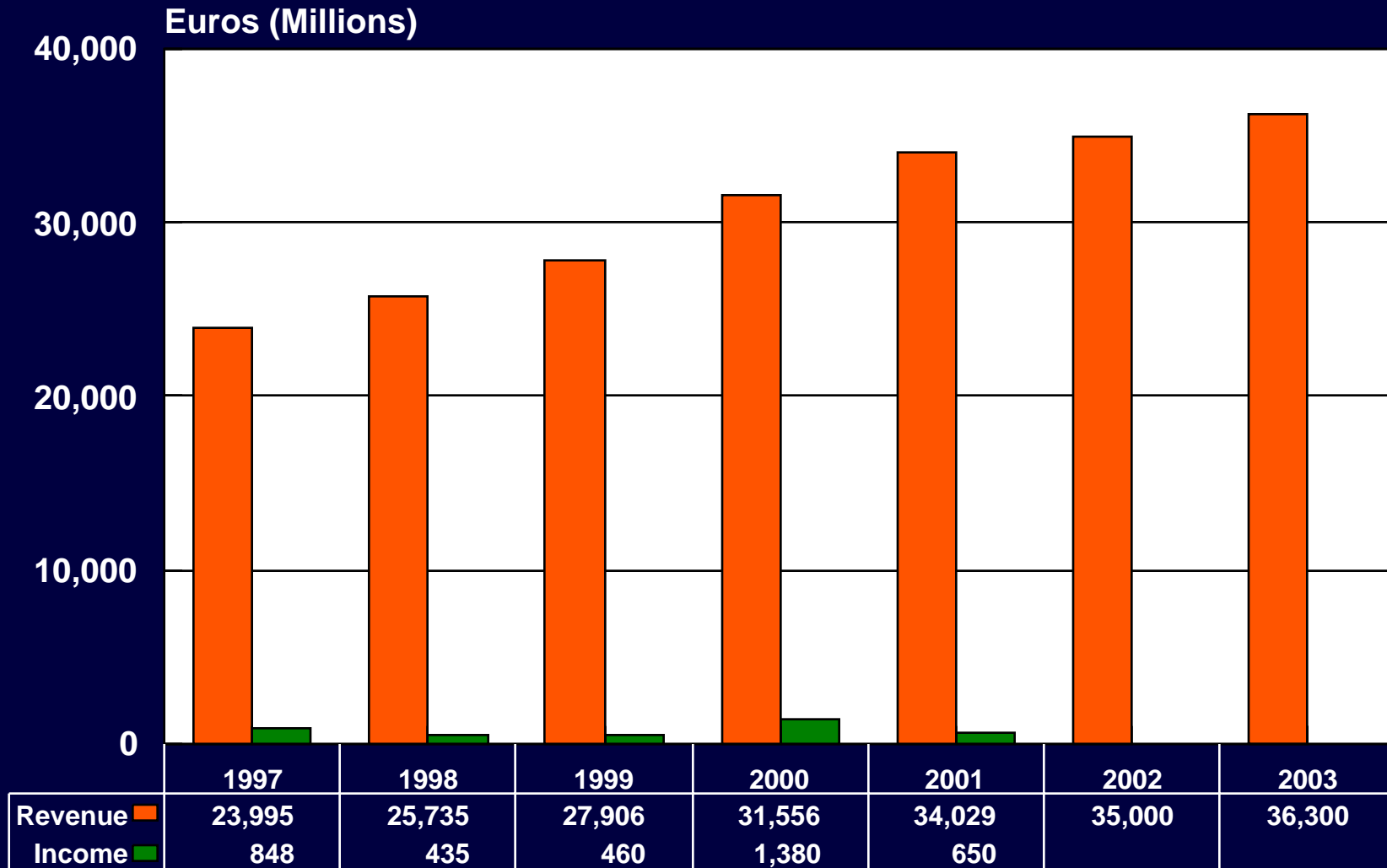
Auto Electronics



Robert Bosch GmbH

Revenue & Net Income

"Contrary to last year, business this year is taking off with an economic tail wind. Things are looking up in Asia and America, the economic slump in Europe has now bottomed out." 29 Jan 2004

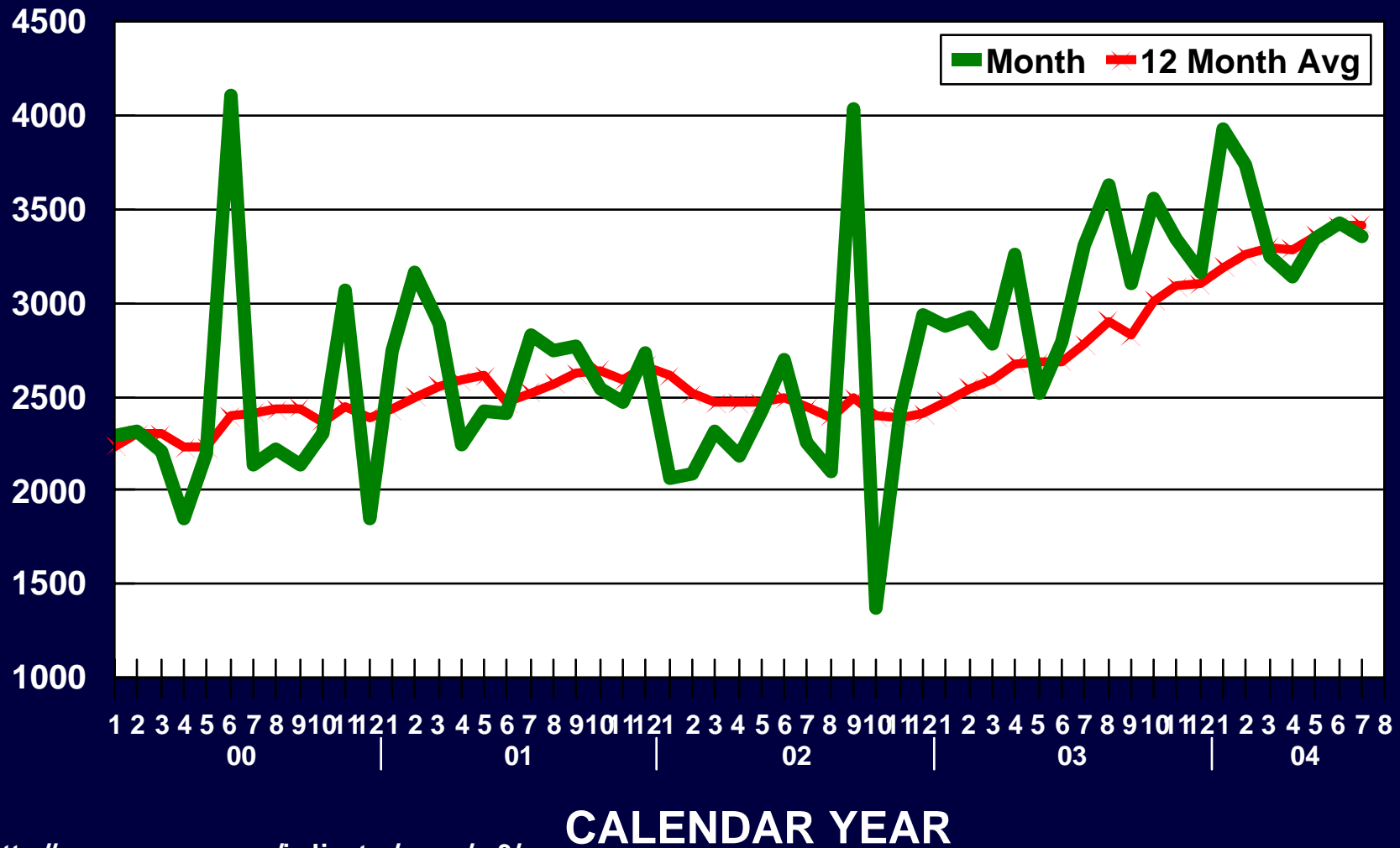


CY

Government & Military Electronics

U.S. Military Electronics Orders

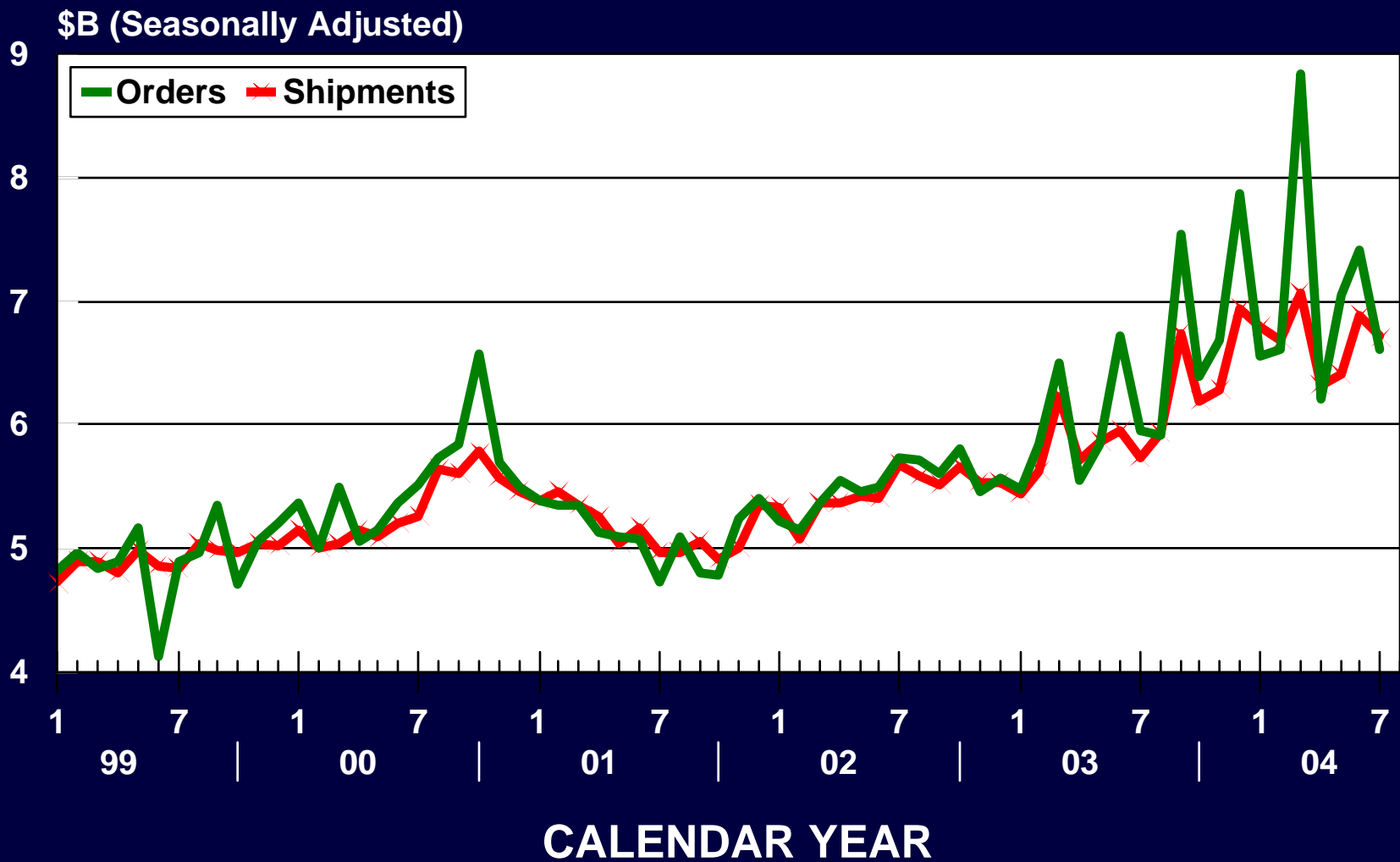
Defense Search & Navigation and Communications Equipment



Instruments & Control Equipment

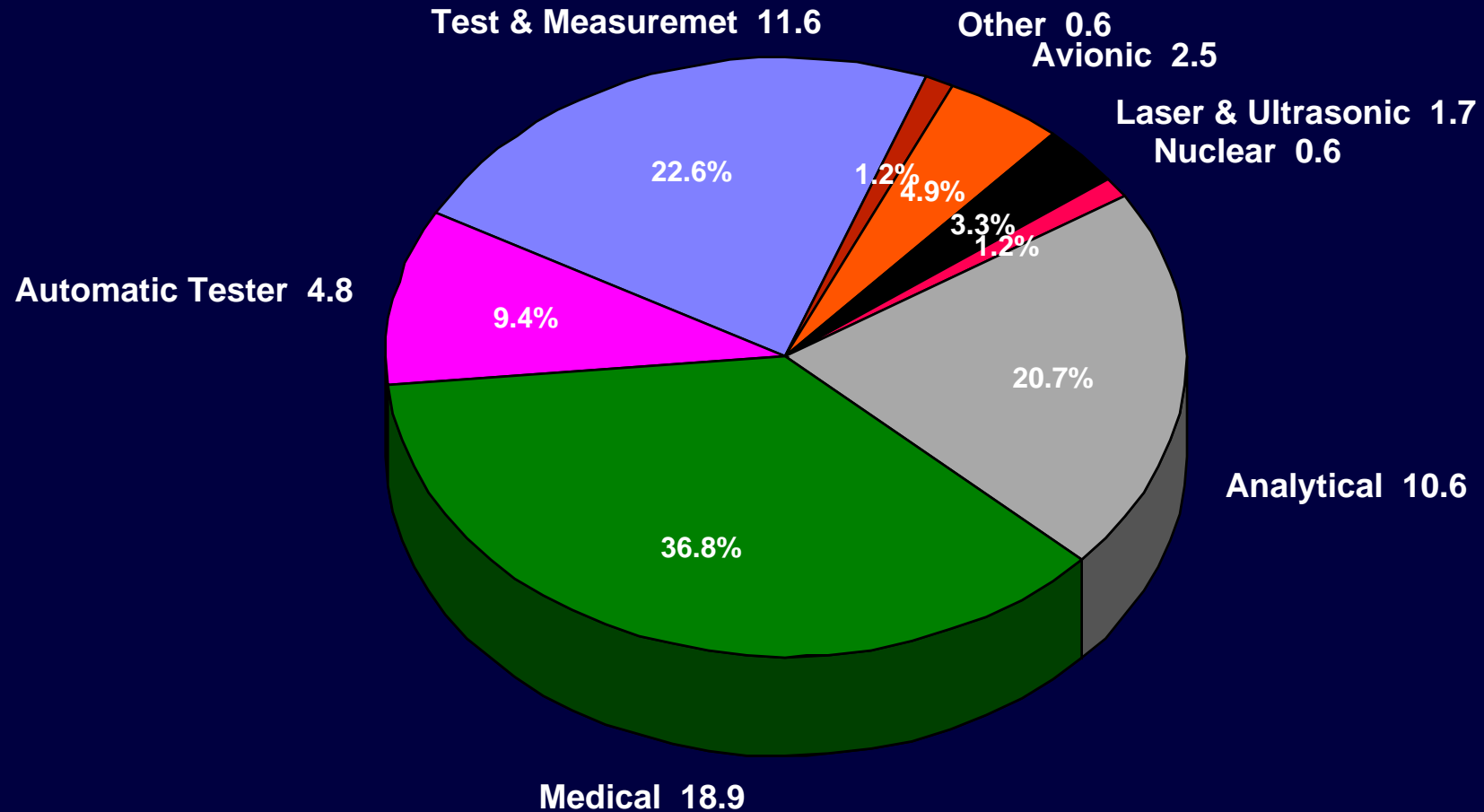
ELECTROMEDICAL, MEASUREMENT & CONTROL EQUIPMENT

Orders & Shipments



INSTRUMENTATION EQUIPMENT PRODUCTION

U.S. - 2003



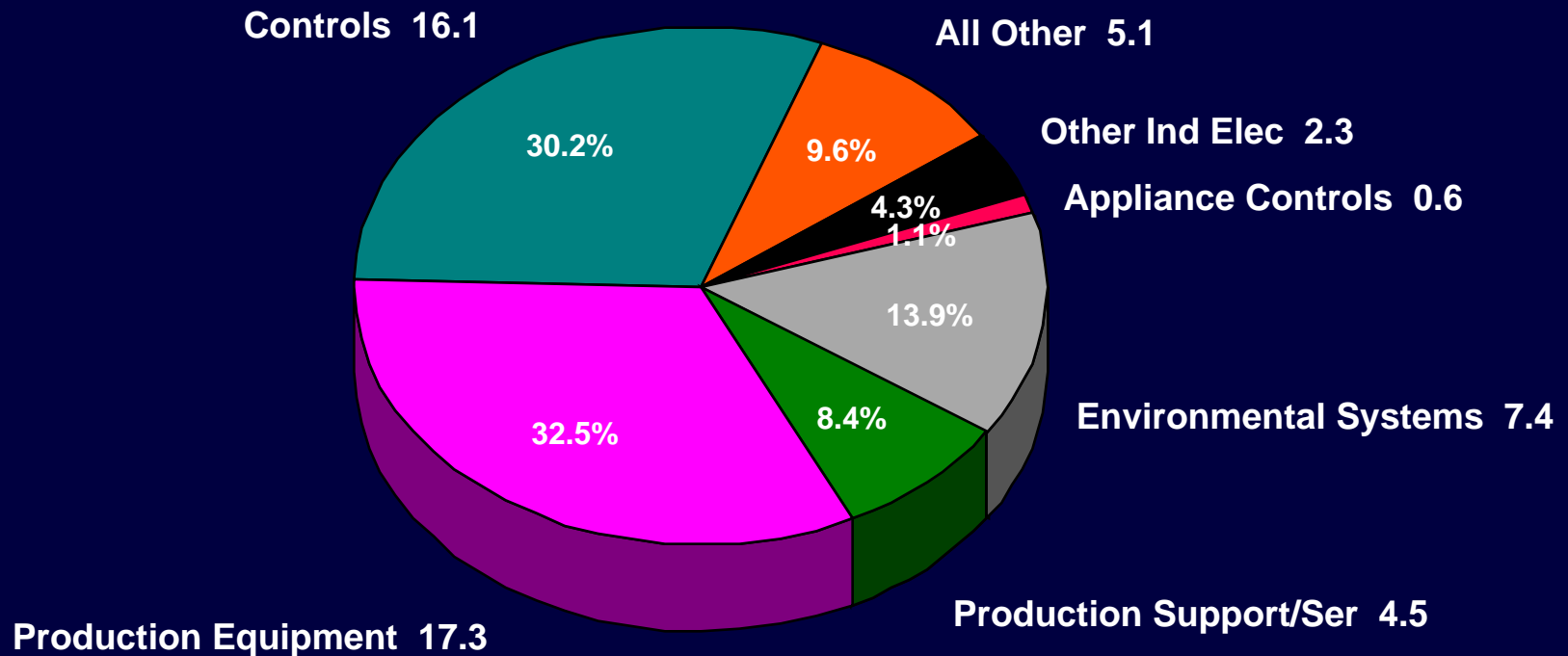
TOTAL: \$51.3 Billion

Electronic Outlook 3/2004

Note: Similar data available for other electronic equipment sectors

INDUSTRIAL ELECTRONICS PRODUCTION

U.S. - 2003



TOTAL: \$53.4 Billion

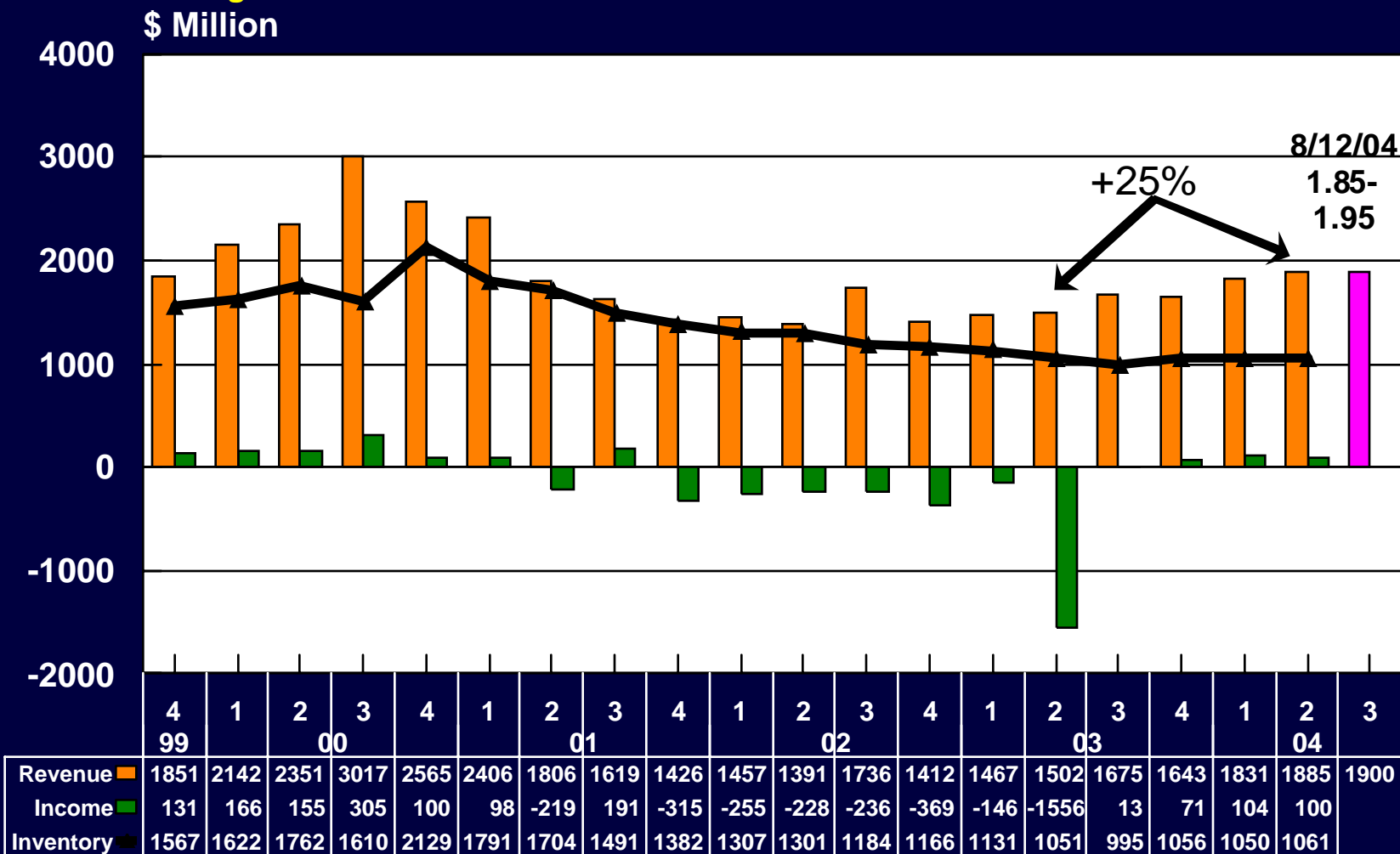
Electronic Outlook 3/2004

Note: Similar data available for other electronic equipment sectors

Agilent Technologies

Revenue, Net Income & Inventory

"We are pleased with the sustained momentum we are seeing in our Test and Measurement and our Life Sciences and Chemical Analysis segments. But, we are also seeing a pause in Agilent's semiconductor and semiconductor equipment businesses that may continue through year-end before we see renewed growth in fiscal 2005." 8/12/04

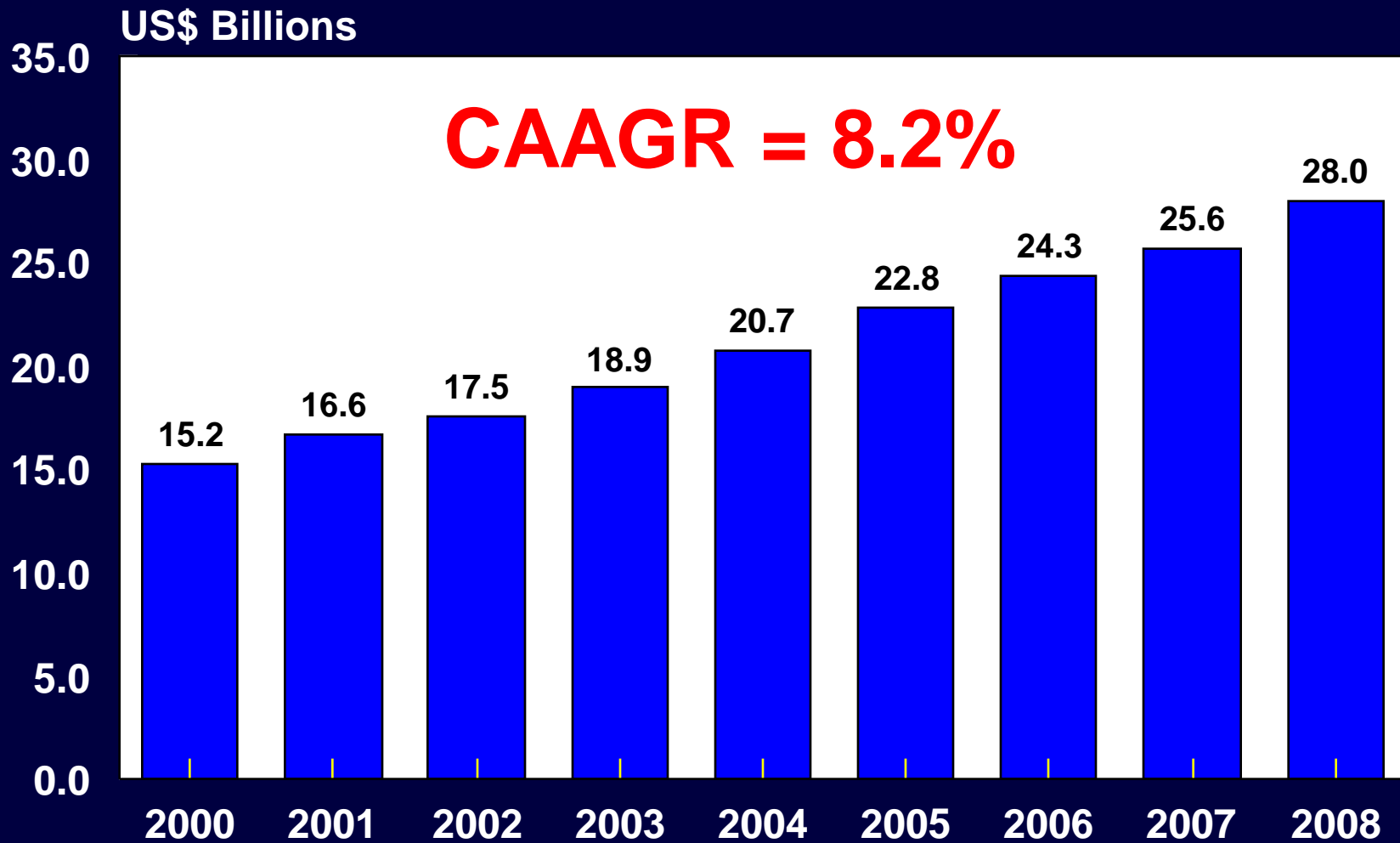


FY ends Oct31

CY

A

U.S. Medical Instrument Shipments

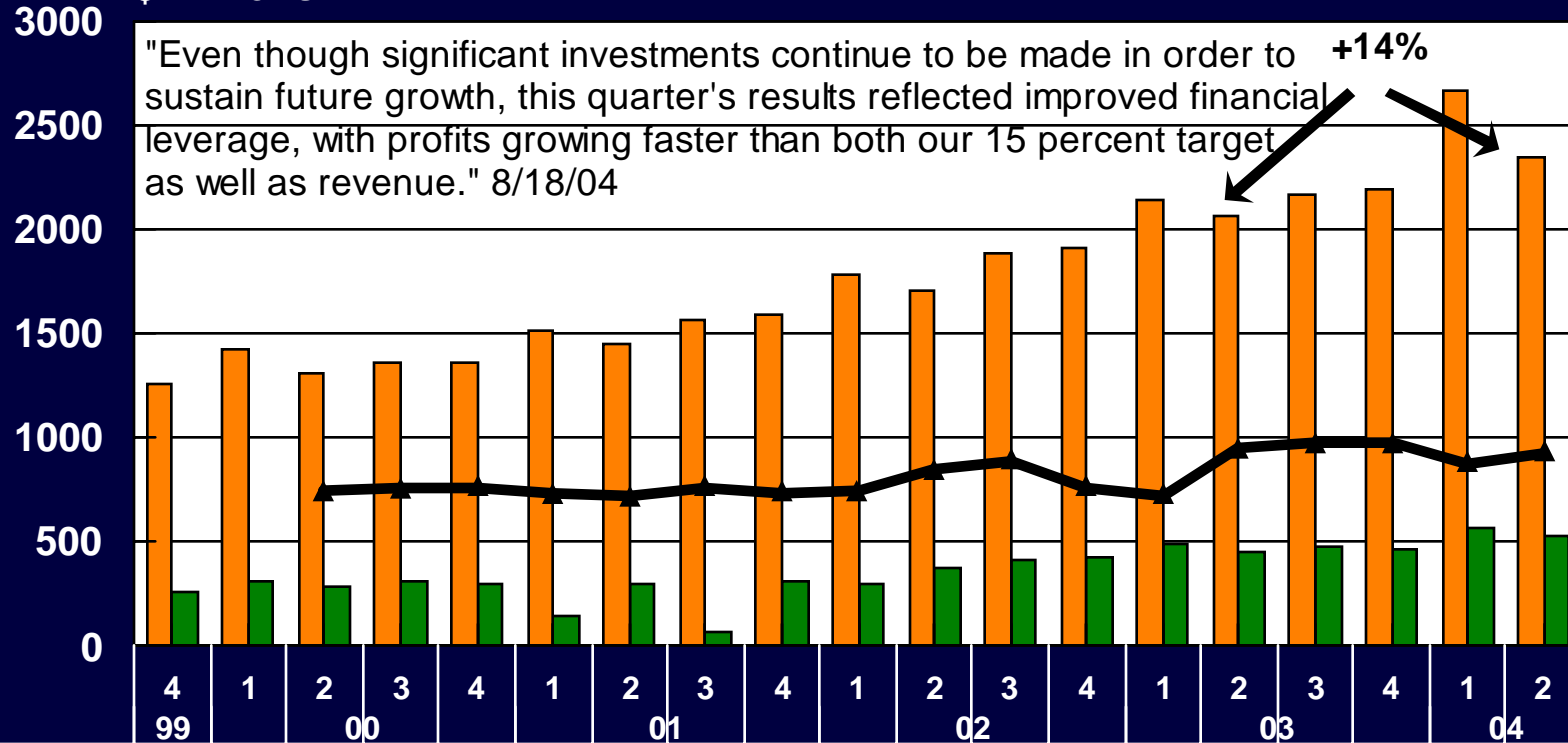


Electronic Outlook 3/2004

Medtronic Inc

Revenue, Net Income & Inventory

\$ Millions



	4 99	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
Revenue	1259	1433	1310	1362	1362	1518	1456	1571	1592	1792	1714	1891	1913	2148	2064	2164	2195	2665	2346
Income	260	318	284	309	303	150	302	67	315	301	383	416	428	487	450	476	464	569	530
Inventory			751	755	764	730	718	763	738	748	851	894	763	728	950	978	976	878	932

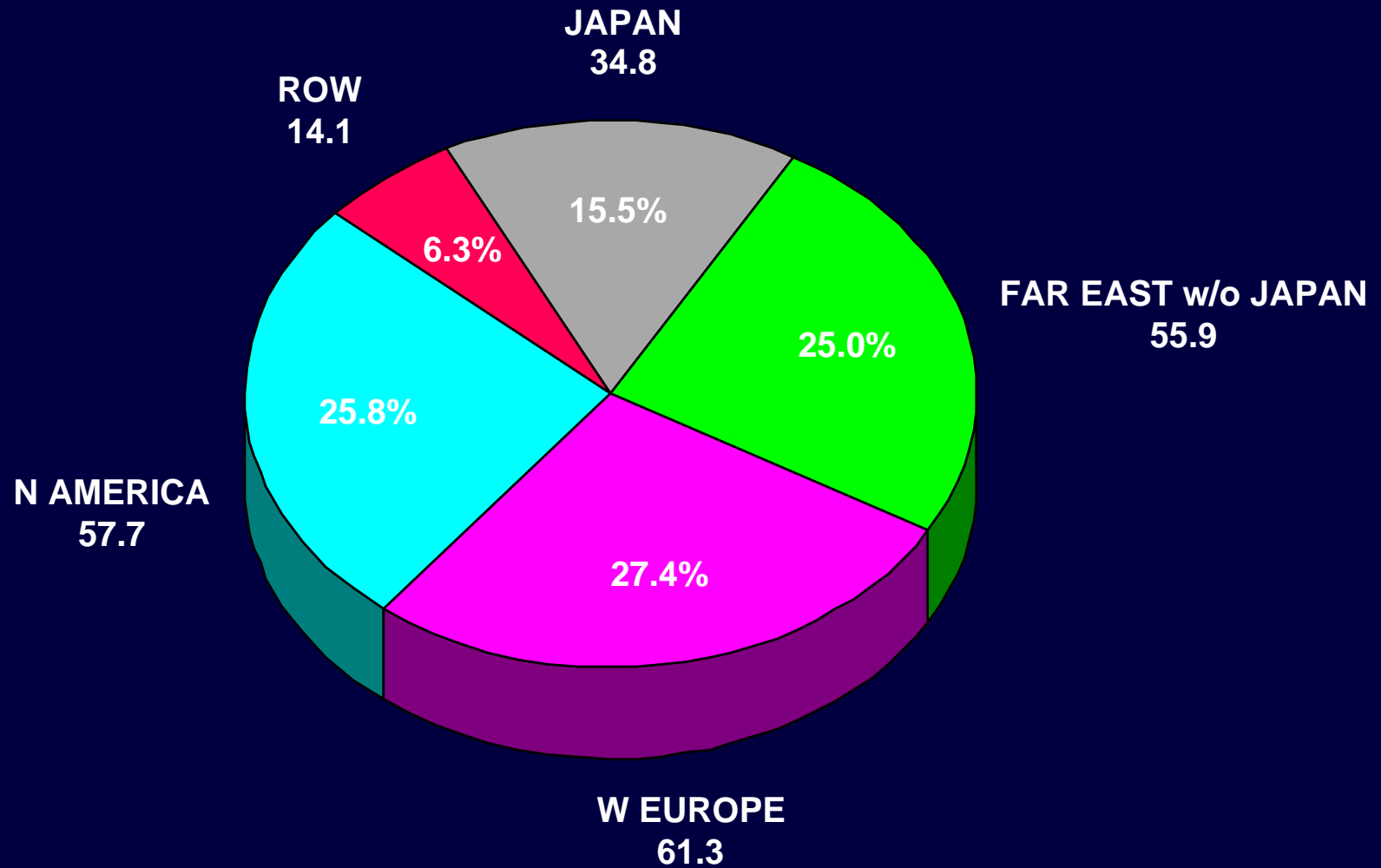
CY

MDT

Communications Equipment

WORLD COMMUNICATIONS EQUIPMENT PRODUCTION

2003



TOTAL \$223.7 Billion

COMMUNICATIONS EQUIPMENT

Orders & Shipments

\$ B (Seasonally Adjusted)



<http://www.census.gov/indicator/www/m3/>
9/2004

Worldwide Telecommunications Equipment Manufacturers (\$B)

	2000	2001	2002	2003	<u>2003/2000 % Change</u>
Nokia	27.9	28.0	28.9	34.0	+21.8
Cisco	23.9	18.3	19.2	19.9	-17.1
Motorola	37.6	30.0	26.7	27.1	-28.0
Alcatel	28.8	22.6	15.9	14.9	-48.2
Ericsson	29.7	20.7	15.3	14.9	-50.0
Nortel	28.0	17.5	10.6	9.8	-64.8
Lucent	26.2	20.5	10.8	8.7	-66.9
Top 7 Total	201.9	157.3	127.3	129.1	-36.0

- Siemens not included due to multiple product lines

Source: Company financial statements

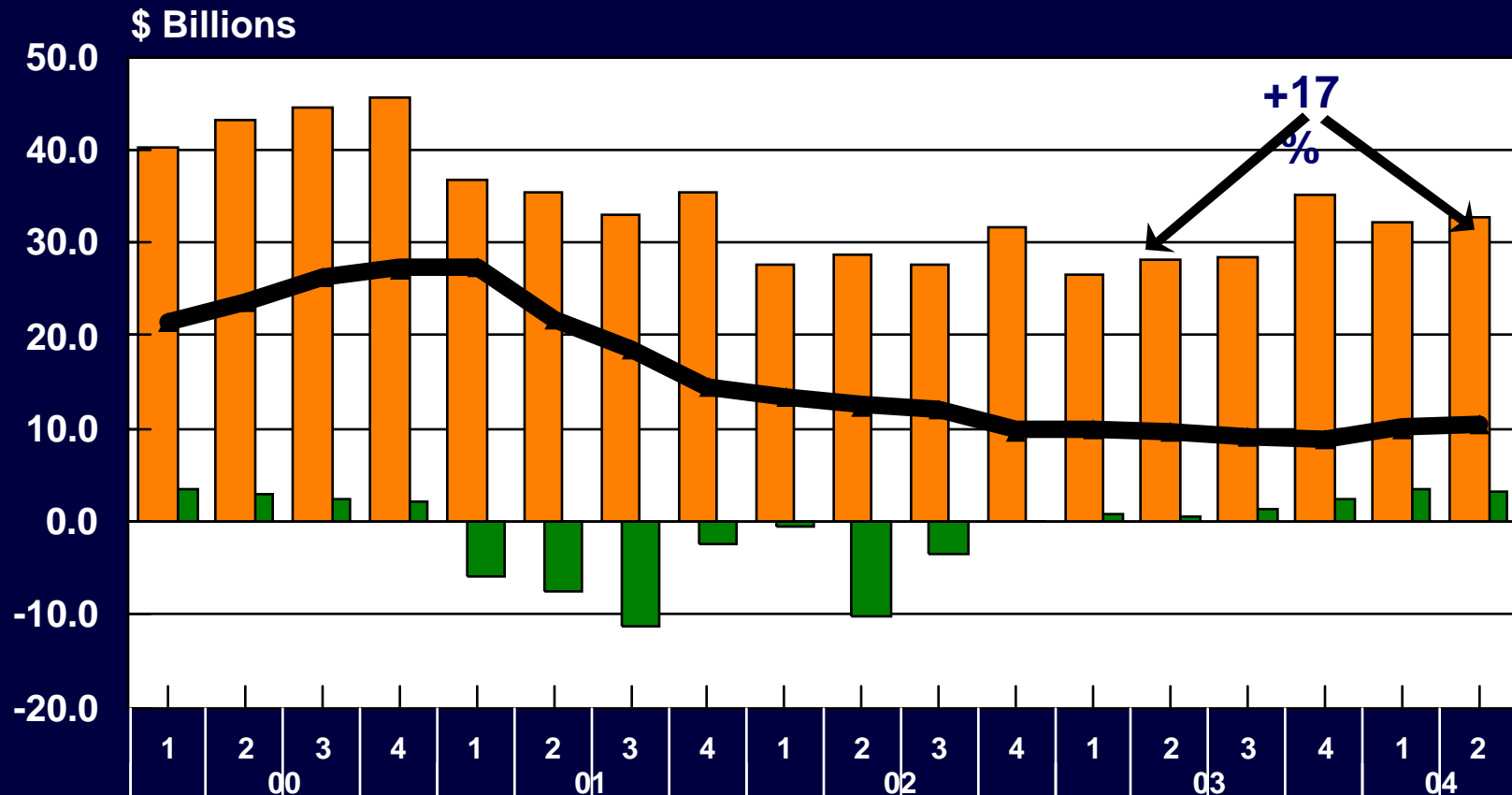
Alcatel & Ericsson calculated @ fluctuating exchange

**Growth
Resumes**

Large "Communications" Equipment Suppliers

Composite of 6 Public Companies

Revenue, Net Income & Inventory



Revenue	40.1	43.1	44.4	45.5	36.8	35.3	33.0	35.5	27.7	28.6	27.6	31.8	26.6	28.1	28.4	35.1	32.1	32.8
Income	3.5	3.0	2.4	2.2	-5.8	-7.6	-11.2	-2.3	-0.5	-10.3	-3.4	-0.1	0.9	0.4	1.4	2.3	3.5	3.1
Inventory	21.5	23.7	26.4	27.3	27.5	21.8	18.5	14.6	13.5	12.5	12.1	9.8	10.0	9.7	9.1	8.9	10.1	10.5

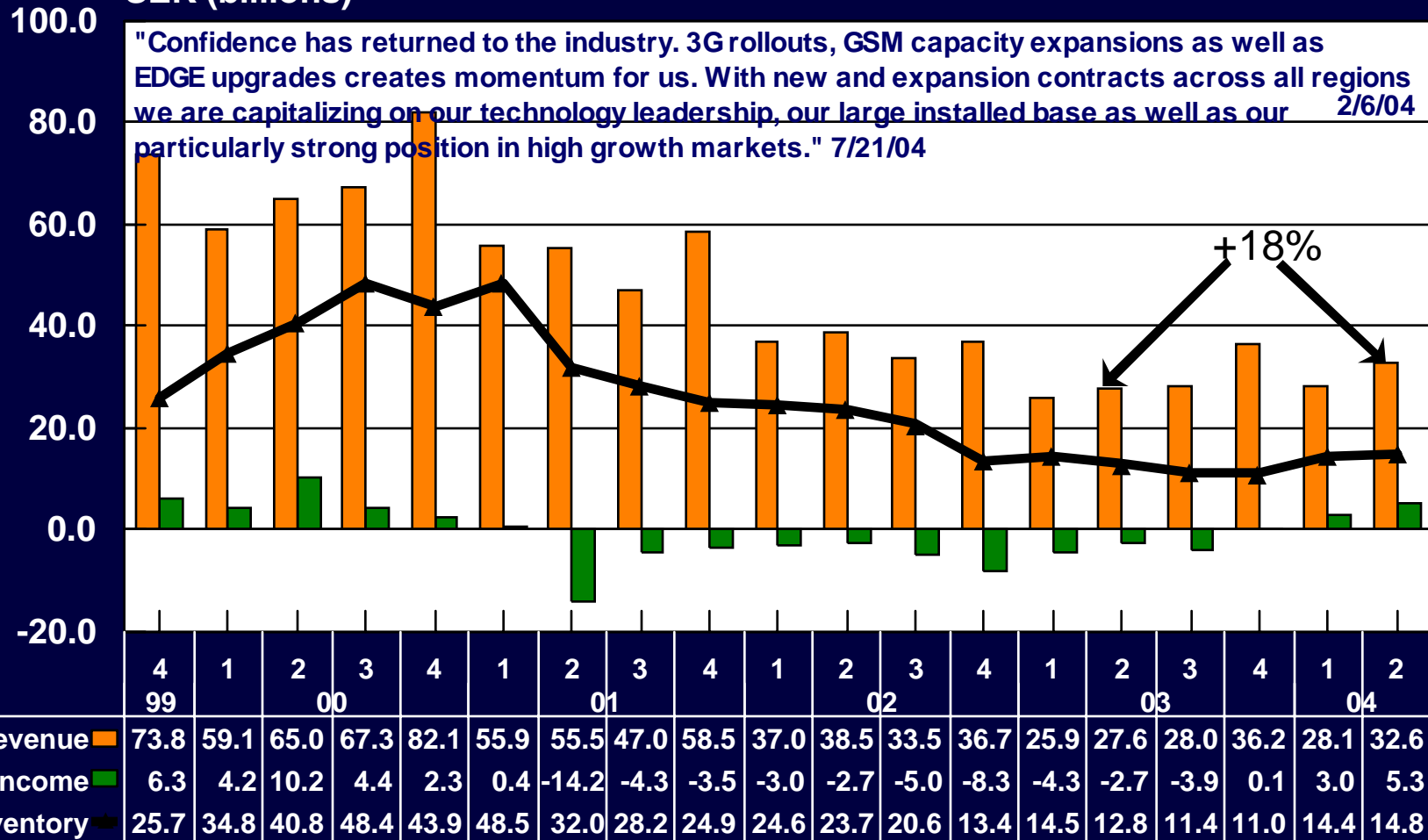
Alcatel, Cisco, Ericsson, Lucent, Motorola, Nokia
Euros & Krona converted at fluctuating exchange

L.M. Ericsson

Revenue, Net Income & Inventory

SEK (billions)

"Confidence has returned to the industry. 3G rollouts, GSM capacity expansions as well as EDGE upgrades creates momentum for us. With new and expansion contracts across all regions we are capitalizing on our technology leadership, our large installed base as well as our particularly strong position in high growth markets." 7/21/04



CY

FY=CY

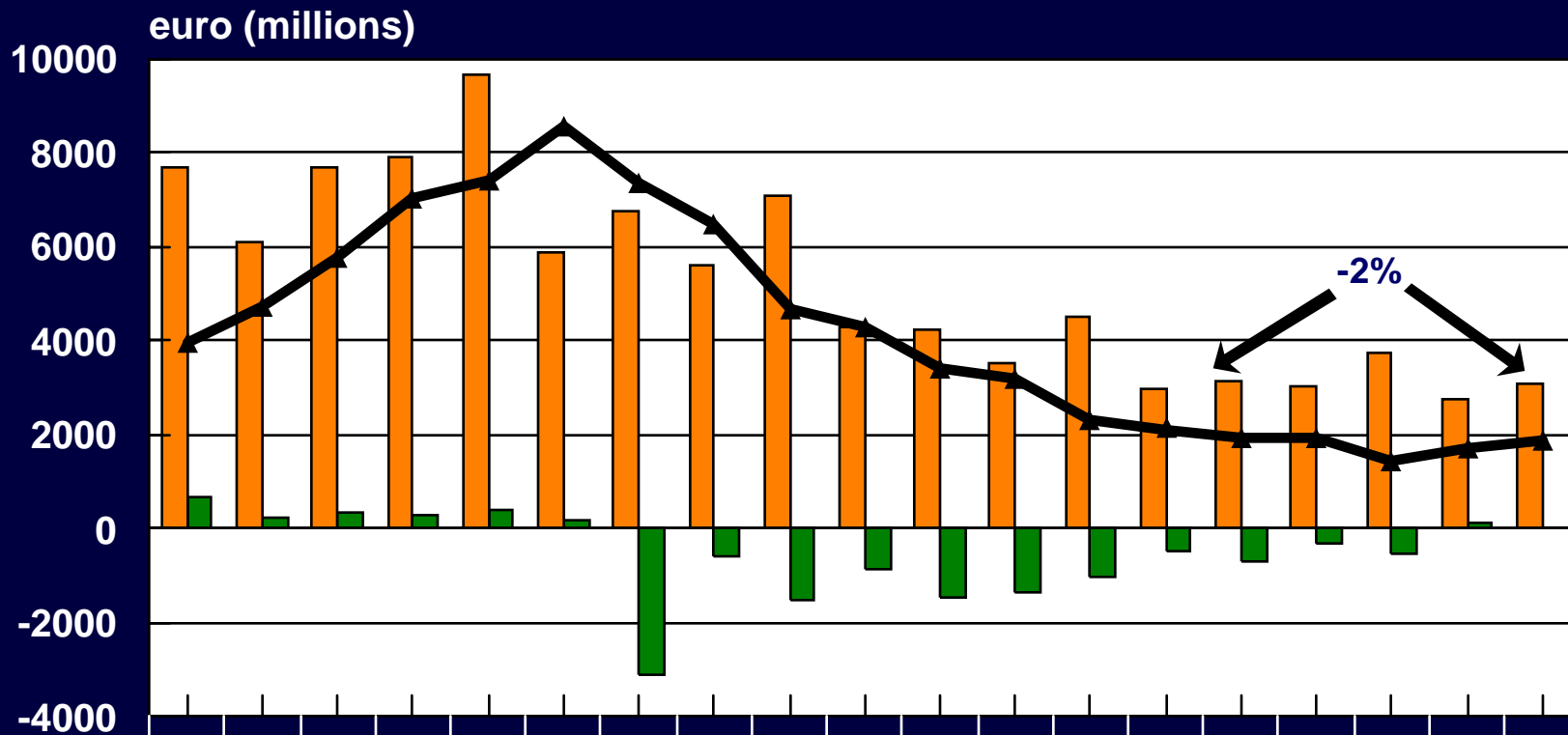
7.4 SEK = 1US\$

ERICSSON

Alcatel

Revenue & Net Income

Net profit in the second quarter was helped by a cost-cutting program and the sale of two unprofitable units making optical fibers and batteries. 7/29/04



Revenue	7671	6124	7687	7908	9689	5864	6767	5613	7109	4296	4235	3508	4508	2961	3150	3039	3765	2740	3078
Income	691	258	343	297	426	210	-3117	-558	-1498	-836	-1438	-1352	-1021	-461	-675	-284	-524	134	23
Inventory	3960	4731	5764	7039	7415	8564	7379	6482	4681	4293	3416	3219	2329	2129	1940	1959	1432	1723	1872

FY=CY

CY

ALA

World Mobile Phone Unit Shipments

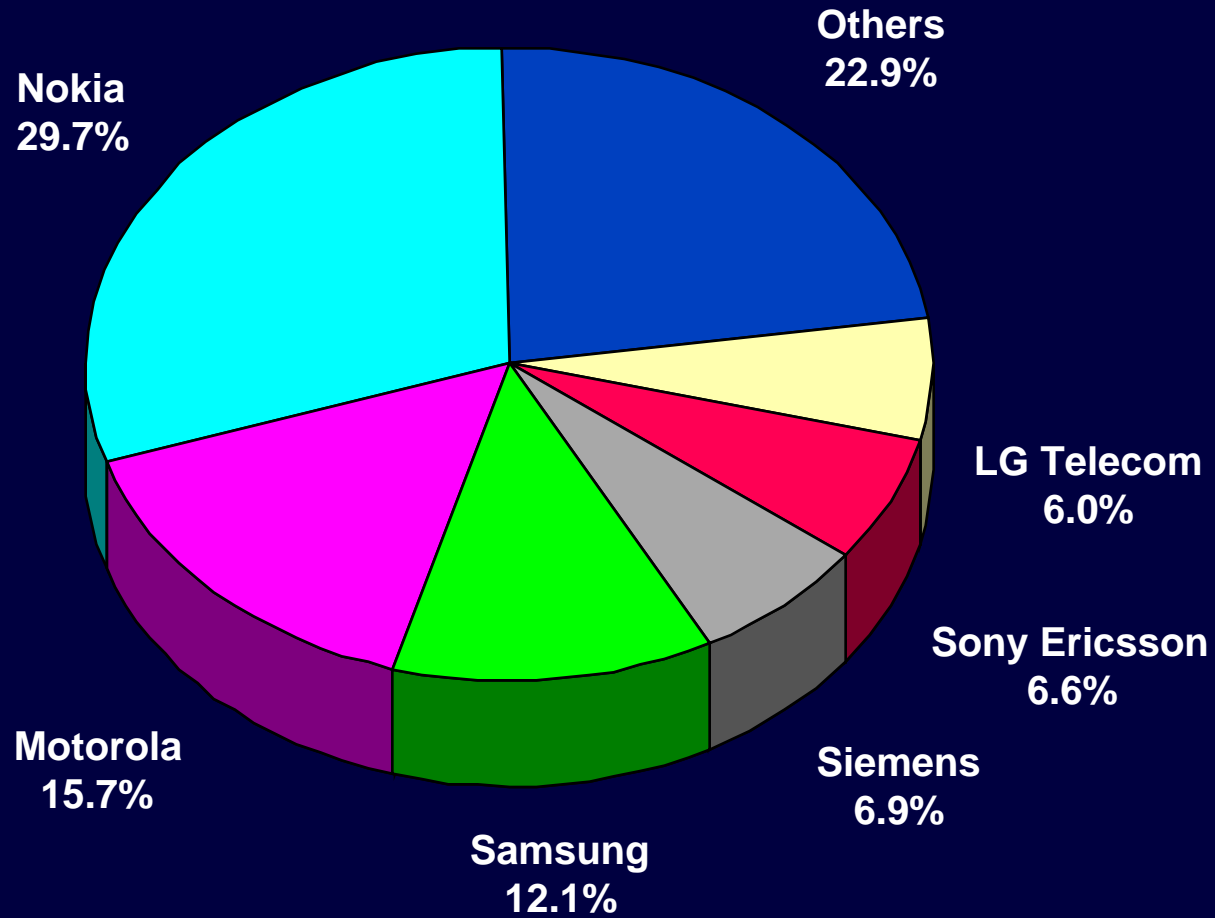
Total Sales - Analog & Digital



Dataquest 7/2004, JEITA 8/04

WORLD CELLULAR PHONE SALES

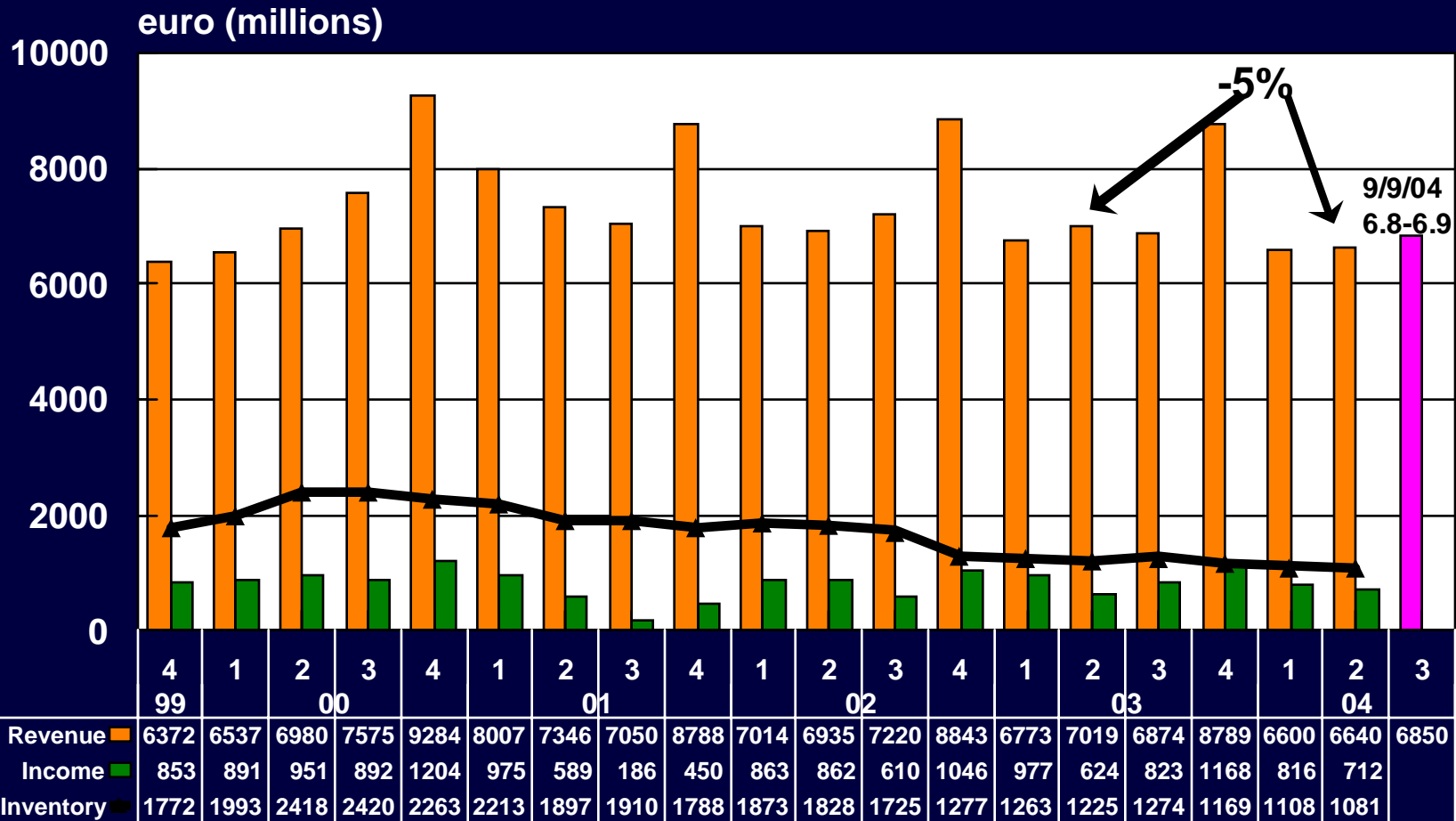
2Q'04



TOTAL: 156 MILLION UNITS

Nokia

Revenue, Net Income & Inventory



CY

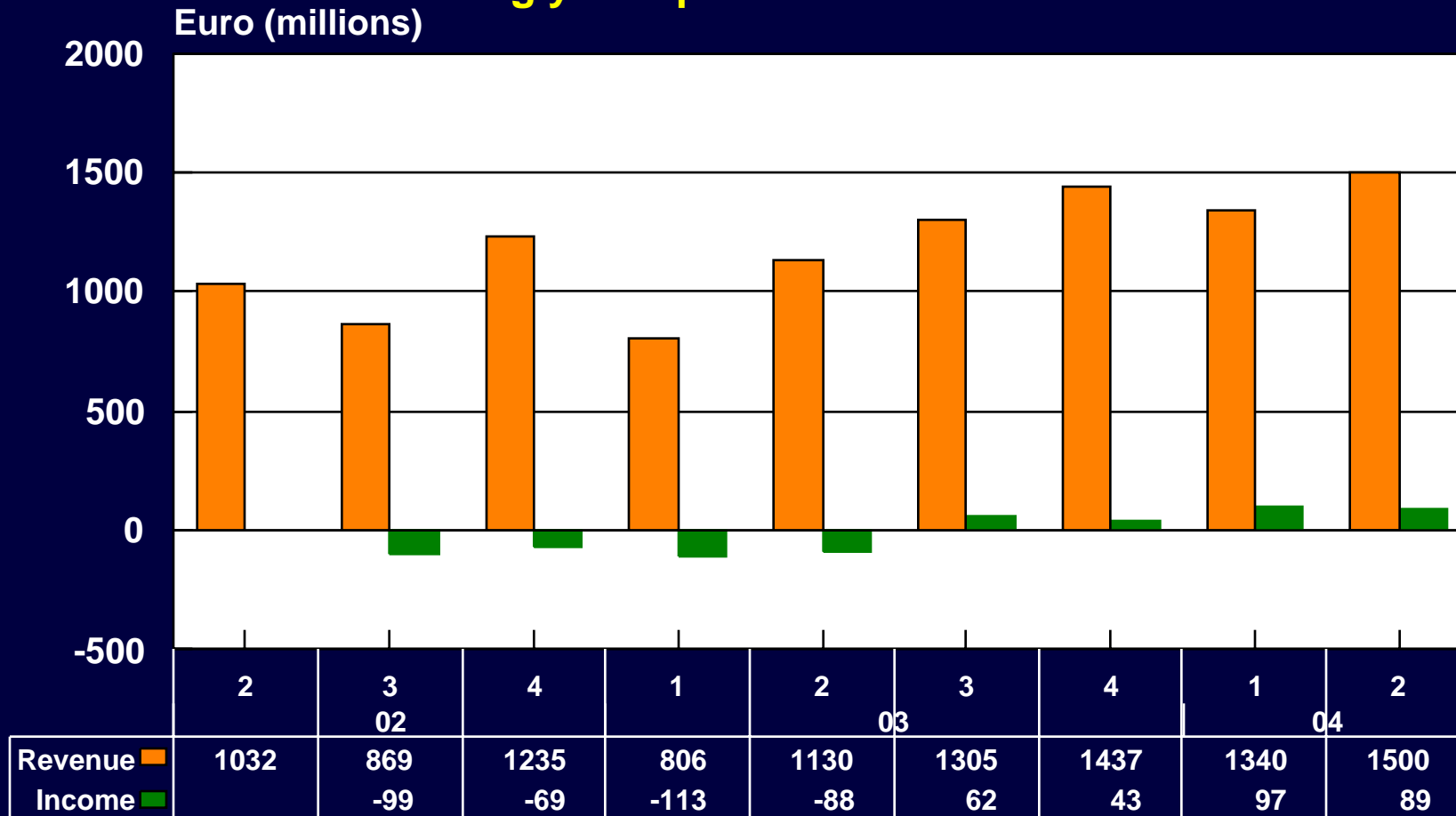
NOK

FY=CY

Sony Ericsson

Revenue & Pre-Tax Income

"The company has established a solid basis for sustained growth going forward. In addition to reporting successively improving profitability, we have maintained momentum in an increasingly competitive market environment." 7/15/04



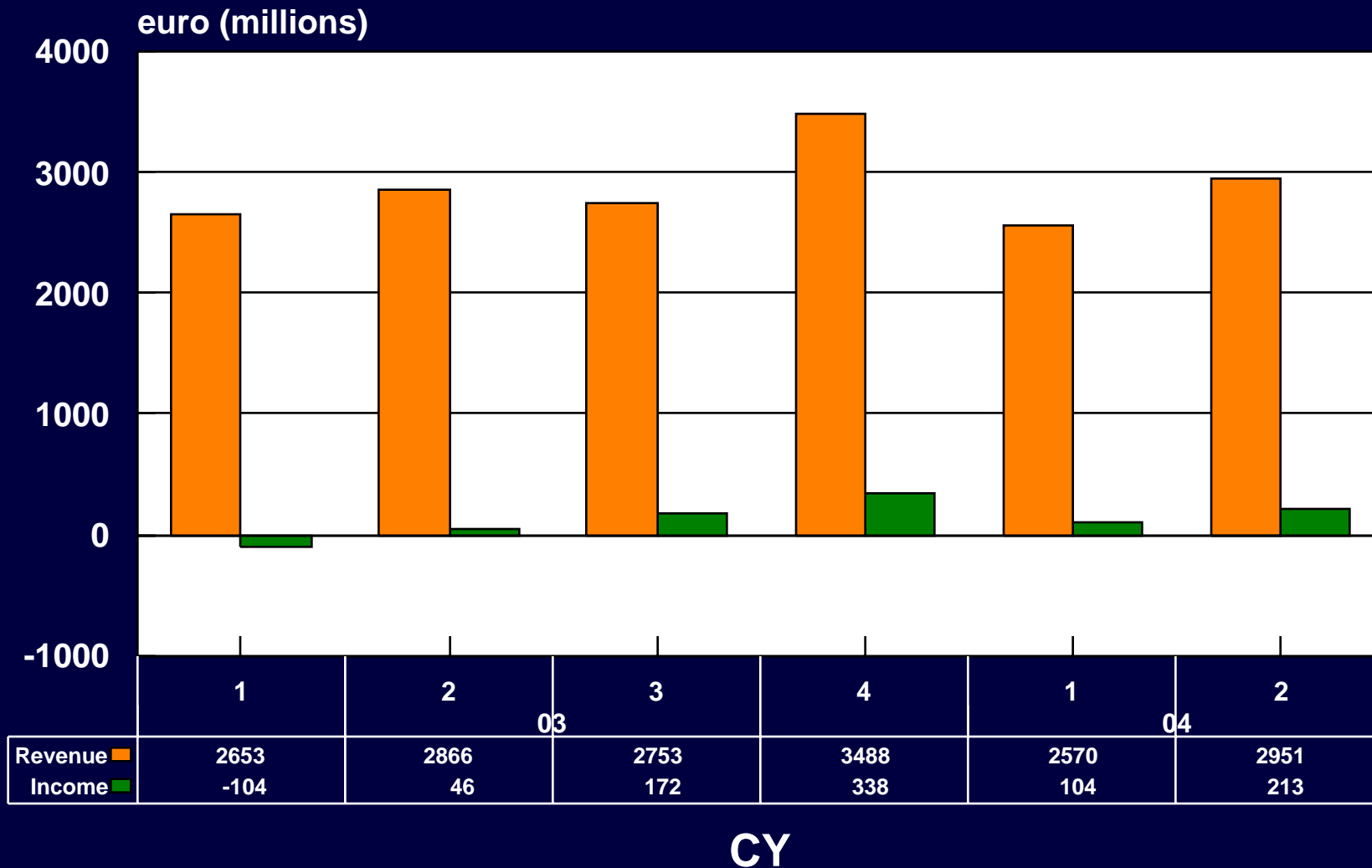
CY

FY=CY

TCL & Alcatel Mobile Phones Ltd

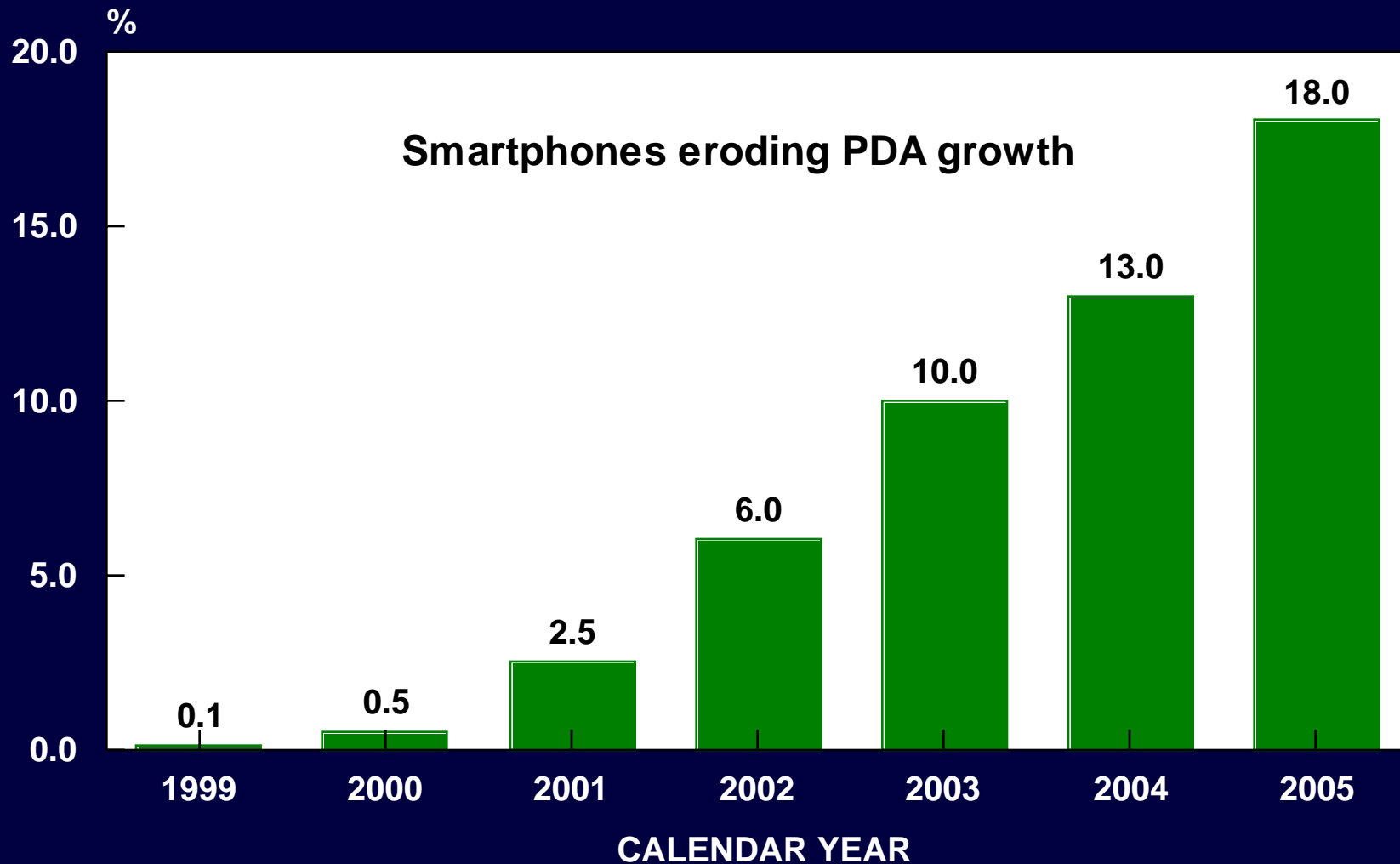
Revenue & Income from Operations

Joint Venture formed Aug 31, 2004

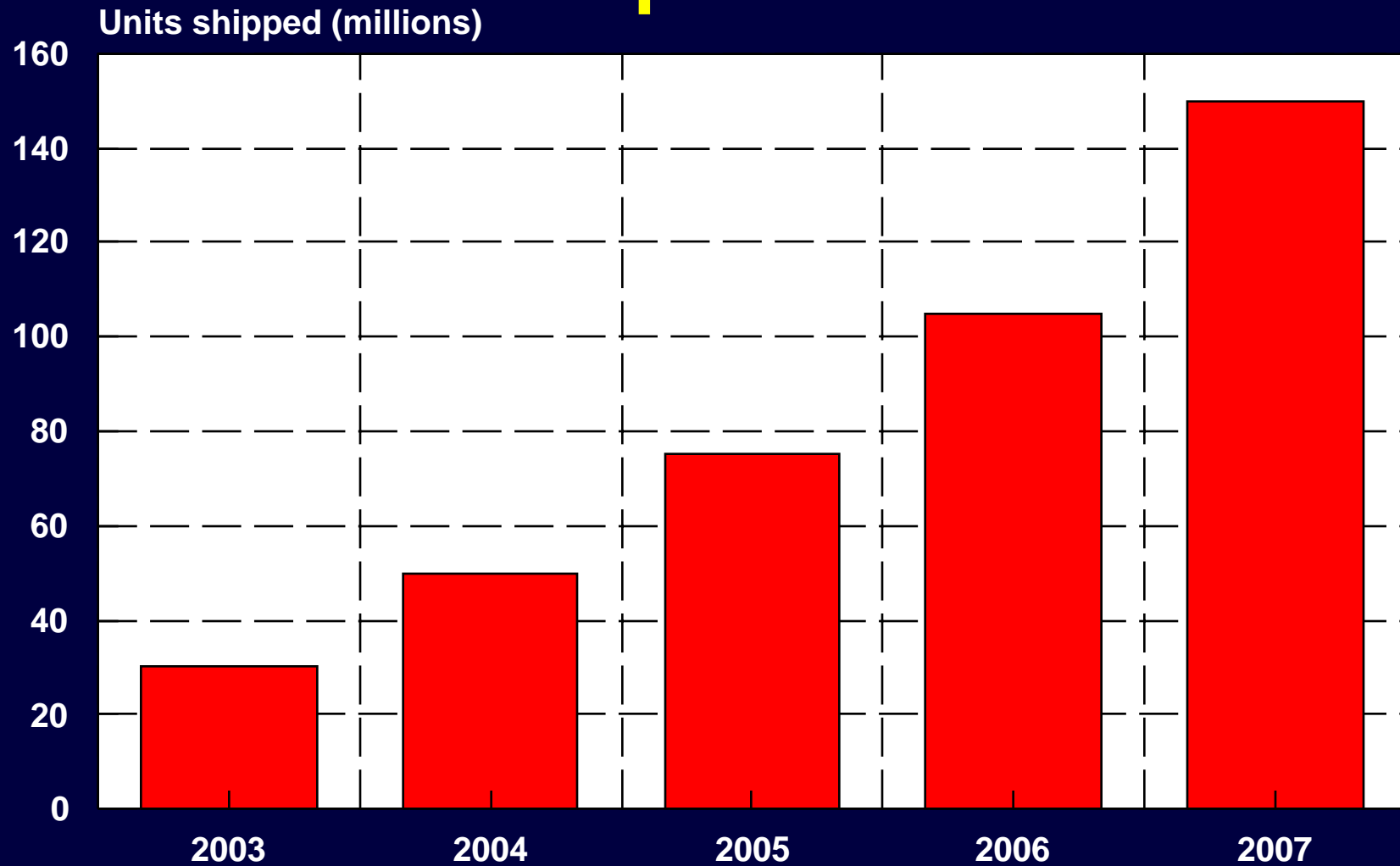


FY=CY

Smartphone Market Share of Mobile Phone Market

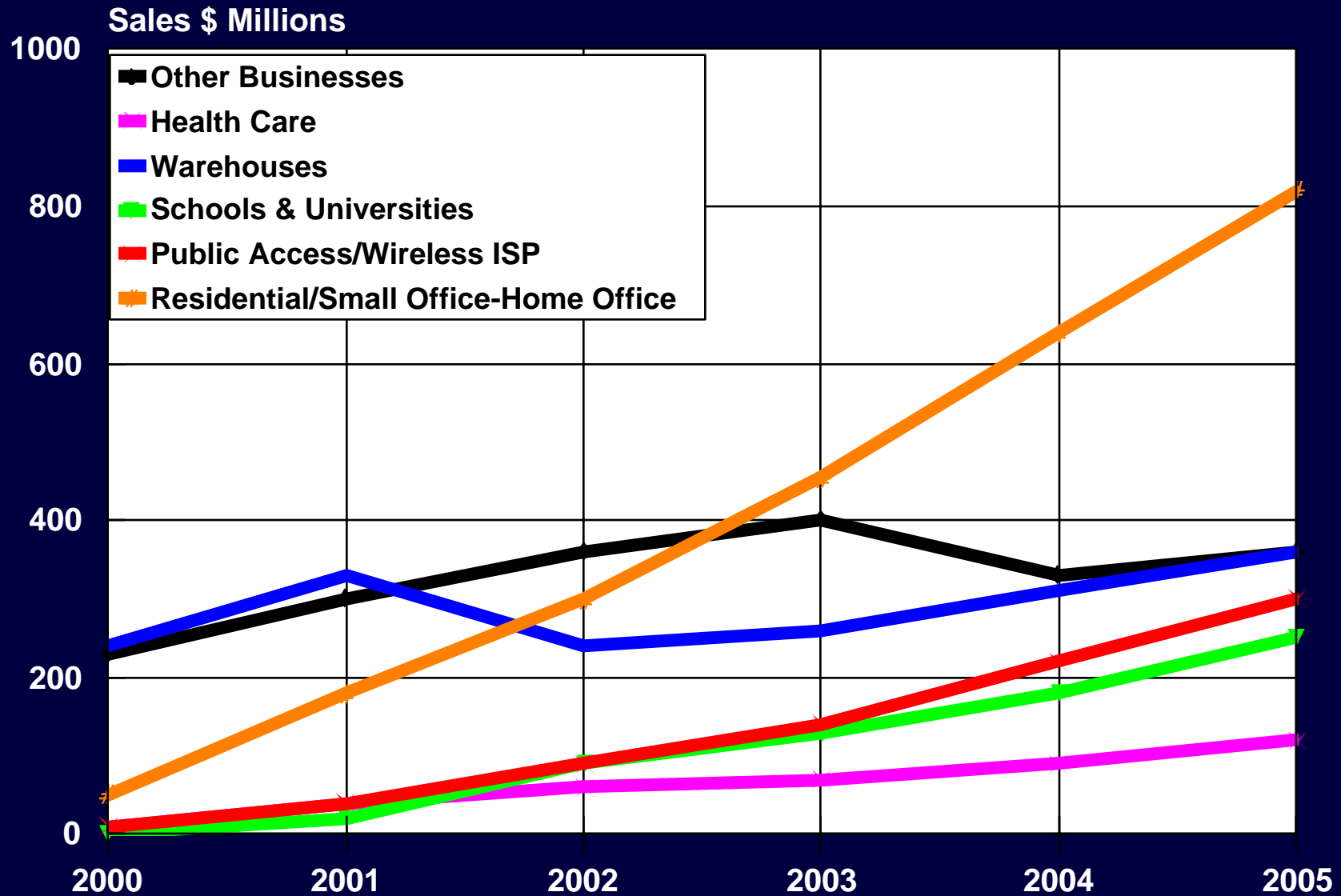


Global Integrated Camera Phone Shipments

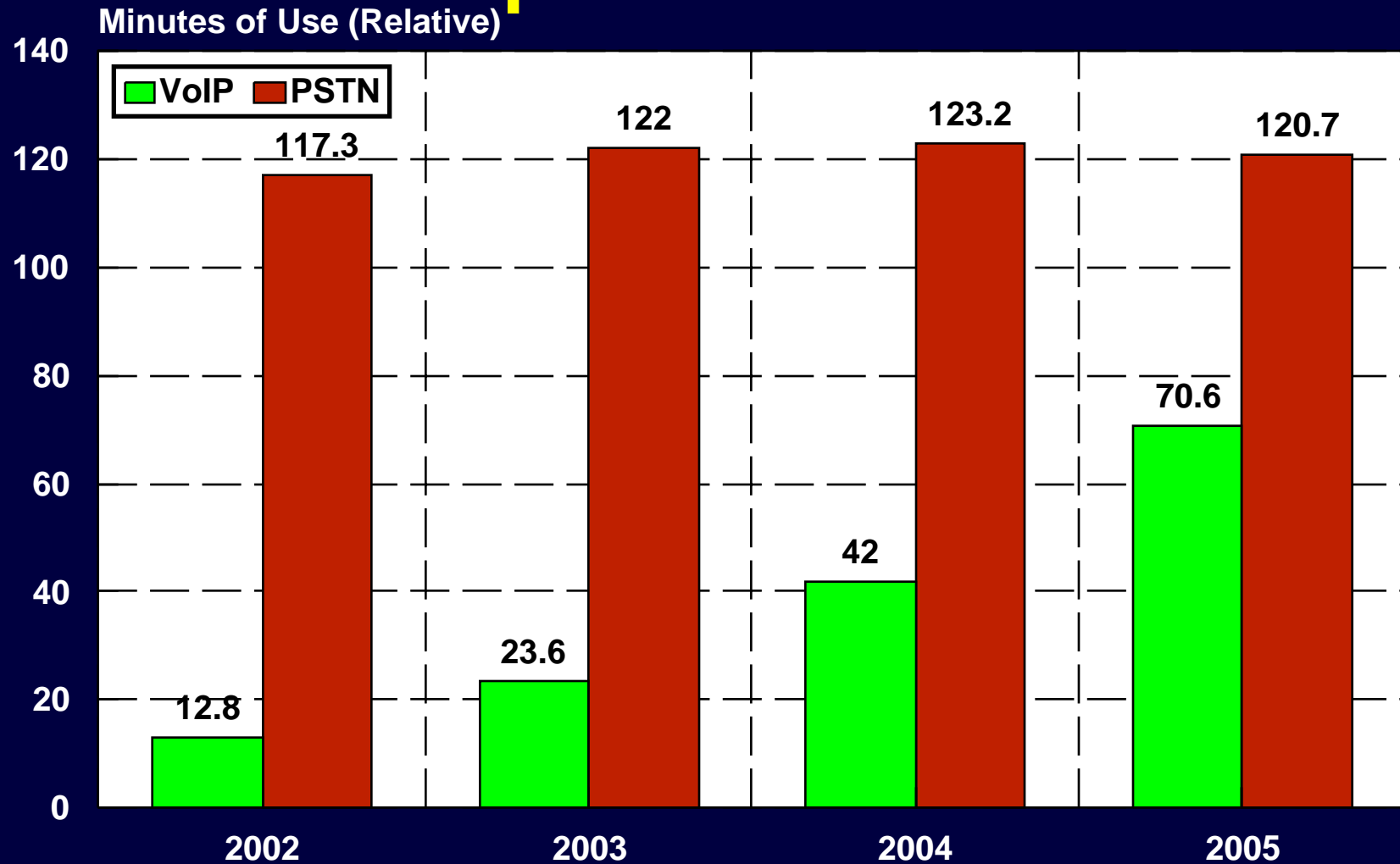


Internet Infrastructure

Growth of Wi-Fi at Home & Work

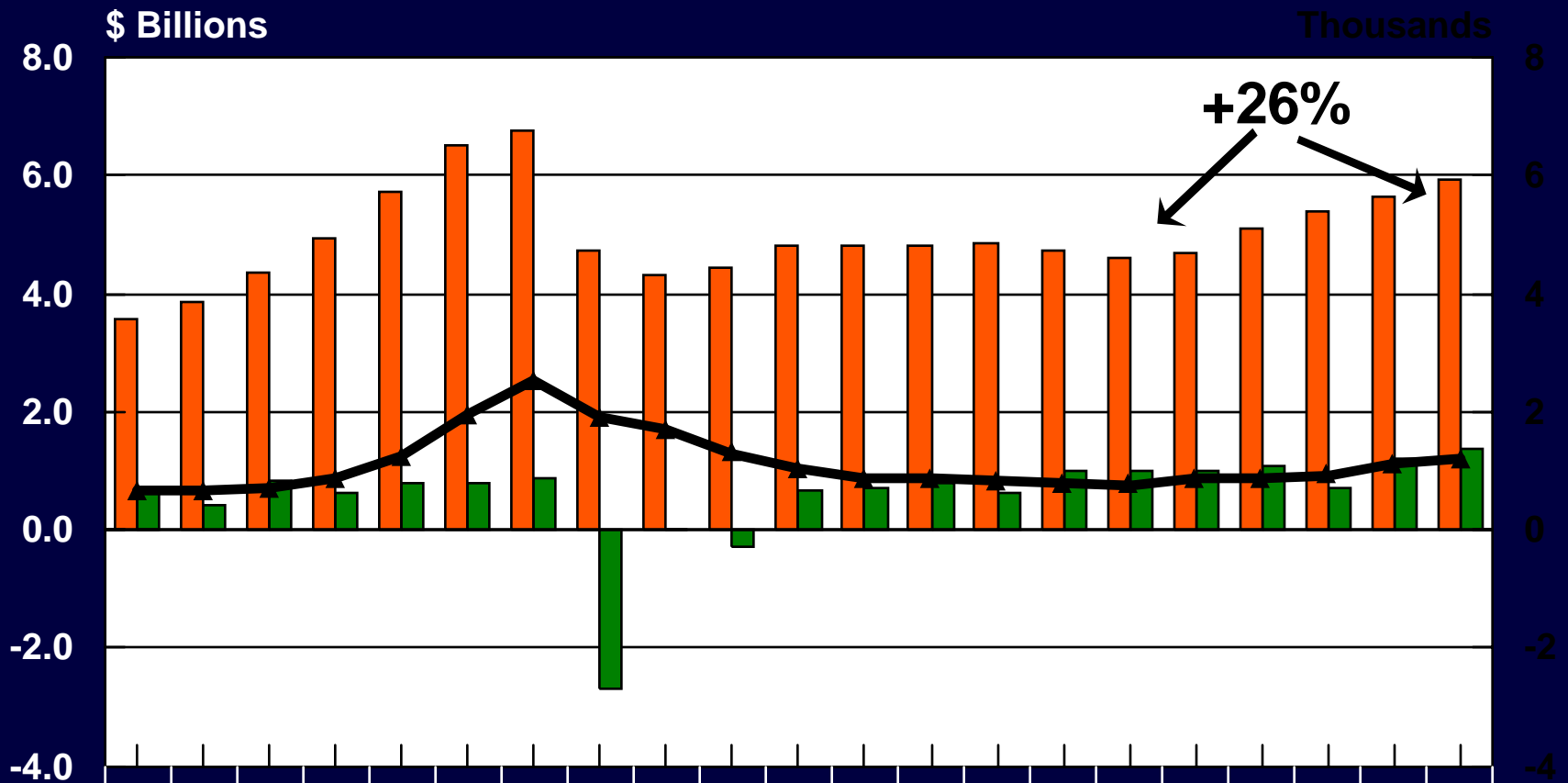


Voice over IP vs. Public Switched Telephone Network



Cisco Systems

Revenue, Net Income & Inventory



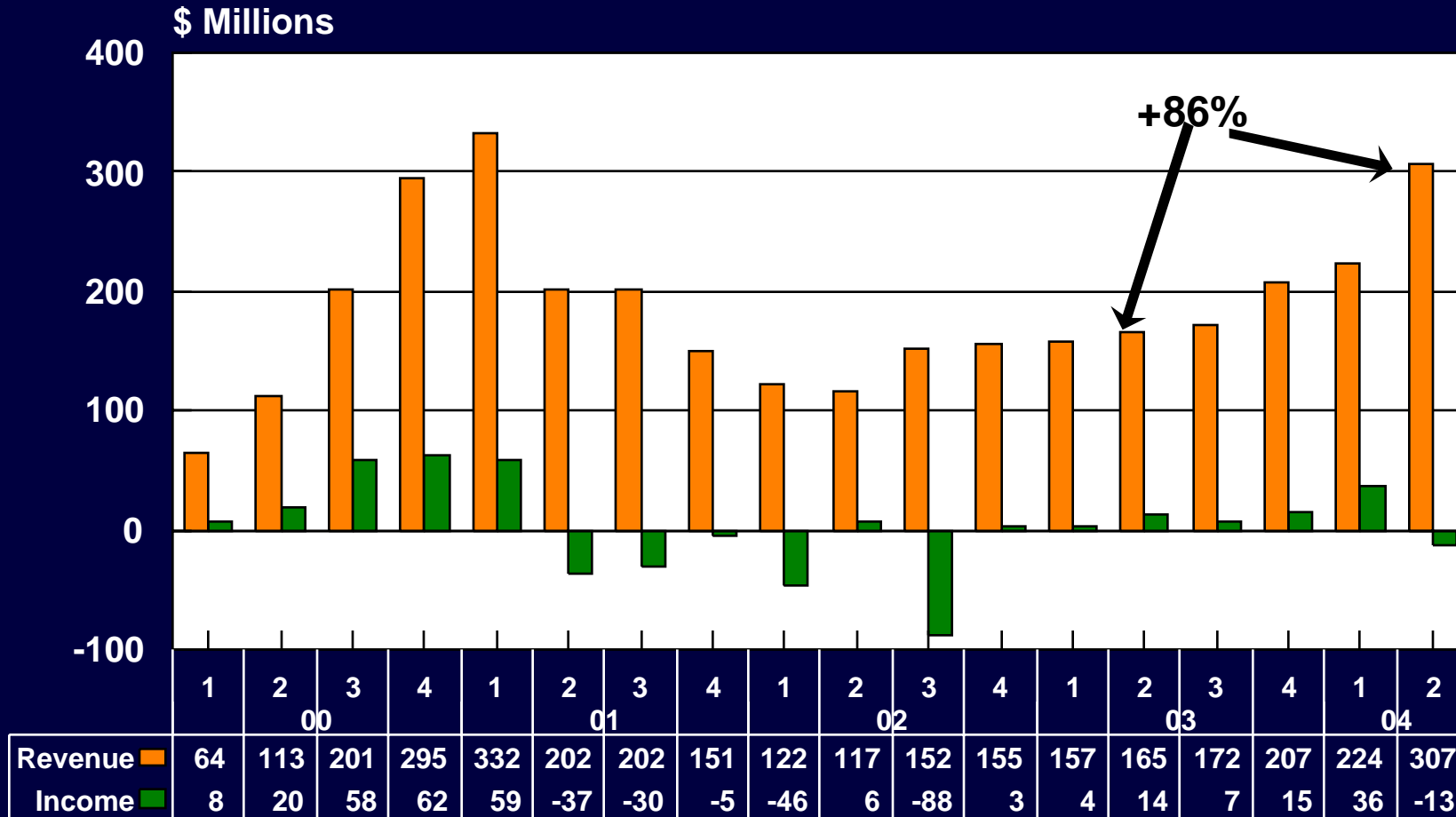
	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
	99			00				01				02				03				04	
Revenue	3.6	3.9	4.4	4.9	5.7	6.5	6.7	4.7	4.3	4.4	4.8	4.8	4.8	4.8	4.7	4.6	4.7	5.1	5.4	5.6	5.9
Income	0.7	0.4	0.8	0.6	0.8	0.8	0.9	-2.7	0.0	-0.3	0.7	0.7	0.8	0.6	1.0	1.0	1.0	1.1	0.7	1.2	1.4
Inventory	0.7	0.7	0.7	0.9	1.2	2.0	2.5	1.9	1.7	1.3	1.0	0.9	0.9	0.8	0.8	0.8	0.9	0.9	0.9	1.1	1.2

CY

CSCO

Juniper Networks Revenue & Net Income

"We met our financial objectives, exceeded our goals for integration of the NetScreen acquisition, expanded our partner and channel relationships, all while remaining intensely focused on our customers and their needs for secure high performance network solutions." 7/13/04



CY

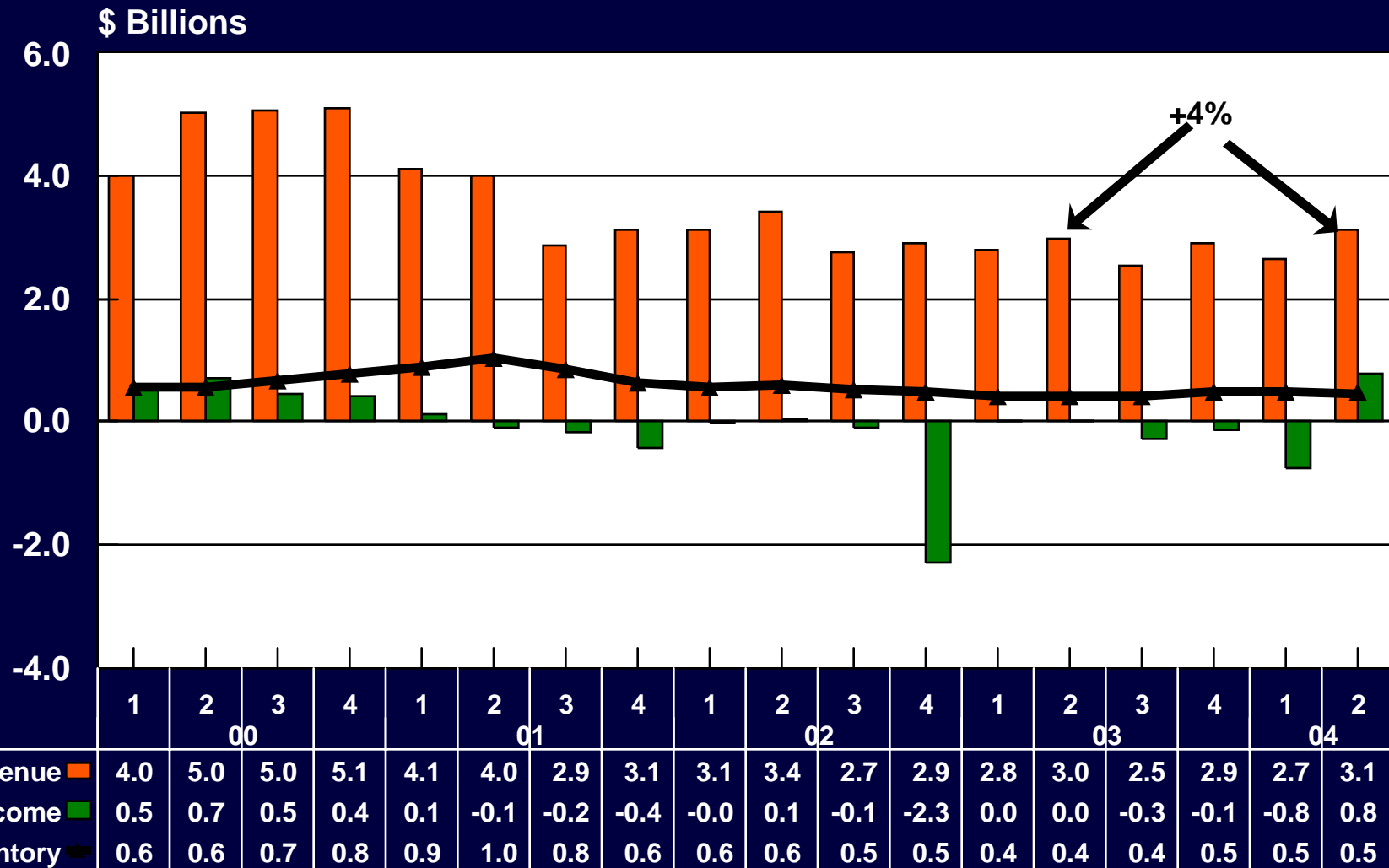
FY = CY

JNPR

"Inventory" not listed on Balance Sheet

Sun Microsystems

Revenue, Net Income & Inventory



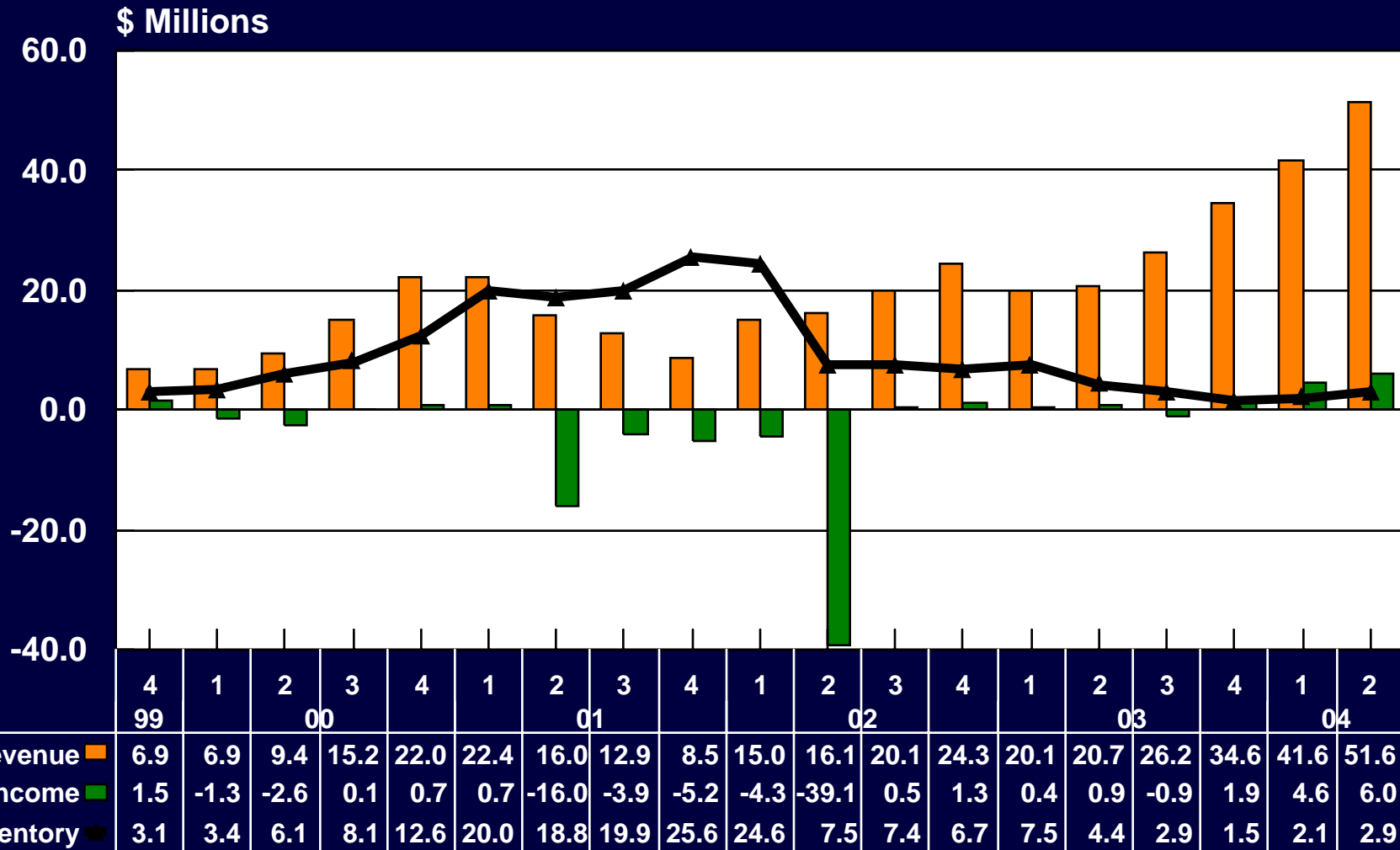
CY

SUNW

FY ENDS 6/30

Sierra Wireless

Revenue, Net Income & Inventory



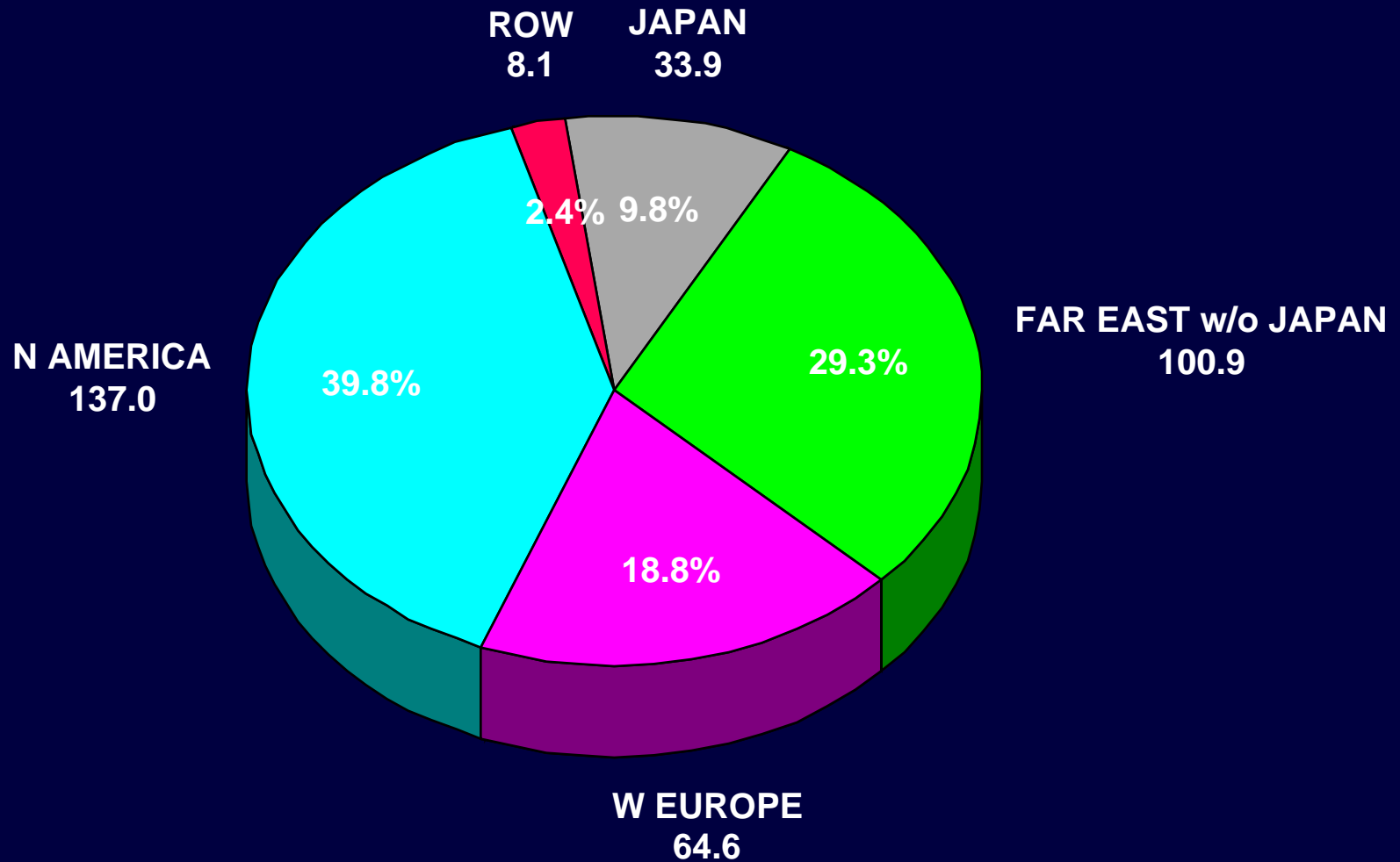
CY

SWIR

**Computers
&
Related
Products**

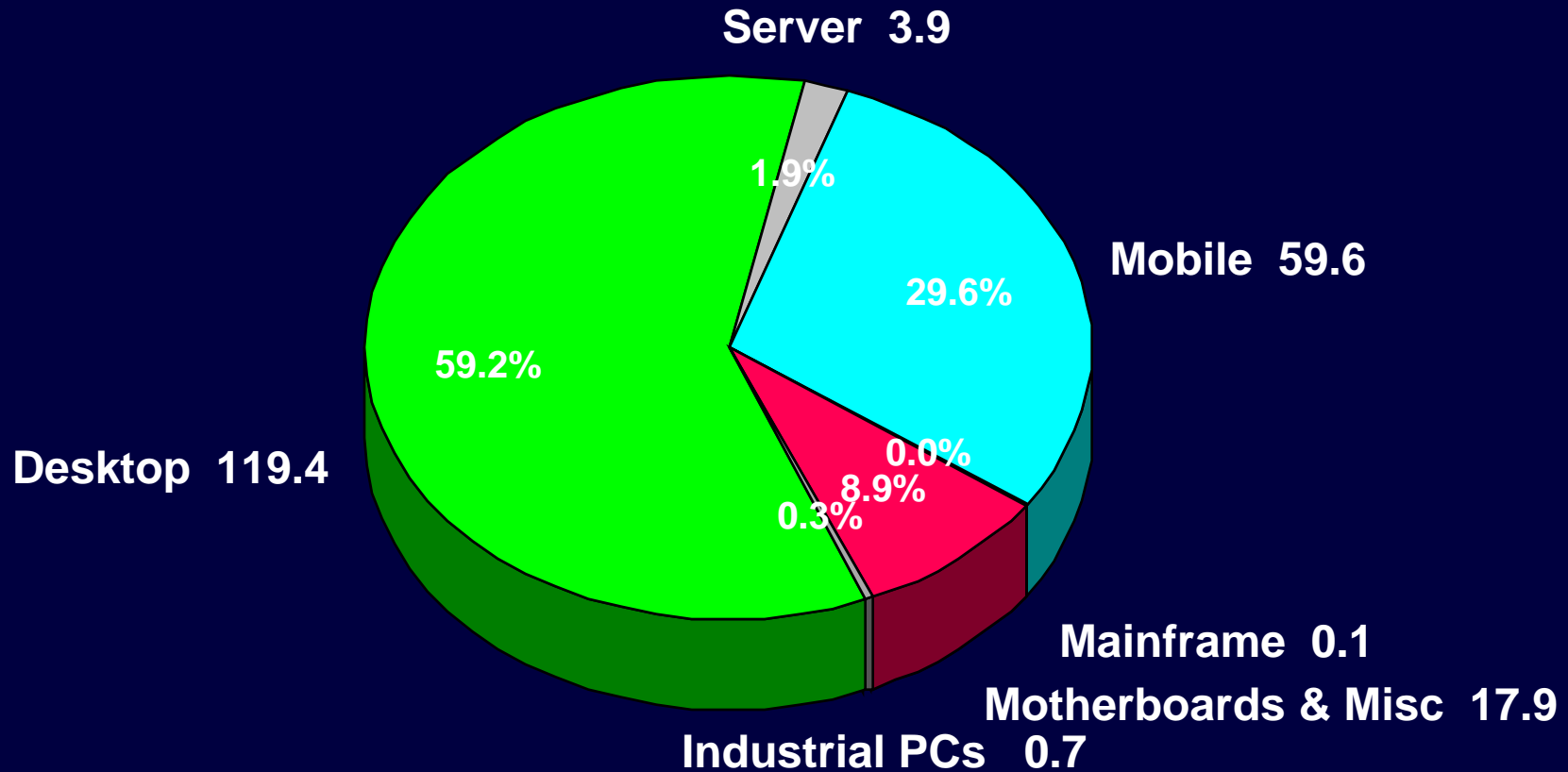
WORLD COMPUTER EQUIPMENT PRODUCTION

2003



TOTAL \$345 Billion

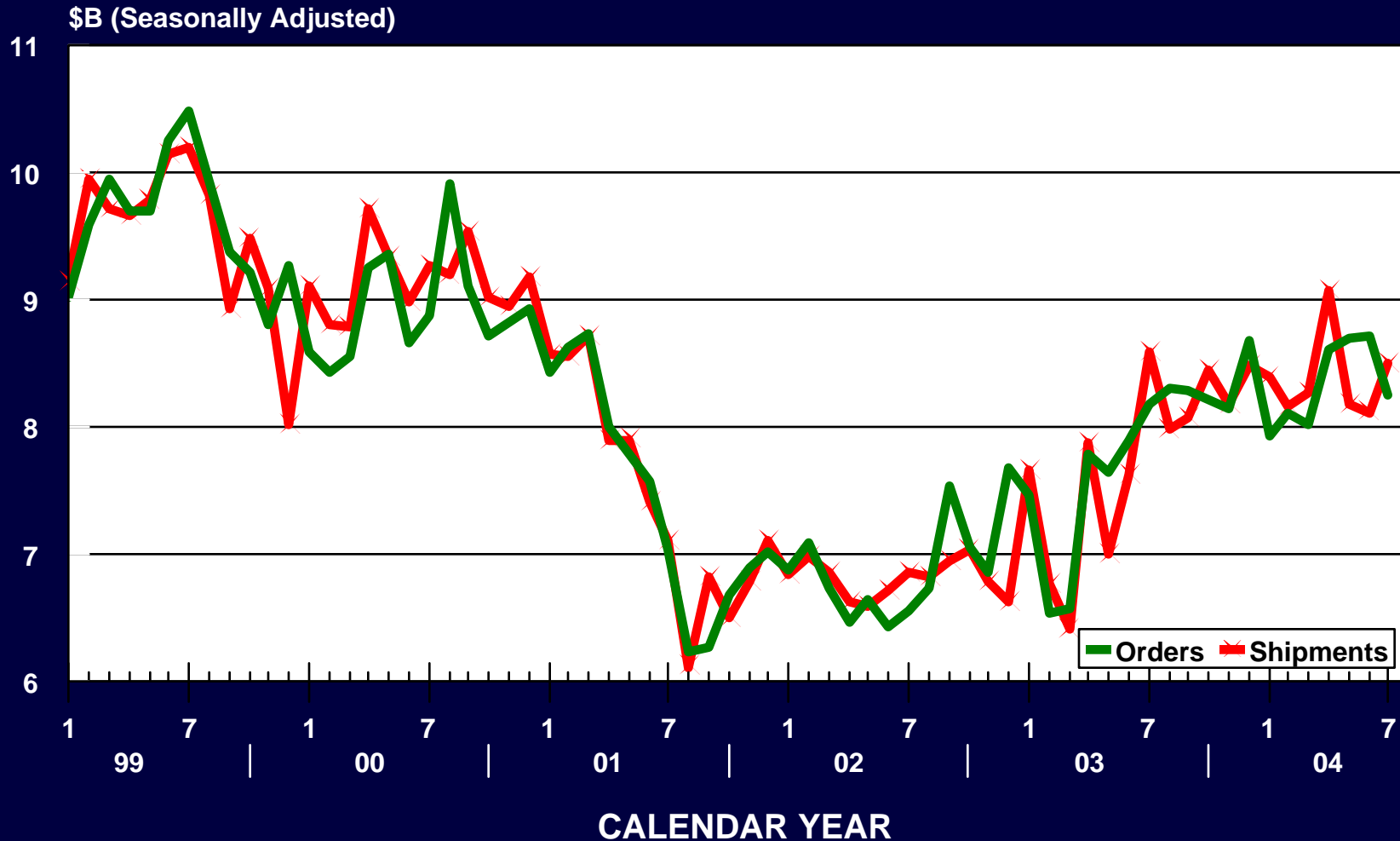
World Computer Equipment Market 2004



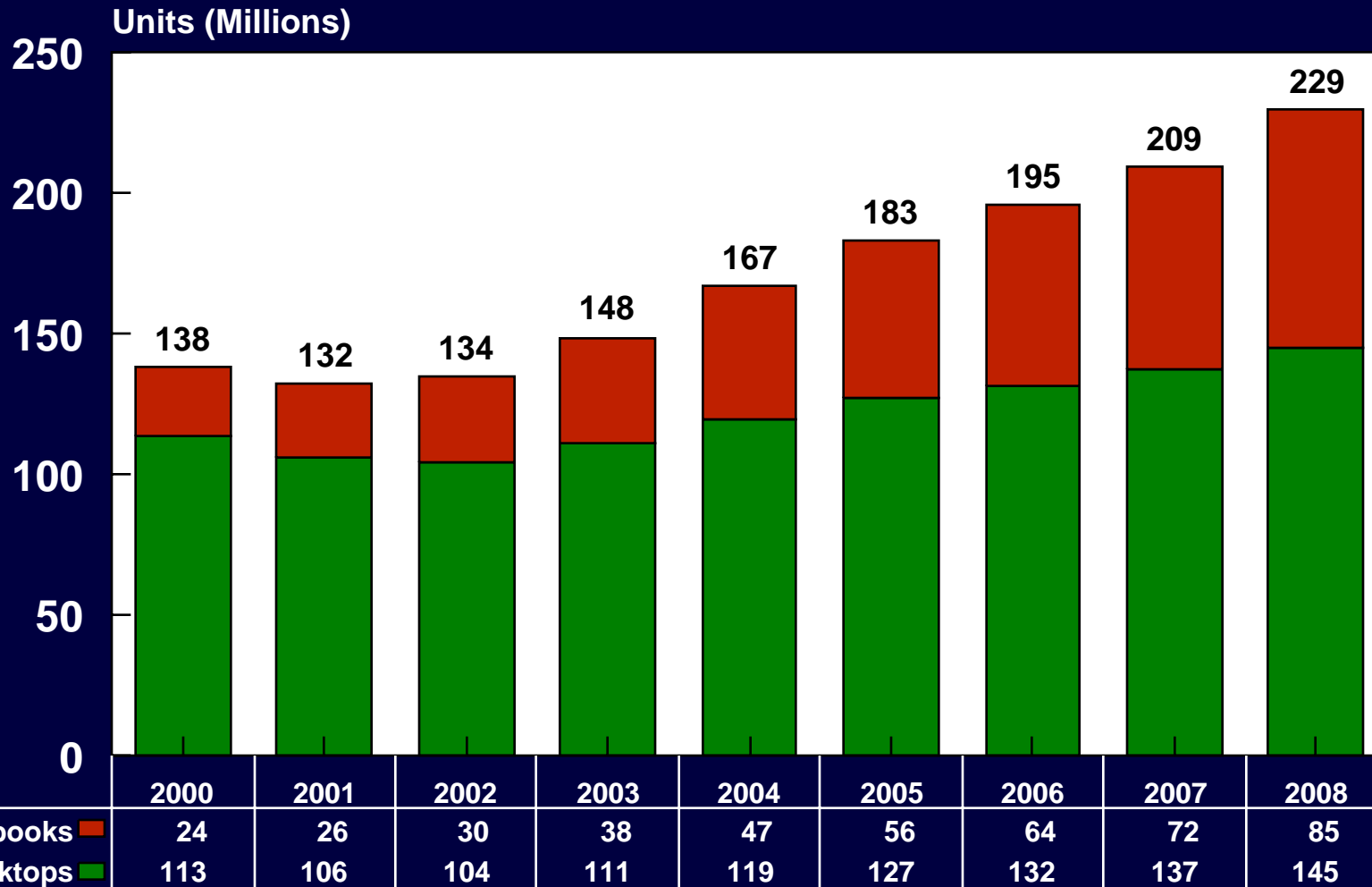
Total: 201 Million Units

COMPUTERS & RELATED PRODUCTS

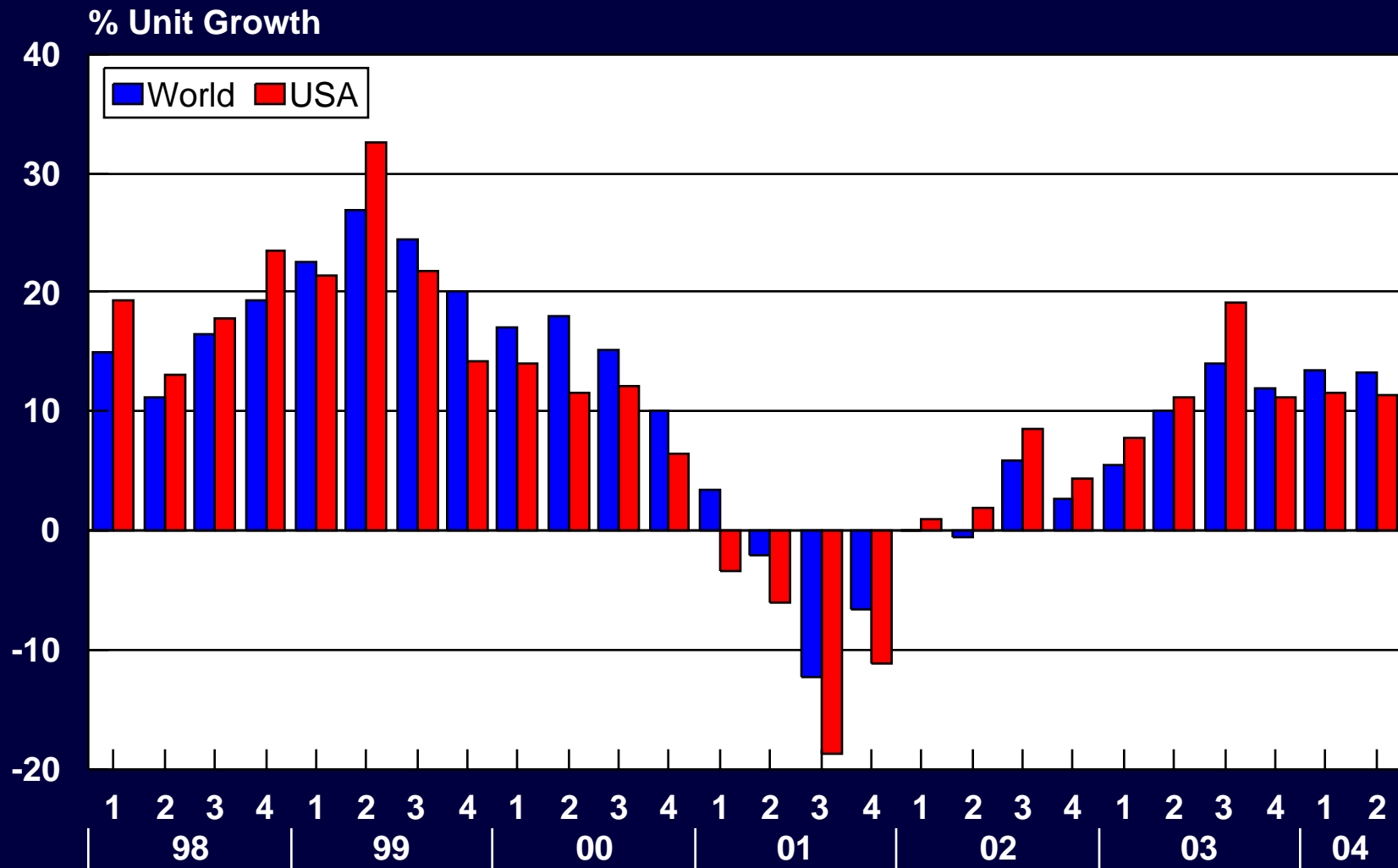
Orders & Shipments



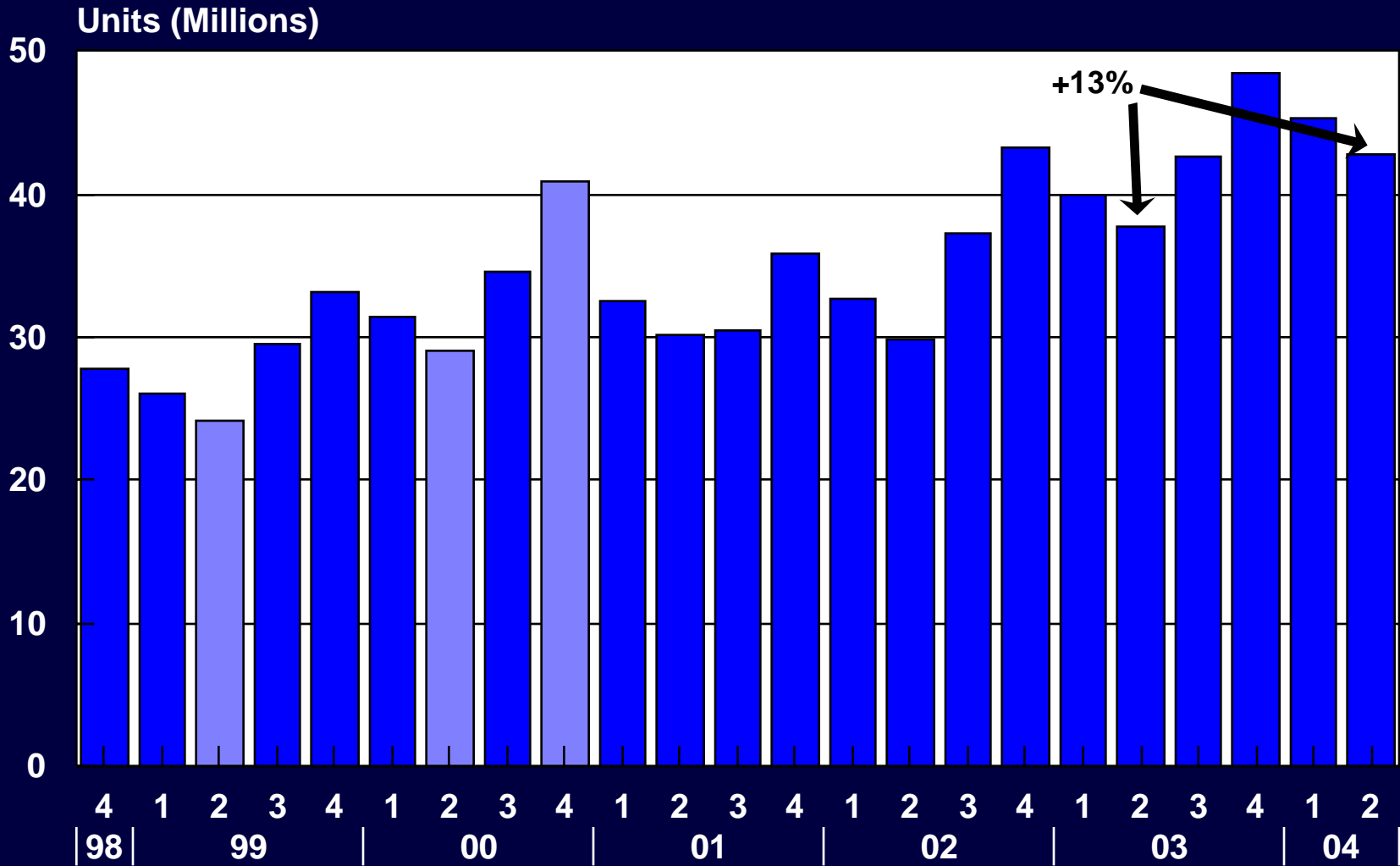
World Computer Shipments Desktops vs. Notebooks



Personal Computer Market Growth World & USA



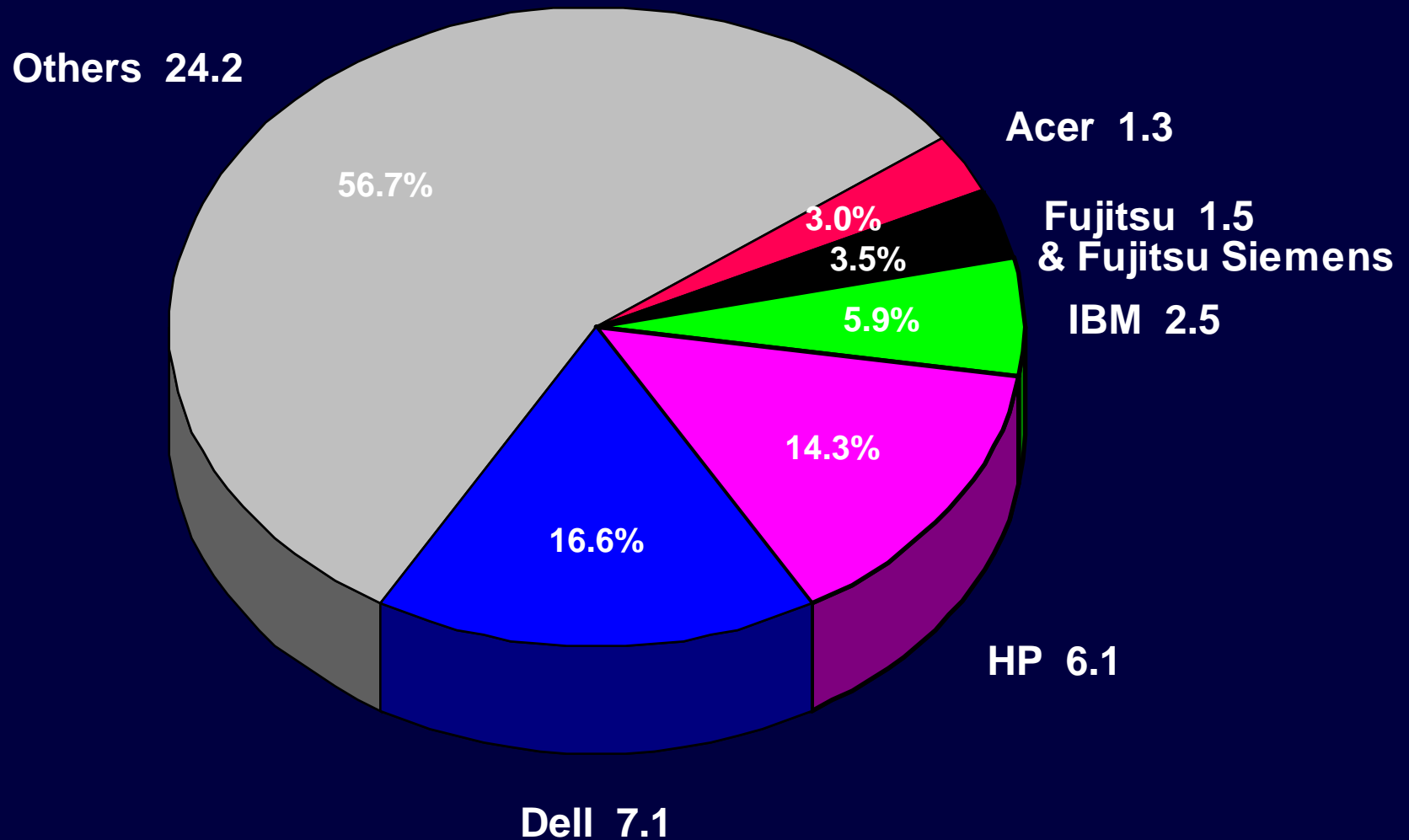
Personal Computer Unit Shipments World



Gartner 7/04 & Custer estimates (light blue)
Servers not included

Personal Computer World Unit Shipments

2Q 2004



Gartner 7/2004

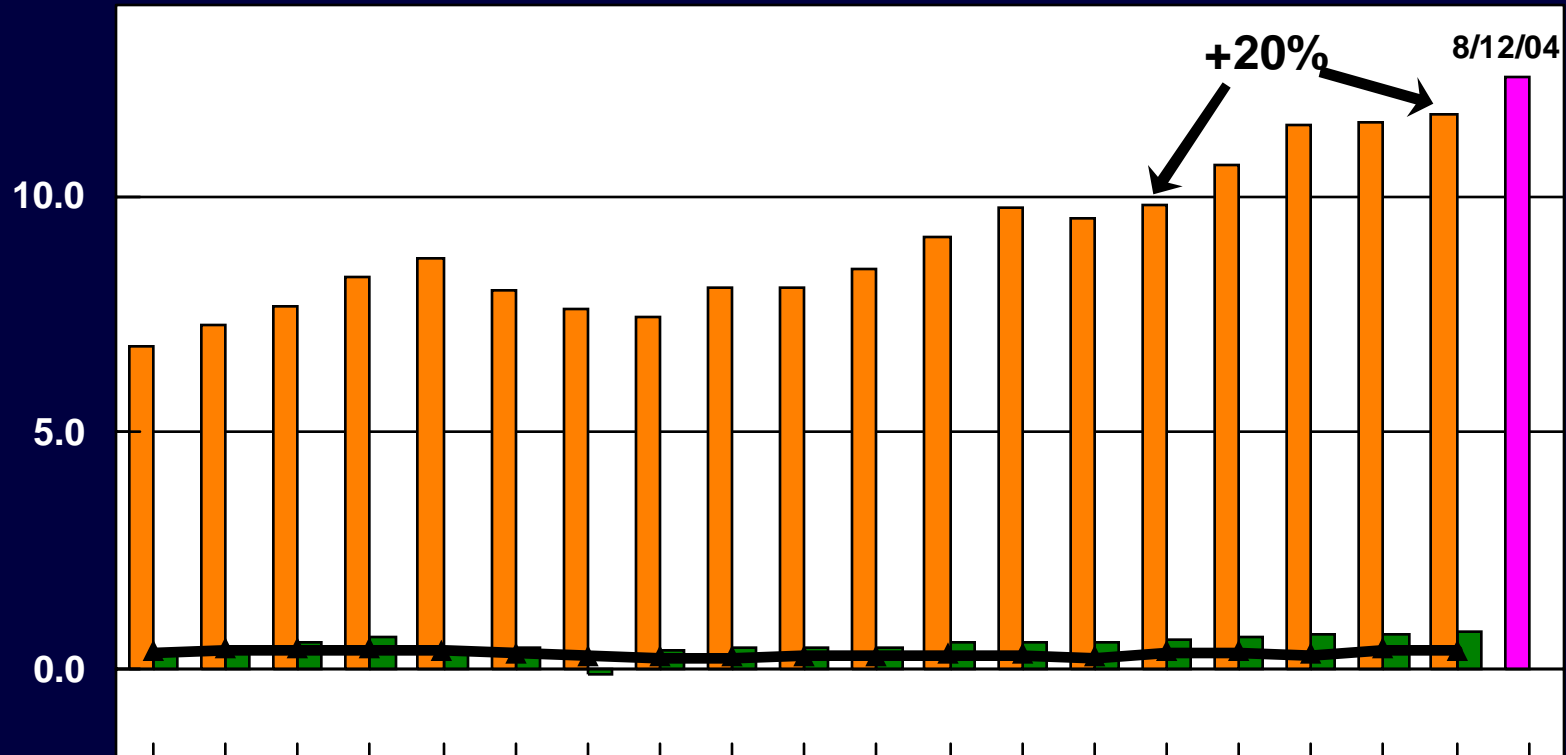
TOTAL: 42.8 M UNITS

Preliminary: Data includes desk-based PCs, mobile PCs & IA32 servers

Dell Computer

Revenue, Net Income & Inventory

\$ Billions



	4 99	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3
	00			01			02			03			04							
SALES	6.8	7.3	7.7	8.3	8.7	8.0	7.6	7.5	8.1	8.1	8.5	9.1	9.7	9.5	9.8	10.6	11.5	11.5	11.7	12.5
PROFITS	0.4	0.5	0.6	0.7	0.4	0.5	-0.1	0.4	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.7	0.8
Inventory	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.3	0.4	0.4	0.4

FY ends October

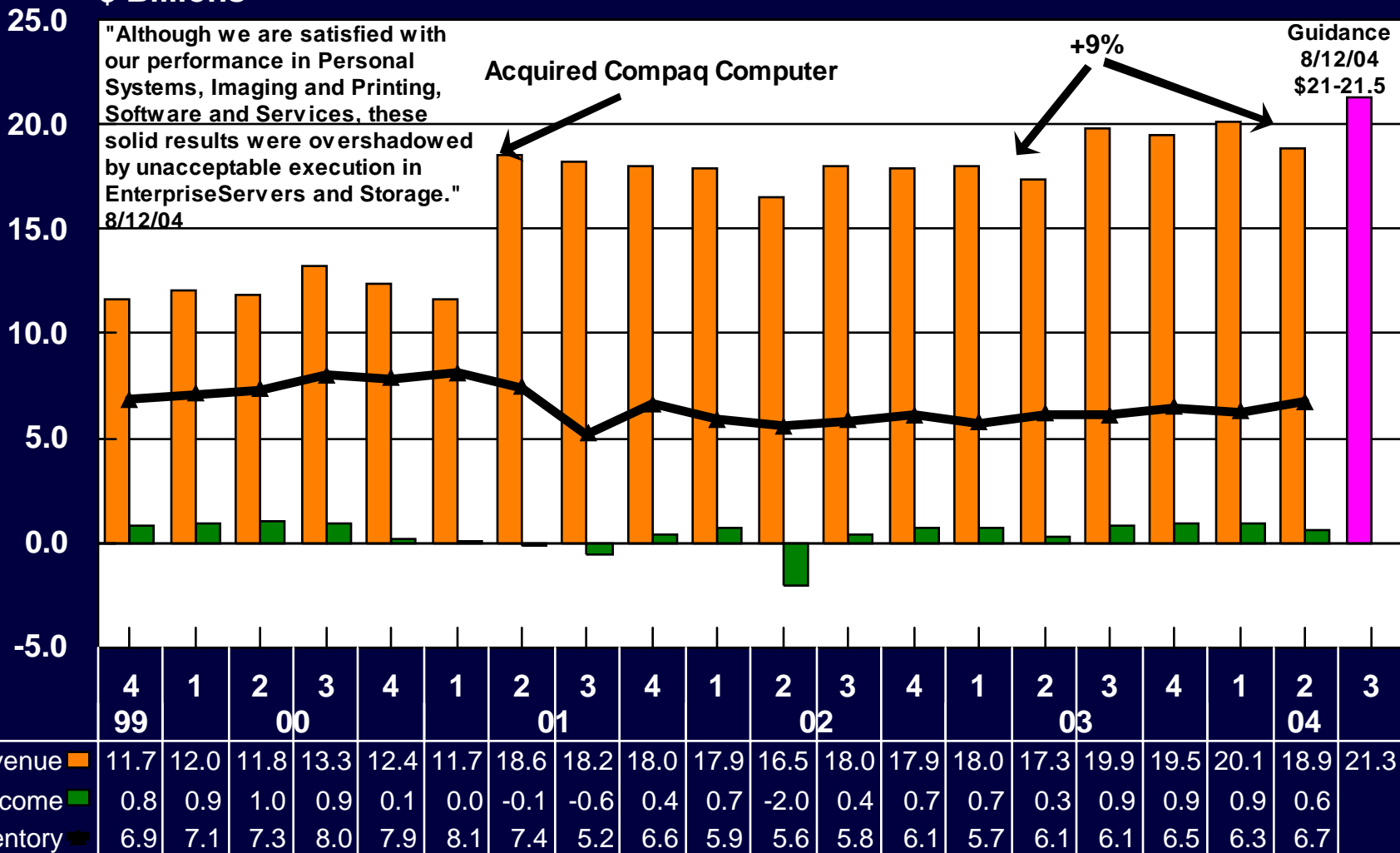
CY

DELL

Hewlett-Packard

Revenue, Net Income & Inventory

\$ Billions



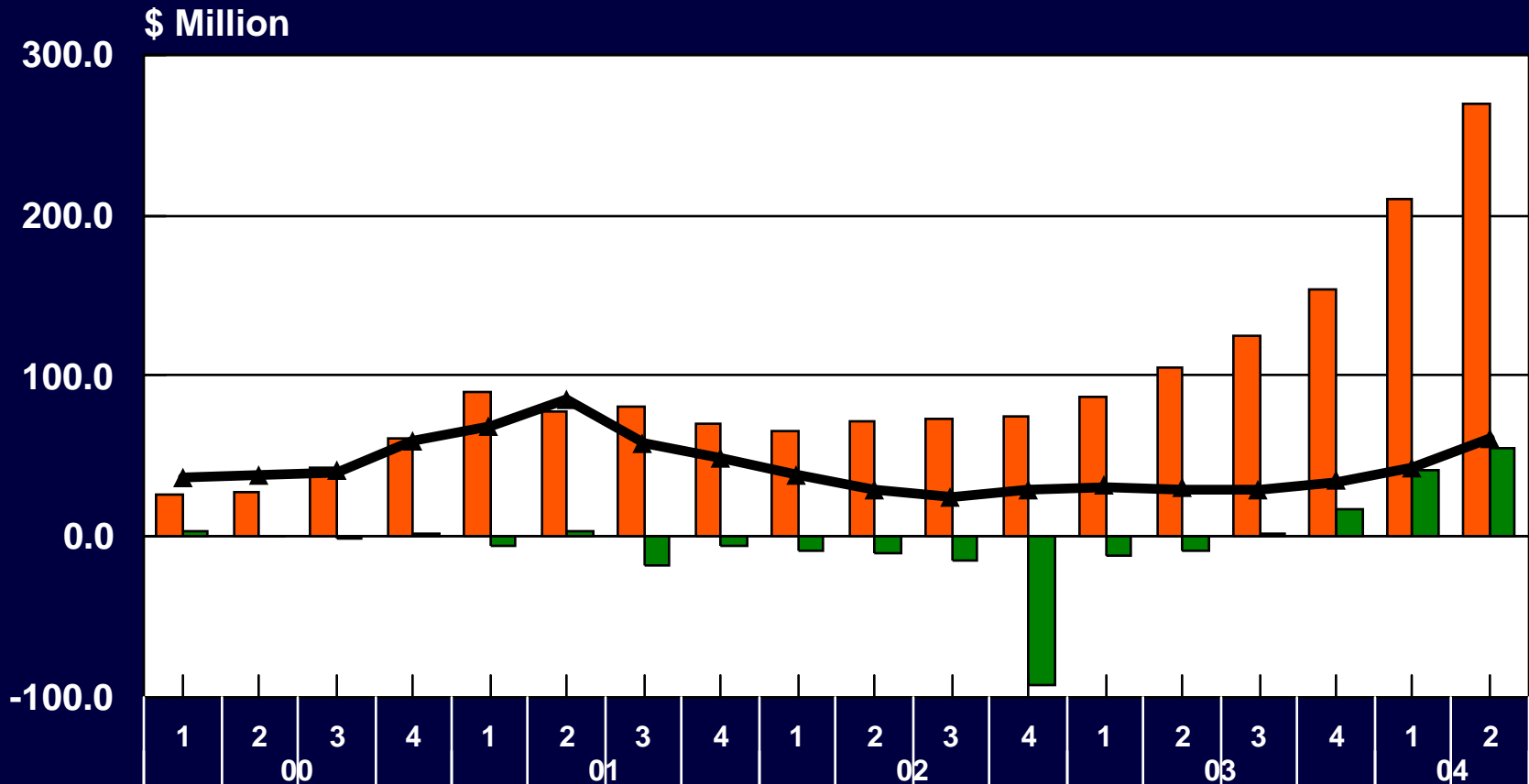
CY

FY ends October

HPQ

Research in Motion (RIM)

Revenue, Net Income & Inventory



Revenue	25.8	27.1	42.5	61.6	90.1	77.0	80.1	70.9	66.1	71.6	73.4	74.2	87.5	104.5	125.7	153.9	210.6	269.6
Income	3.2	0.4	-1.6	1.5	-6.5	3.8	-17.5	-6.3	-8.6	-10.8	-14.3	-92.3	-12.6	-8.2	2.1	16.3	41.4	55.0
Inventory	36.9	38.0	40.4	59.0	68.0	85.2	57.9	48.4	37.5	29.3	25.0	29.1	31.3	29.7	28.6	34.2	42.8	61.4

CY

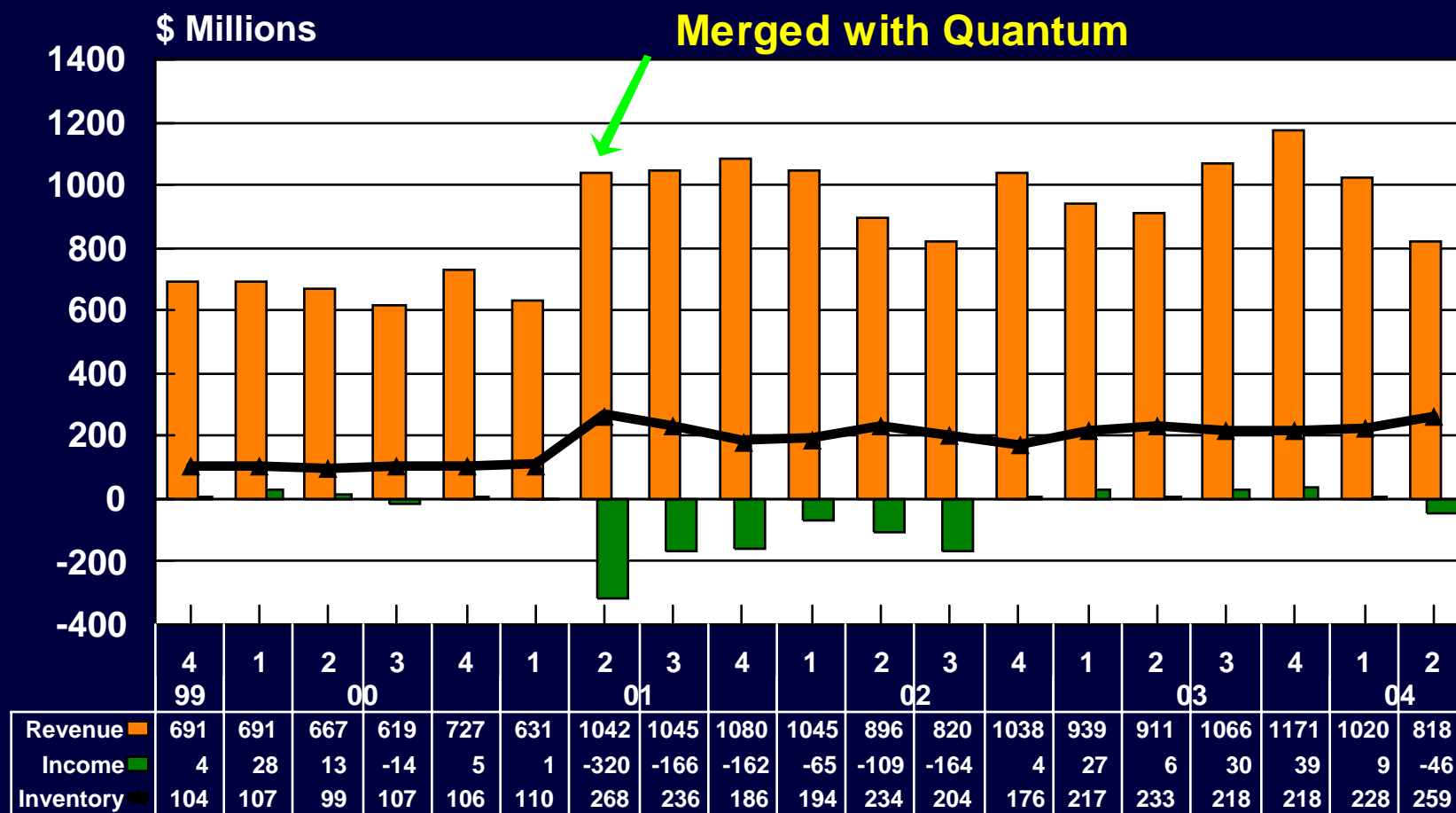
RIMM

Storage Devices

Maxtor

Revenue, Net Income & Inventory

"Our second quarter financial performance reflected extremely aggressive pricing during the quarter and a shortfall in our unit volume. Pricing during the seasonally weak second quarter, especially on desktop drives, was very competitive, and our average selling price fell from \$75 in the first quarter to \$71 in the second. In addition, unit shipments were lower than anticipated, due to sluggish demand in the distribution channel and lost opportunity with a major OEM customer as we continued to work to revalidate and reengage on a specific product." 7/21/04



FY ends June

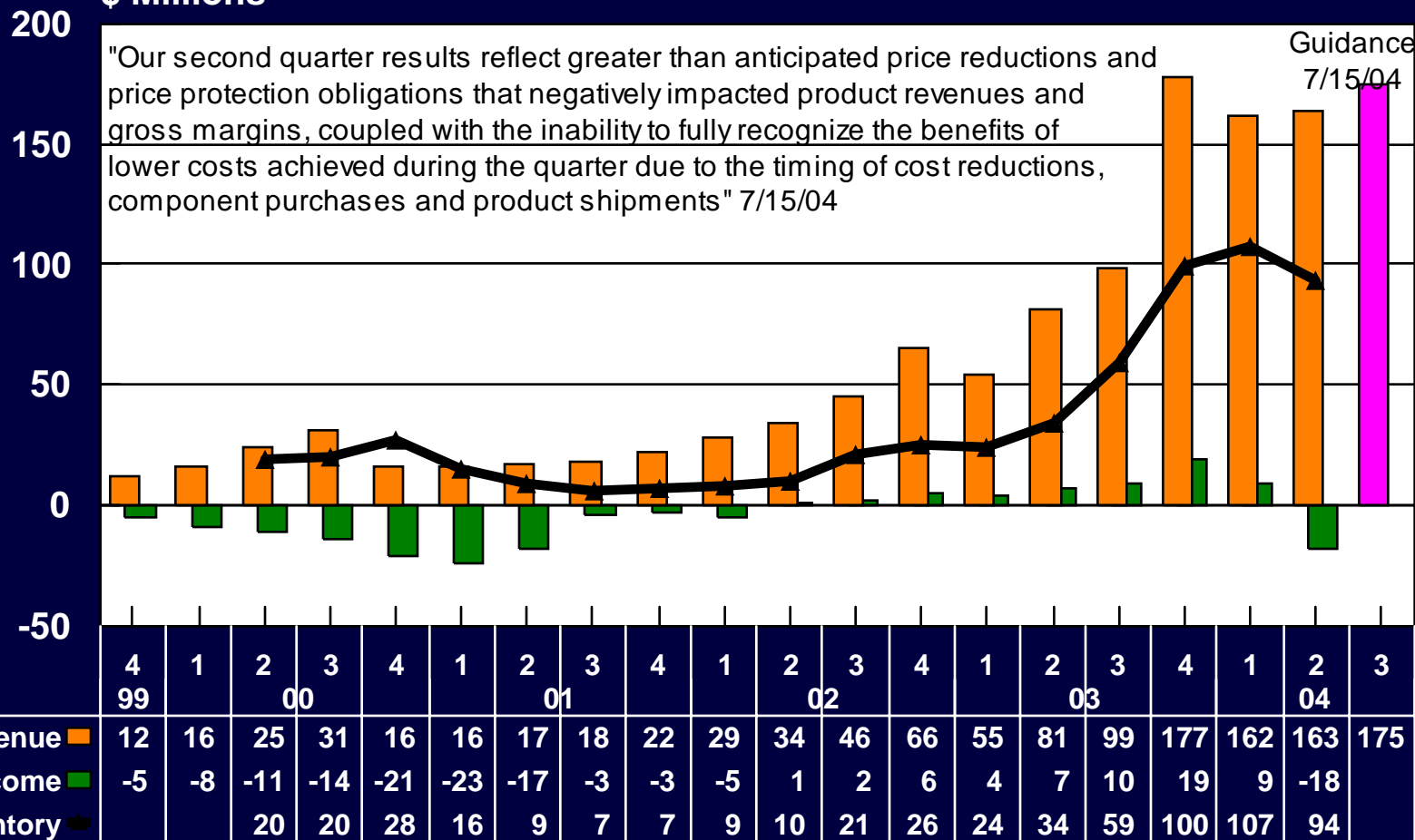
CY

MXO

Lexar Media Inc.

Revenue, Net Income & Inventory

\$ Millions



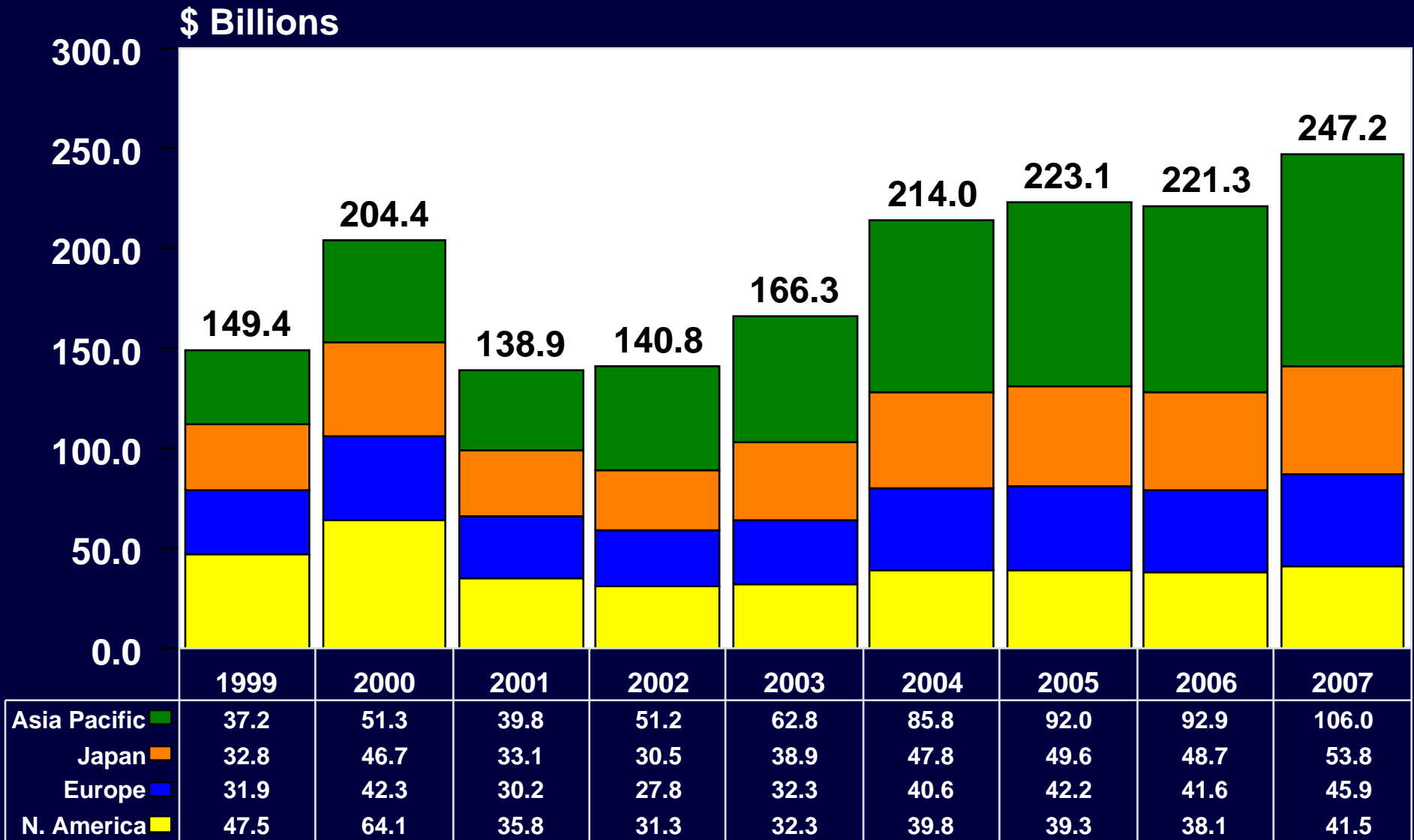
CY

LEXR

Semiconductors

Worldwide Semiconductor Market by Geography

SIA Forecast



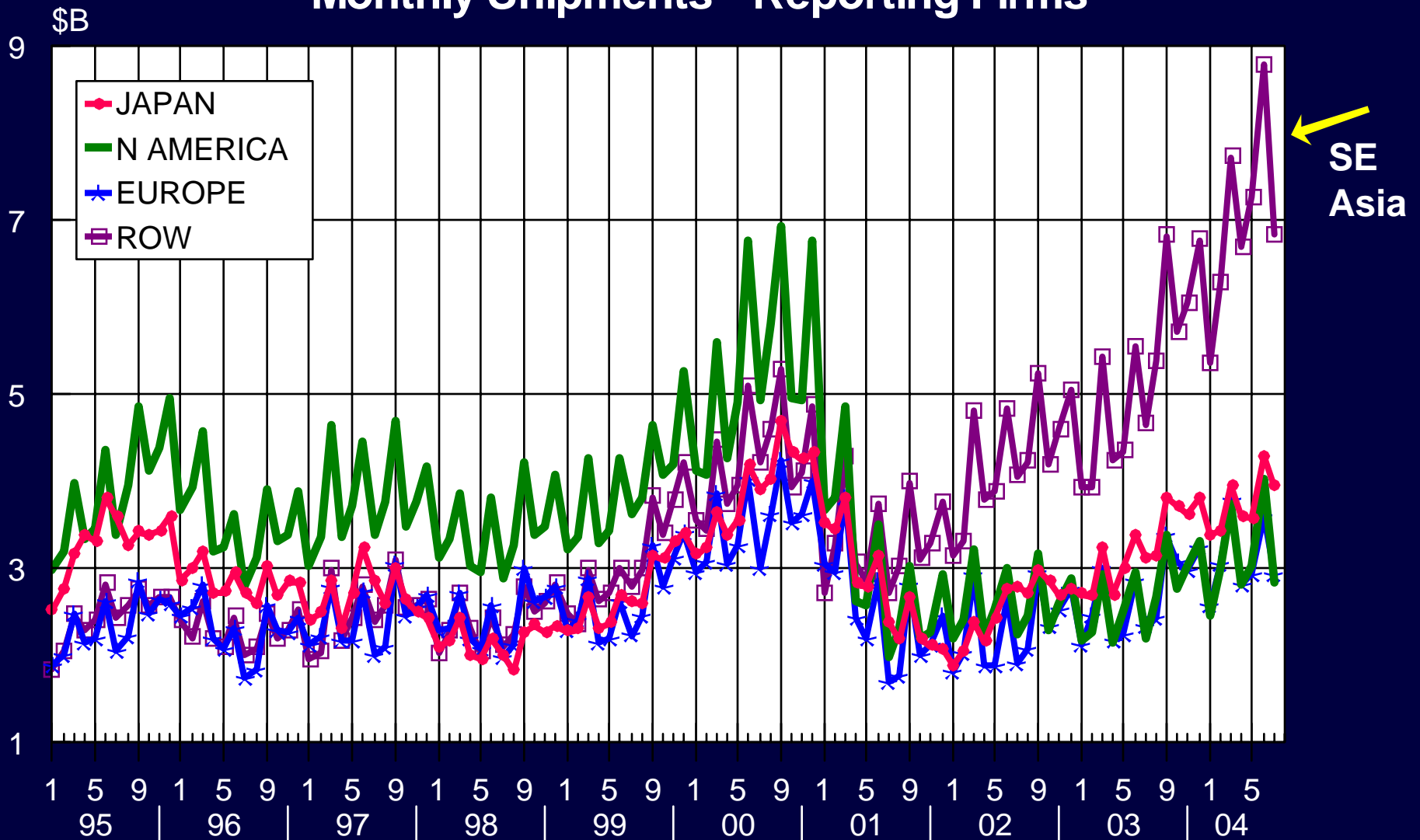
MONTHLY SEMICONDUCTOR SHIPMENTS

\$ Billions

	<u>7/03</u>	<u>7/04</u>	<u>% CH</u>
Americas	2.55	3.30	+ 29.7%
Europe	2.48	3.16	+27.6 %
Japan	3.17	3.94	+24.3 %
Asia Pacific	4.85	7.63	+57.3 %
Total	13.05	18.03	+38.1%

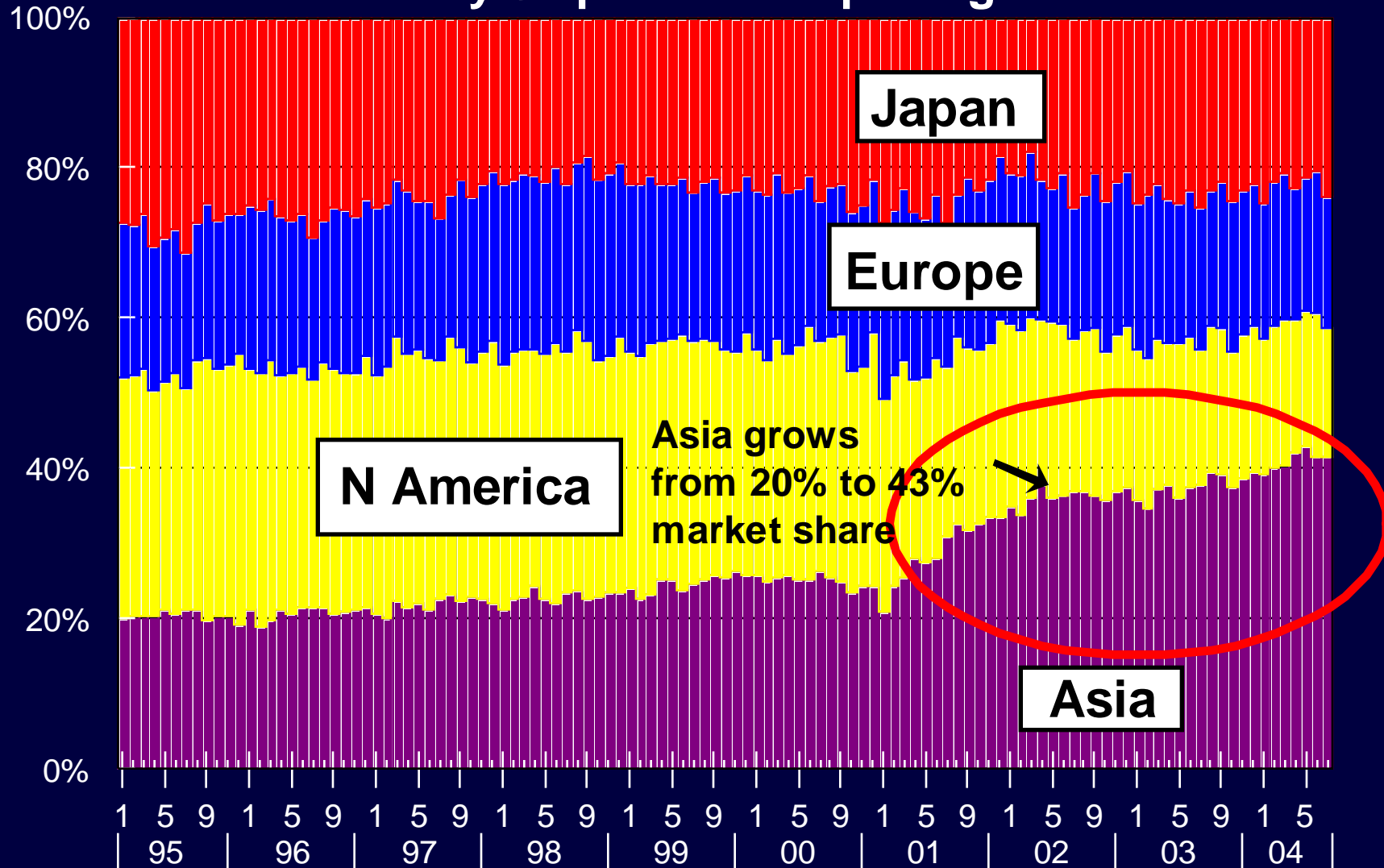
TOTAL SEMICONDUCTOR \$ SHIPMENTS TO AREA

Monthly Shipments - Reporting Firms



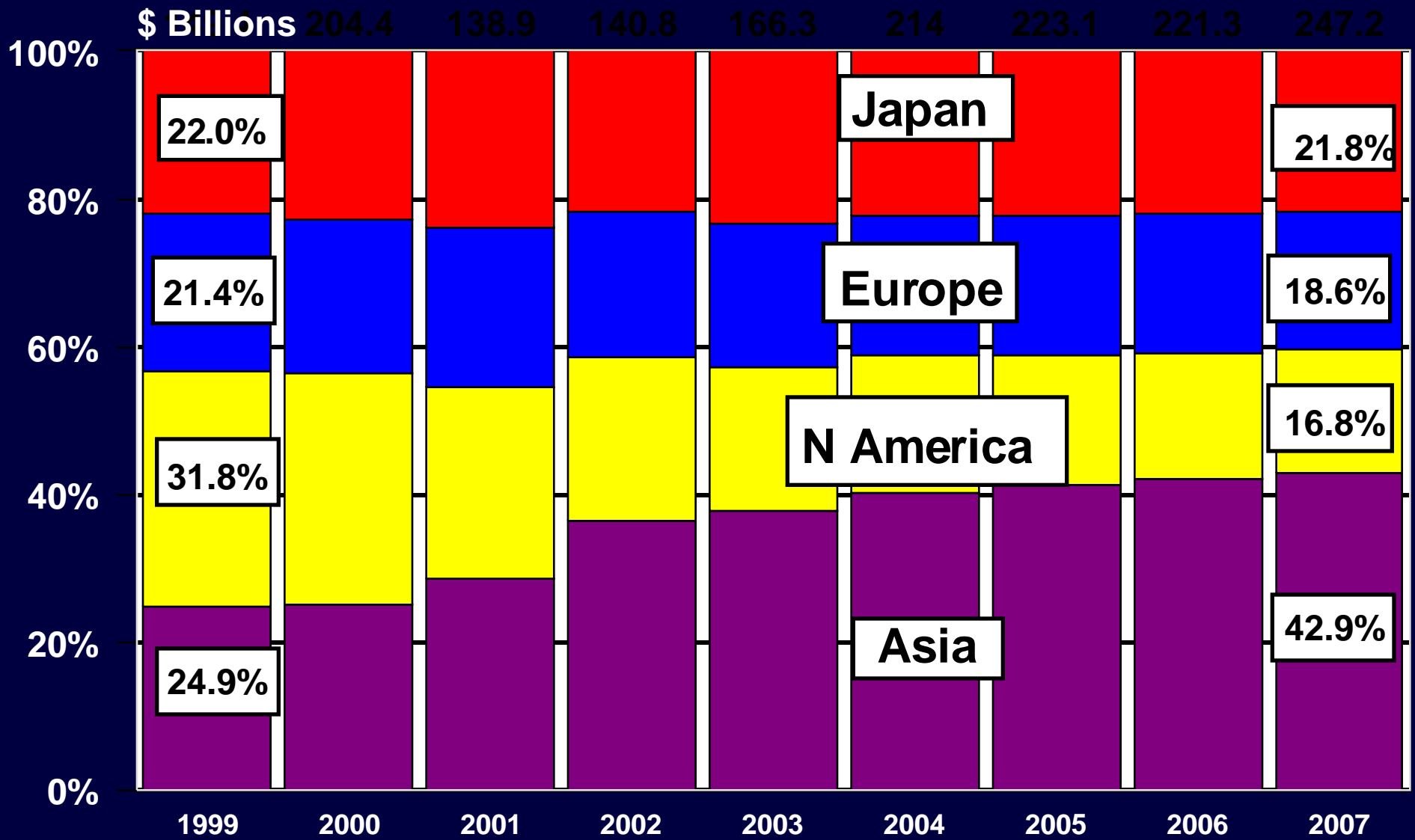
TOTAL SEMICONDUCTOR \$ SHIPMENTS TO AREA

Monthly Shipments - Reporting Firms



Worldwide Semiconductor Market by Geography

SIA Forecast

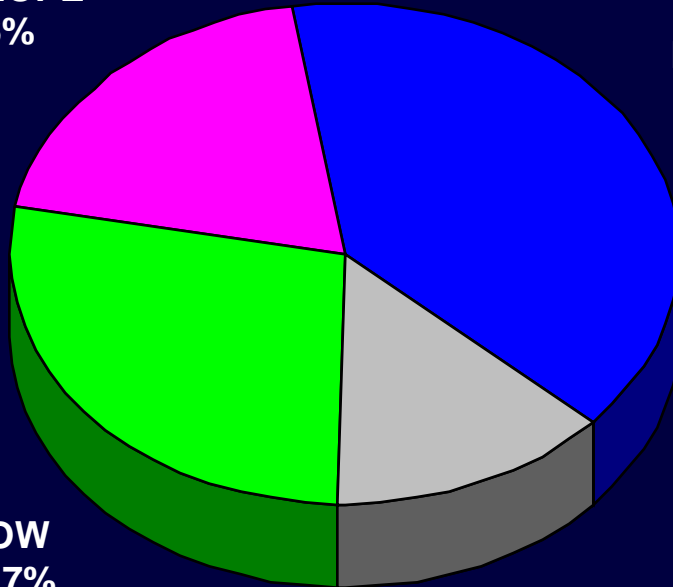


WORLD ELECTRONIC EQUIPMENT PRODUCTION

2004

Final Assembly

W EUROPE
19.6%



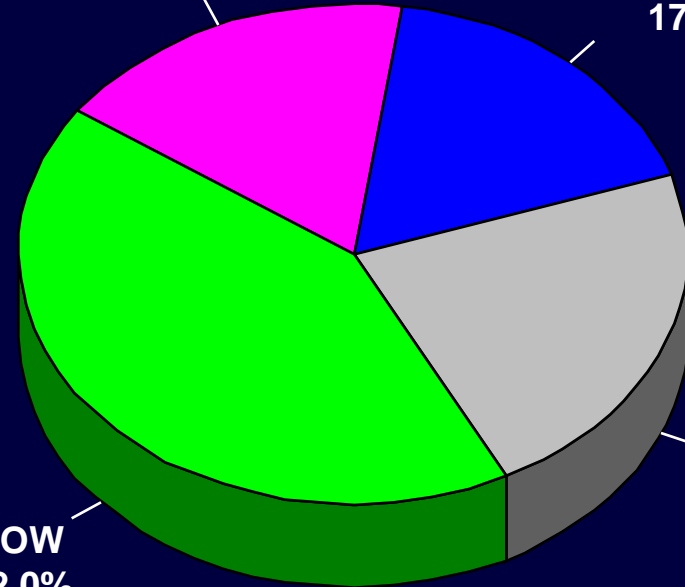
ROW
27.7%

JAPAN
13.6%

N AMERICA
39.1%

Electronic Assembly

W EUROPE
17.7%



N AMERICA
17.7%

ROW
42.0%

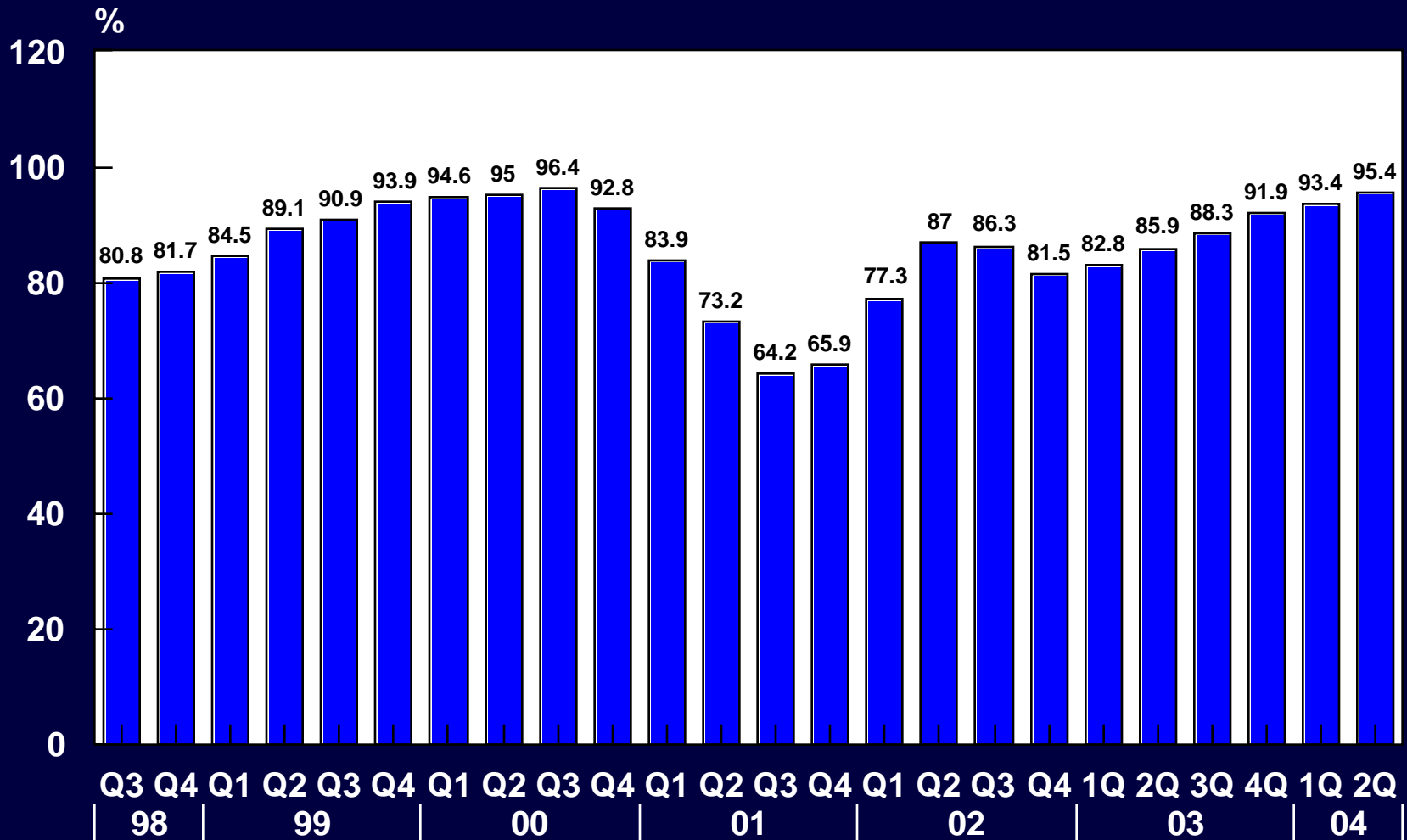
JAPAN
22.6%

TOTAL \$1090 Billion

Custer Consulting based on Electronic Outlook 3/04 & SIA data 6/2004

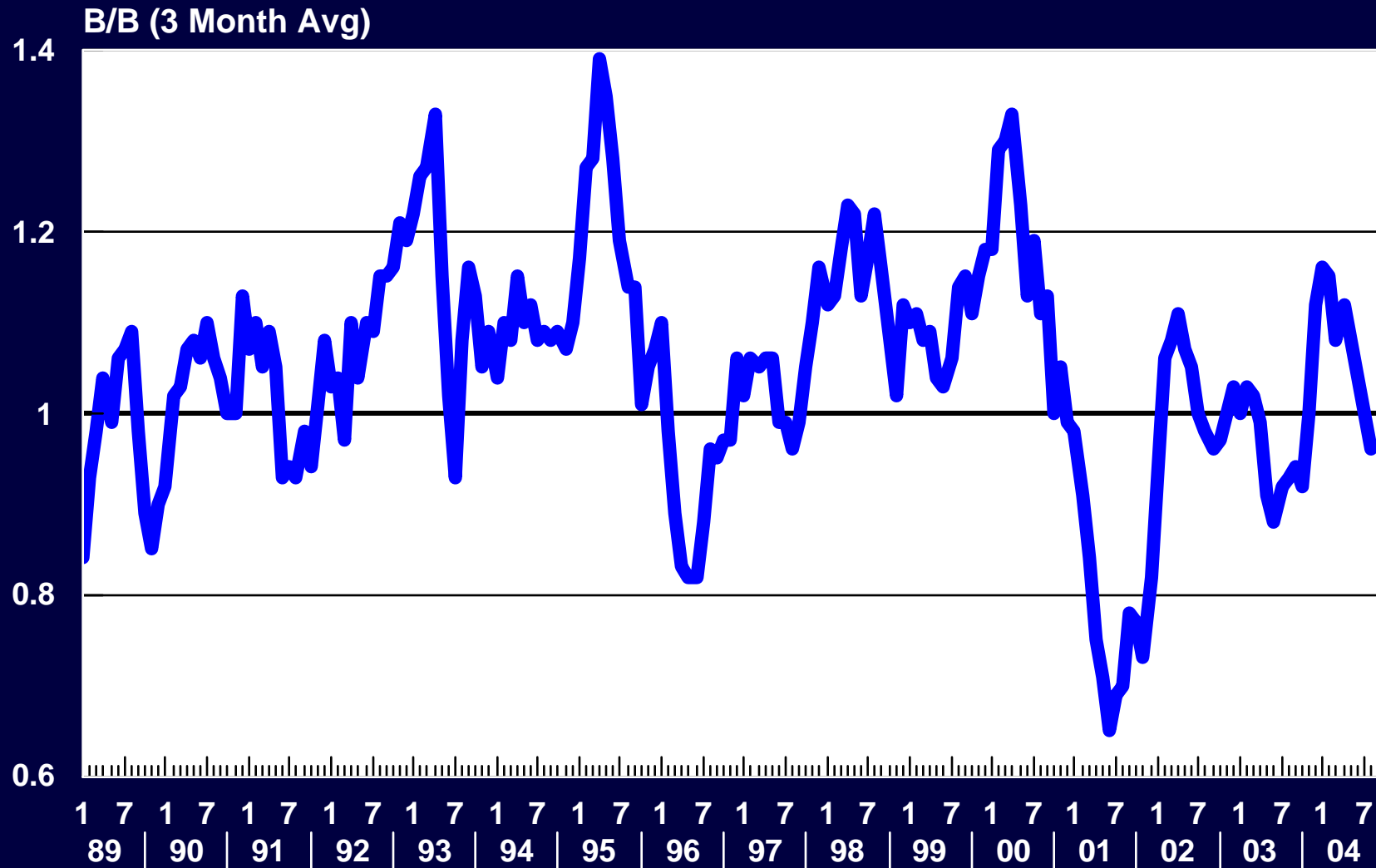
Wafer Fab Utilization Rates

Estimated % of World Chip Capacity Used



www.sia-online.org, www.eeca.org/
Semiconductor International Capacity Statistics (SICAS)

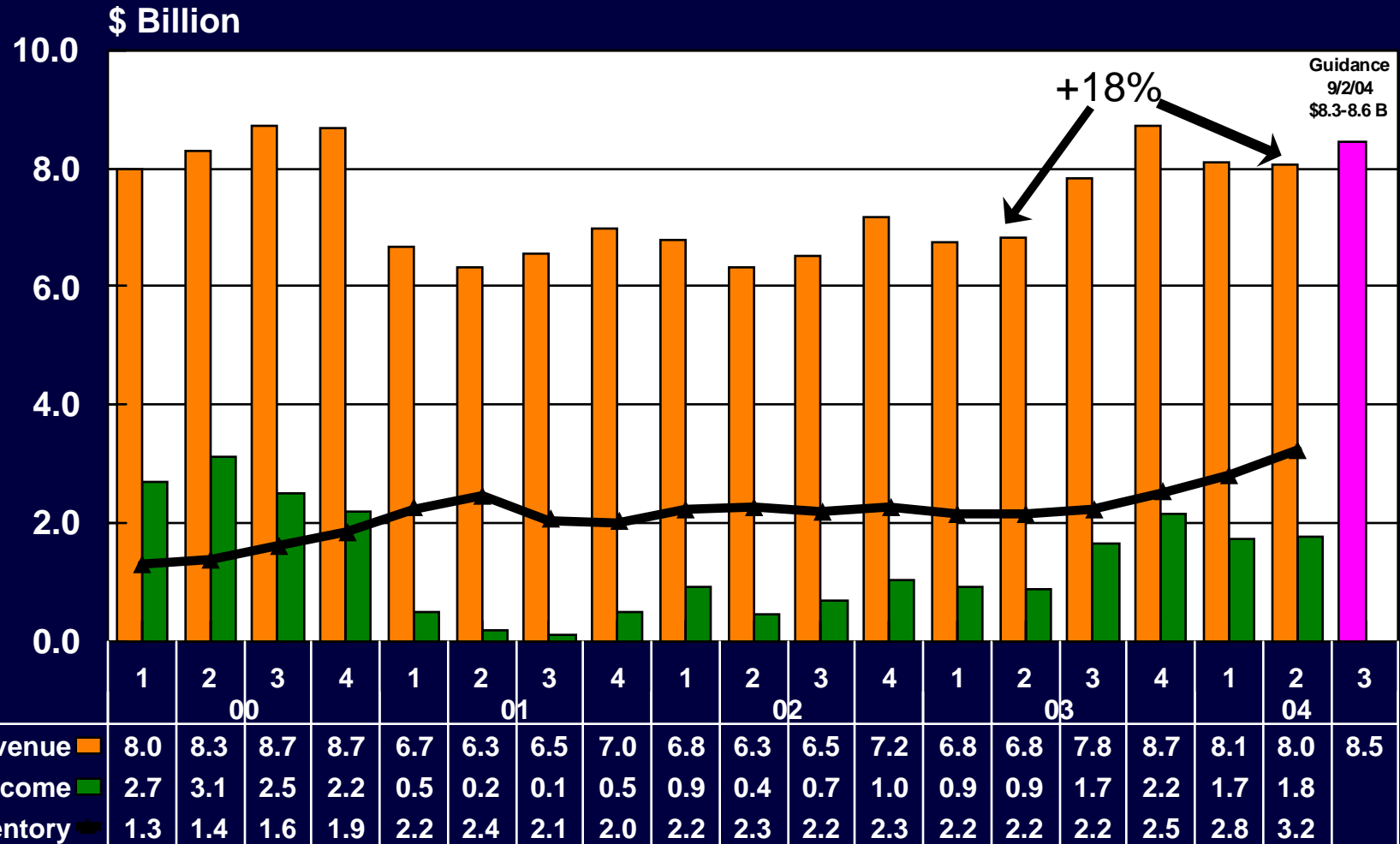
German Semiconductor Book/Bill Ratio



Intel

Revenue, Net Income & Inventory

"Worldwide demand for Intel Architecture products is trending below previous expectations driven by lower than expected end demand along with customer reductions in component inventory levels. Communications revenue is weaker than anticipated primarily due to lower than expected growth in flash memory shipments." 9/2/04



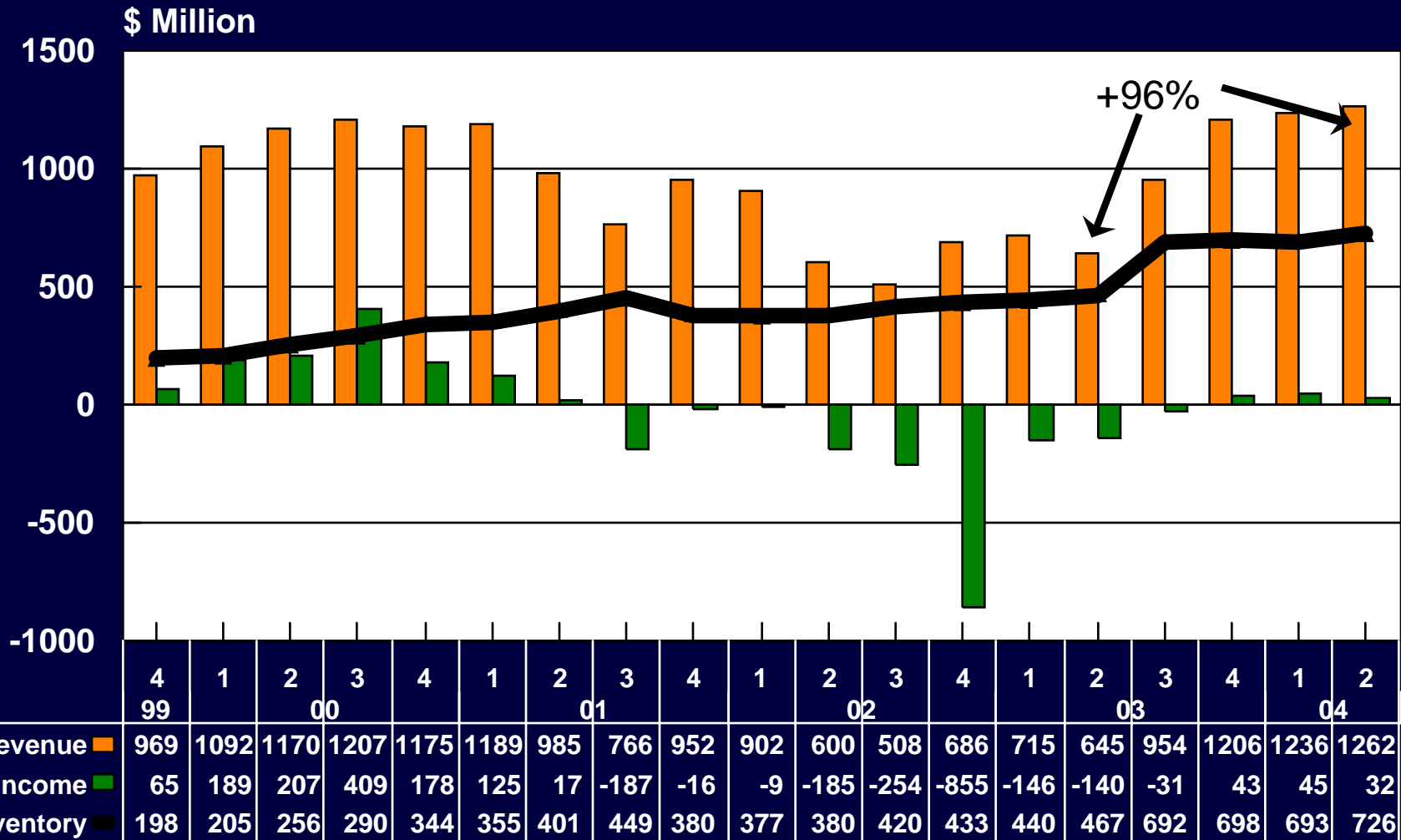
FY=CY

CY

INTC

Advanced Micro Devices

Revenue, Net Income & Inventory



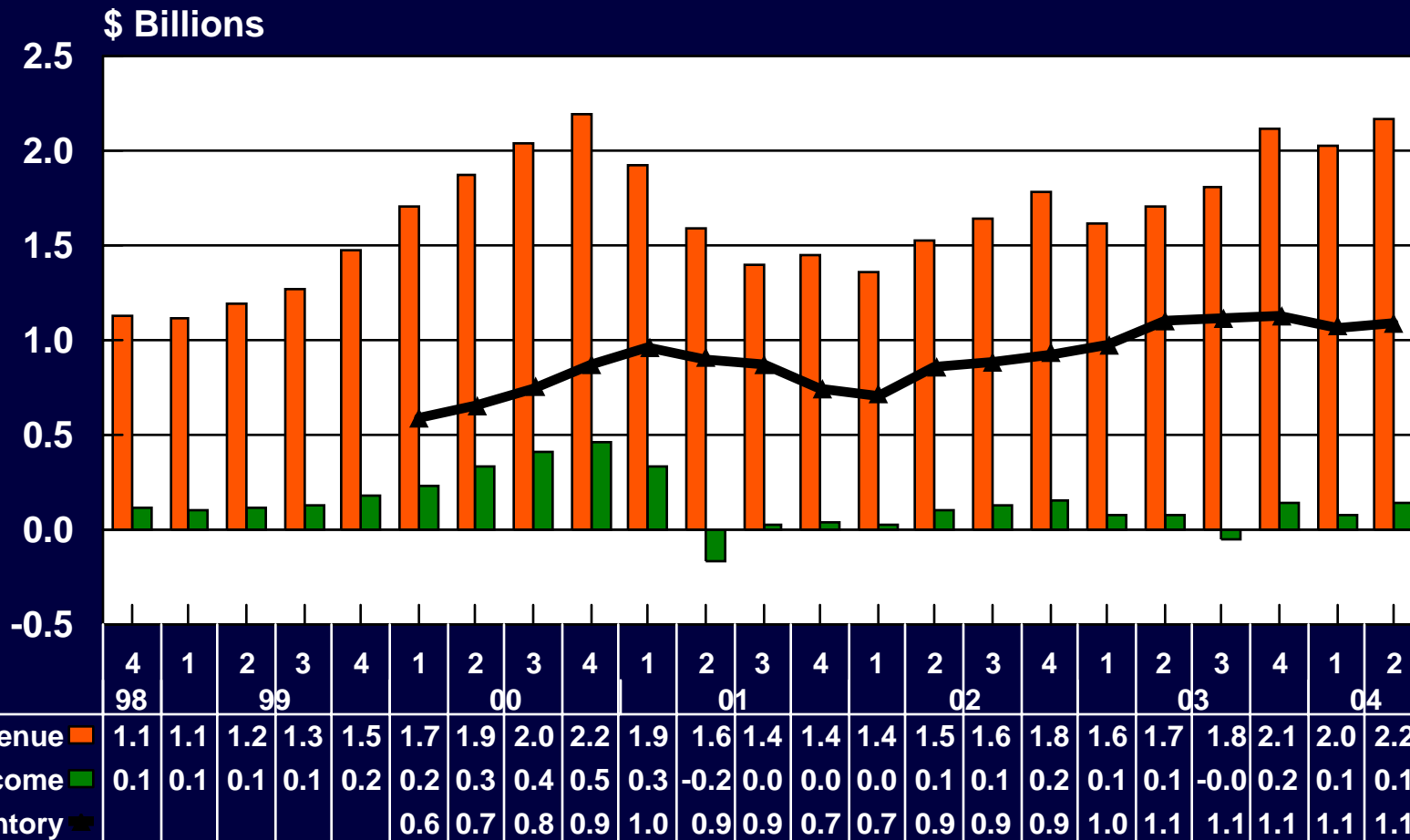
CY

FY=CY

AMD

STMicroelectronics N. V.

Revenue & Net Income

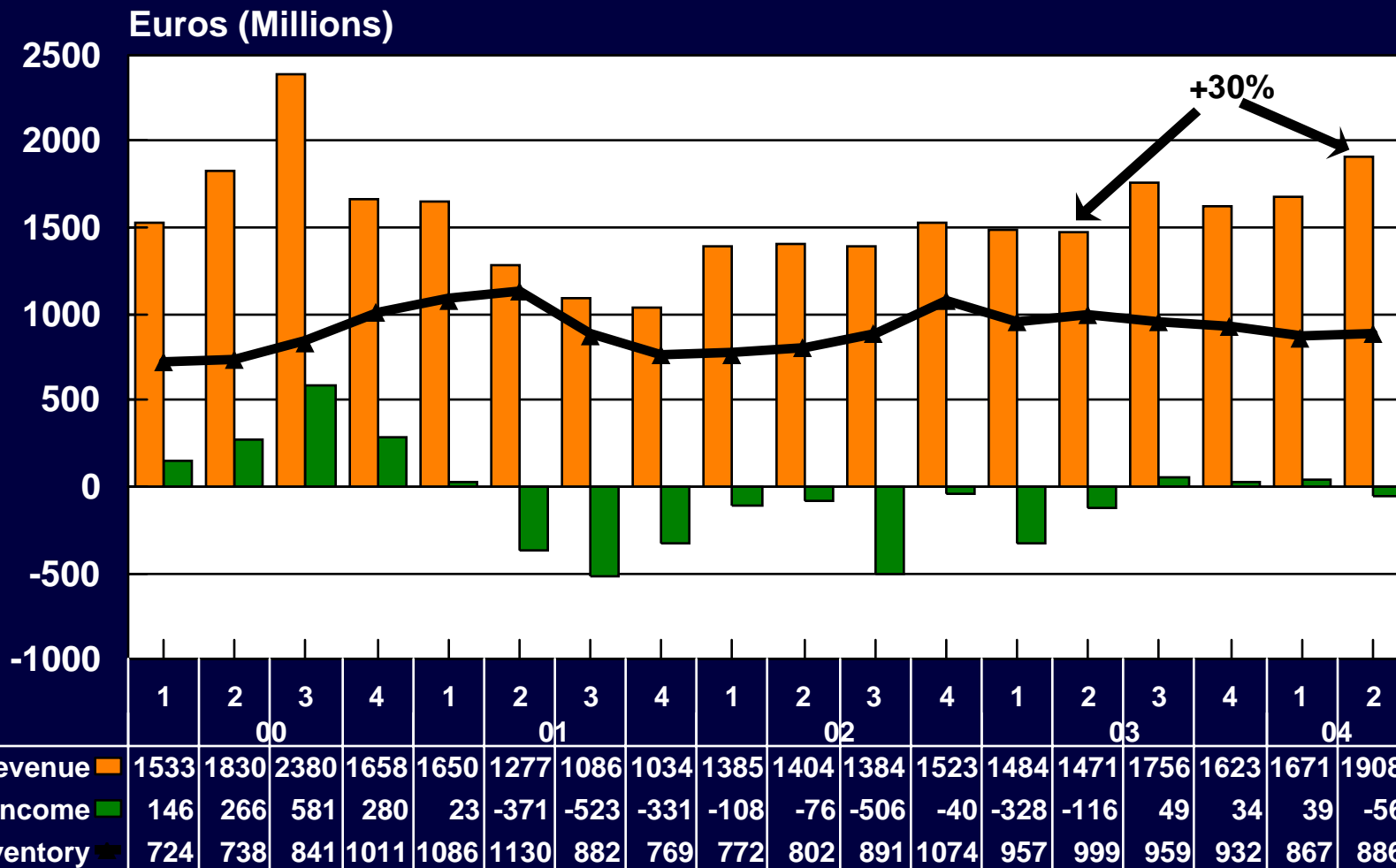


CY

STM

Infineon Technologies AG

Revenue, Net Income & Inventory



CY

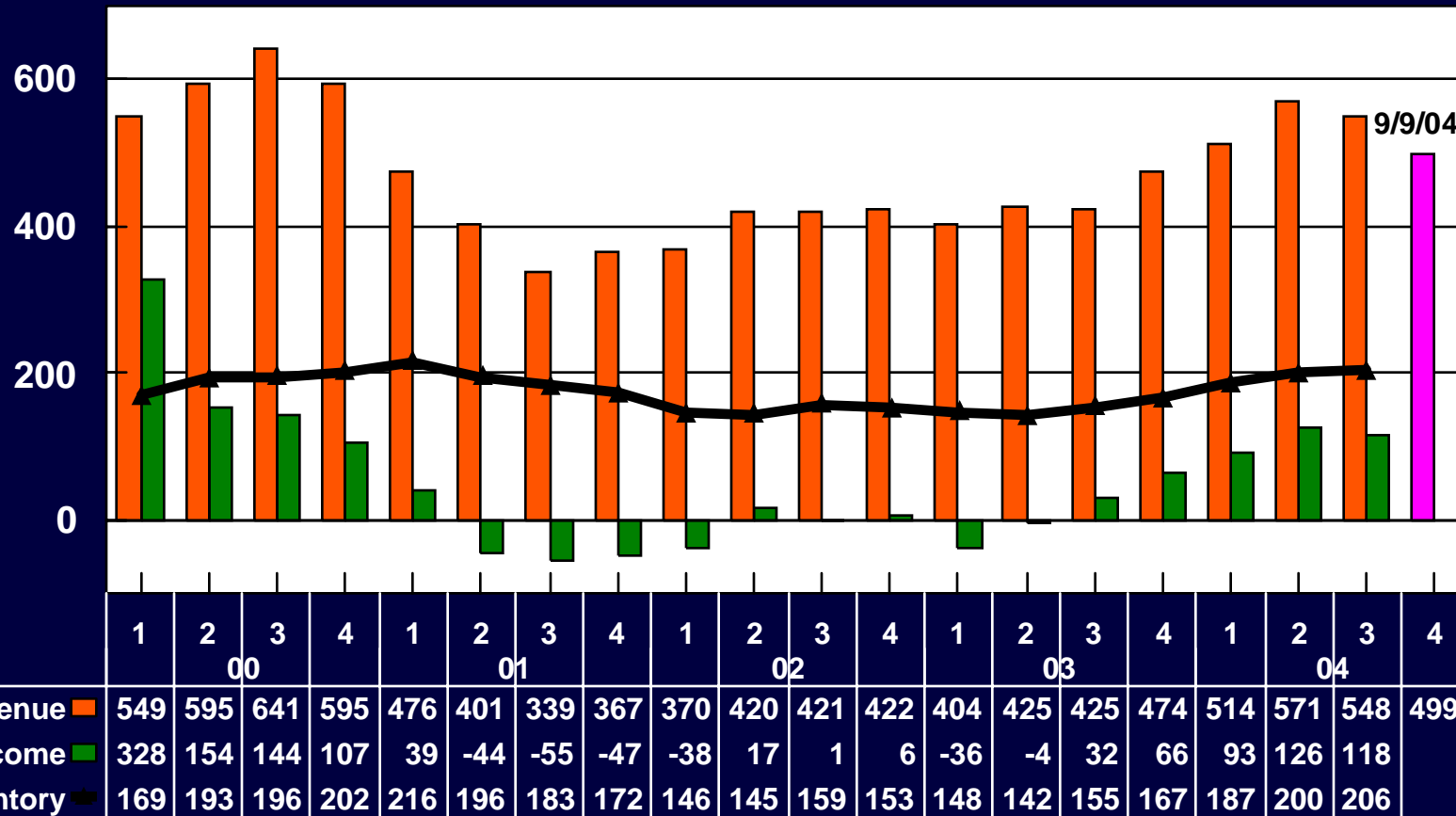
"Sequential growth was achieved mainly through higher prices for products of the Memory Products segment, as well as higher demand for products of the Secure Mobile Solutions segment." 7/20/04

National Semiconductor

Revenue, Net Income & Inventory

"National expects distributors and some customers to continue adjusting order backlog and inventories in Q2. As a result, the Company anticipates revenues may decline 8 to 10 percent sequentially during Q2. This revenue range may be accompanied by gross margin of approximately 51 percent. Operating expenses, meanwhile, are expected to be comparable to Q1." 9/9/04

\$ Millions



CY

NSM

FY ends May 31

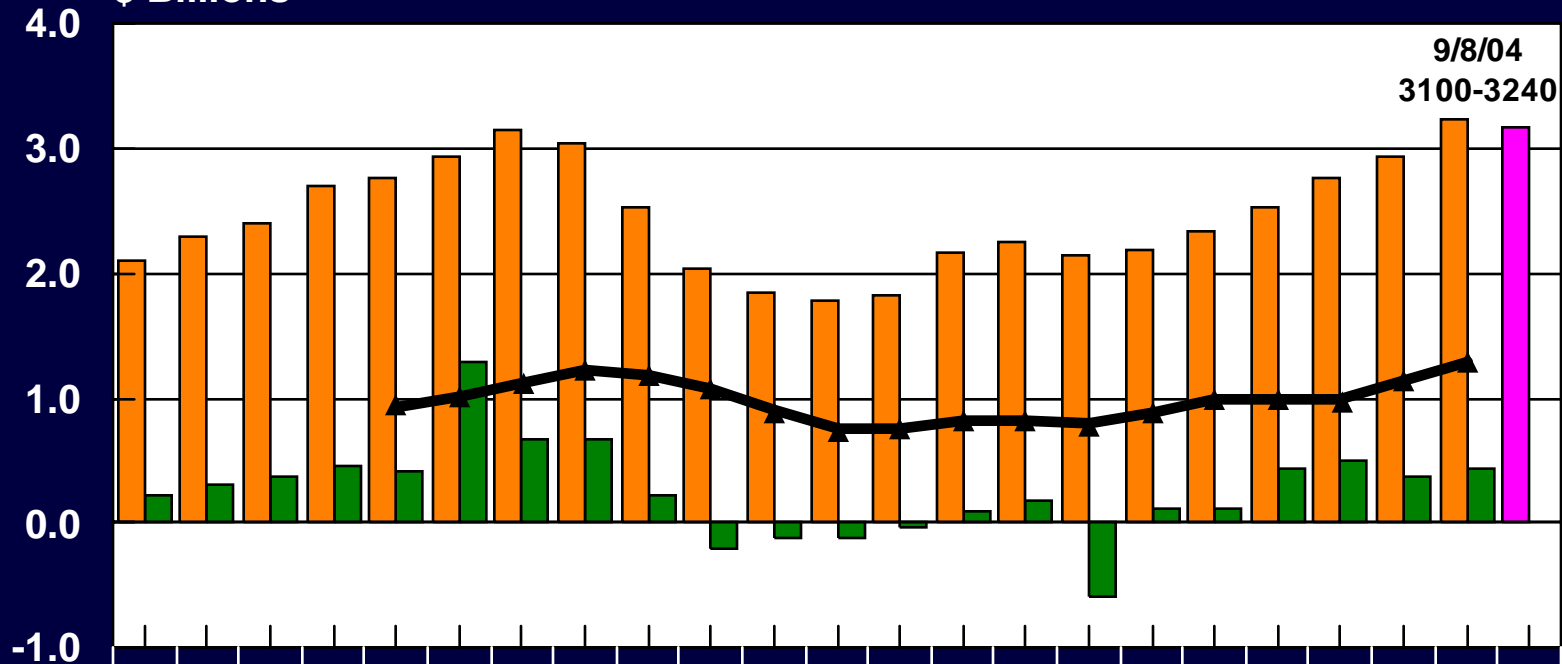
Texas Instruments

Revenue, Net Income & Inventory

"This update reflects what TI believes are adjustments by customers as they move quickly to reduce inventory levels to more closely match their own end- equipment growth rates. These adjustments are more aggressive in standard products sold through the distribution channel than in other areas."

9/8/04

\$ Billions



	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3
	99				00				01				02				03				04		
Revenue	2.1	2.3	2.4	2.7	2.8	2.9	3.1	3.0	2.5	2.0	1.8	1.8	1.8	2.2	2.3	2.1	2.2	2.3	2.5	2.8	2.9	3.2	3.2
Income	0.2	0.3	0.4	0.5	0.4	1.3	0.7	0.7	0.2	-0.2	-0.1	-0.1	-0.0	0.1	0.2	-0.6	0.1	0.1	0.4	0.5	0.4	0.4	
Inventory					0.9	1.0	1.1	1.2	1.2	1.1	0.9	0.8	0.8	0.8	0.8	0.8	0.9	1.0	1.0	1.0	1.1	1.3	

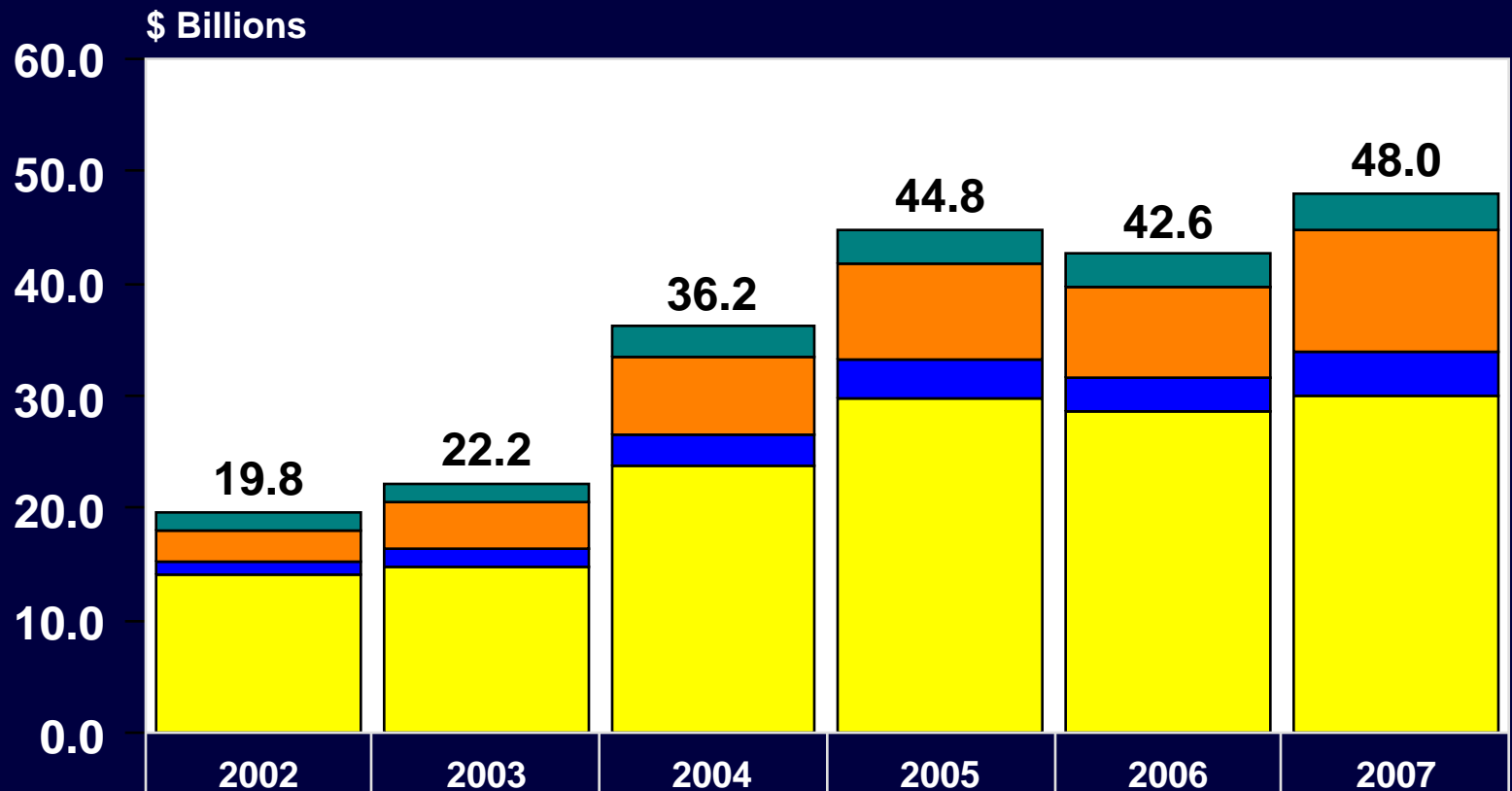
CY

TXN

FY=CY

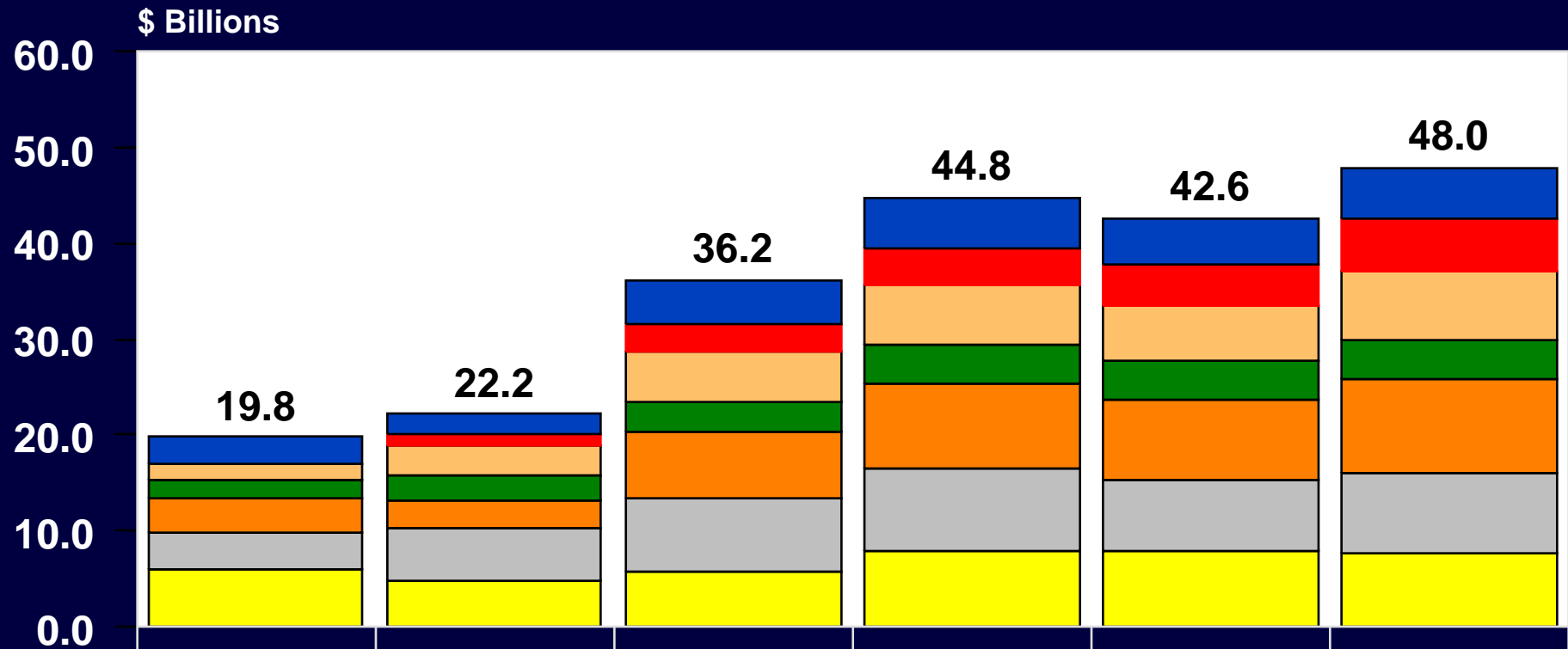
Semiconductor Fab, Test & Measurement

Worldwide Semiconductor Capital Equipment Market by Equipment Segment



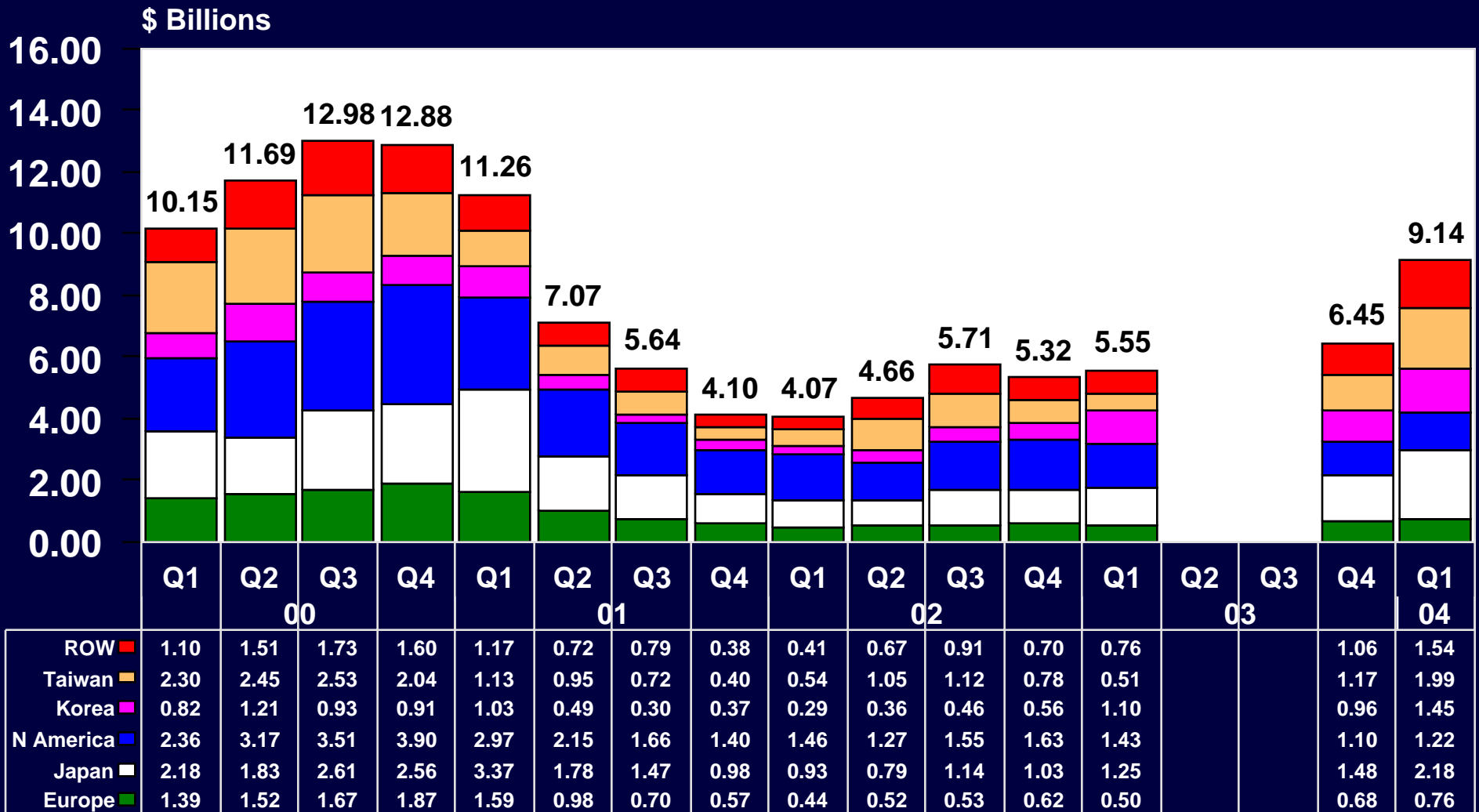
Other	1.7	1.7	2.7	3.2	2.8	3.2
Test	2.7	4.1	6.9	8.5	8.2	10.9
Assembly & Packaging	1.2	1.7	3.0	3.4	3.1	3.8
Wafer Process	14.2	14.8	23.7	29.7	28.6	30.1

Worldwide Semiconductor Capital Equipment Market by Geography

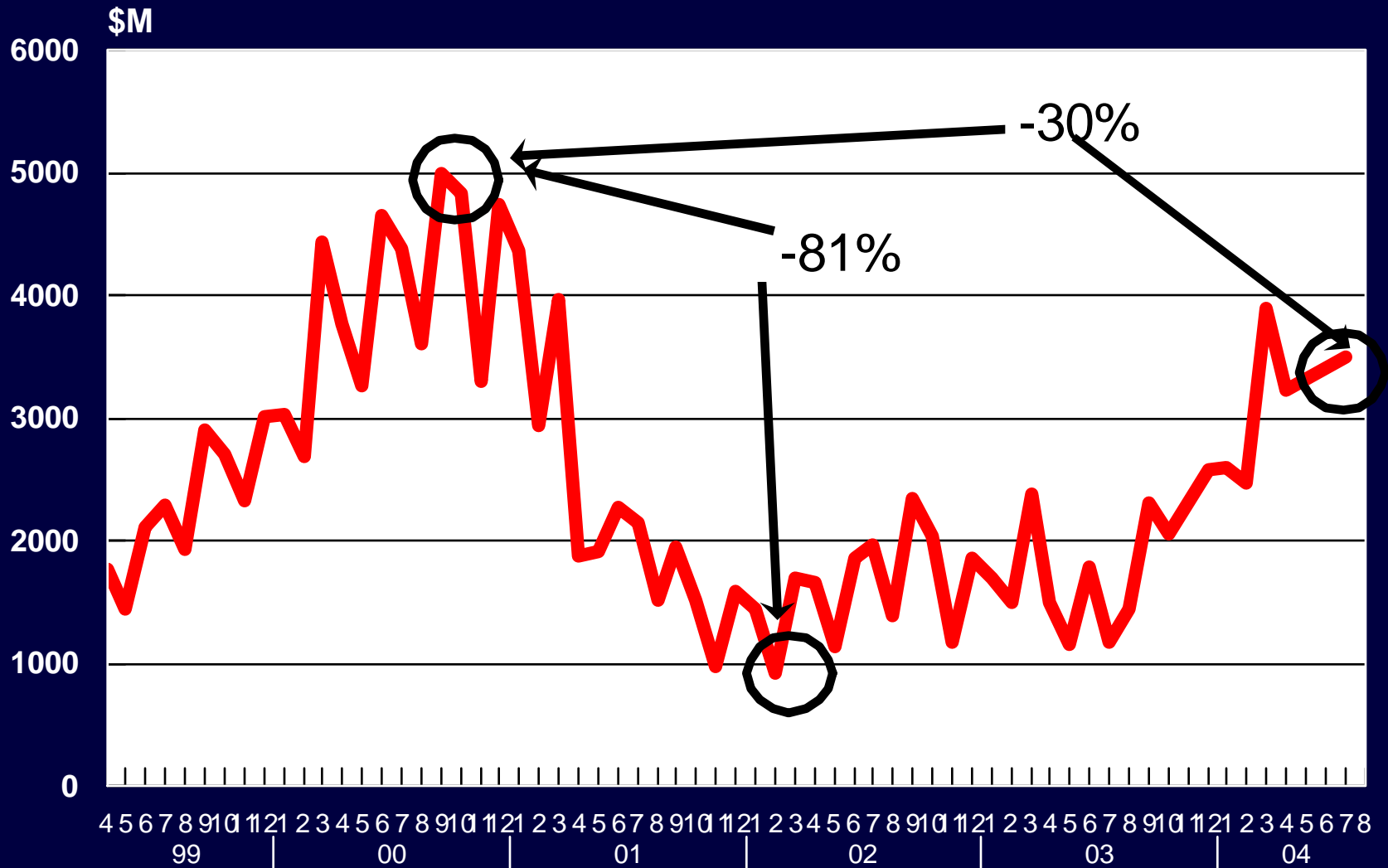


	2002	2003	2004	2005	2006	2007
ROW	2.7	2.1	4.6	5.4	4.8	5.4
China		1.2	2.9	3.9	4.4	5.6
S Korea	1.7	3.2	5.1	6.2	5.6	7.0
Europe	2.1	2.6	3.2	4.1	4.1	4.1
Taiwan	3.5	2.9	7.0	8.9	8.3	10.0
Japan	3.9	5.6	7.5	8.6	7.5	8.2
N America	5.9	4.7	5.9	7.9	7.9	7.7

Semiconductor Capital Equipment Shipments by Area



World Semiconductor Equipment Industry Shipments



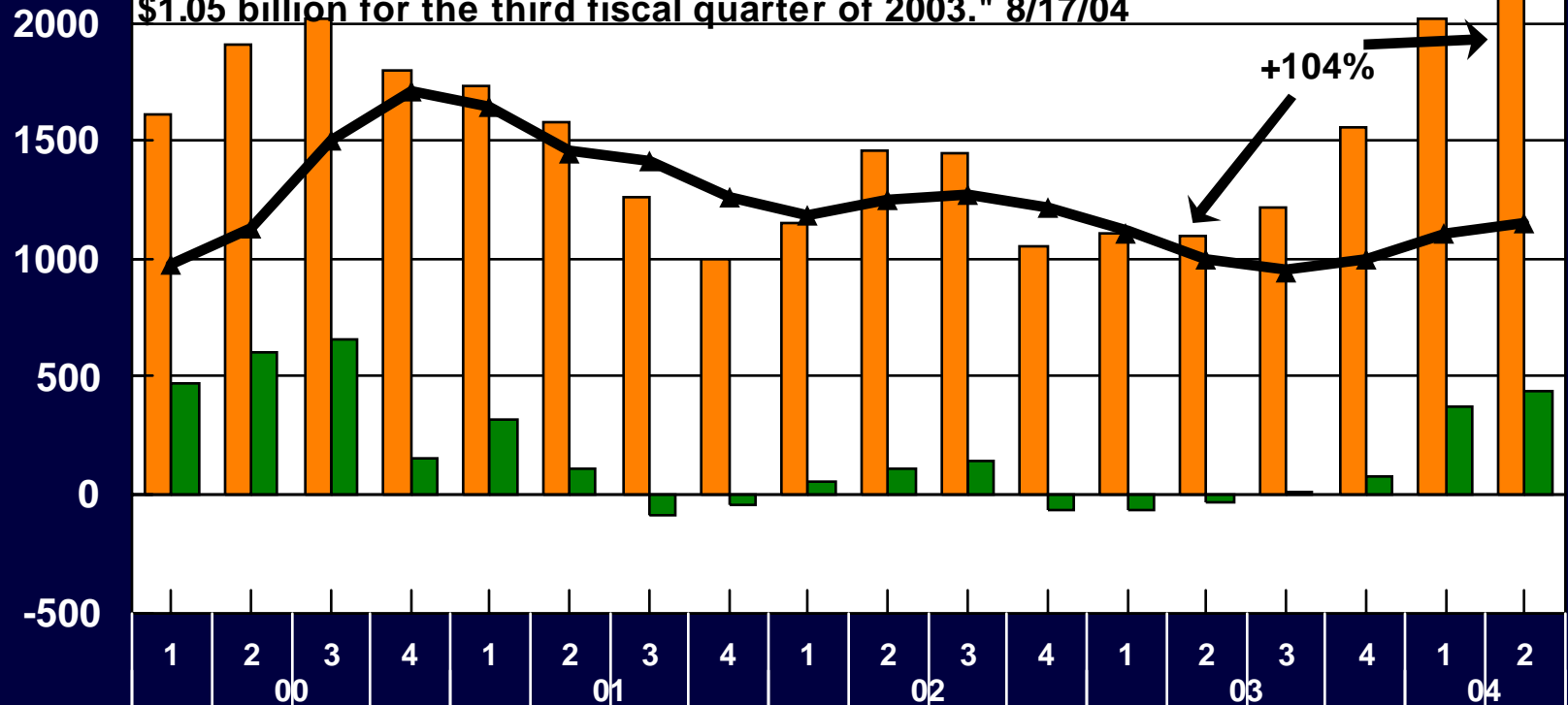
SOURCE Semiconductor Equipment Association of Japan

Applied Materials

Revenue, Net Income & Inventory

\$ Millions

"New orders of \$2.46 billion for the third fiscal quarter of 2004 increased 11% from \$2.21 billion for the second fiscal quarter of 2004, and increased 134% from \$1.05 billion for the third fiscal quarter of 2003." 8/17/04



	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
	00				01				02				03				04	
Revenue	1616	1906	2015	1803	1735	1576	1265	1000	1156	1460	1446	1054	1107	1095	1221	1555	2018	2236
Income	469	604	664	157	318	115	-82	-45	52	115	147	-66	-62	-37	15	82	373	441
Inventory	980	1133	1504	1709	1649	1454	1413	1260	1186	1251	1274	1217	1115	997	951	1000	1111	1153

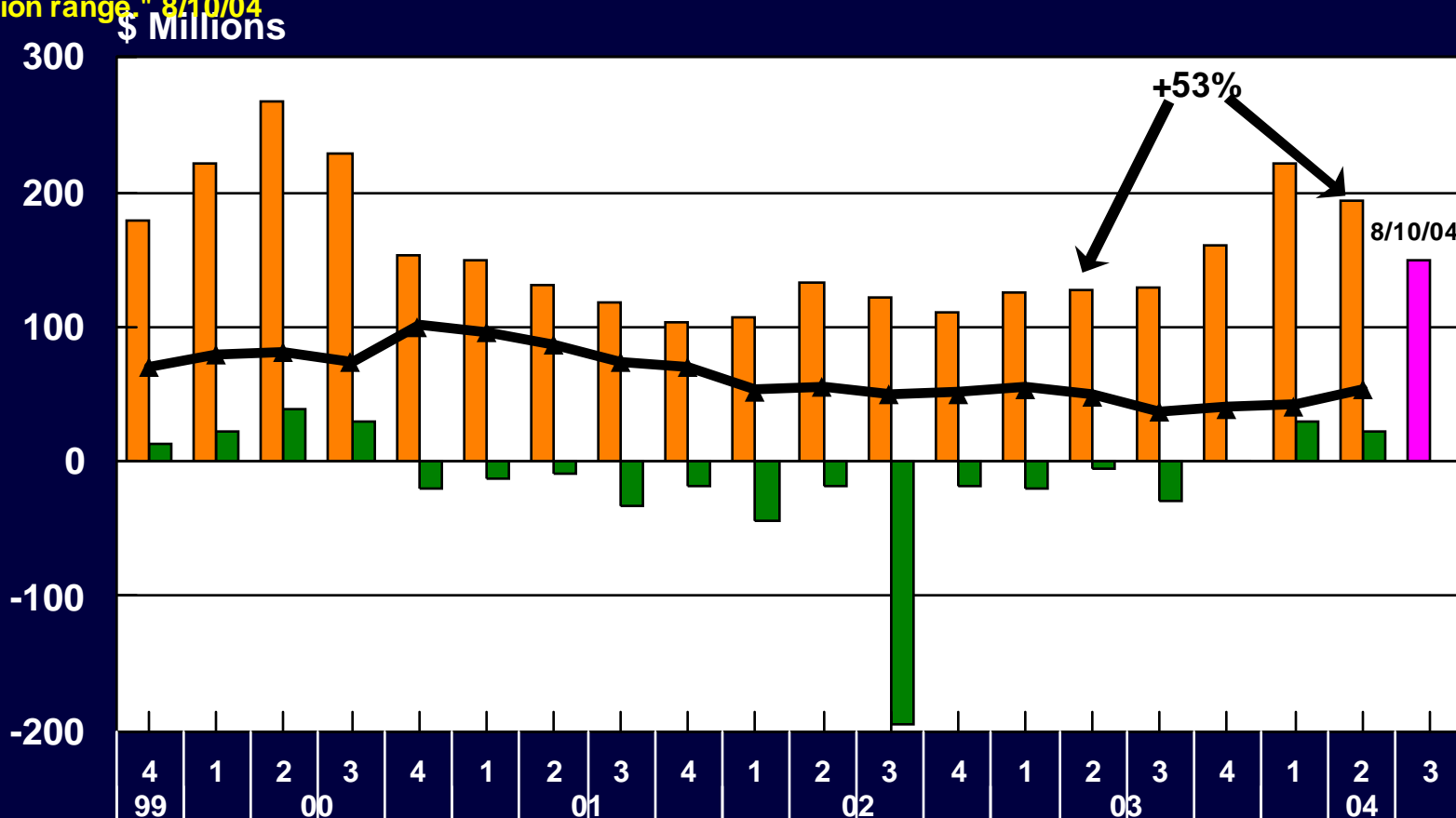
CY

AMAT

Kulicke & Soffa

Revenue, Net Income & Inventory

"Discussions with customers indicate a general slowing in the rate of semiconductor growth, and as a result, wire bonder shipments for the September quarter will be lower than previously forecast. The Company had previously forecast revenue for the quarter to be in the \$175 to \$195 million range. The Company's current forecast is for revenue to be in the \$135 to \$165 million range." 8/10/04



	4 99	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3
Revenue	180	222	268	229	153	149	131	118	103	107	132	122	111	126	128	129	160	222	195	150
Income	13	22	38	30	-20	-12	-9	-33	-17	-44	-18	-195	-18	-19	-6	-28	1	29	23	
Inventory	70	80	82	74	101	97	87	74	71	53	56	51	51	55	49	38	40	42	54	

FY ends September

CY

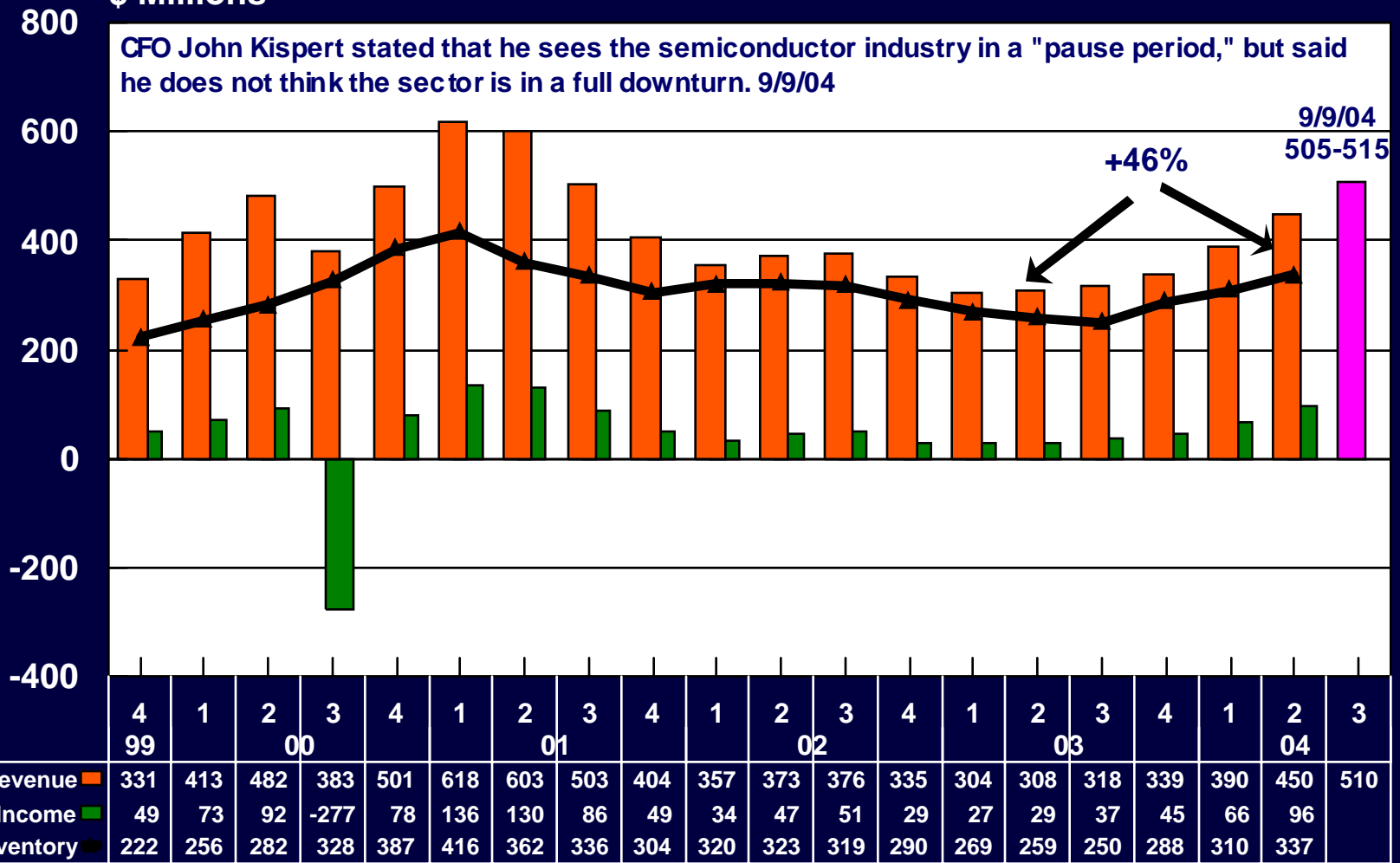
KLIC

KLA-Tencor Corp.

Revenue, Net Income & Inventory

\$ Millions

CFO John Kispert stated that he sees the semiconductor industry in a "pause period," but said he does not think the sector is in a full downturn. 9/9/04



CY

KLAC

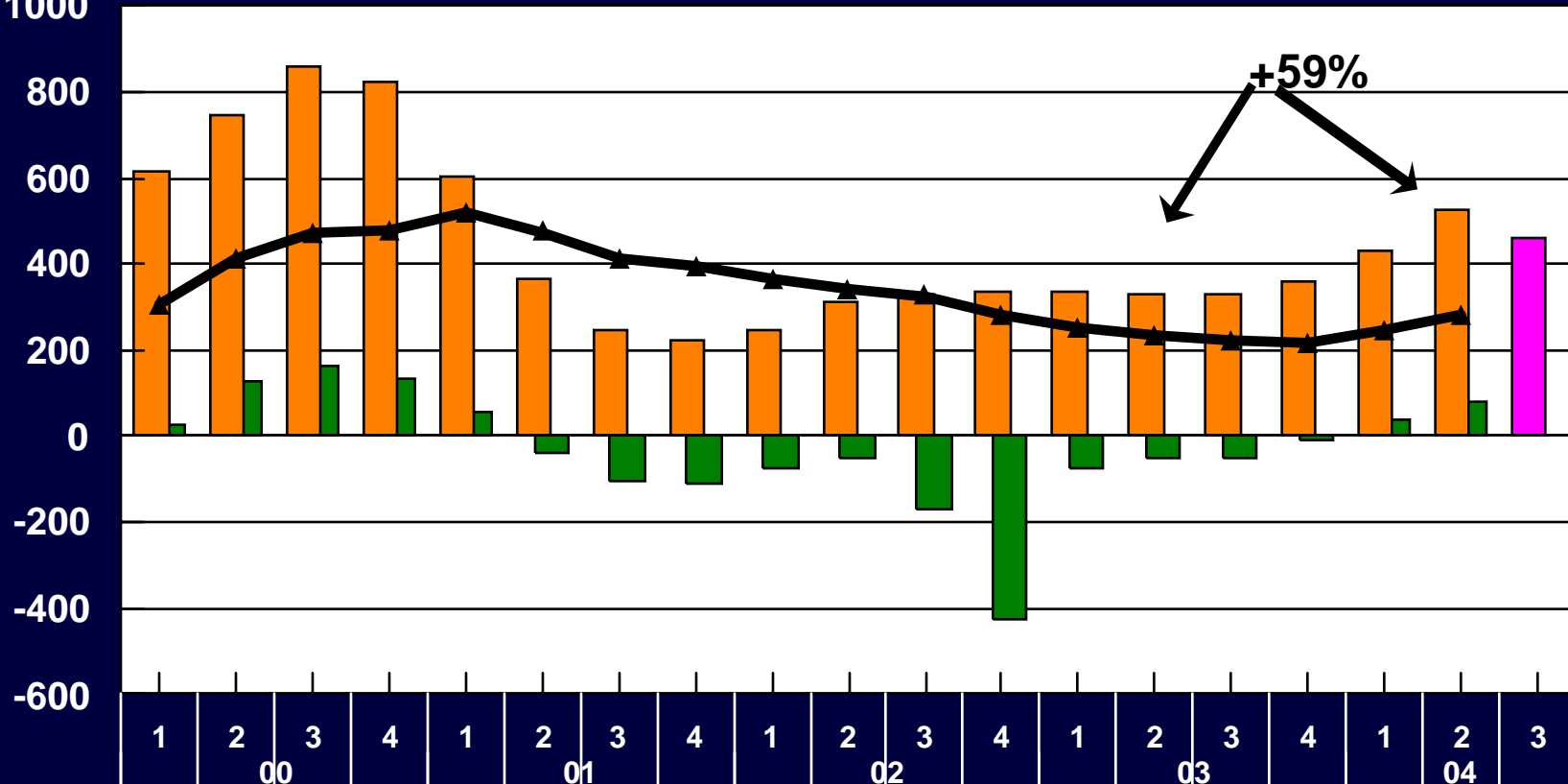
Teradyne

Revenue, Net Income & Inventory

"Our customers are reducing their spending in the face of what appears to be an industry-wide slowdown. As a result, we are now projecting third quarter shipments to be between \$450 & \$470 million." 9/20/04

Note: Prior guidance was \$545 million.

\$ millions



	2000				2001				2002				2003				2004		
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3
Revenue	615	747	859	822	605	366	249	220	248	310	331	334	335	332	329	358	431	526	460
Income	29	129	163	132	54	-40	-103	-113	-77	-51	-167	-424	-76	-52	-54	-11	40	80	
Inventory	308	412	473	478	520	475	413	395	364	342	327	280	252	234	221	215	248	284	

CY

TER

Electronic Manufacturing Services

Top World EMS Providers

2002 vs 2003

			<u>2002</u>	<u>2003</u>	<u>Grow %</u>
Flextronics	FLEX	Singapore	13,615	13,822	+2
Solectron	SLR	USA	12,261	11,144	-9
Sanmina-SCI	SANM	USA	10,168	10,795	+6
Hon Hai (Foxconn)	2317	Taiwan	7,251	9,705	+34
Celestica	CLS	Canada	8,272	6,736	-19
Jabil Circuit	JBL	USA	3,729	5,170	+39
Elcoteq Network	Y.ELC	Finland	1,749	2,564	+47
Benchmark Electronics	BHE	USA	1,630	1,840	+13
Plexus	PLEX	USA	889	841	-5
Manufacturers' Services Ltd	MSV	USA	854	826	-3
Total Top 10			61,338	63,789	+4%

Viasystems not listed, financials are no longer publicly disclosed

Sources: Company Data

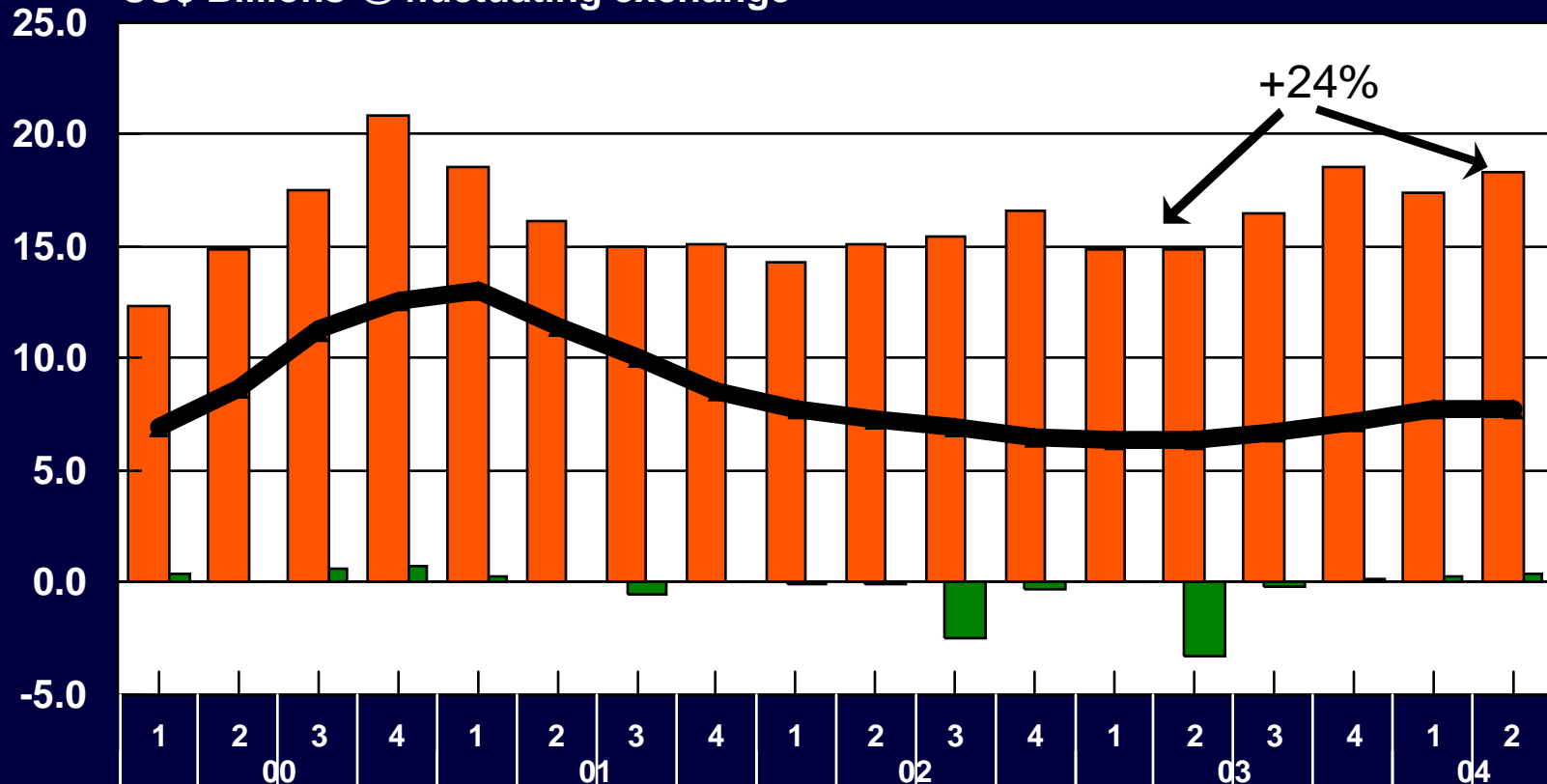
\$US Millions converted at fluctuating exchange

Large EMS Providers

Composite of 12 Public Companies

Revenue, Net Income & Inventory

US\$ Billions @ fluctuating exchange

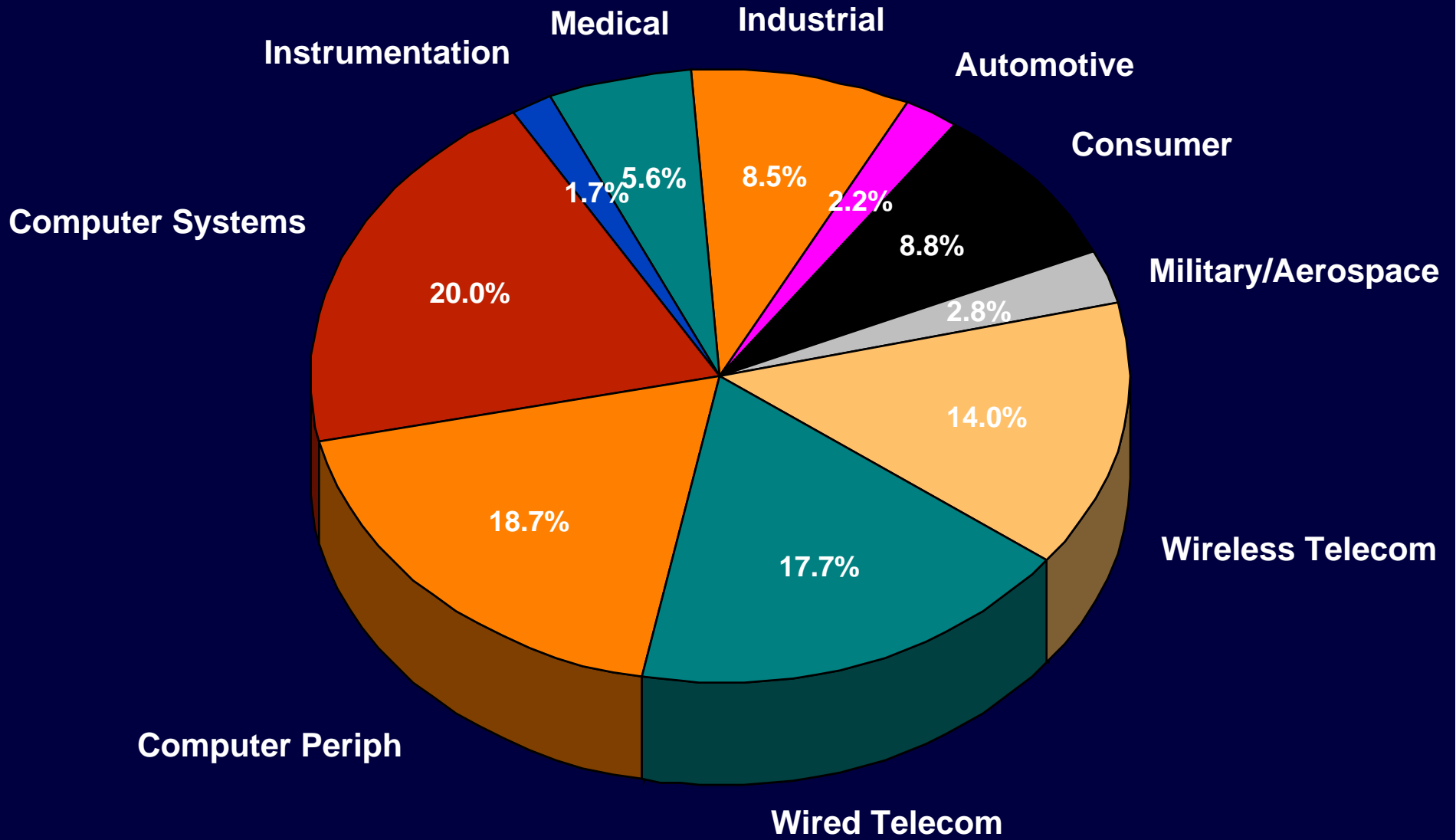


	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
	00				01				02				03				04	
Revenue	12.3	14.9	17.5	20.8	18.5	16.1	14.9	15.1	14.2	15.0	15.4	16.5	14.9	14.8	16.5	18.5	17.4	18.3
Income	0.4	-0.0	0.6	0.7	0.3	0.0	-0.6	0.0	-0.1	-0.1	-2.6	-0.3	0.1	-3.3	-0.2	0.1	0.3	0.3
Inventory	6.9	8.6	11.2	12.5	13.0	11.4	10.0	8.5	7.7	7.2	6.9	6.4	6.4	6.4	6.7	7.1	7.7	7.7

Benchmark, Celestica, Elcoteq, Flextronics, Foxconn, Jabil, MSL, Pemstar, Plexus, Sanmina-SCI, Solectron, Sypris

EMS Segment by Revenue

2003



ODM Segment by Revenue

2003

Consumer

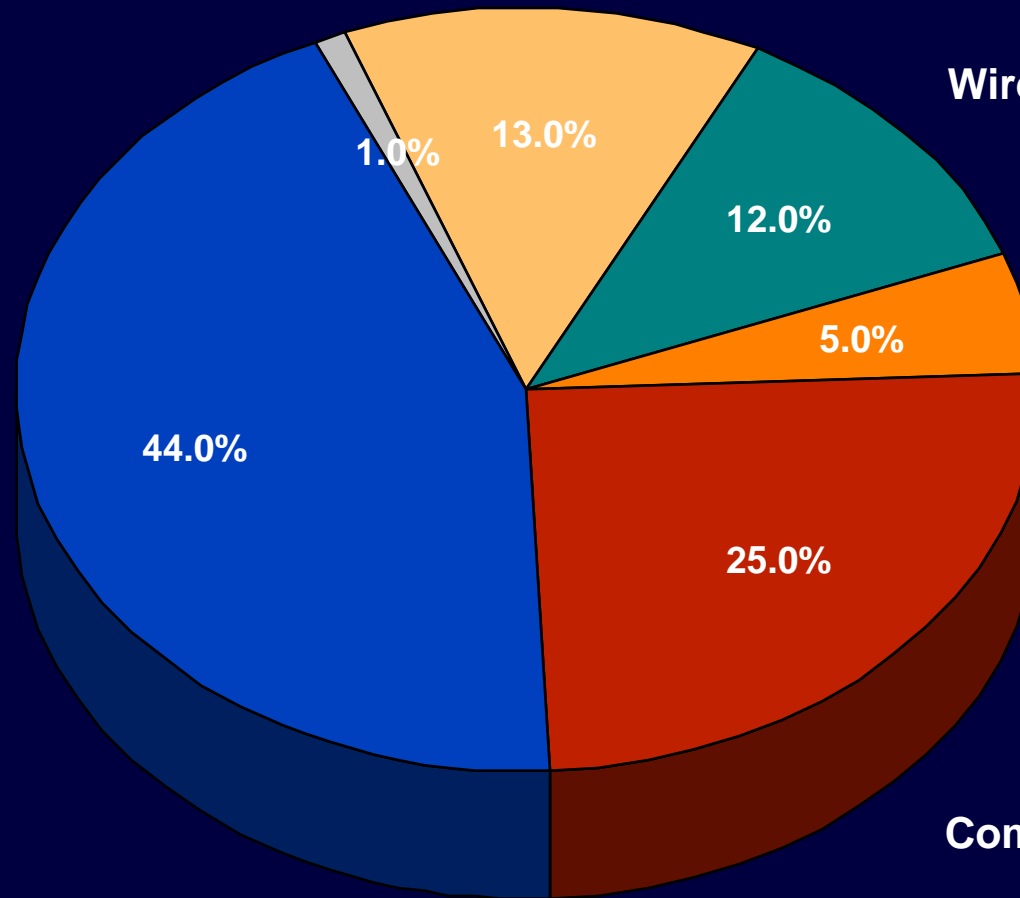
Automotive

Wireless Telecom

Wired Telecom

Computer Periph

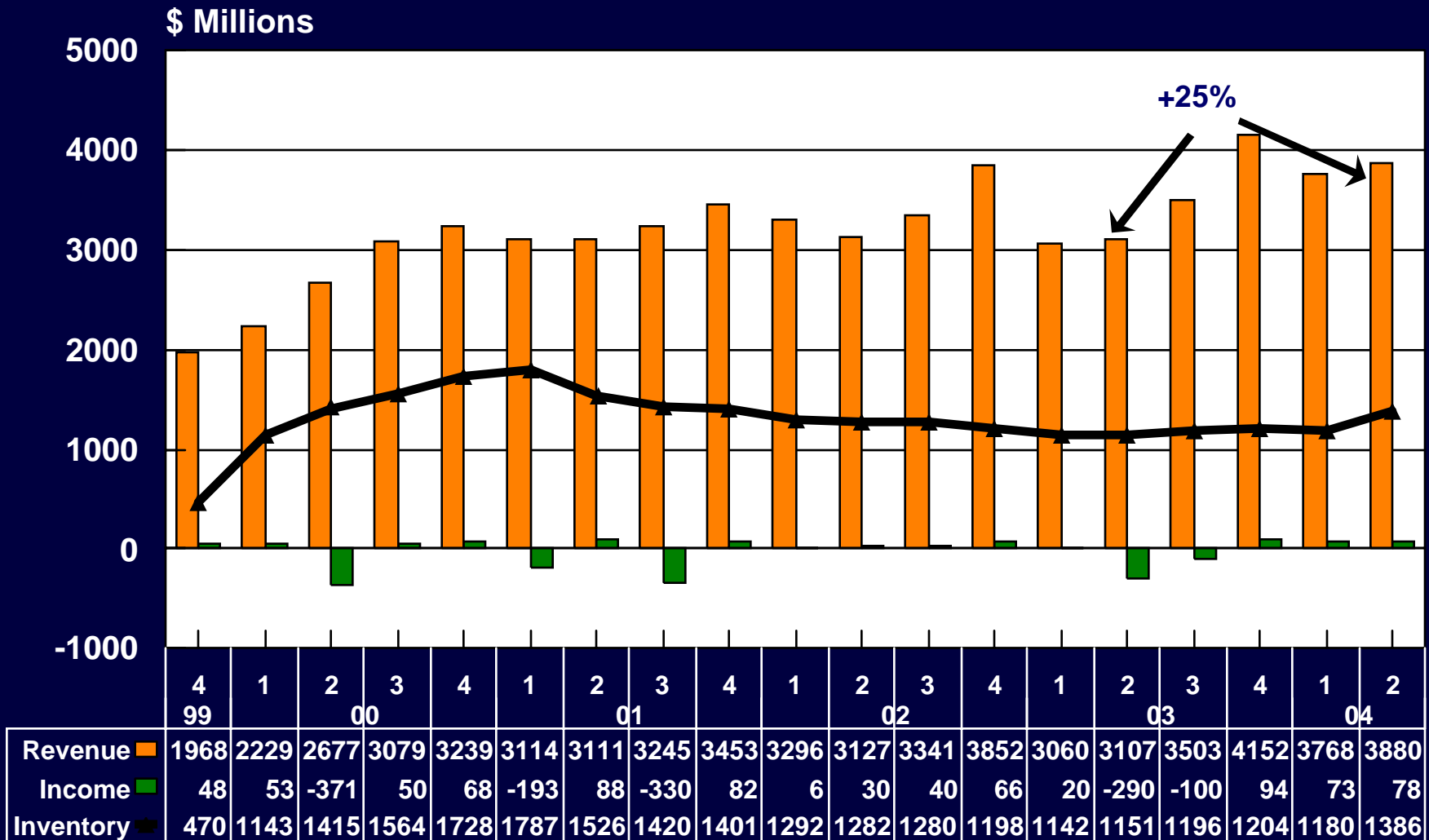
Computer Systems



Flextronics

Revenue, Net Income & Inventory

"The improvement in margins was driven by effective management of our operations, which included aggressive restructuring in prior periods as well as continuous cost reductions. Additionally, a healthier demand environment not only improves our factory utilization and increases overhead absorption, but also provides an opportunity for us to improve our pricing." 7/19/04



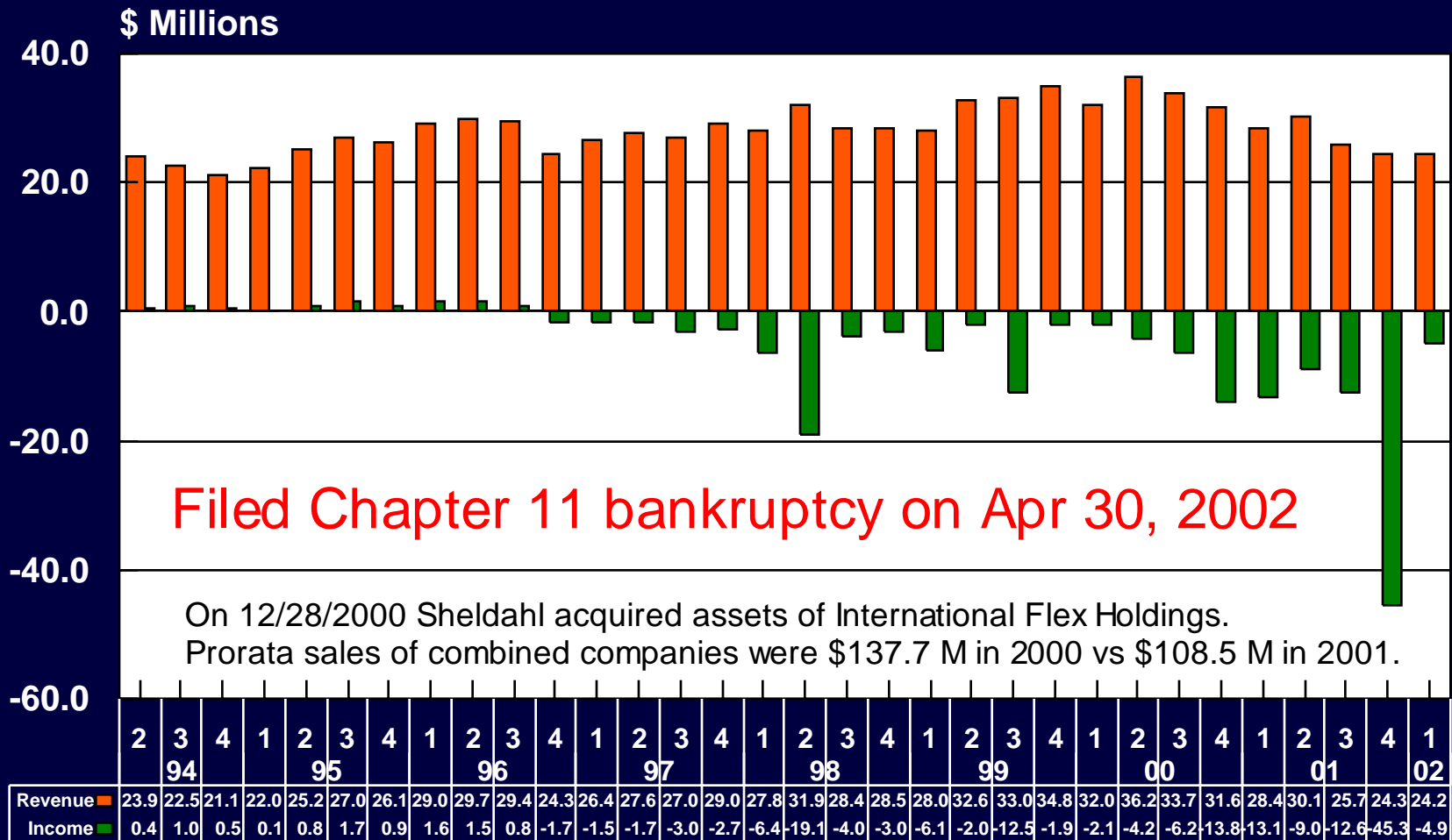
FY ends 3/31

CY

FLEX

Sheldahl

Revenue & Net Income



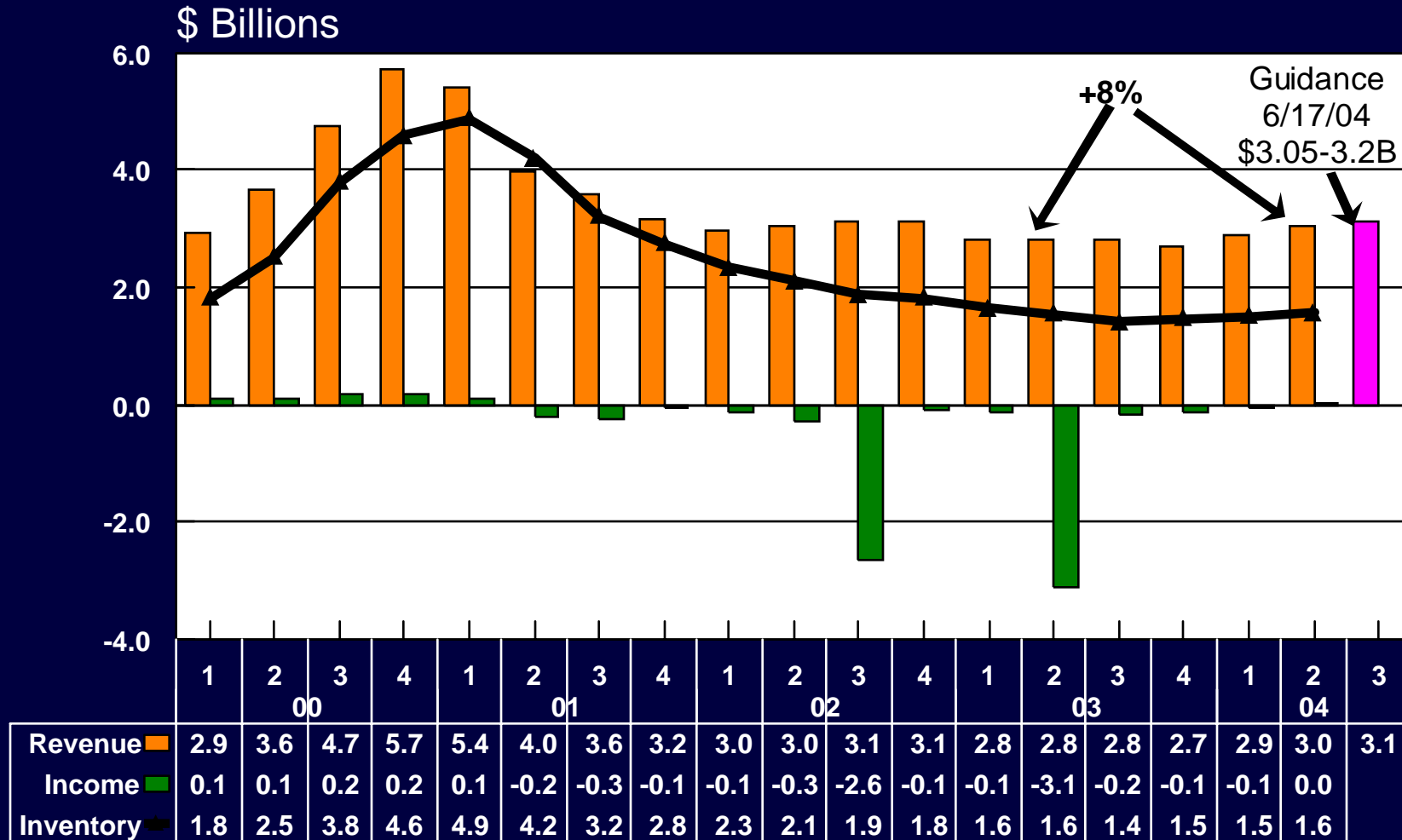
CY

SHELQ

Solectron

Revenue, Net Income & Inventory

"This was a milestone quarter for Solectron. We are pleased to have returned the company to profitability after an extended period of losses. We improved our performance across the board and we achieved many of our targets one quarter ahead of our committed timeline." 6/17/04



FY ends in August

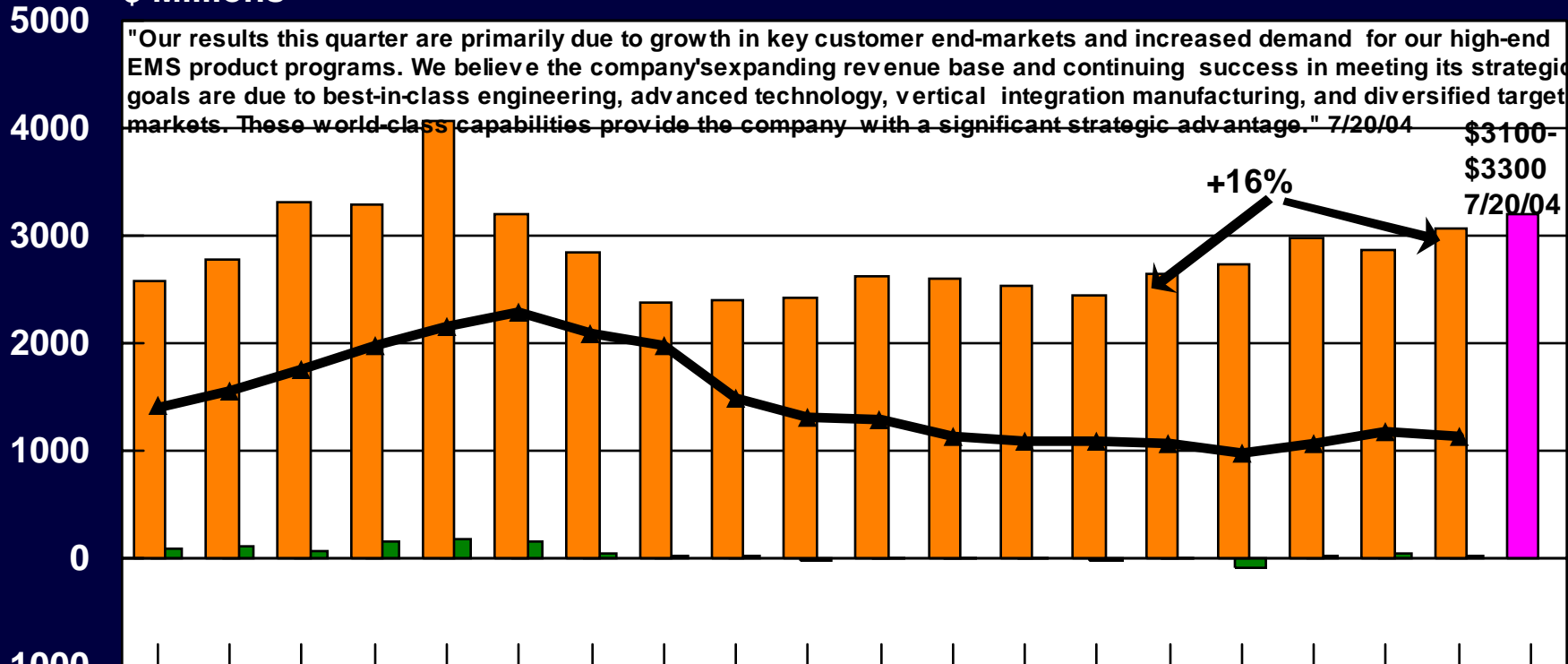
SLR

Sanmina-SCI Corp

Revenue, Net Income & Inventory

\$ Millions

"Our results this quarter are primarily due to growth in key customer end-markets and increased demand for our high-end EMS product programs. We believe the company's expanding revenue base and continuing success in meeting its strategic goals are due to best-in-class engineering, advanced technology, vertical integration manufacturing, and diversified target markets. These world-class capabilities provide the company with a significant strategic advantage." 7/20/04



	4 99	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3
	99		00			01				02				03				04		
Revenue	2575	2772	3307	3300	4068	3208	2842	2366	2406	2411	2618	2602	2537	2444	2649	2732	2970	2862	3070	3200
Income	85	94	59	147	177	157	30	22	7	-39	-5	3	1	-32	-12	-86	16	27	11	
Inventory	1406	1552	1759	1980	2151	2297	2096	1971	1480	1303	1273	1123	1084	1092	1059	978	1070	1165	1120	

CY

SANM

FY ends 9/30

(historical data = combined Sanmina & SCI)

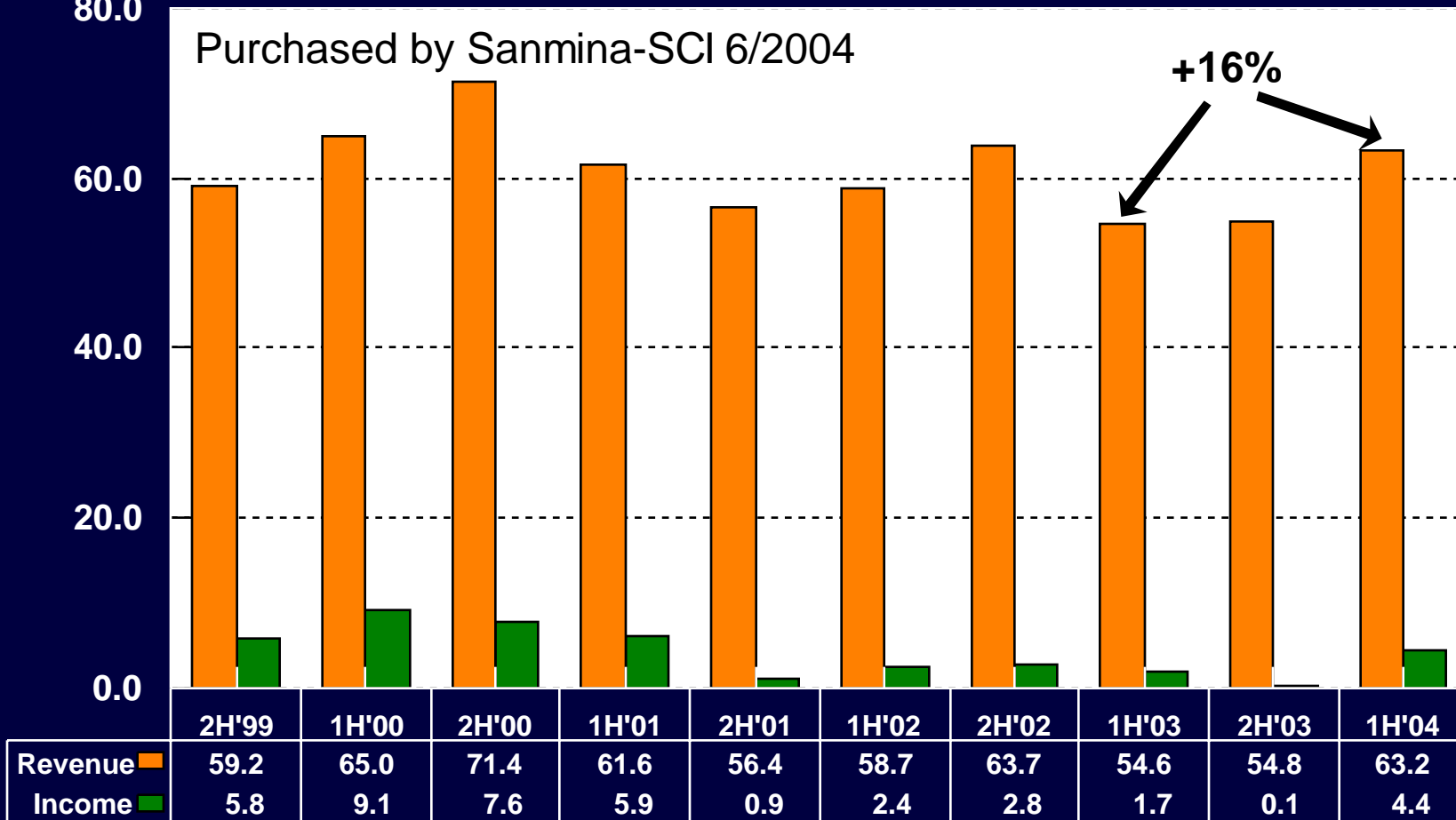
Pentex-Schweizer Circuits Ltd

Revenue & Net Income

S\$ (Millions)

Purchased by Sanmina-SCI 6/2004

+16%



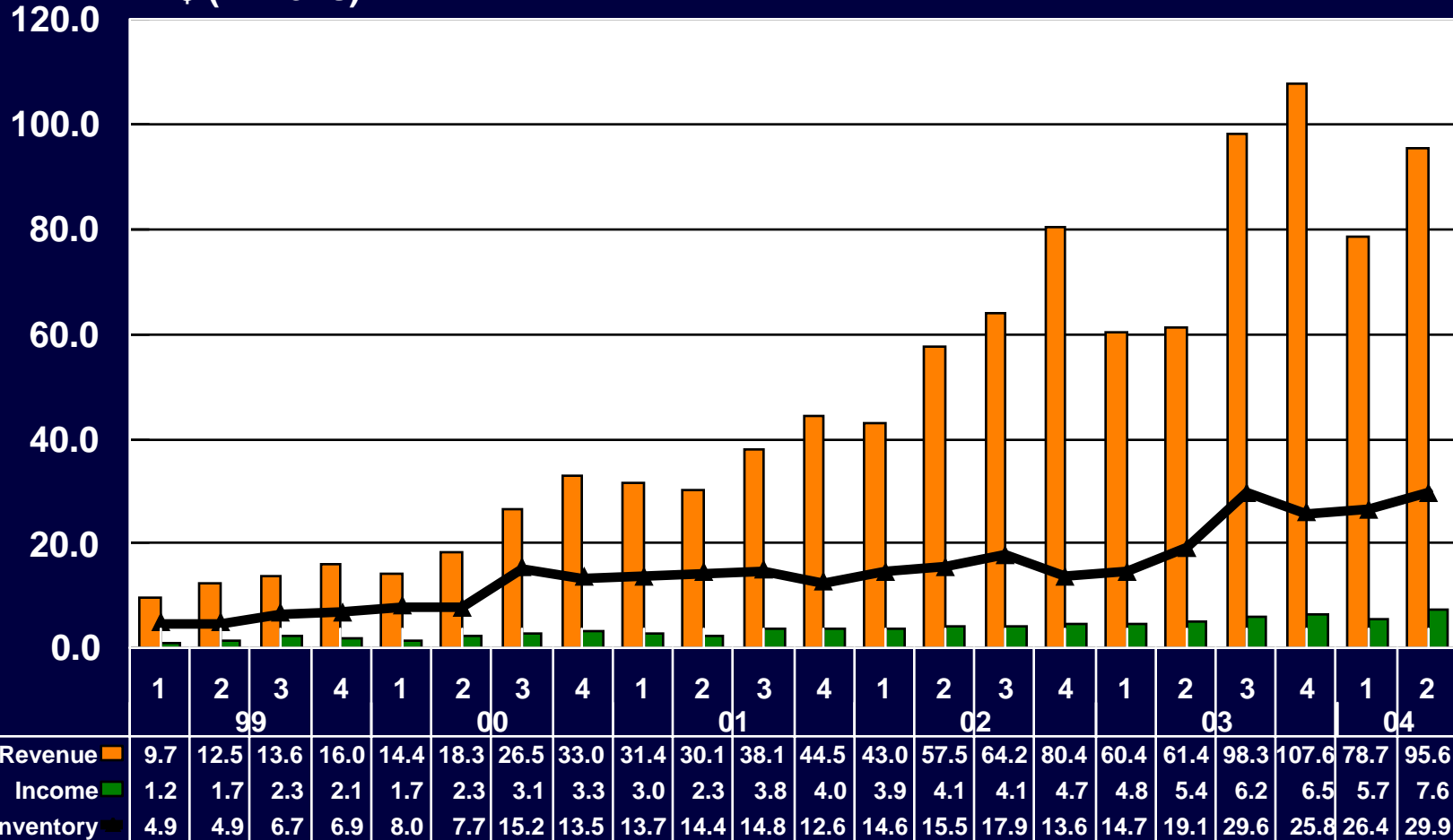
CY

1.69 S\$ = 1 US\$

Foxconn Electronics (Hon Hai), Taiwan

Revenue, Net Income & Inventory

NT\$ (Billions)



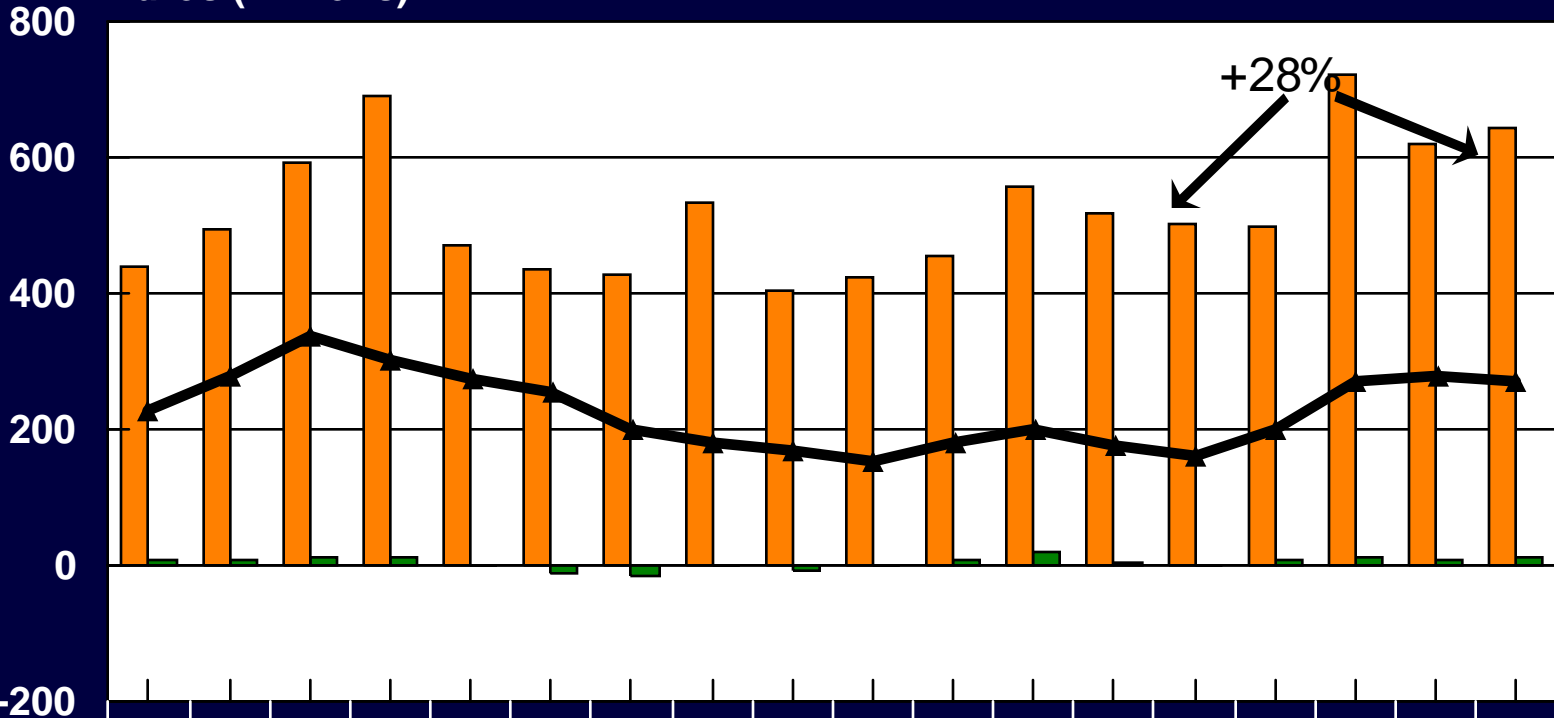
CY

2317

Elcoteq Network, Finland

Revenue, Net Income & Inventory

Euros (millions)



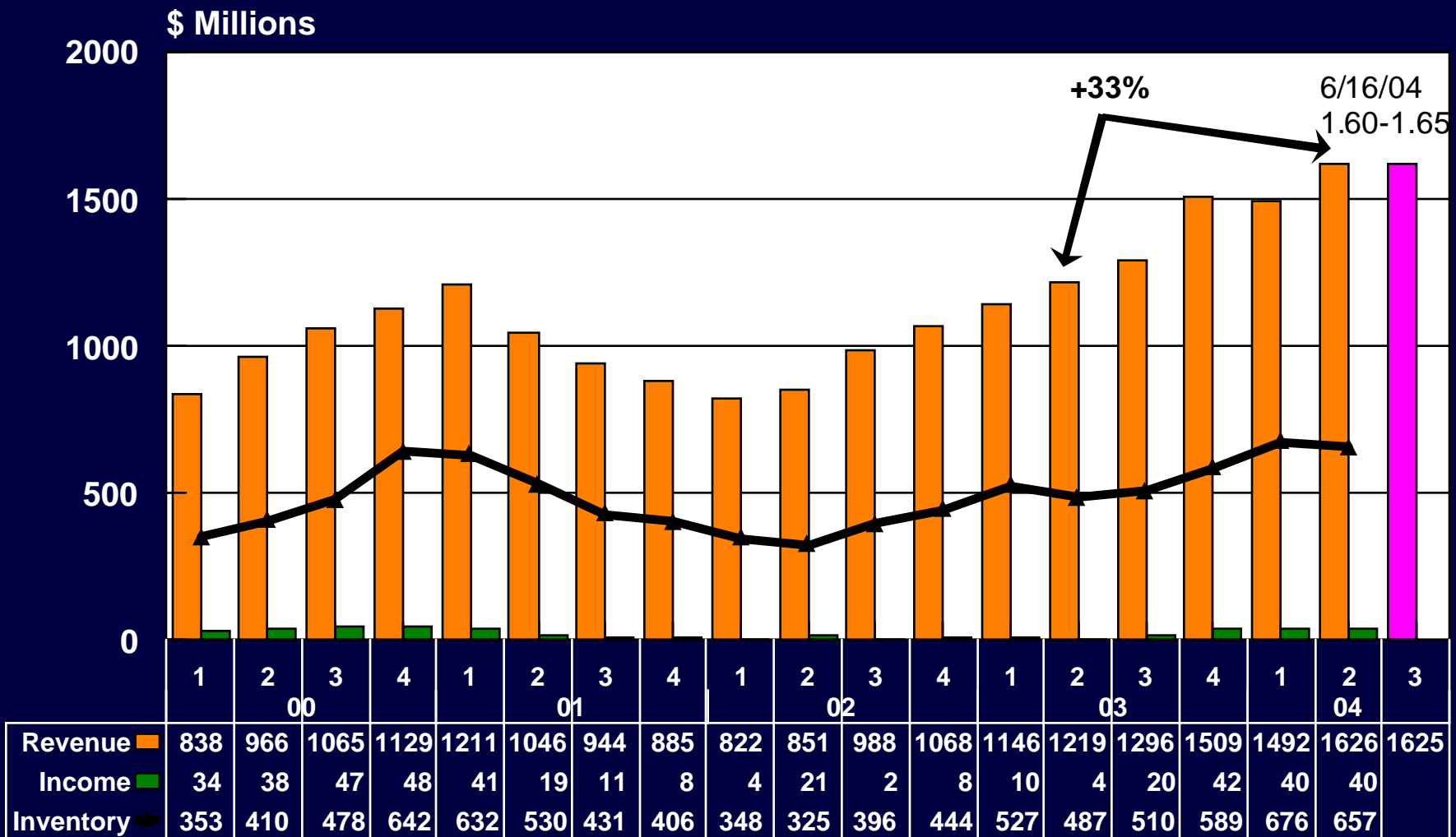
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
	00				01				02				03				04	
Revenue	438	494	591	690	470	433	428	532	402	425	456	556	517	500	496	722	619	642
Income	9	9	9	10	-2	-13	-17	0	-8	-2	6	18	2	-2	9	12	6	11
Inventory	228	278	336	301	275	253	199	178	169	152	180	197	177	159	200	270	279	269

CY

Jabil Circuit Inc

Revenue & Net Income

"Over the past year maintaining efficient control on our capital deployed while greatly increasing our operating earnings, has allowed us to improve Return on Invested Capital to 15 percent." 6/16/04



CY

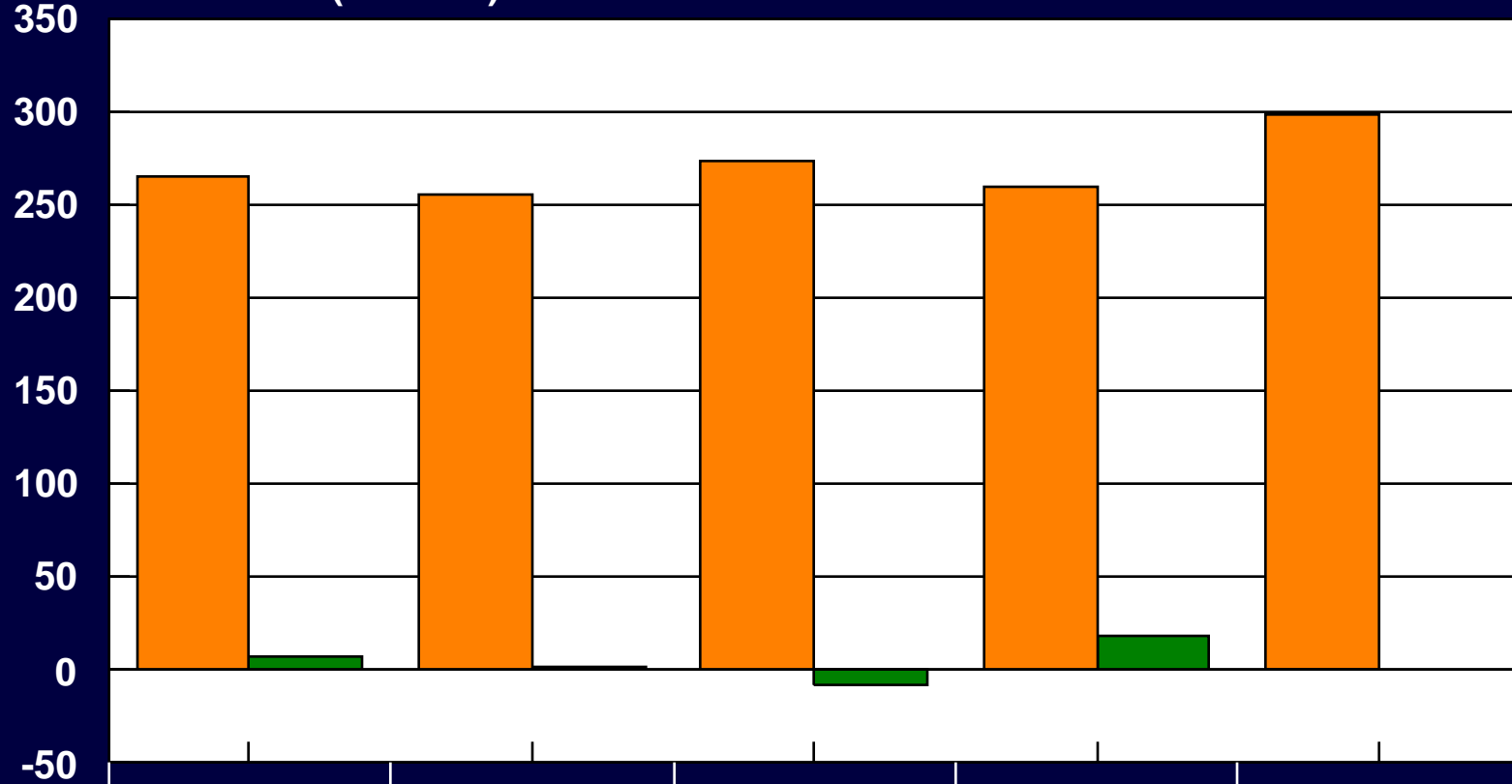
JBL

FY ends August

TT Electronics PLC

Revenue & Net Income

GB Pounds (Millions)



	1H'02	2H'02	1H'03	2H'03	1H'04
Revenue	265	255	274	260	299
Income	8	2	-8	18	

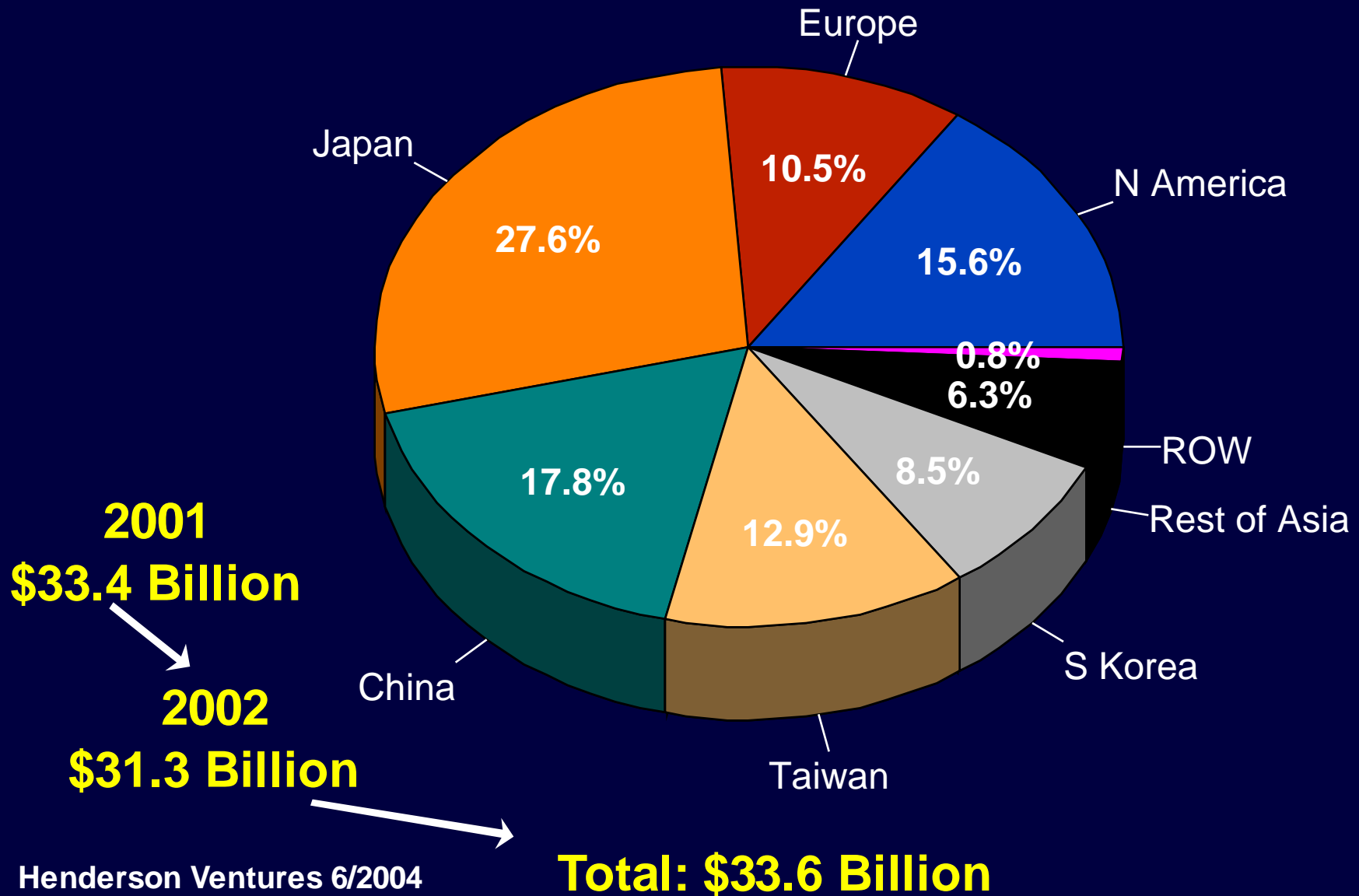
CY

"The improvement in electronic sales has come from the continuing increased demand for electronic components in the automotive industry and an uplift in demand for our resistors, sensors and other electronic components, particularly from the telecom and computer and industrial markets. This increase in sales has been satisfied by better utilisation of our production facilities which, together with the benefit of last year's acquisitions, has resulted in the electronic sector profits increasing from £8.3 million to £12.3 million." 9/16/04

PCB Fabrication

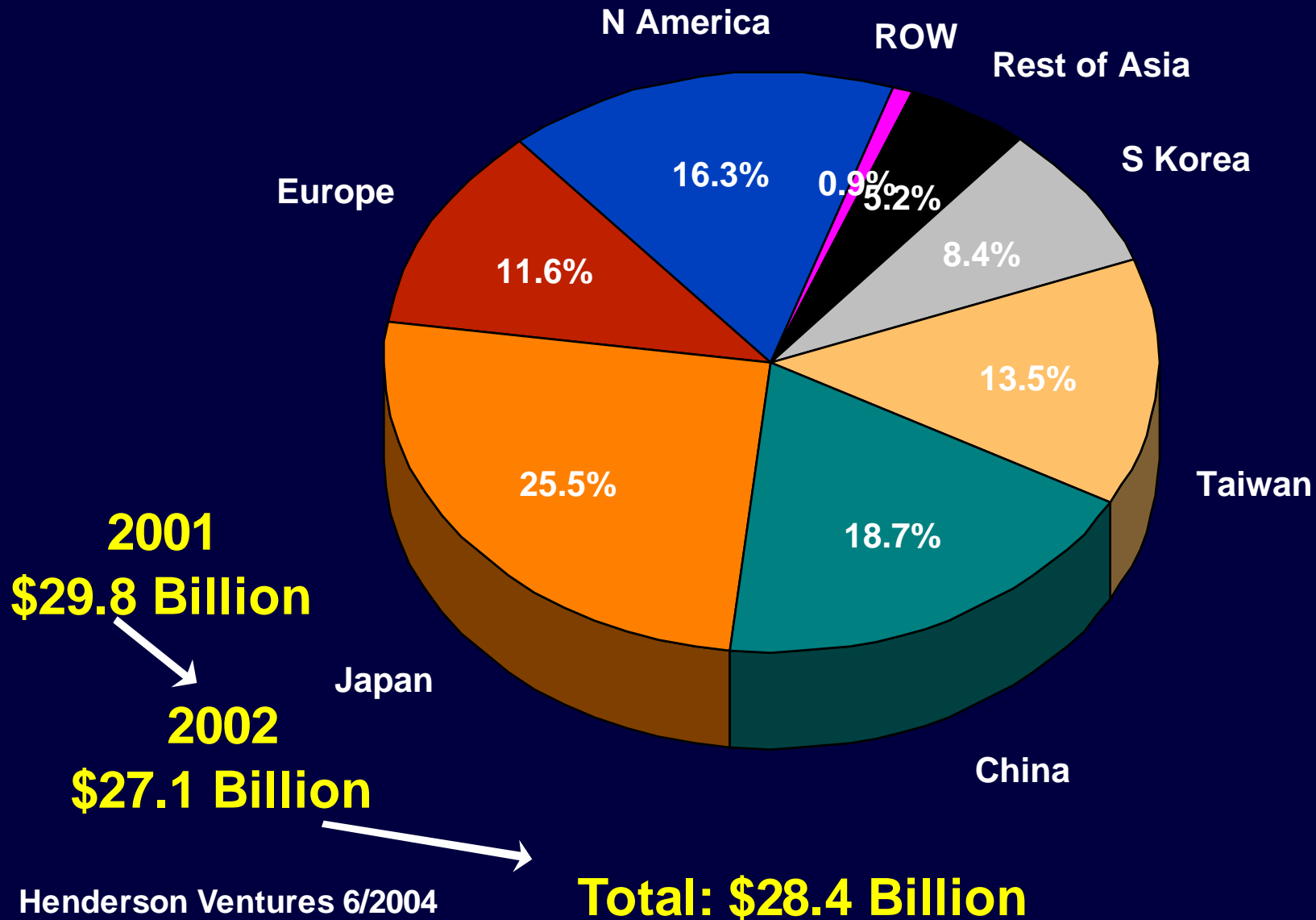
2003 WORLD RIGID & FLEX PCB PRODUCTION

BY GEOGRAPHICAL AREA (US\$ M @ Constant 2003 Exchange)



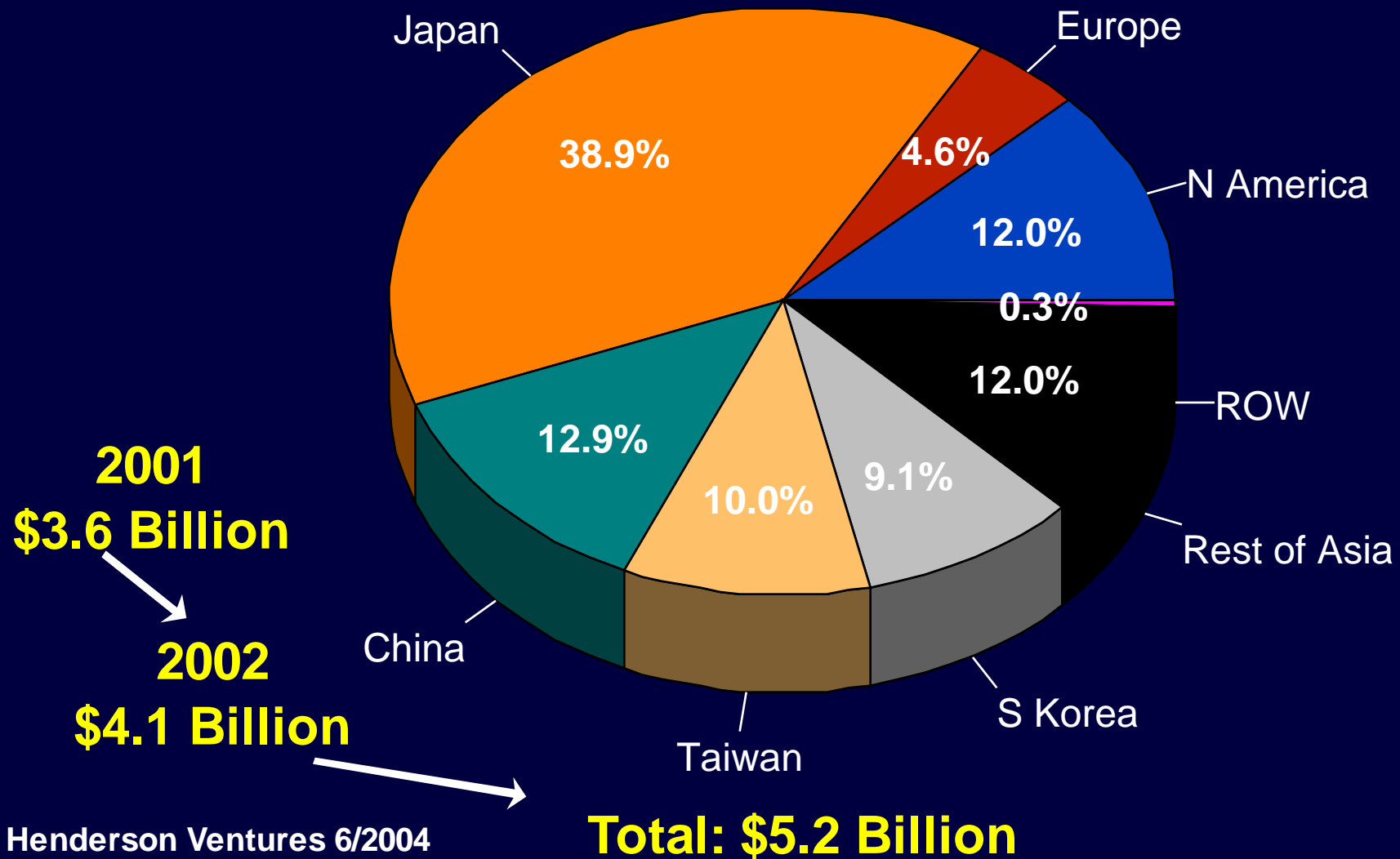
2003 WORLD RIGID PCB PRODUCTION

BY GEOGRAPHICAL AREA (US\$ M @ Constant 2003 Exchange)



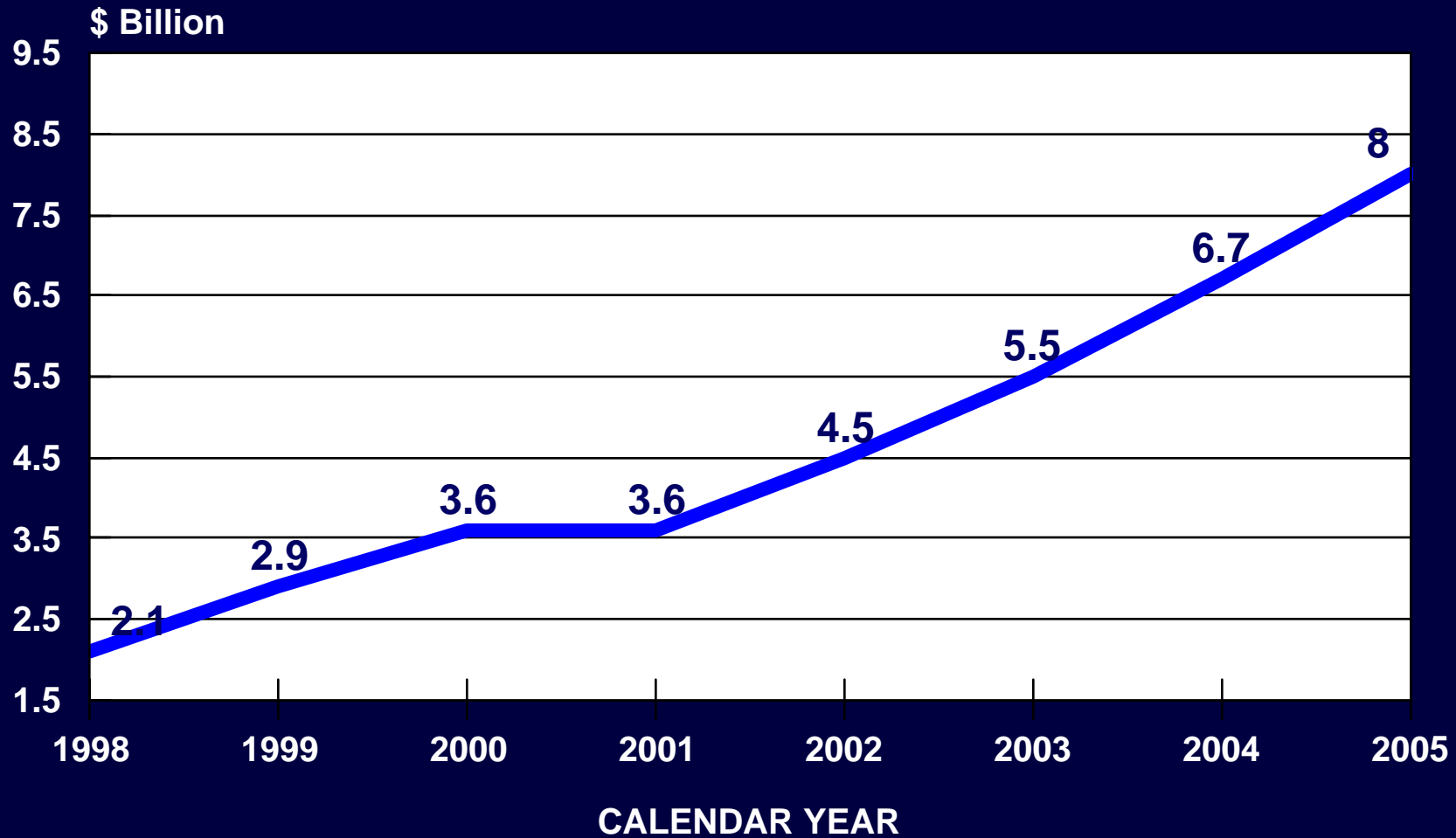
2003 WORLD FLEX PCB PRODUCTION

BY GEOGRAPHICAL AREA (US\$ M @ Constant 2003 Exchange)



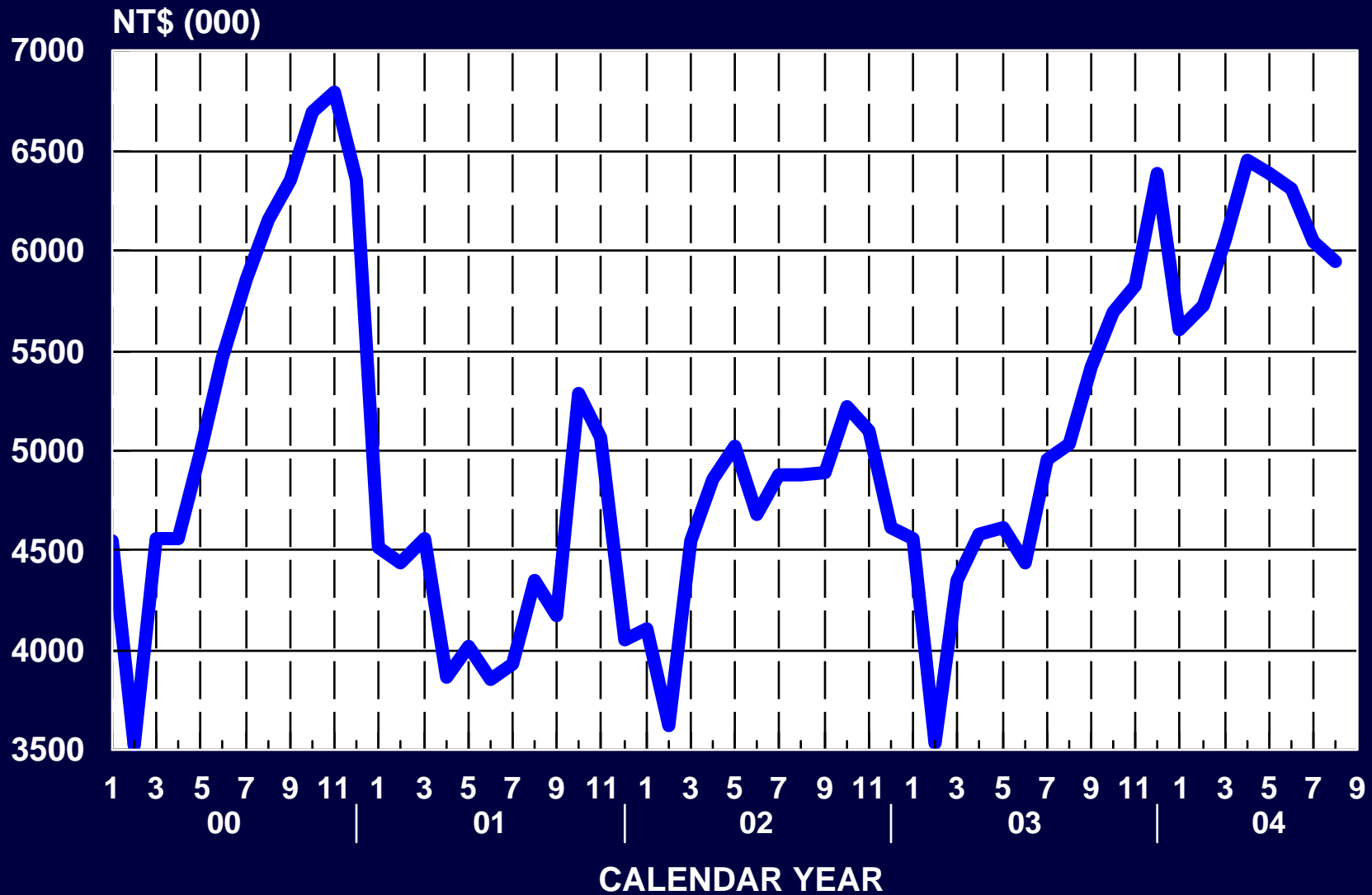
PCB Production in China

\$ Billion (constant exchange)



PCB-Network (Hans Friedrichkeit), NTI (Hayo Nakahara) 12/03

Taiwan PCB Shipments Composite of 8 Large Manufacturers

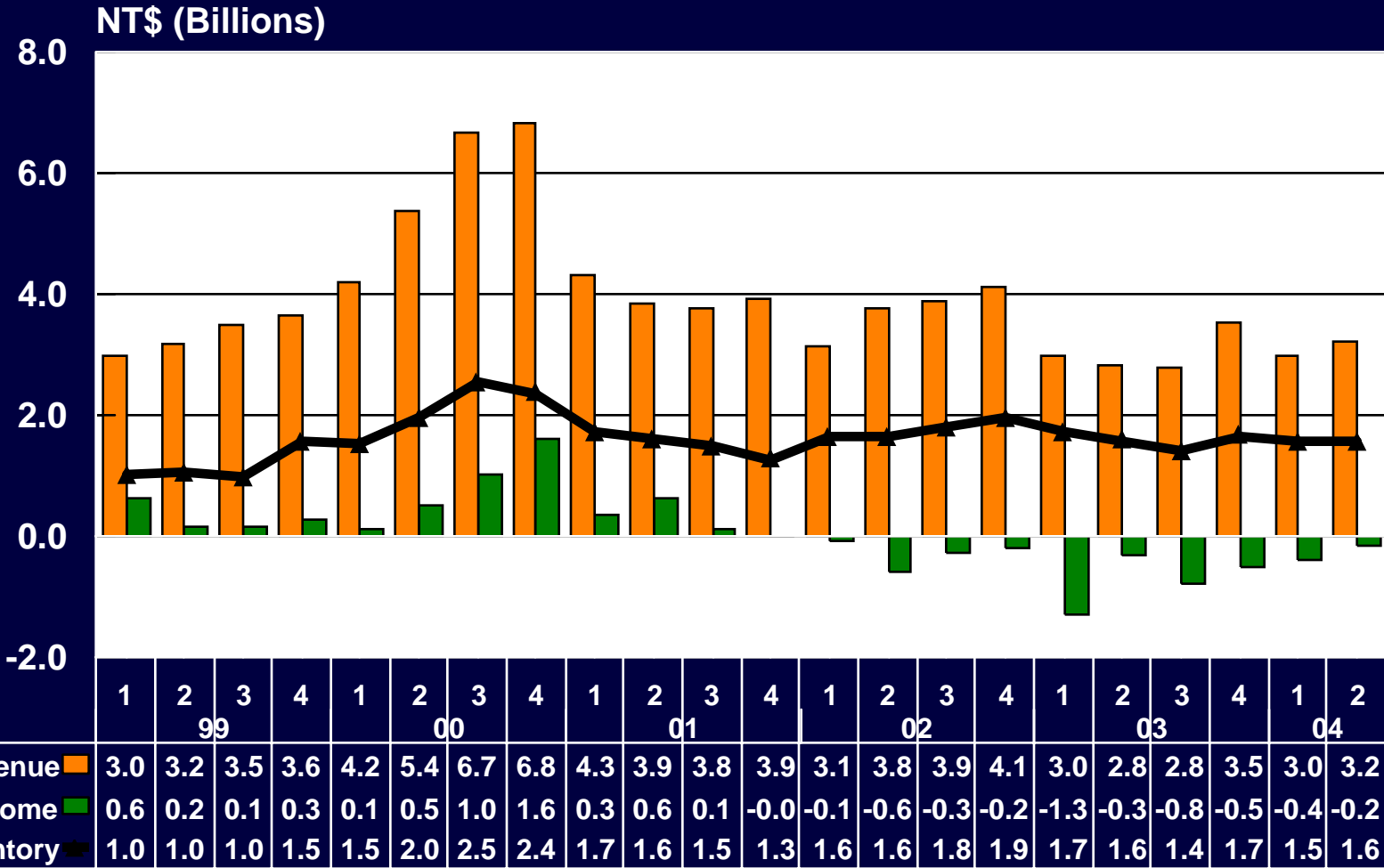


Company Financial Releases

Chin Poon, Compeq, Gold Circuit, Tripod, Unimicron, Unitech, Vertex, Wus

Compeq, Taiwan

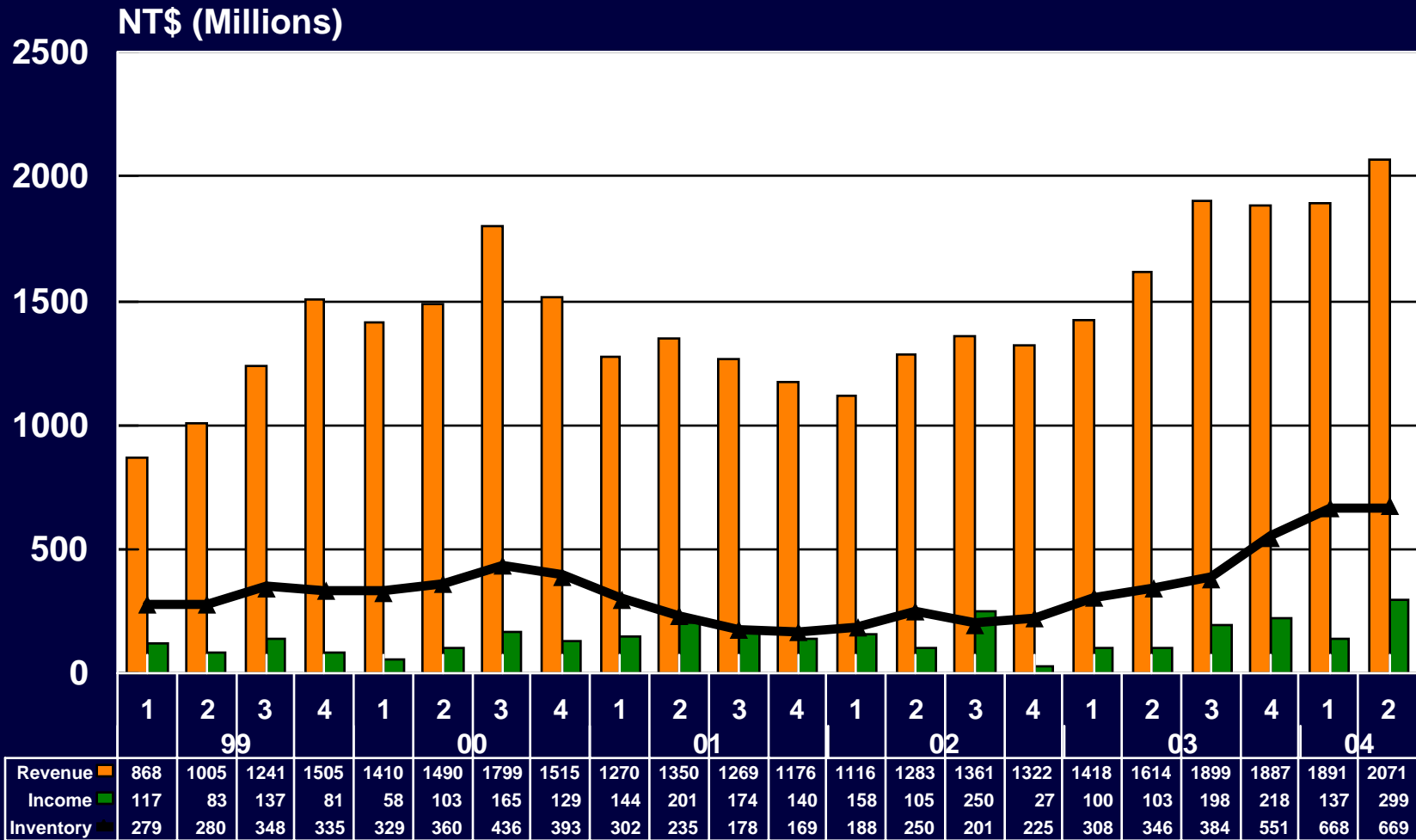
Revenue & Net Income



CY

Chin-Poon Industrial, Taiwan

Revenue, Net Income & Inventory

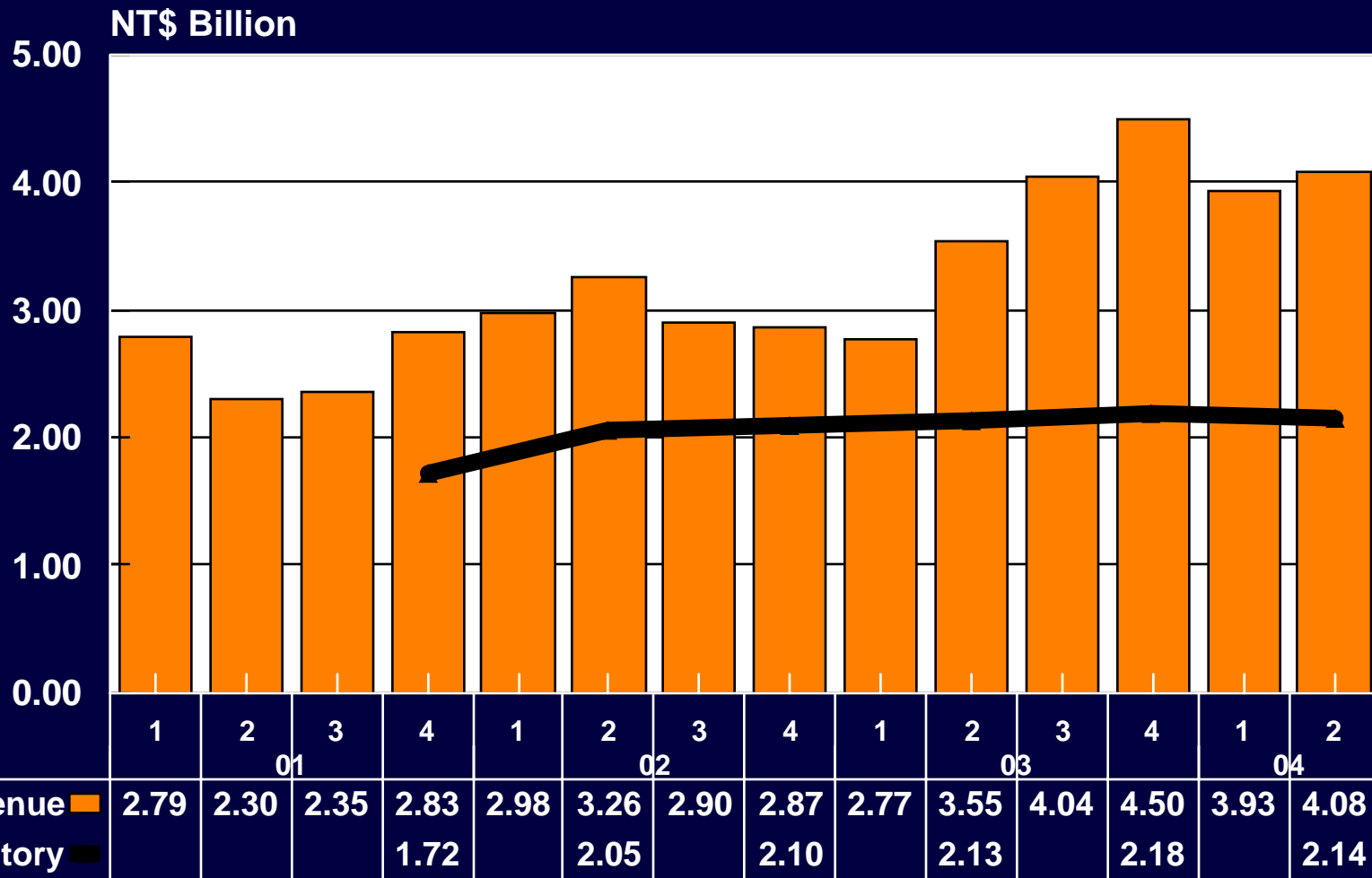


CY

2355

Nan Ya Printed Circuit Board, Taiwan

Revenue & Inventory



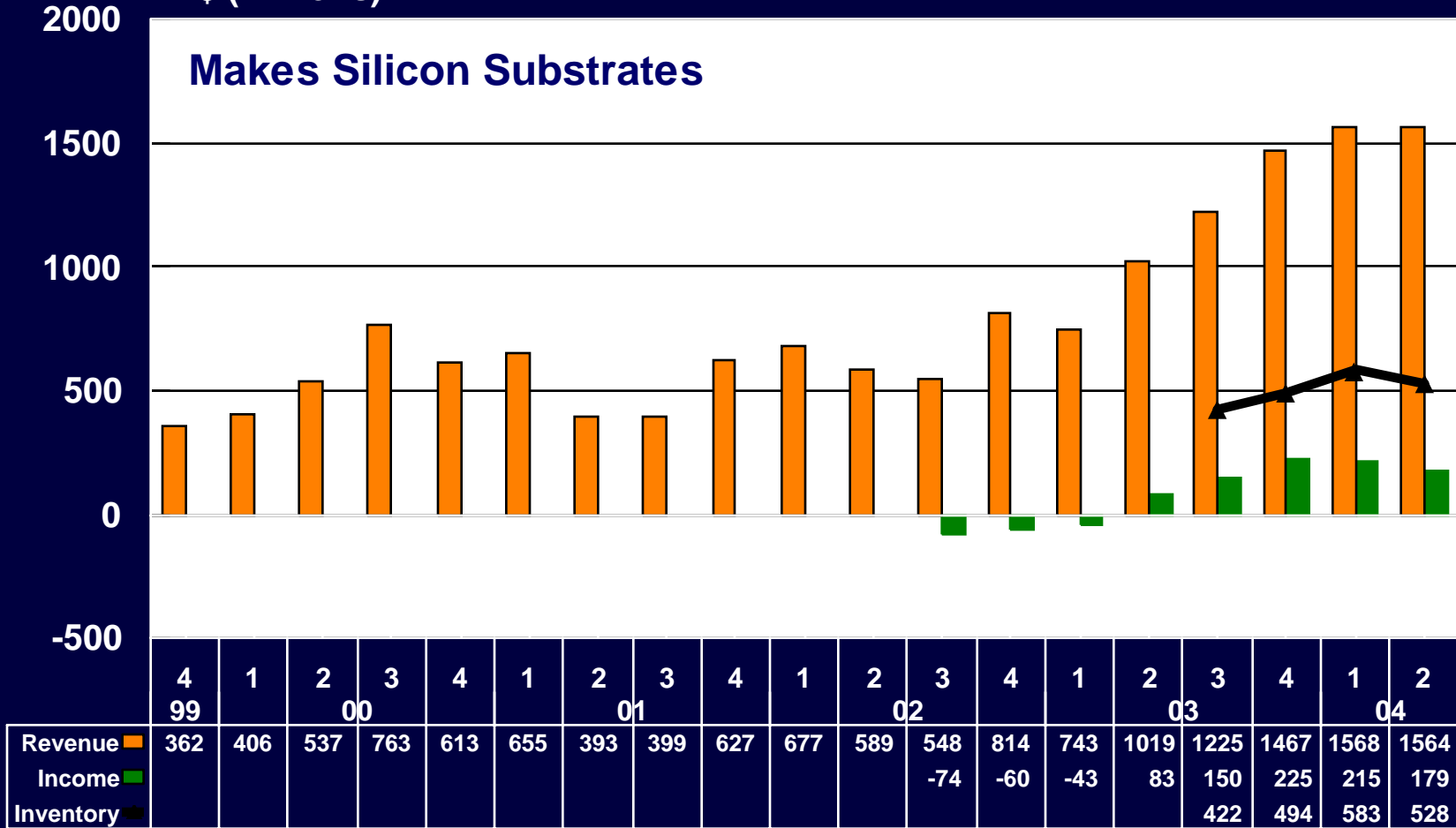
CY

Phoenix Precision Technology, Taiwan

Revenue, Net Income & Inventory

NT\$ (Millions)

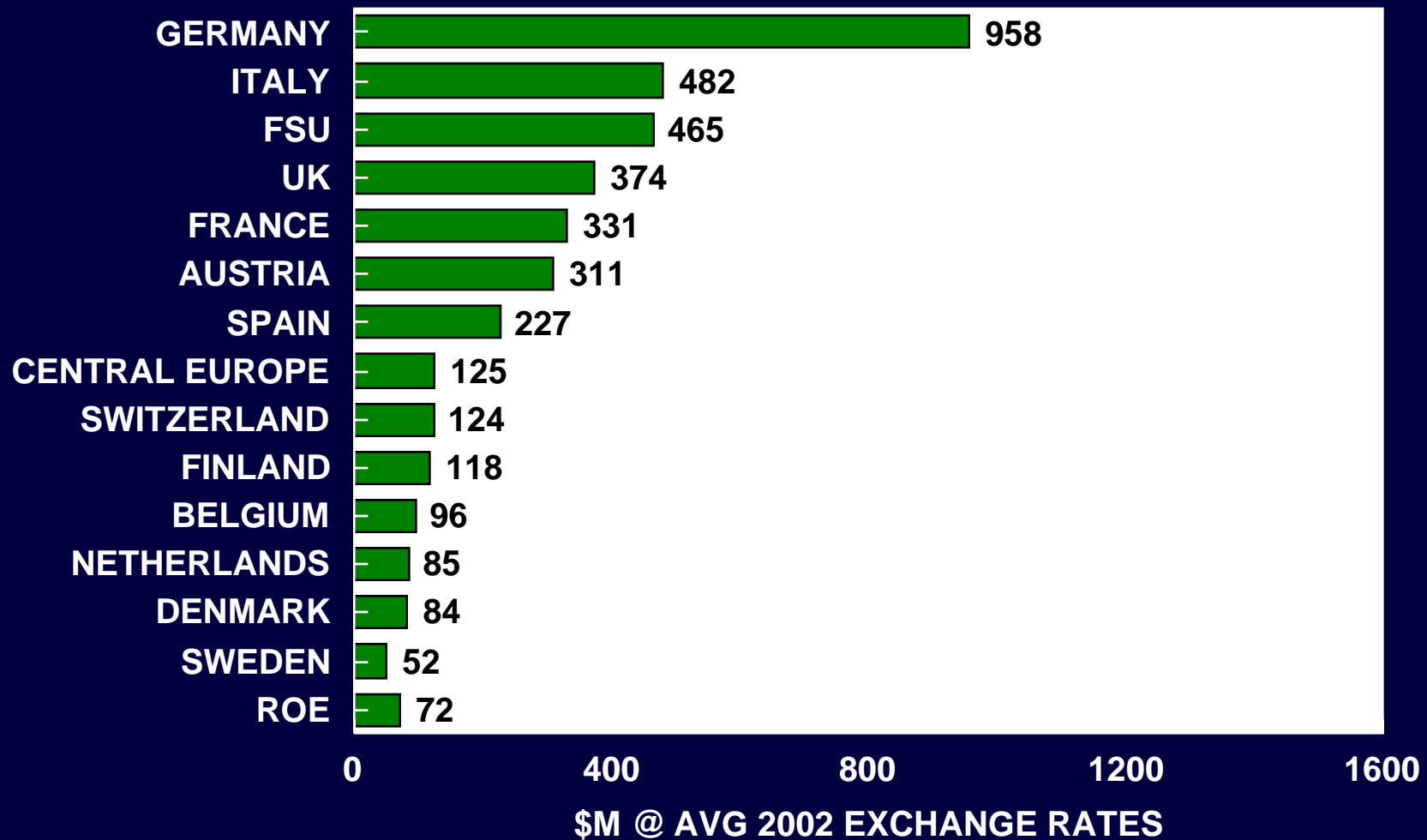
Makes Silicon Substrates



CY

EUROPE RIGID PWB PRODUCTION

2002 Total = \$3,904 Million



IPC Preliminary (includes \$359M Microvia & \$6M IC substrates)

PCB Production in Europe

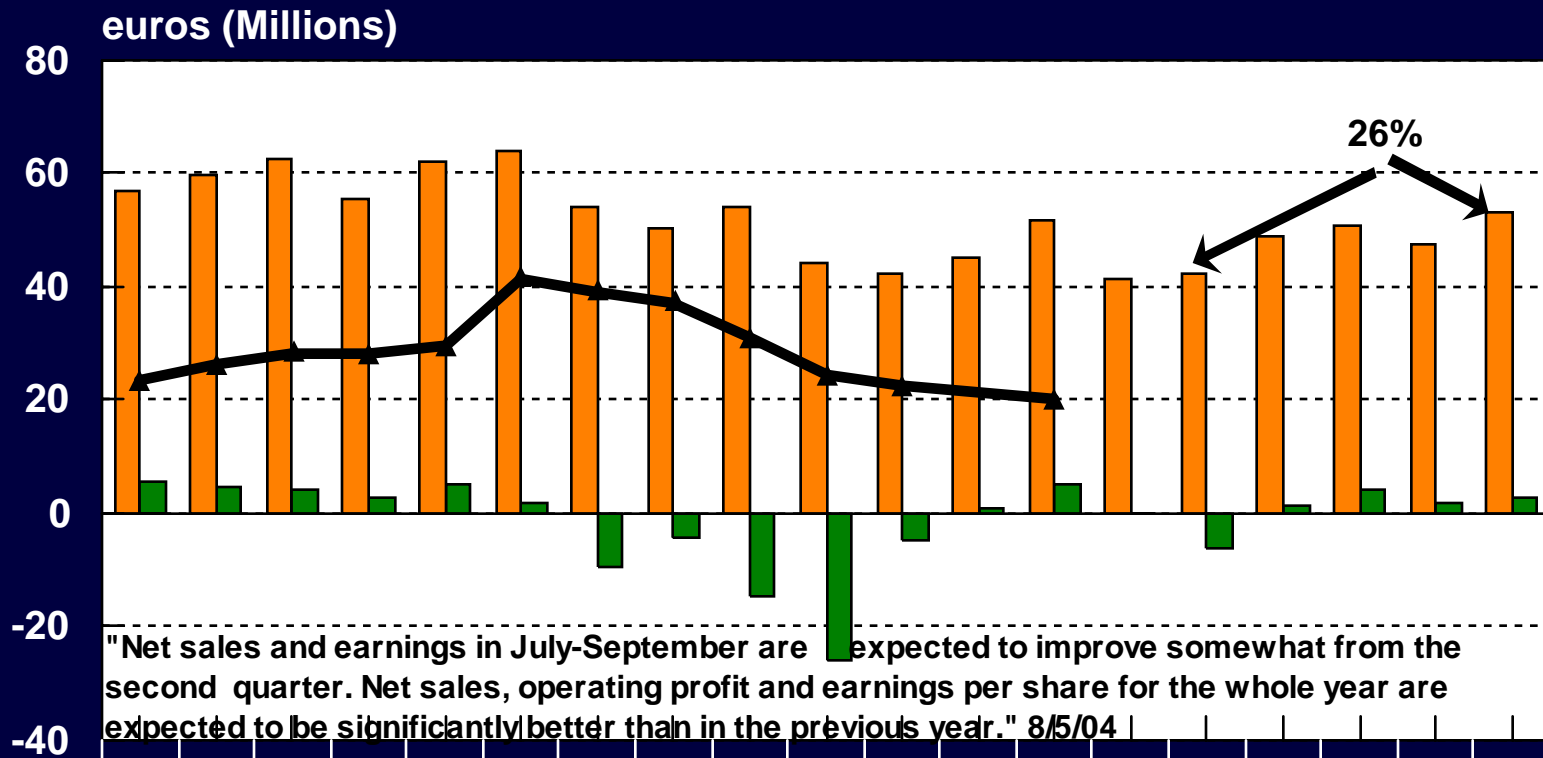
\$ Billion (constant exchange)



PCB-Network (Hans Friedrichkeit), NTI (Hayo Nakahara) 12/03

Aspocomp, Finland

Revenue, Net Income & Inventory



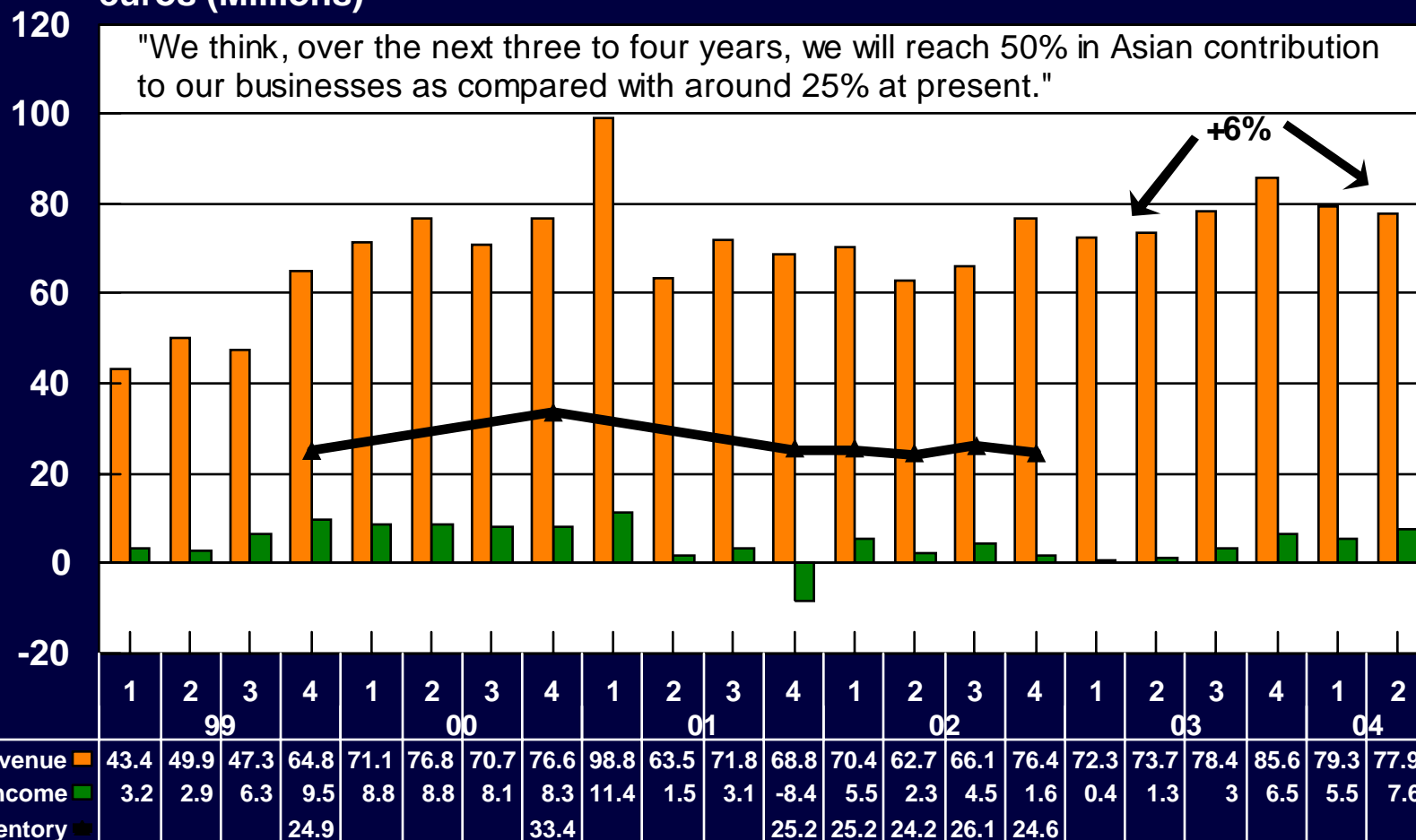
	4 99	1	2 00	3	4	1	2 01	3	4	1	2 02	3	4	1	2 03	3	4	1	2 04
Revenue	56.9	59.6	62.6	55.6	62.1	63.7	53.8	50.3	54	44.3	42.2	44.8	51.6	41.1	42.1	48.6	50.5	47.6	52.9
Income	5.4	4.7	3.9	2.7	4.9	1.8	-9.5	-4.6	-14.6	-26.2	-5	0.9	5.1	-0.4	-6.3	1.4	3.9	1.7	2.5
Inventory	23.4	26	28.2	27.9	29.3	41.5	39	37.2	30.7	24.1	22.3		20						

AT&S, Austria

Revenue, Income & Inventory

With its strategy of a flexible international distribution of its production between the sites in Austria and those in Asia (Nanjangud/India and Shanghai/ China), AT&S was able to create optimum conditions for the demands of the markets. Customers trading internationally can now be supplied from Europe and increasingly from Asia because the second production line in Shanghai has full delivery capacity earlier than expected. 10/23/03

euros (Millions)



FY ends March
www.ats.net

CY

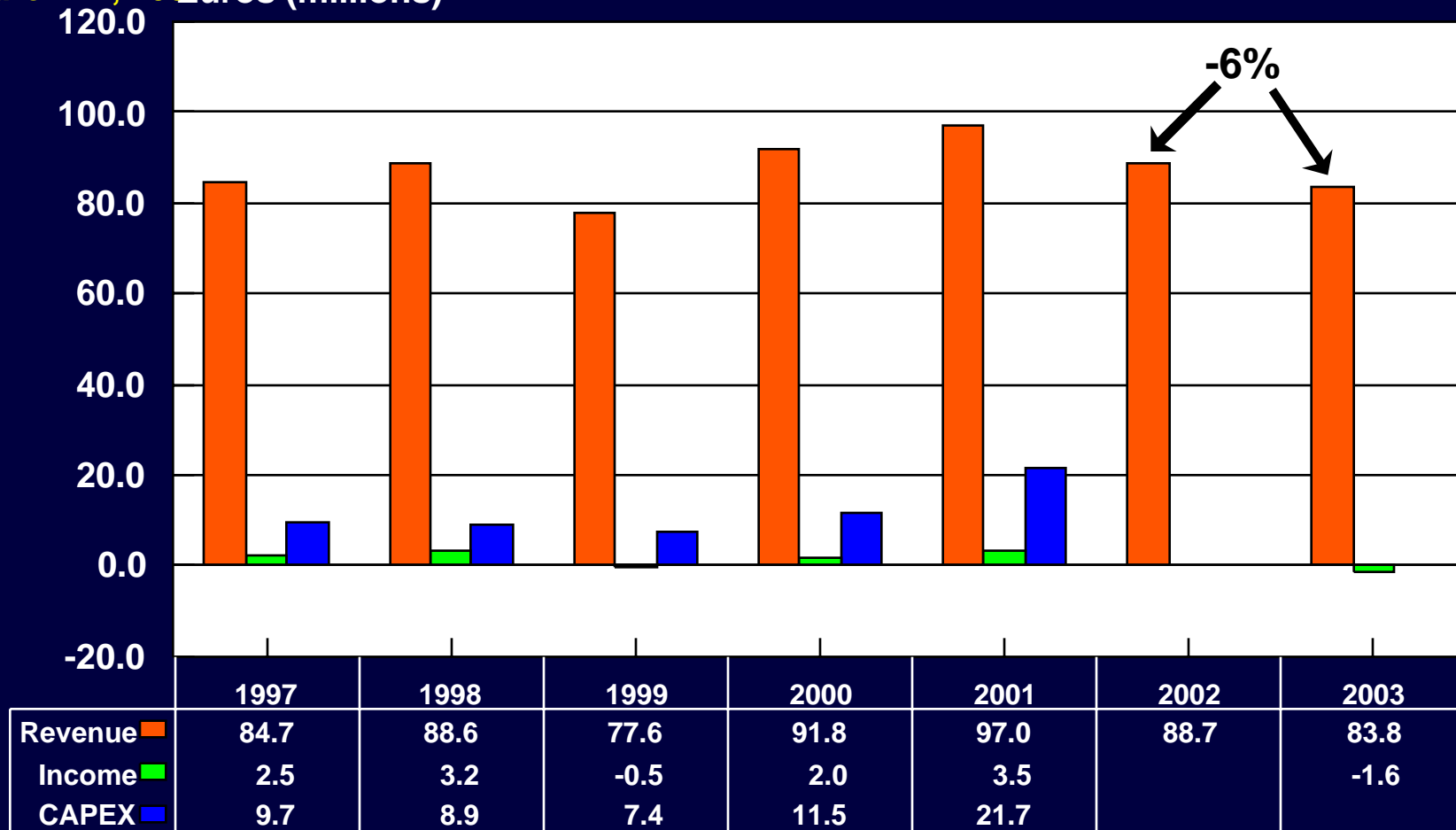
atsx.de

Schweizer Electronic AG

Revenue, Net Income & Capital Expenditure

The 2003 business year was characterized by an ongoing weak demand, tough competition, and a strong revaluation of the Euro. As a consequence, prices for printed circuit boards continued to drop, and the weak dollar caused an additional decline in sales revenues of the products invoiced in USD.

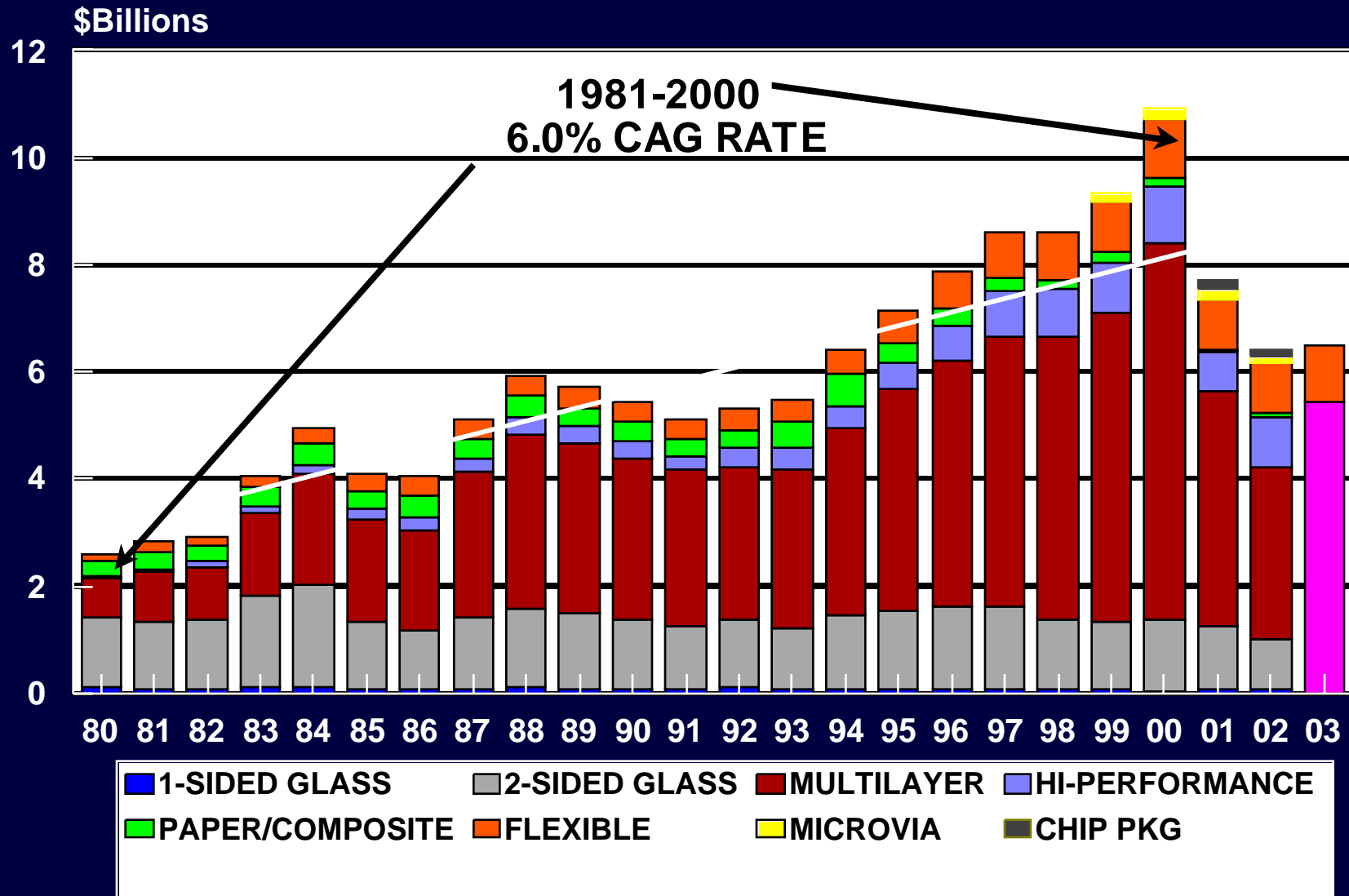
March 12, 2004 Euros (millions)



CY

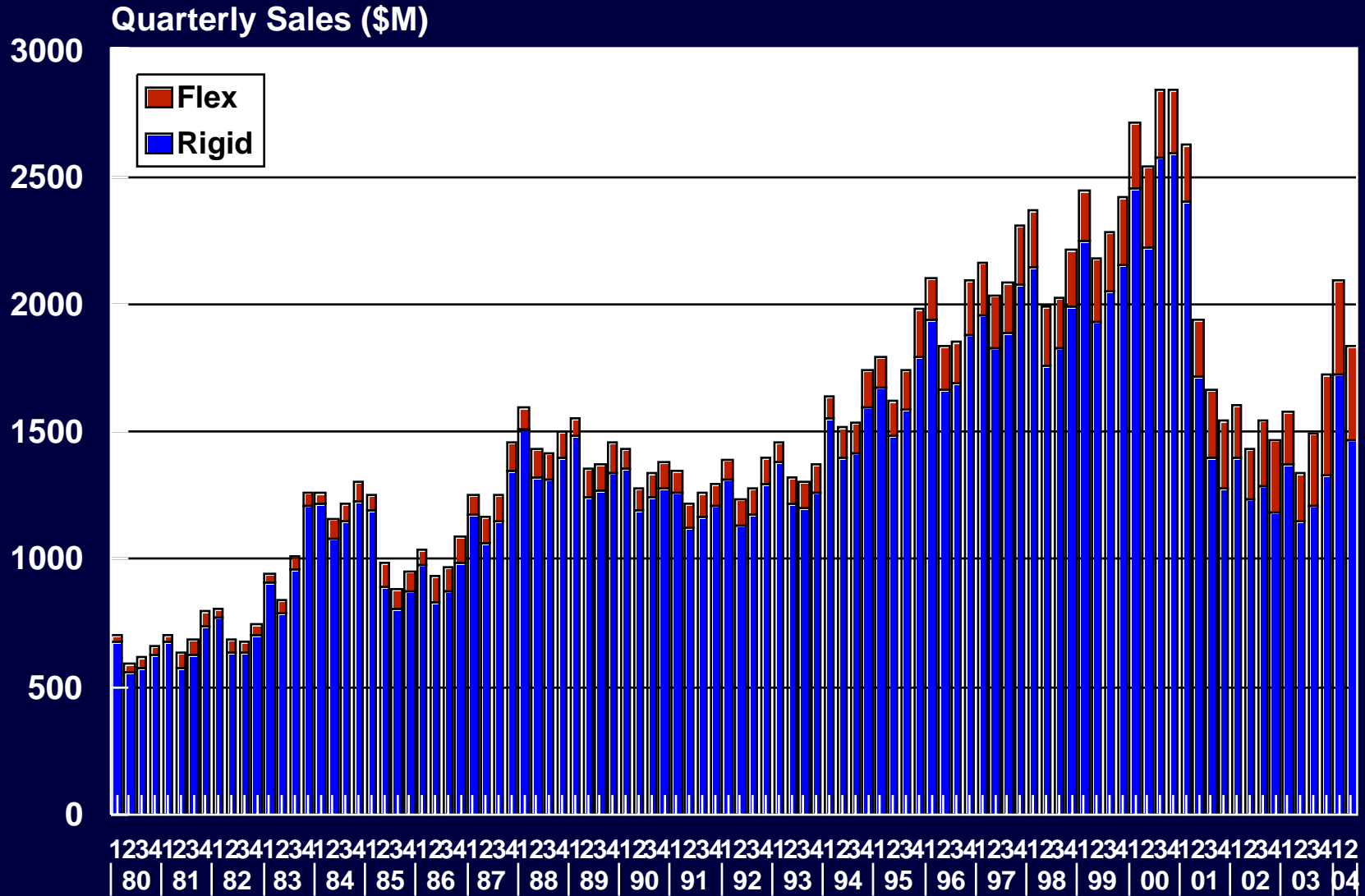
SEAG

N. AMERICAN PCB SHIPMENTS



IPC T/MRC 7/2003, Custer estimate of 2003 based upon rigid & flex 2003 growth

N. AMERICAN TOTAL PCB SHIPMENTS



IPC T/MRC data with Custer interpretation

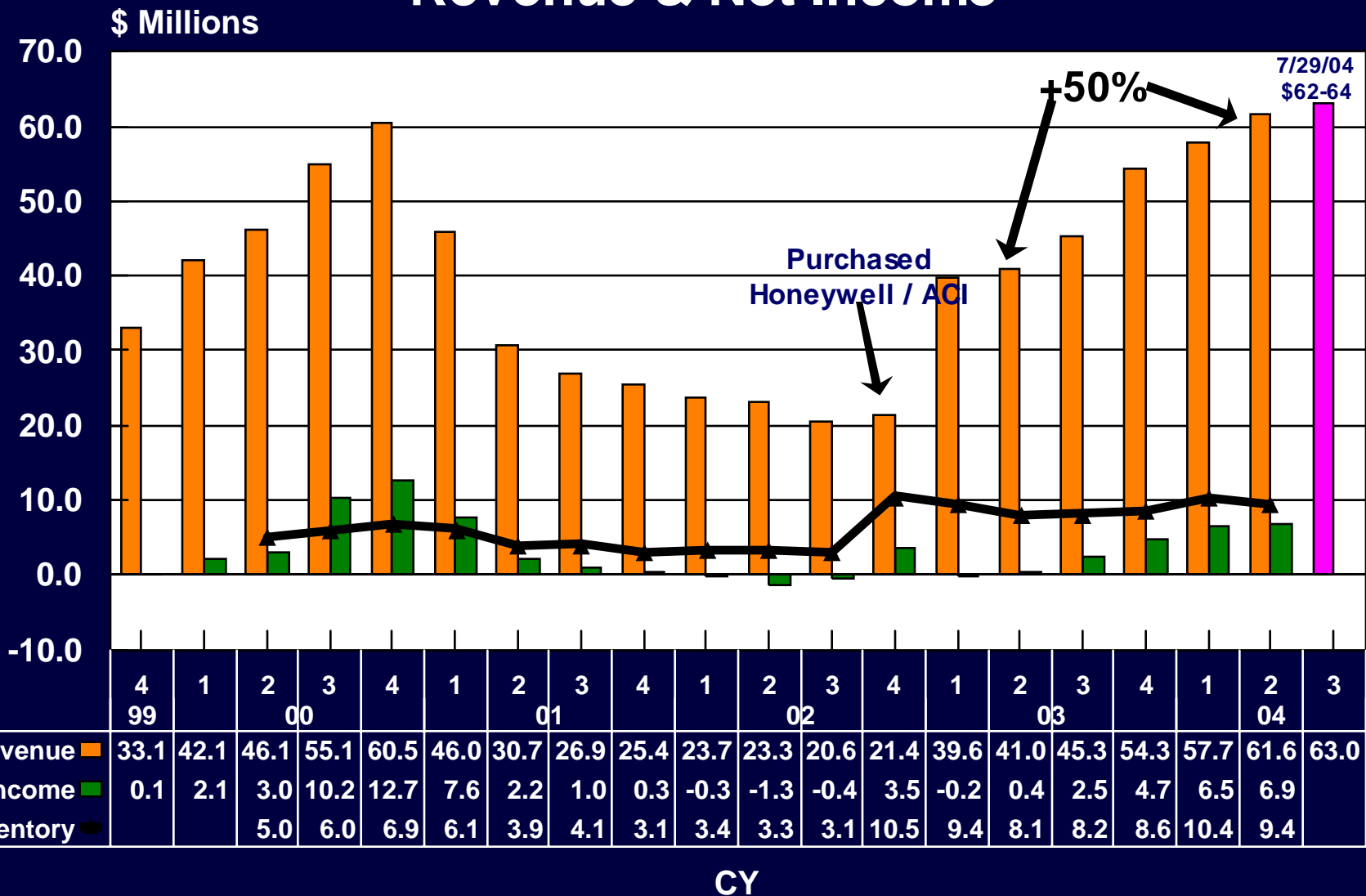
TOP N AMERICAN PCB MANUFACTURERS

PCB FAB - 2003

	PCB \$M	
VIASYSTEMS	430	
SANMINA-SCI	360	
MULTEK	350	
TYCO	330	
MMM-3M	280	
PHOTOCIRCUITS	234	
DDi	195	
TTM	180	
INNOVEX	163	
M-FLEX	146	
MERIX	113	
EIT (Endicott Interconnect Tech)	110	
PARLEX	82	
TERADYNE	68	
CORETEC	52	
NORTHROP GRUMMAN	50	
UNICIRCUIT	45	
AMITRON	33	

Sales in blue include significant offshore production

TTM Technologies Revenue & Net Income



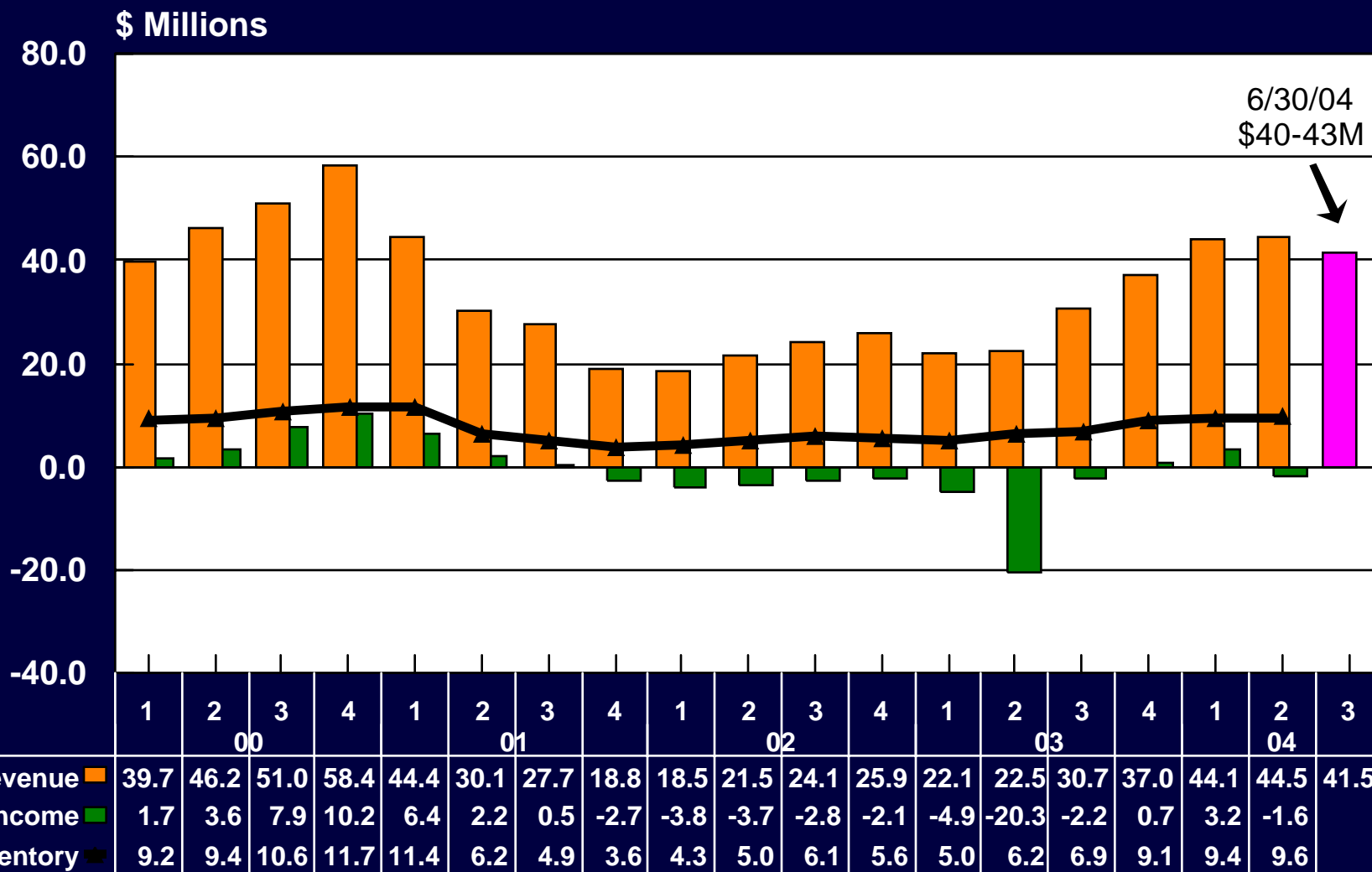
"Market conditions remained favorable, and we continued to capture an increased share of the market. Additionally, 2Q'04's cash flow from operations of \$14.1 million represented our 16th consecutive quarter of positive cash flow from operations - every quarter since we have been a public company." 7/29/04

FY=CY

Merix

Revenue, Net Income & Inventory

"As we look forward to the first quarter of fiscal 2005, we believe some customers have excess inventories, which is contributing to a lower level of customer demand, and we currently expect sales in the first quarter to range between \$40.0 and \$43.0 million." 6/30/04

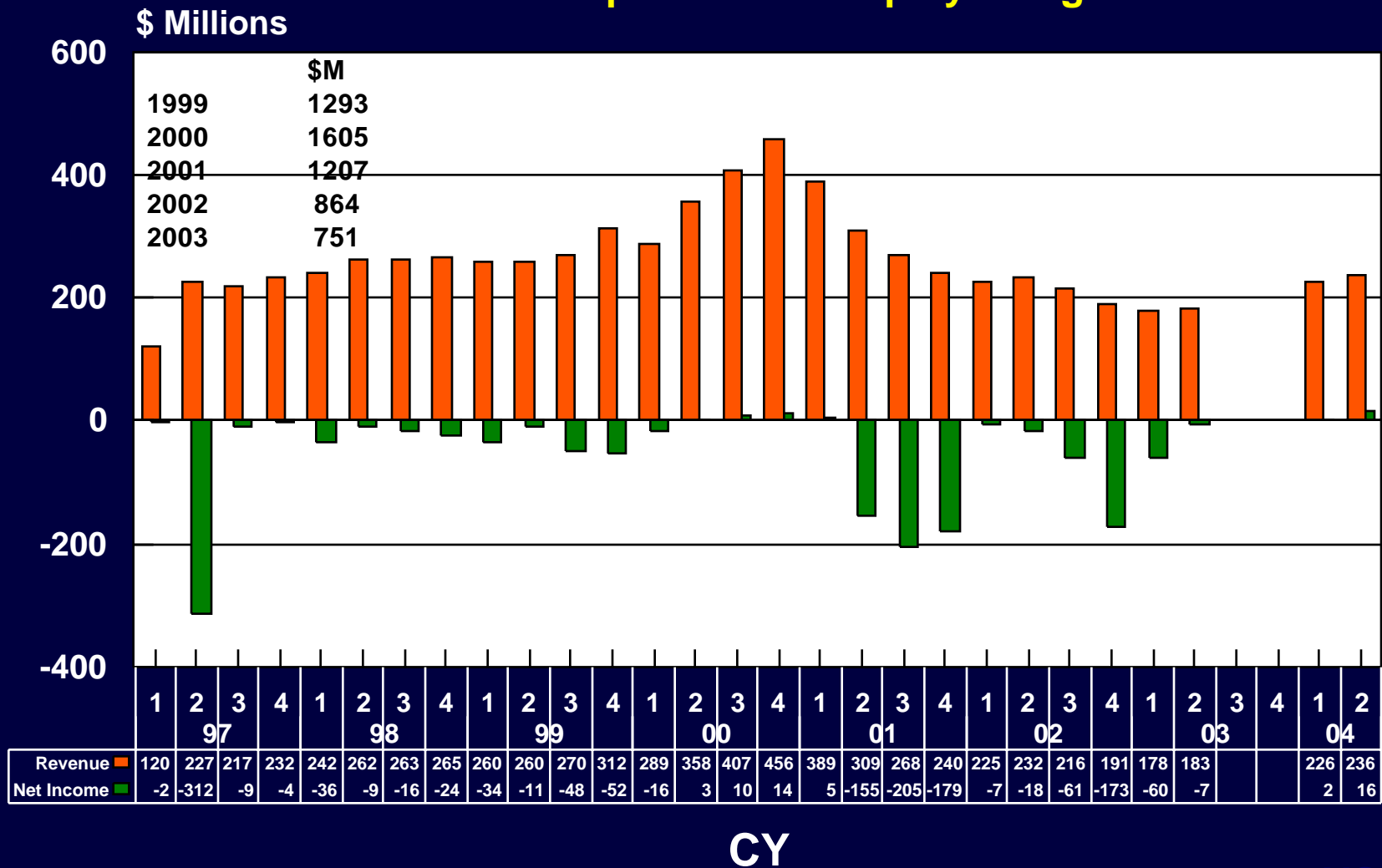


FY ends May

MERX

Viasystems Revenue & Income

1/2003 Chapter 11 bankruptcy reorganization

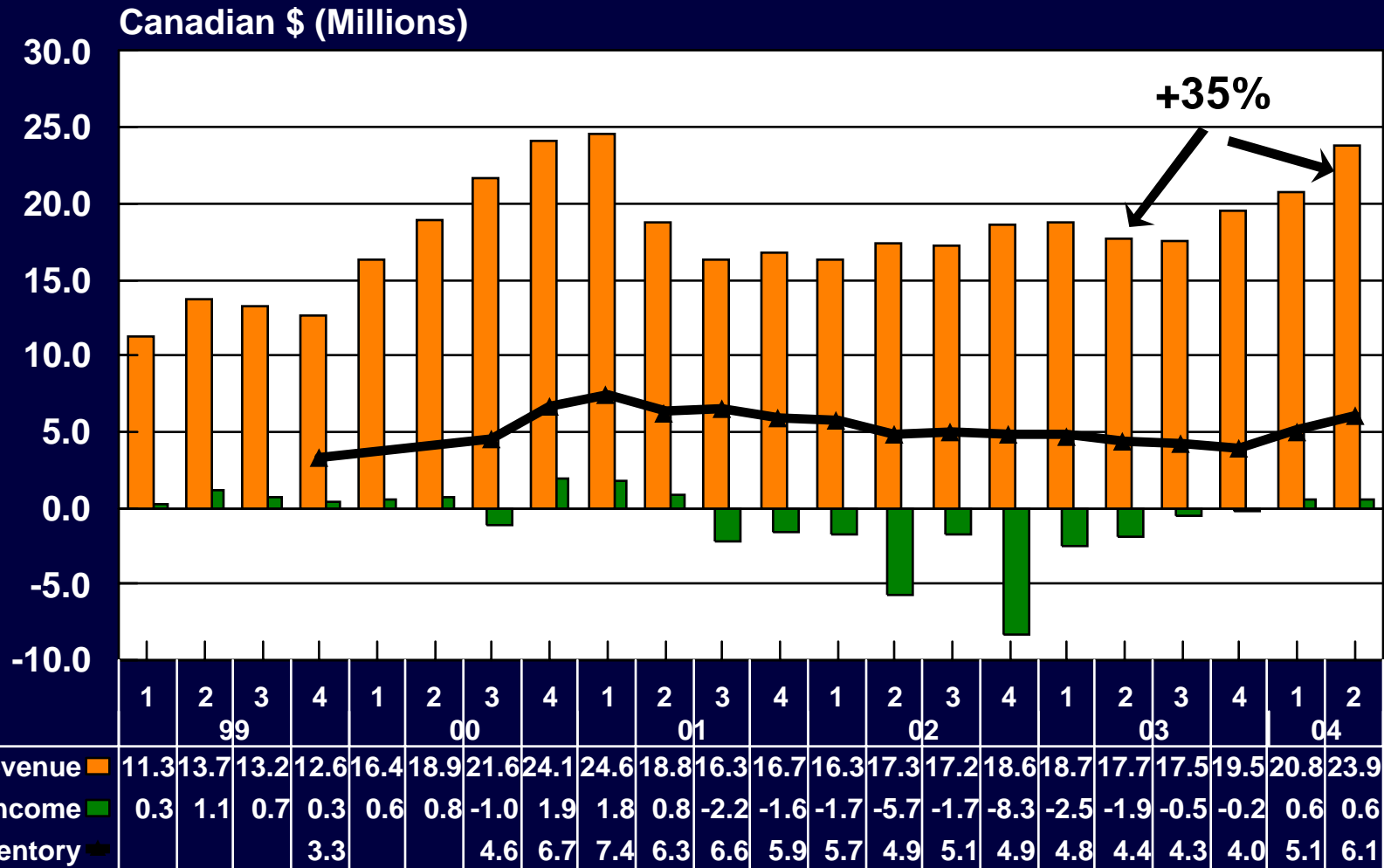


Sources: 10Q & 10K reports and company press releases

VSGI

Coretec Inc

Revenue, Net Income & Inventory

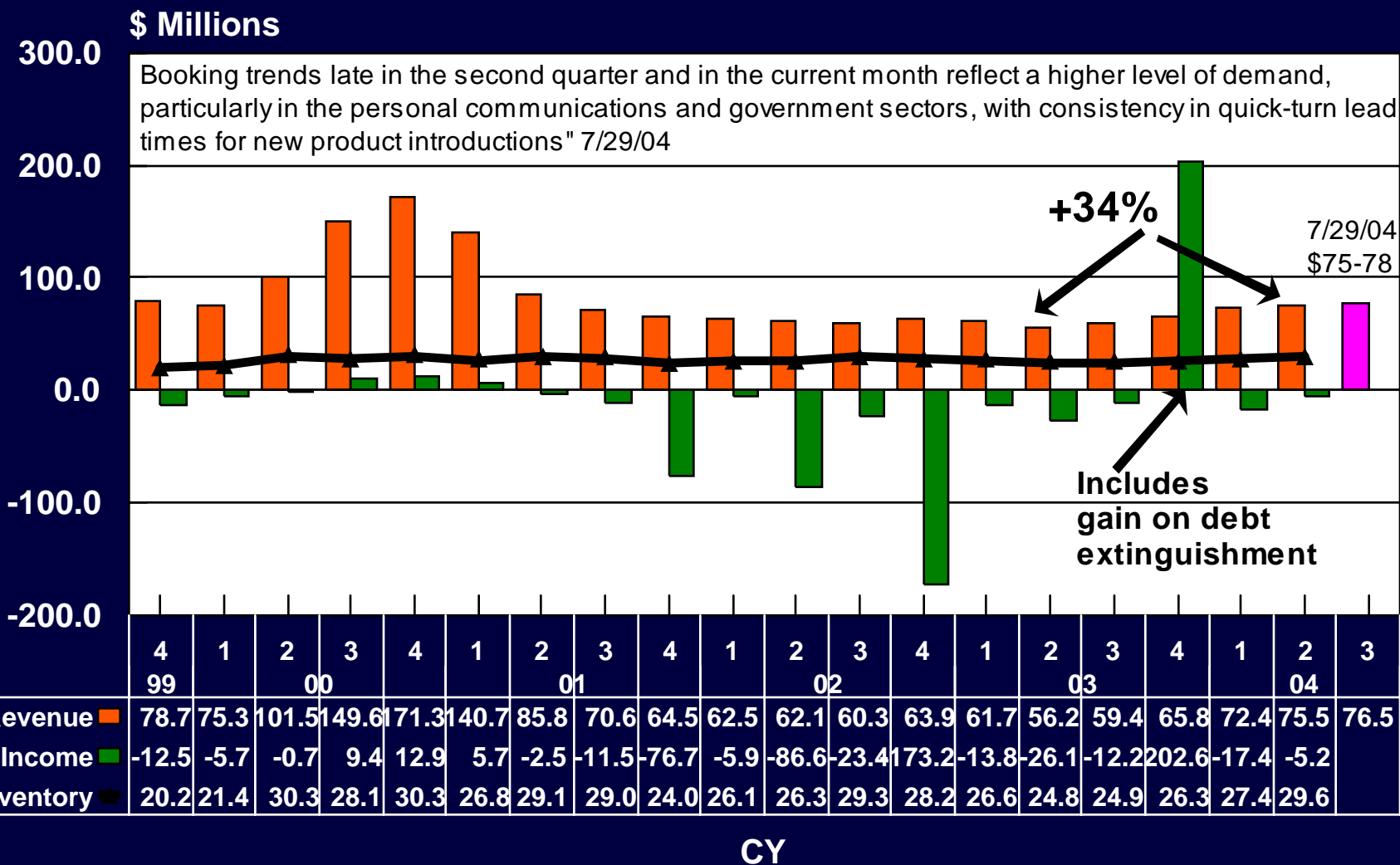


FY=CY

T:CY

DDi Corp

Revenue, Net Income & Inventory



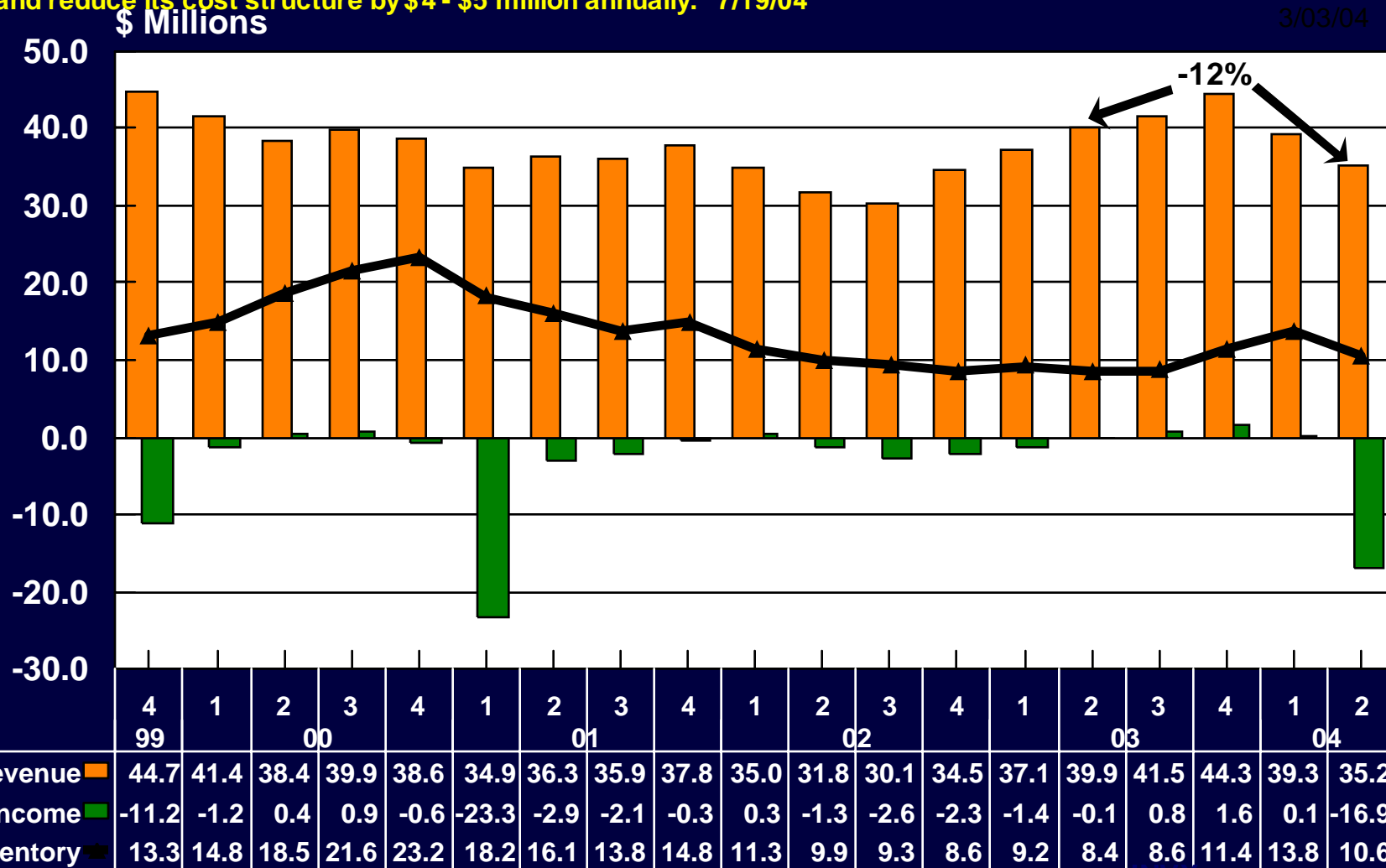
FY=CY

DDIC

Innovex

Revenue, Net Income & Inventory

"During the first 6 months of calendar year 2005 the Maple Plain operations will be transferred to Lamphun, Thailand and Litchfield, Minnesota. This move will significantly improve the company's worldwide supply chain performance, move operations closer to customers and reduce the company's fixed and variable cost structure. The company will upgrade certain processing equipment as part of the move. Once the move is complete, the company expects to improve its cycle times by at least 20% and reduce its cost structure by \$4 - \$5 million annually." 7/19/04



FY ends September

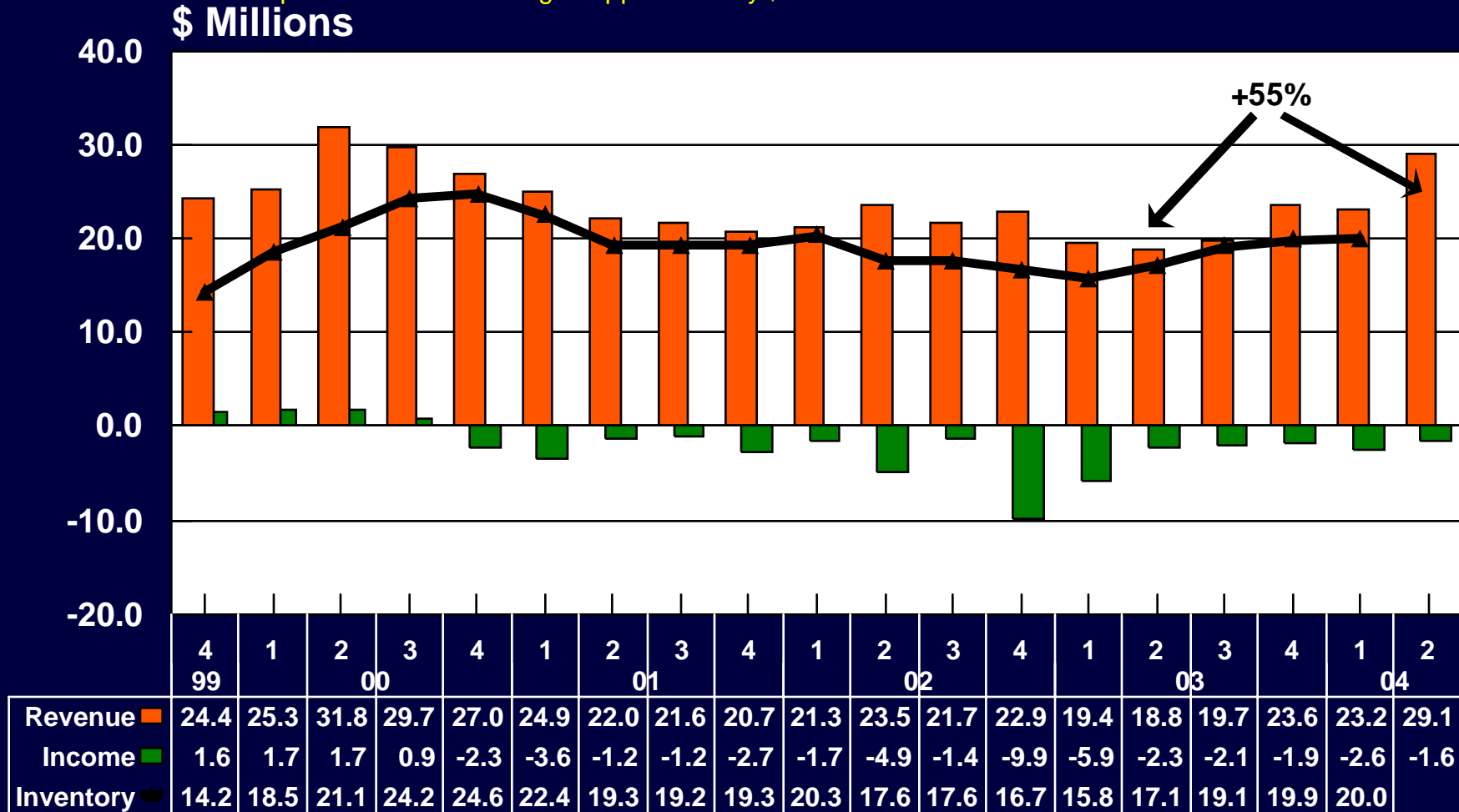
CY

INNOVEX

Parlex

Revenue, Net Income & Inventory

"Revenue grew 25% sequentially in the fourth quarter and we made significant progress towards profitability. Included in the fourth quarter operating loss were reserves of approximately \$.5 million against inventory and accounts receivable, related to a customer dispute. Many other results indicate we are doing the right things to strengthen our financial performance and market position. Our book-to-bill ratio remains positive with a backlog of approximately \$29 million." 8/30/04



FY ends June 30

CY

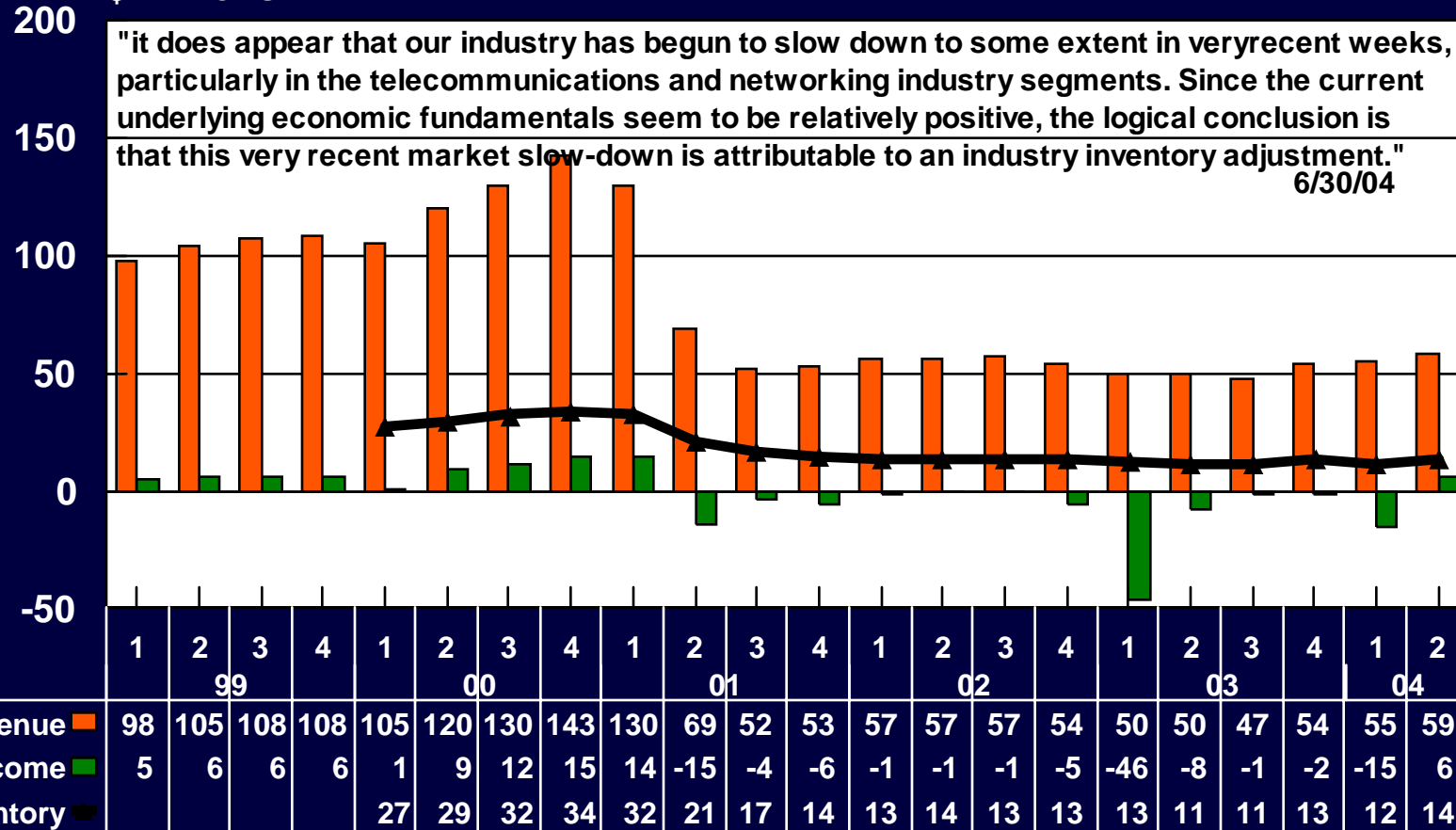
PRLX

**Materials
&
Process
Equipment
Suppliers**

Park Electrochemical Corp

Revenue, Net Income & Inventory

\$ Millions

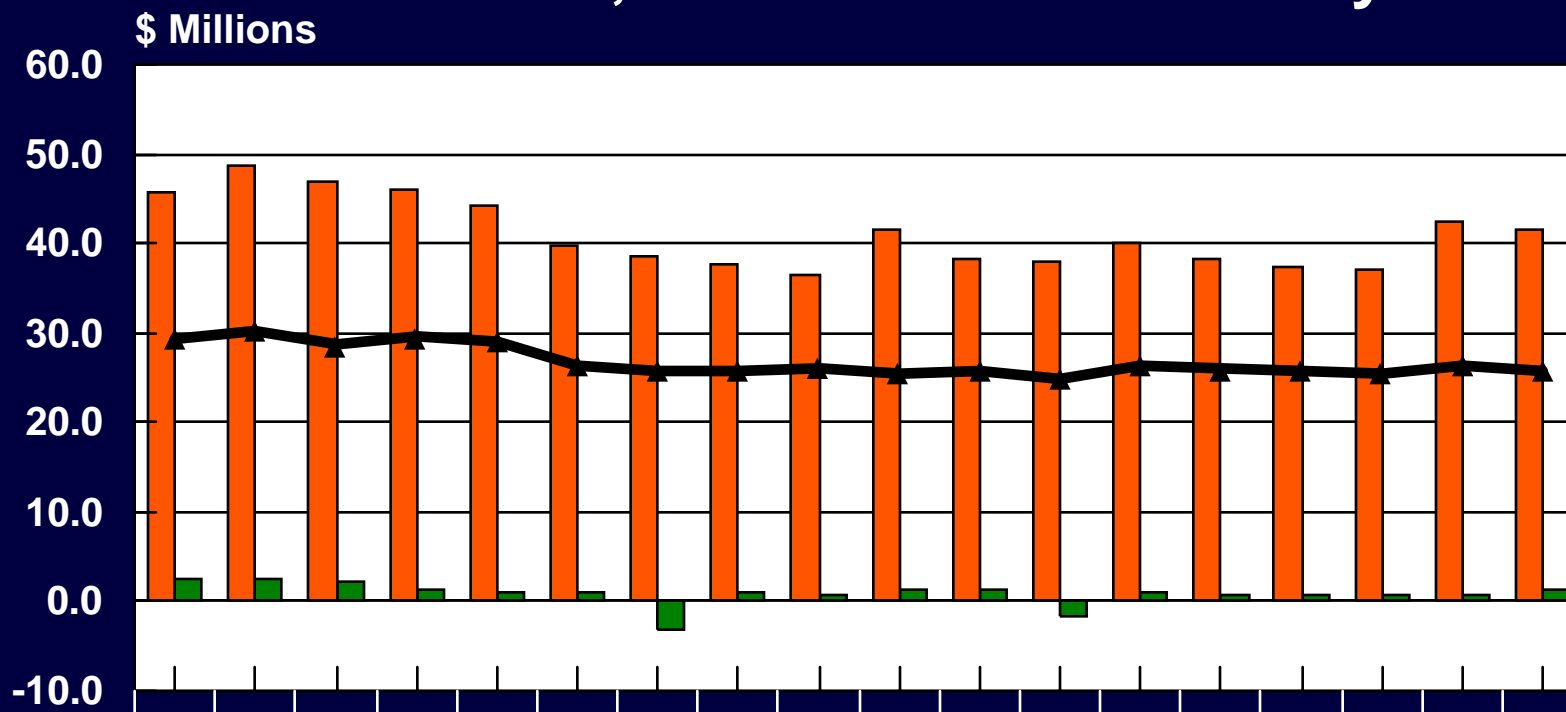


CY

PKE

Bairnco Corp (parent of Arlon)

Revenue, Net Income & Inventory



	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
	00				01				02				03				04	
Revenue	45.8	48.8	46.8	46.2	44.2	39.8	38.6	37.8	36.6	41.6	38.3	37.9	40.0	38.3	37.3	37.1	42.6	41.7
Income	2.5	2.5	2.0	1.2	1.0	1.0	-3.3	1.0	0.7	1.2	1.1	-1.6	0.9	0.6	0.6	0.6	0.7	1.1
Inventory	29.3	30.2	28.6	29.5	29.0	26.2	25.7	25.6	25.9	25.5	25.8	24.9	26.3	25.9	25.8	25.5	26.4	25.7

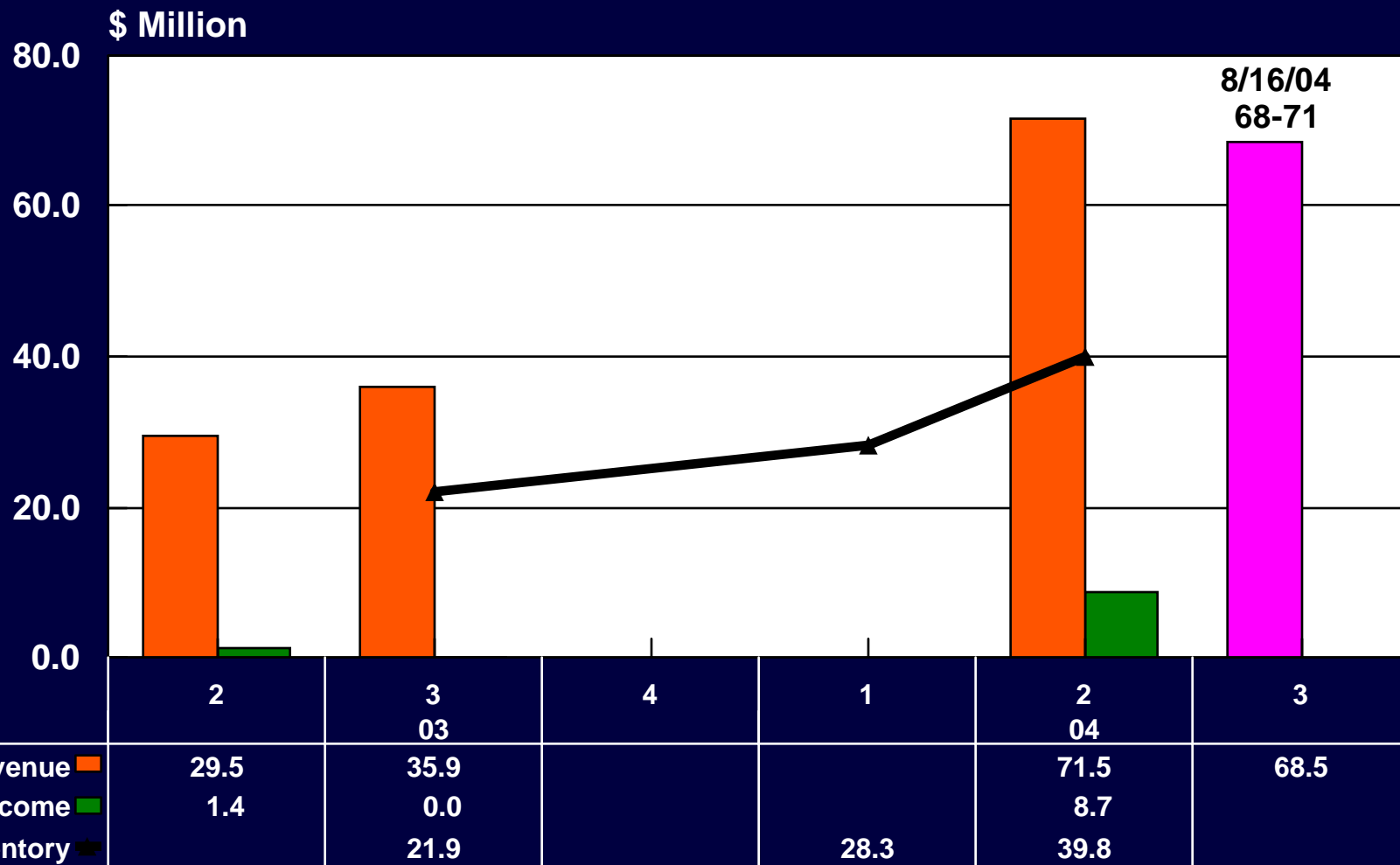
CY

"Arlon's Electronic Materials sales were up 28.1% as this segment experienced growth in all its served markets" 7/16/04

BZ

M-FLEX (Multi-Fineline Electronix)

Revenue, Net Income & Inventory

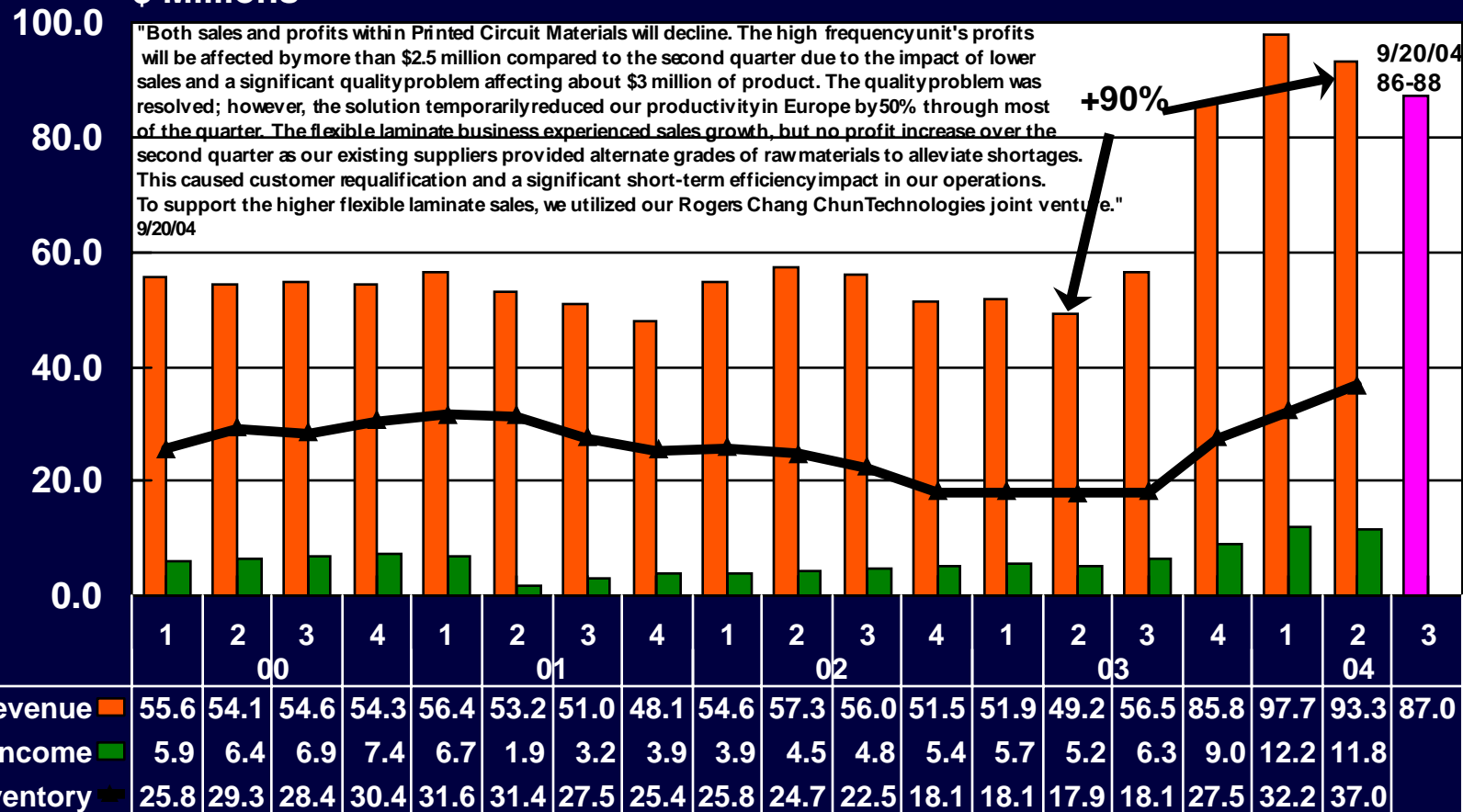


CY

Rogers Corp

Revenue, Net Income & Inventory

\$ Millions

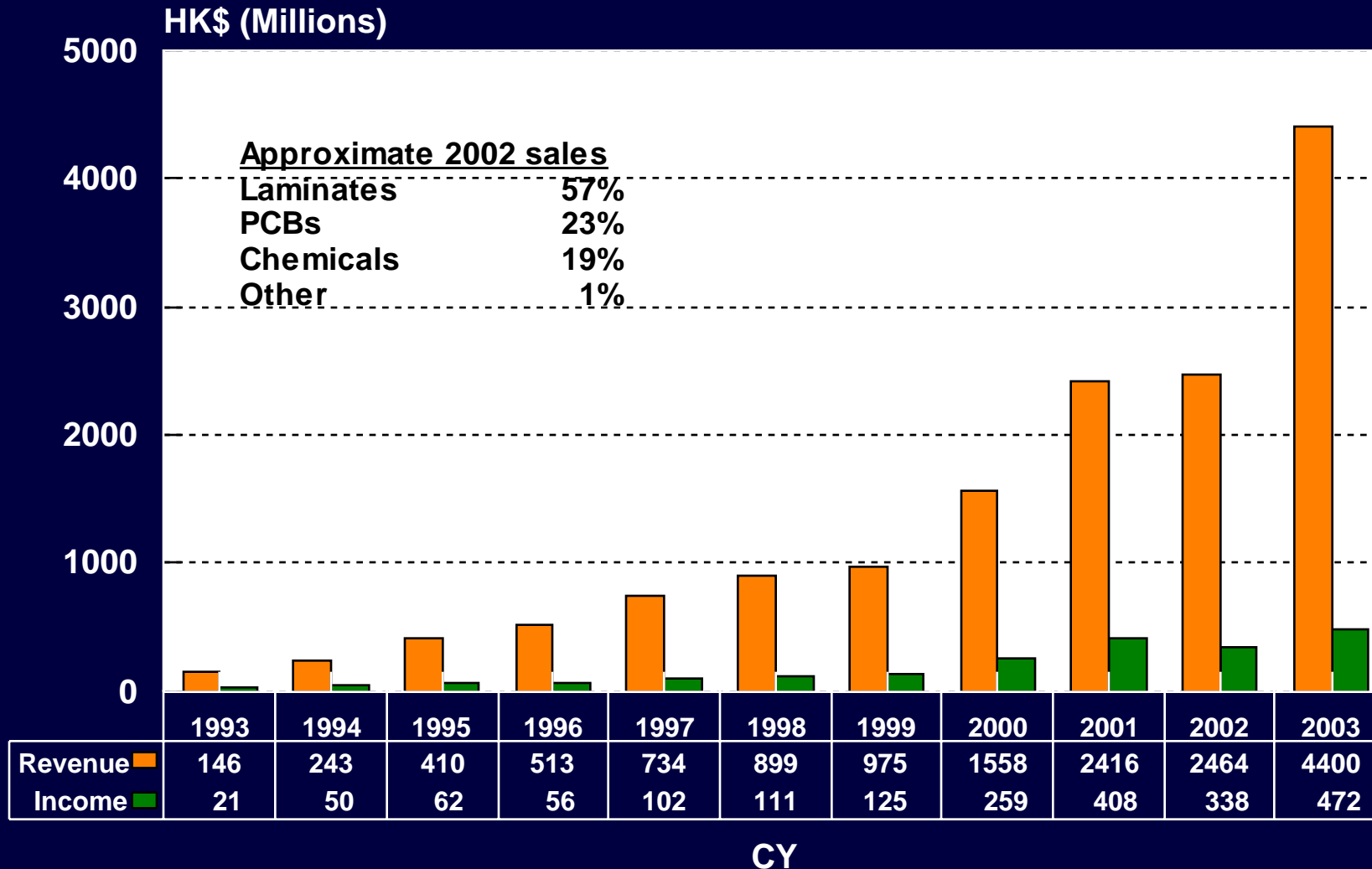


CY

"From October 2003 through August 2004 our focus has been satisfying our customers' rapidly increasing demands. This required acquiring sufficient raw materials, avoiding raw material price increases, hiring and training almost 500 new employees, and trying to increase the throughput of our manufacturing processes to squeeze more capacity from our existing equipment. We were prepared, if needed, to manufacture more than \$100 million of product in the third quarter if the market accelerated; however, some of our markets did not perform as anticipated and several major customers revealed they have excess inventory." 9/20/04

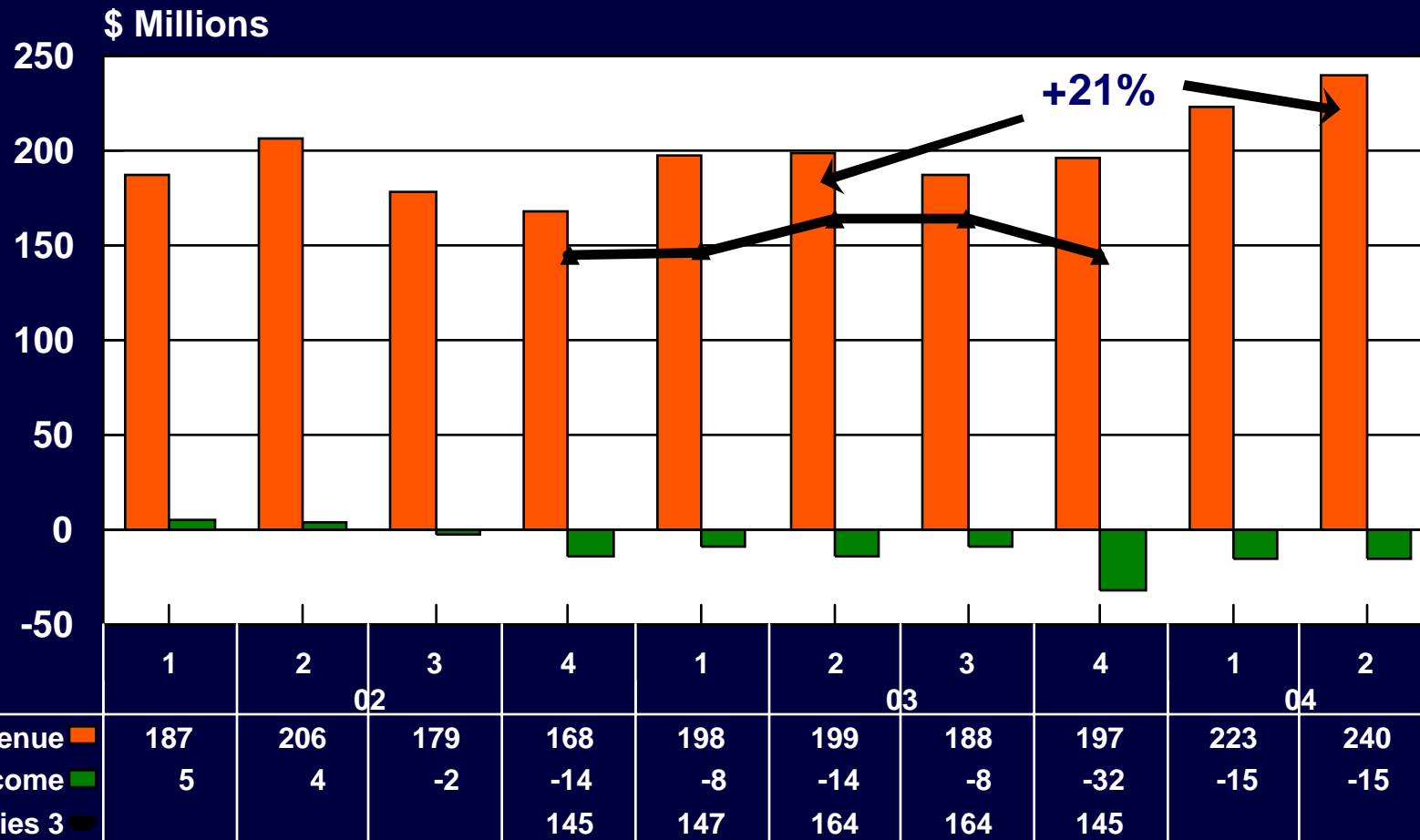
Kingboard Chemical Holdings

Revenue & Net Income



Resolution Performance Products

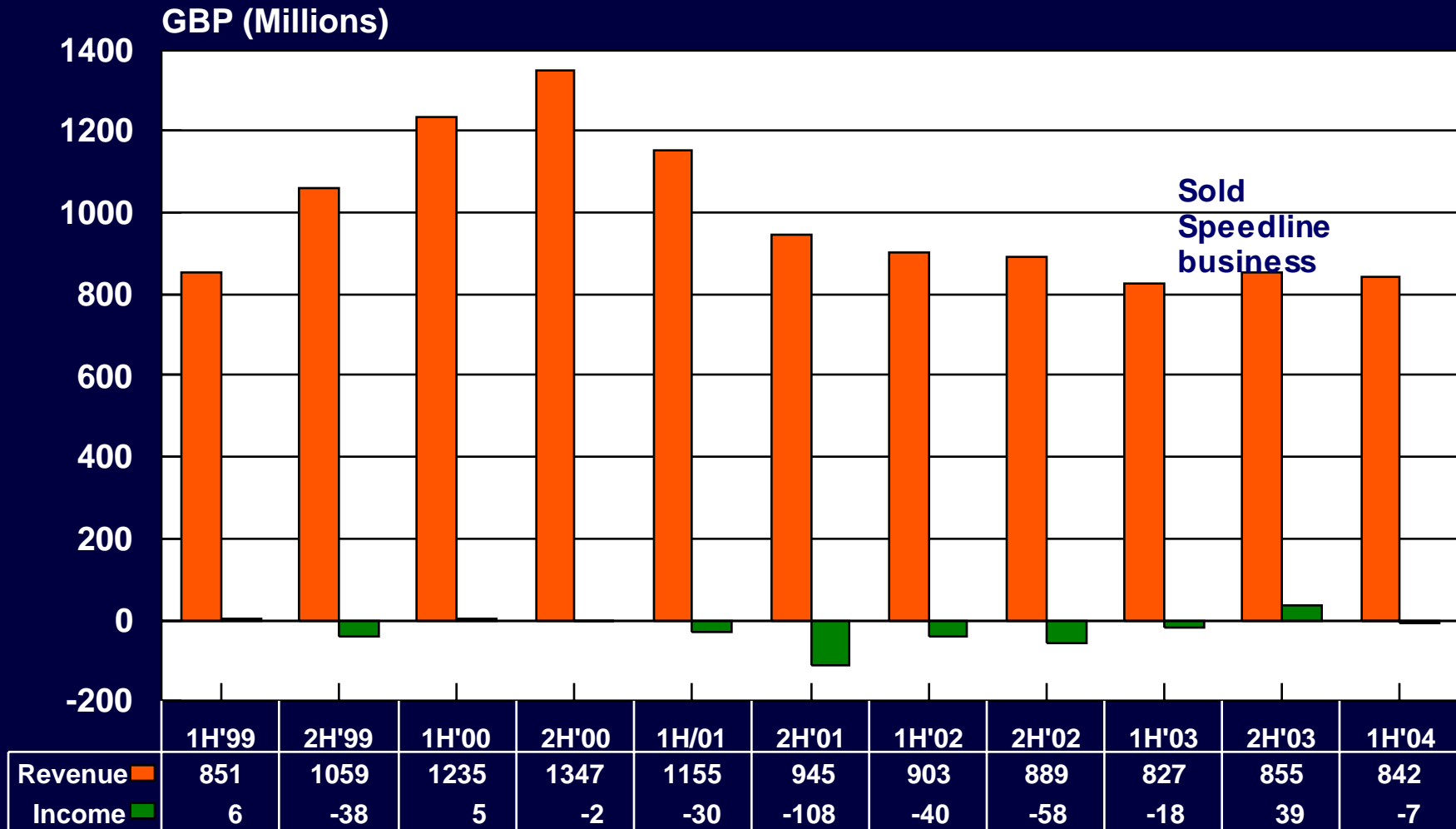
Revenue, Net Income & Inventory



CY

Cookson International

Revenue & Net Income



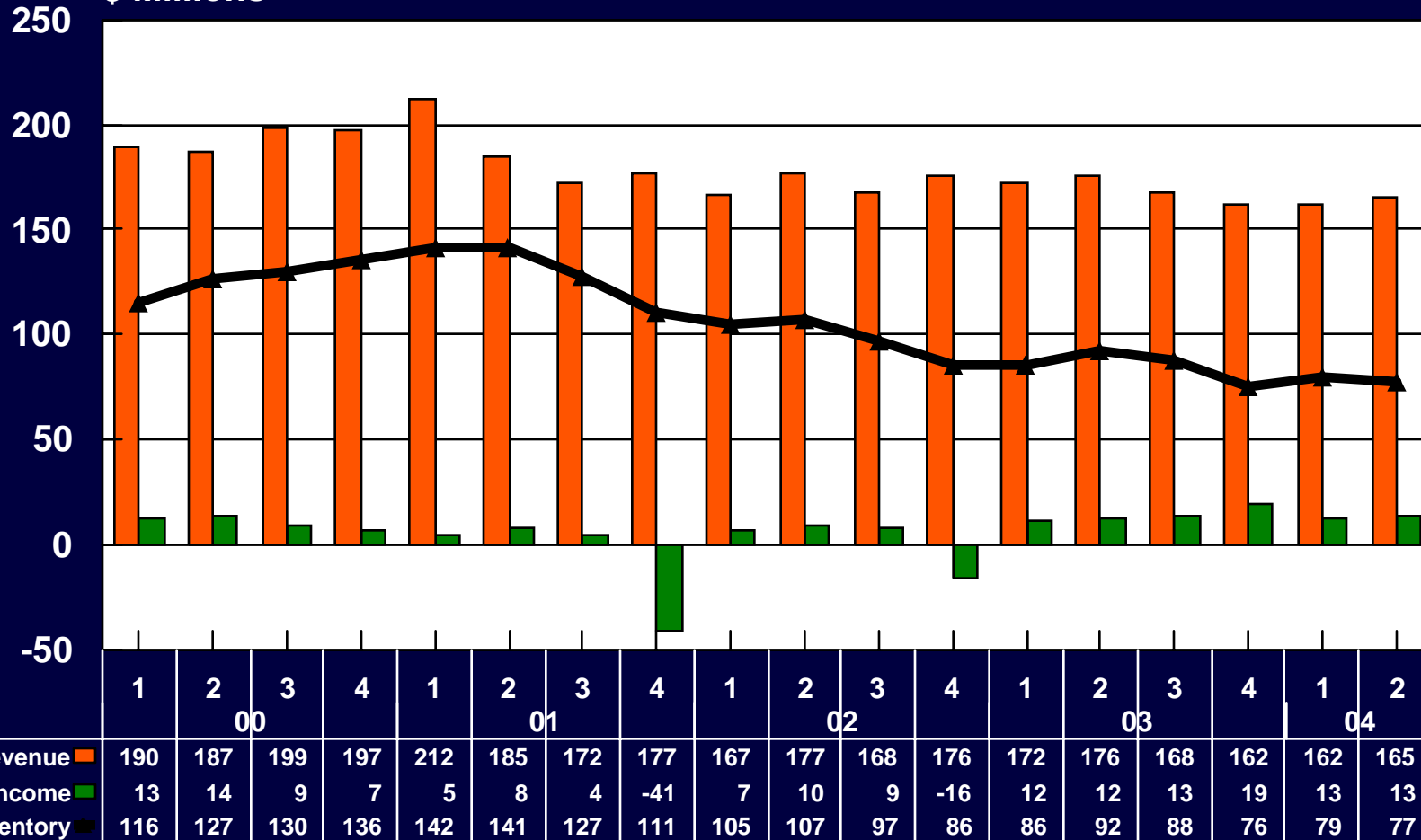
CY

MacDermid Inc

Revenue, Net Income & Inventory

"I would characterize this quarter as solid but not spectacular," said Daniel Leever Chairman and Chief Executive Officer. "We saw excellent growth in Advanced Surface Finishing in Asia and North America, while Printing Solutions continues to struggle. Overall the European economy continues to lag the rest of the world." 8/4/04

\$ Millions



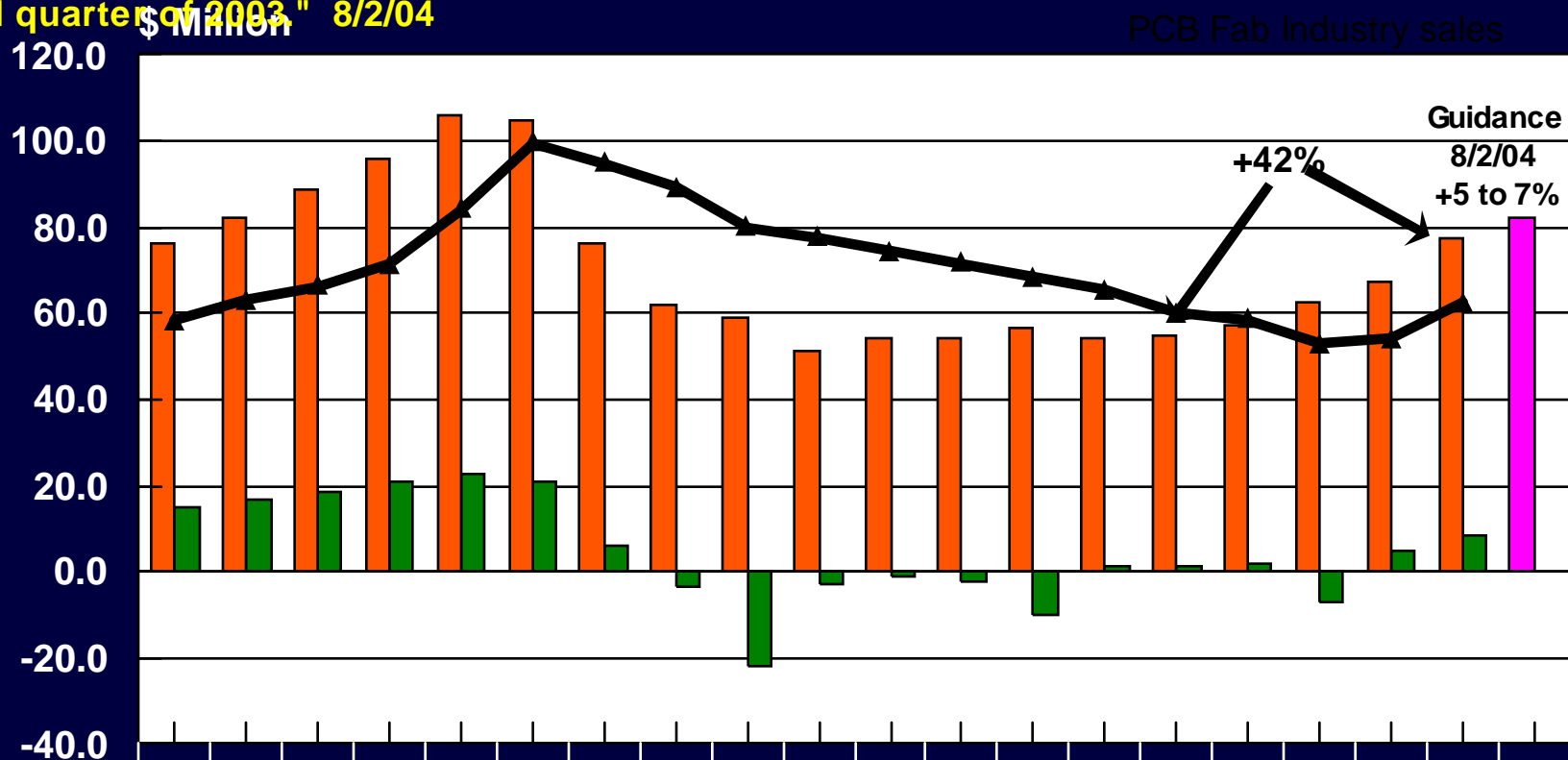
CY

MRD

Orbotech

Revenue, Net Income & Inventory

"Sales of equipment to the printed circuit board ("PCB") industry relating to bare PCBs were \$29.4 million in the second quarter of 2004, compared to \$23.2 million in the first quarter, and \$18.5 million in the second quarter of 2003." 8/2/04



	4 99	1 00	2 00	3 00	4 00	1 01	2 01	3 01	4 01	1 02	2 02	3 02	4 02	1 03	2 03	3 03	4 03	1 04	2 04	3 04
Revenue	76.2	82.3	88.4	95.7	105.9	104.9	76.5	61.7	58.9	51.1	54.2	54.2	56.9	54.2	54.6	57.3	62.3	67.2	77.5	82.2
Income	15.2	16.6	18.7	21.0	22.7	21.0	6.1	-3.6	-21.7	-2.7	-1.2	-2.0	-9.8	1.0	1.2	2.0	-7.3	5.1	8.6	
Inventory	58.2	62.9	66.4	71.3	84.1	99.6	94.8	89.3	80.1	77.7	74.2	71.7	68.4	65.5	60.2	58.5	53.0	54.1	62.4	

CY

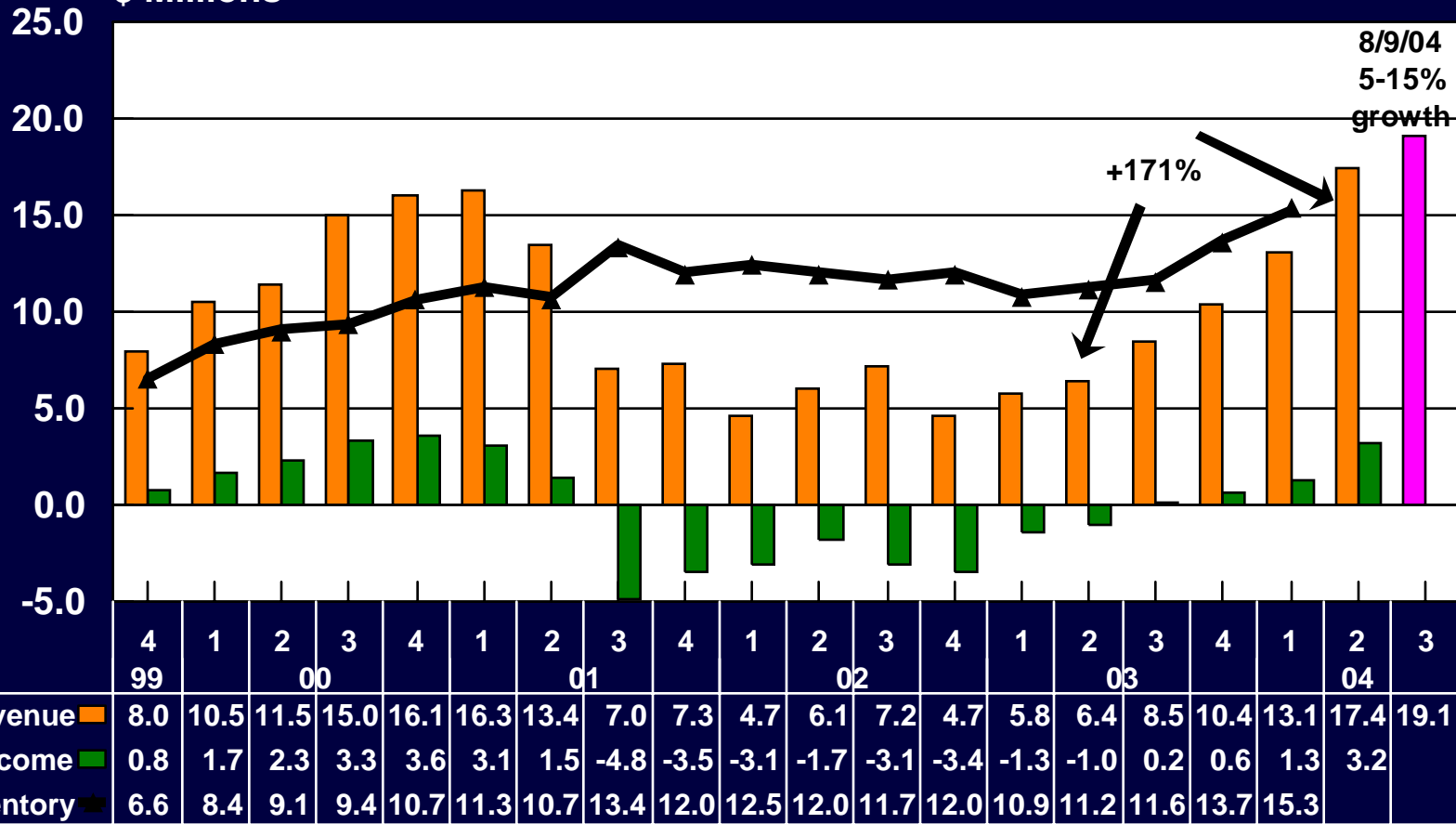
ORBK

Camtek Ltd

Revenue, Net Income & Inventory

"This is the best quarter in Camtek's history so far in terms of revenues, and is the first to include revenues from sales of our Falcon systems to the semiconductor manufacturing and packaging industry. This continuing growth reflects a strong demand for our products, which is driven mainly by the on-going capacity build-up in the industries we serve, particularly in Asia." 8/9/04

\$ Millions



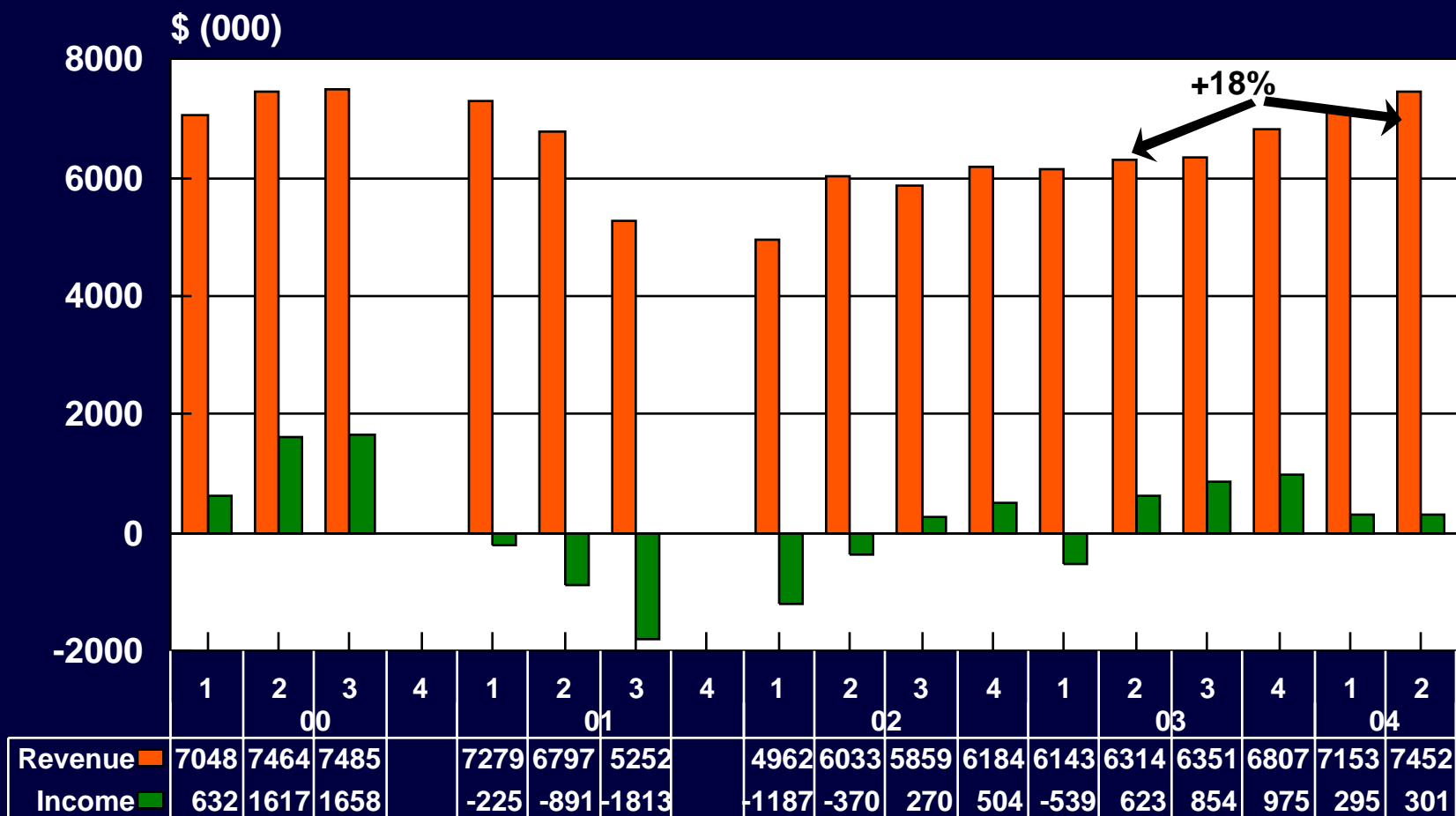
CY

CAMT

Valor Computerized Systems

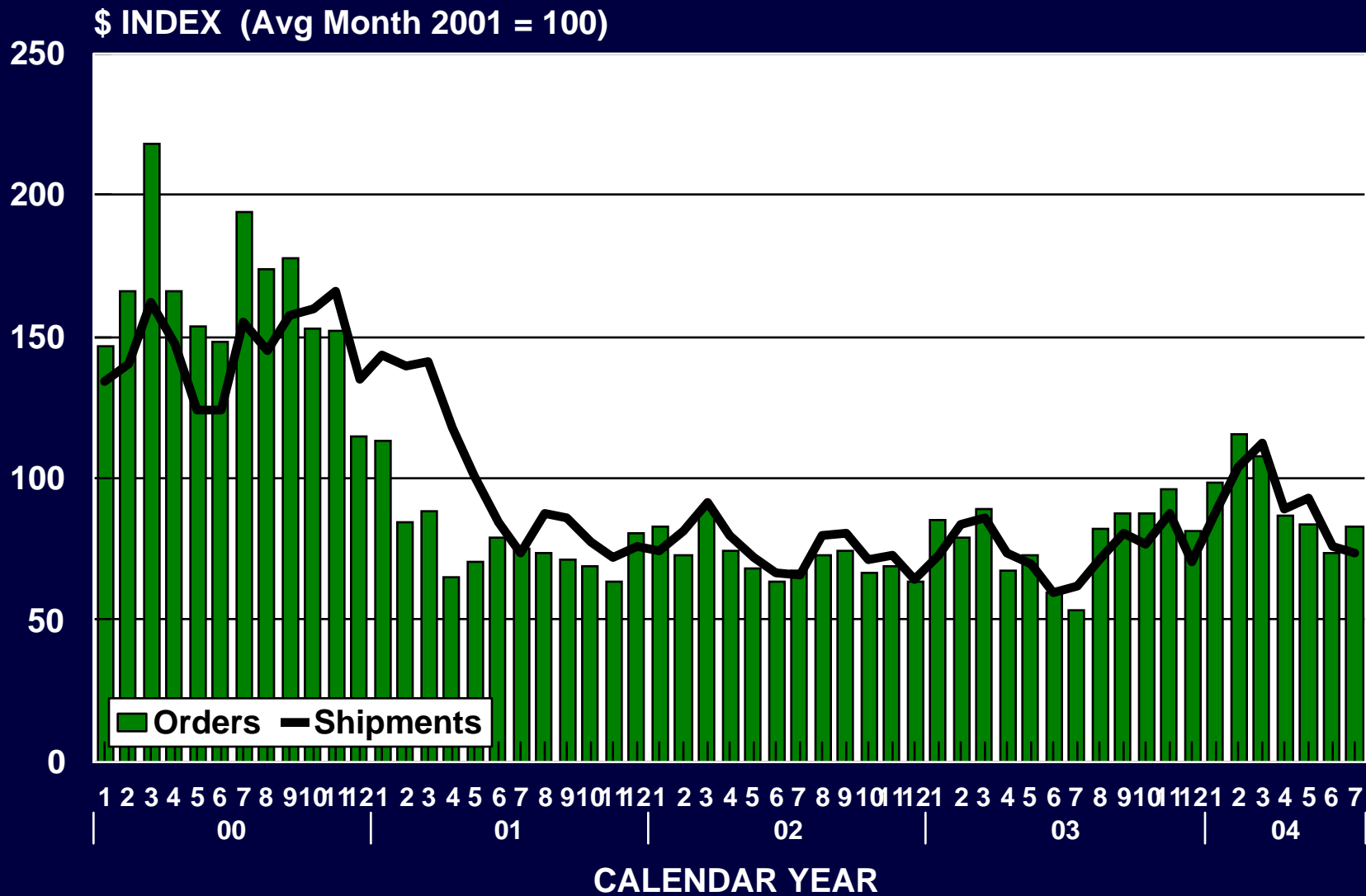
Revenue & Net Income

"This is the fifth consecutive quarter of revenue growth, and we expect to maintain our growth rate in the second half of 2004." 8/3/04



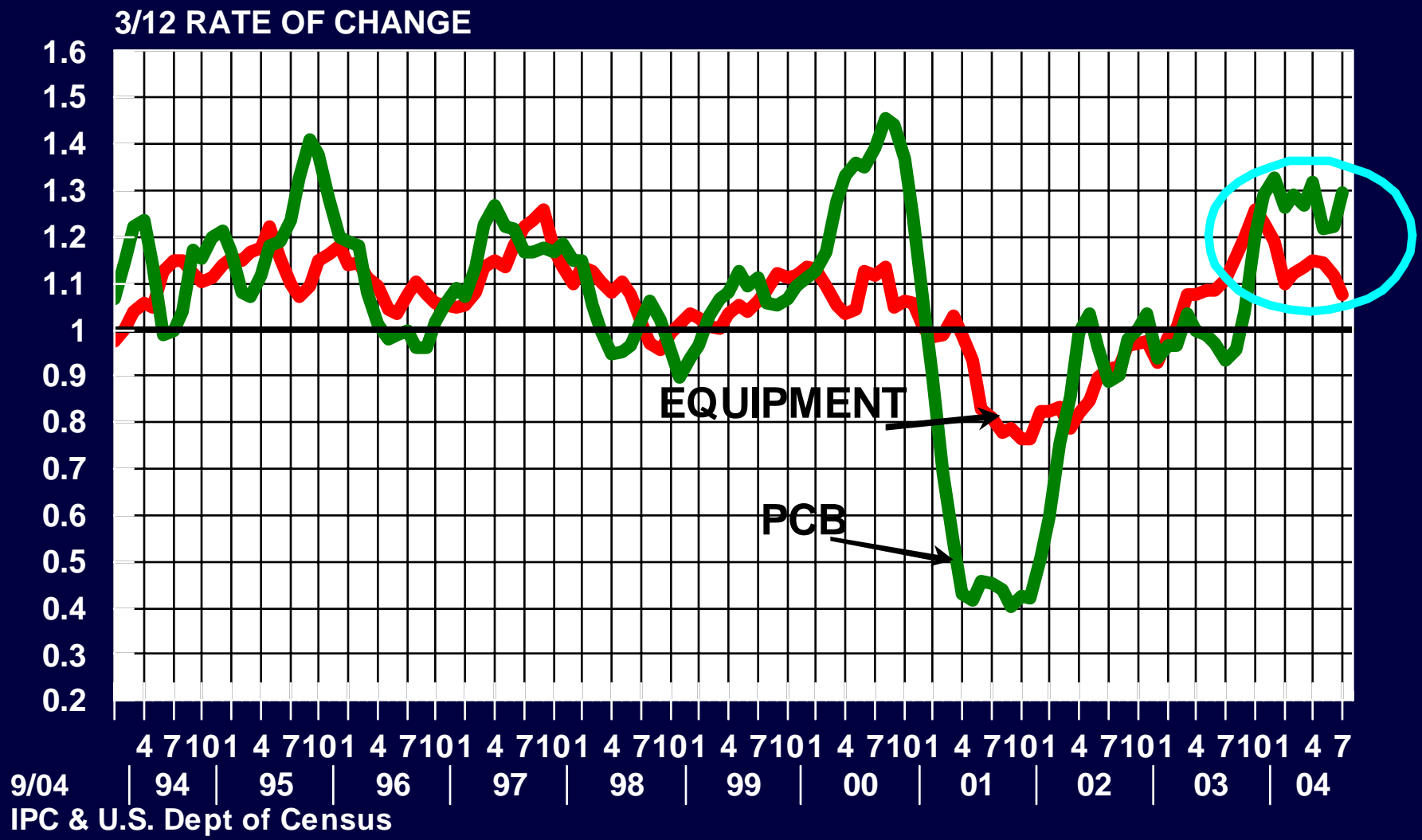
C.VAC

U.S. Rigid PCB Orders & Shipments



Growth Rates & Future Outlook

U.S. Electronic Equipment vs Rigid PCBs \$ Order Growth



PRESENT GROWTH RATES (%)

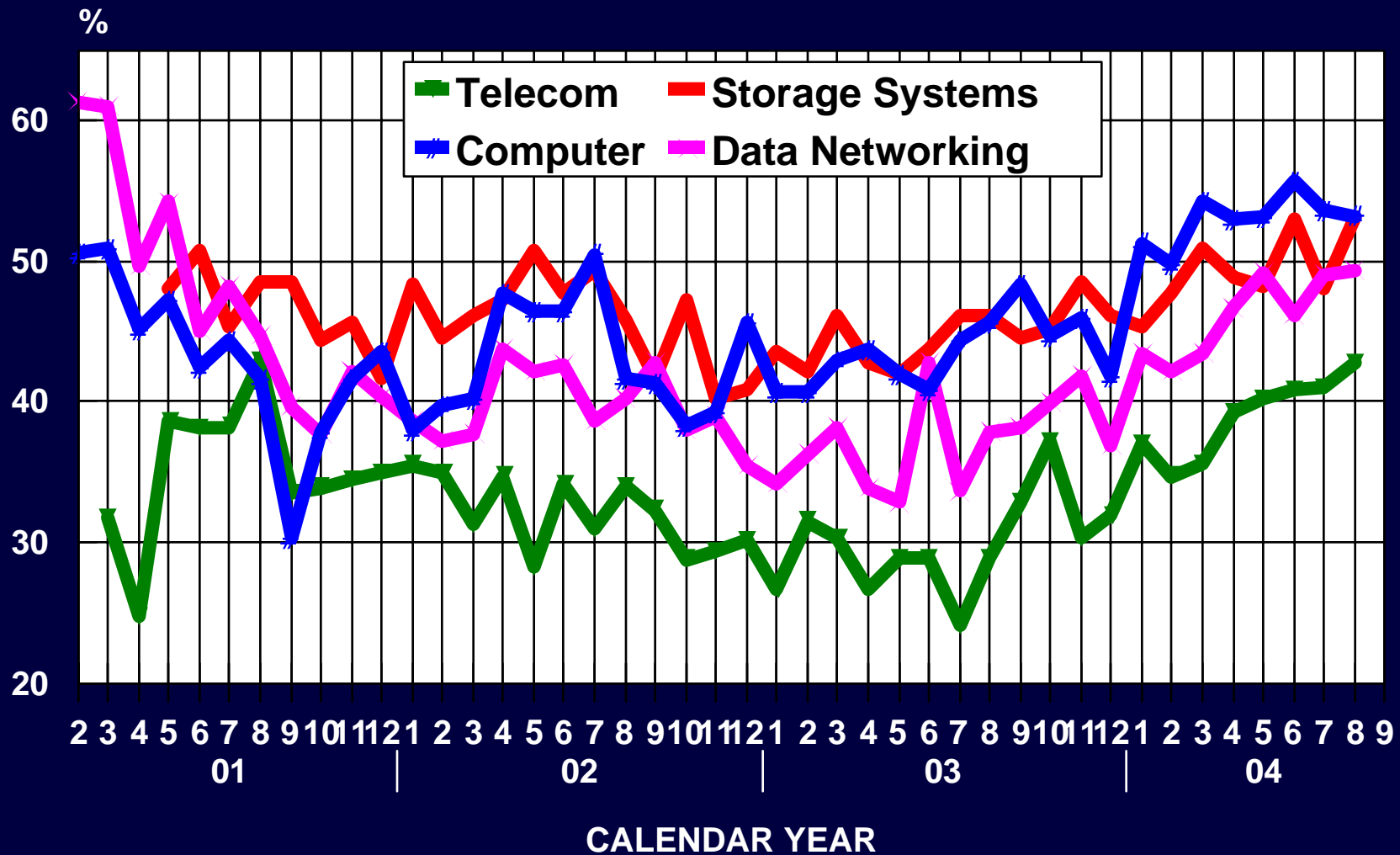
U.S. ECONOMY & ELECTRONICS INDUSTRY

	LATEST MONTH	ANNUAL GROWTH RATE	3-MONTH GROWTH RATE
RIGID PCB ORDER \$	7/04	127.0	129.5
RIGID PCB SHIPMENT \$	7/04	116.6	126.9
FLEX CIRCUIT ORDER \$	7/04	194.4	193.9
FLEX CIRCUIT SHIPMENT \$	7/04	155.9	183.9
SEMICONDUCTOR SHIPMENT \$	7/04	120.0	125.7
ELECTRONIC EQUIPMENT ORDER \$			
COMPUTER & RELATED	7/04	113.6	108.2
COMMUNICATIONS	7/04	108.5	98.0
MEDICAL, MEASUREMENT & CONTROL	7/04	119.6	113.8
SEARCH & NAVIGATION	7/04	117.8	114.3
TOTAL ELECTRONIC EQUIPMENT	7/04	114.3	107.7
 INDUSTRIAL PRODUCTION	 8/04	 103.3	 105.2

NOTE: 3 month growth rates compare most recent 3 months to same 3 months one year earlier

IT Future Hardware Spending

% of Companies That Plan to Increase Spending



Conclusions

Summary

- **Post-2000 "implosion" is behind us and global growth has resumed.**
- **Electronic component manufacturing "center of gravity" has shifted to SE Asia (Especially China).**
- **2004 began as a year of broad recovery with double-digit growth in all geographical areas.**
- **Inventory builds & excess orders coupled with economic fears & high energy costs caused a spring/summer slowdown. Growth may now be re-accelerating.**

Longer Term Outlook

- Higher interest rates will eventually (6-12 months) temper growth. Impact will depend upon magnitude & frequency of rate hikes.
- Geopolitical situation & energy costs remains worrisome
- Telecom/datacom growth should accelerate
- Barring a global upheaval 2005 should also be an "OK" year.
- USA & Europe will focus on niche and "protected" markets, more "volume" production will shift to "low cost" areas.

Local Market Strengths

- **Intellectual property & "sensitive" content issues**
- **Quick turn & prototype**
- **Military, security & medical electronics**
- **High product mix; shorter run**
- **Global diversity - spread production over multiple continents**
- **Local support - engineering, collaboration**
- **Assurance of continuity of local suppliers**

General Issues

Global stability - Mideast situation

Energy supply & costs

Job shifts to "low cost" areas

Inflation & higher interest rates

Managing in a highly cyclical, cost sensitive industry

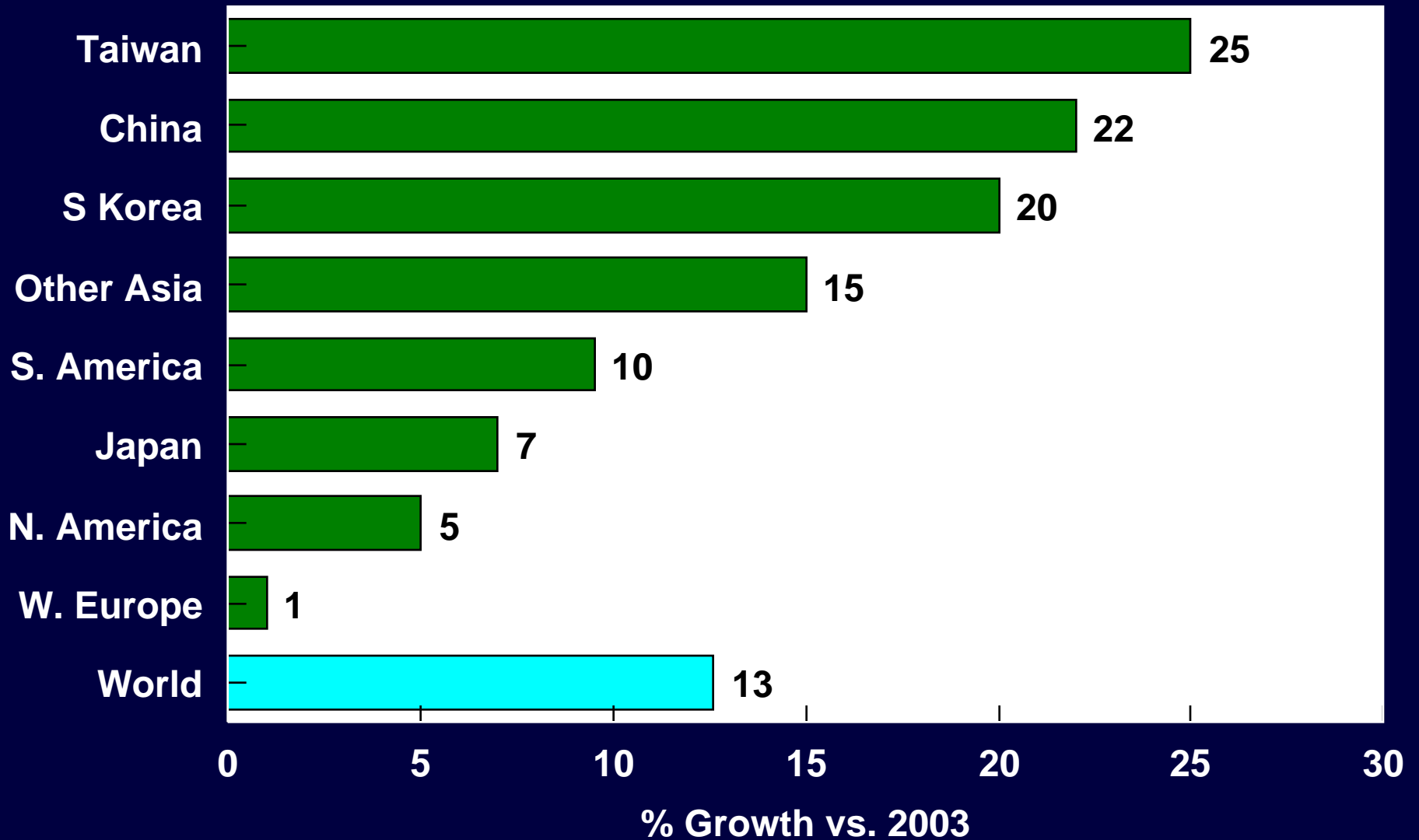
Electronic Equipment Production Growth

Current \$ Growth Rates Converted @ Constant Exchange Rates

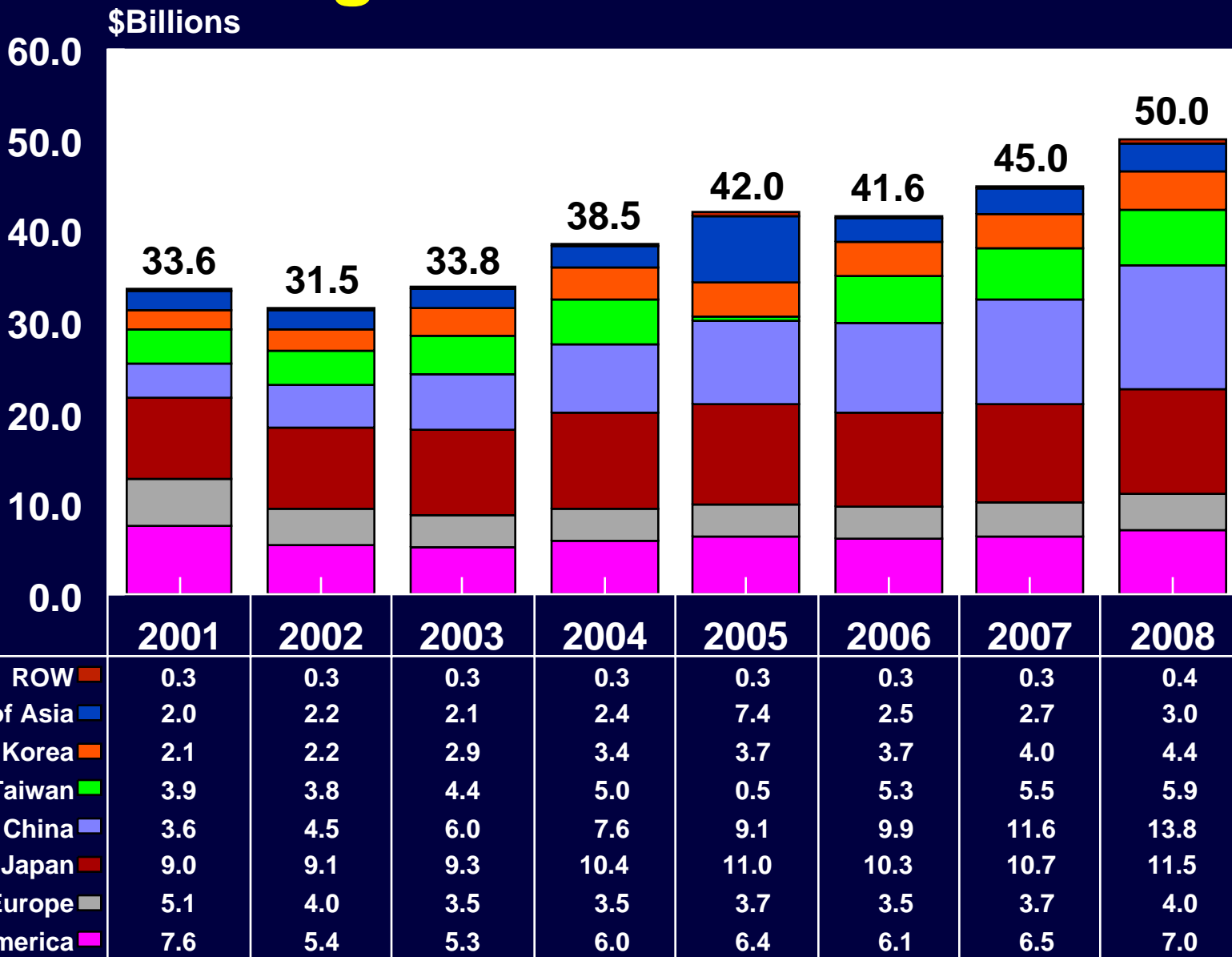
	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>
World	-5.8	6.1	11.6	8.4	4.7
USA	-9.5	6.0	12.0	7.2	2.0
W Europe	-7.5	-2.1	5.7	4.9	2.8
Japan	-14.3	8.1	8.8	6.8	3.4
Four Tigers	0.9	3.9	13.4	8.5	6.2
China	12.1	26.1	25.4	18.6	14.1

2004 Estimated PCB Growth

Based upon Jan-July 2004 Data



World Rigid & Flex PCB Production



Henderson Ventures 6/04 (constant 2003 exchange rates)

Global "Electronic Foodchain" Outlook 2005 vs 2004

