

End-Use Outlook

OVERVIEW

Dataquest estimates that North American electronic equipment production revenue grew 6.5 percent in 1987. We expect that the turnaround witnessed in 1987 will continue into 1988, with 6 percent growth over 1987. Excluding the military electronics industry, the overall electronics outlook appears even healthier, with 9 percent growth over 1987. Dataquest forecasts that data processing, the largest semiconductor market, will grow 10 percent, a faster pace than the industry as a whole.

This service section will outline Dataquest's forecast for various equipment markets and discuss the trends that we believe to be most important to semiconductor manufacturers and users. These trends are as follows:

- Personal computers will continue to drive the current upturn in semiconductor industry sales.
- The communications application market will provide the highest growth for North American semiconductor suppliers in the long term. Some of the pending issues to be faced in 1988 are industry consolidation, the battle to connect the desk, and the legal decision to limit the regional Bell operating companies (RBOCs).
- The slowdown in automotive production has resulted in a decline in robotics shipments, although the resurgence of the semiconductor industry has had positive effects on other industrial application markets such as automatic test equipment (ATE) and semiconductor production equipment.
- Many consumer electronics manufacturers are considering manufacturing in the United States to be more desirable because of a need to be close to their markets, the depreciation of the dollar, and trade pressure.
- The military electronics market will remain sluggish through the 1990s. However, the need for state-of-the-art technology and the semiconductor pervasiveness in electronic systems will provide some growth in military semiconductor consumption.
- The slowdown in automotive production has tempered semiconductor growth. Nevertheless, some growth is expected as a result of the increasing pervasiveness of electronics in automobiles.

OUTLOOK FOR APPLICATION MARKETS

Table 1 displays Dataquest's most recent electronic equipment forecast. The industry as a whole grew 6.5 percent in 1987, a small increase from the 4.5 percent growth of 1986. If the military market is extracted from the total, however, the growth

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increase is a little more dramatic—9.1 percent in 1987 versus 5.6 percent in 1986. Excluding military, the market is forecast to grow at a 7.8 percent compound annual growth rate (CAGR) from 1987 through 1991.

Table 1

North American Electronic Equipment Forecast (Millions of Dollars)

Segment	1987	1988	1989	1990	1991	CAGR 1987-1991
Data Processing						
Computers	\$ 65,010	\$ 73,210	\$ 78,548	\$ 84,406	\$ 91,094	8.8%
Data Storage						
Subsystems	21,014	22,392	25,593	26,494	26,837	6.3%
Terminals	2,769	2,840	2,966	3,093	3,181	3.5%
Input/Output	8,368	9,019	9,539	9,510	10,172	5.0%
Dedicated Systems	4,711	4,373	4,294	4,400	4,500	(1.1%)
Subtotal	\$101,872	\$111,834	\$120,940	\$127,903	\$135,784	7.4%
Communications						
Customer Premises	\$ 10,074	\$ 11,084	\$ 12,170	\$ 13,114	\$ 14,158	8.9%
Public Telecom-						
munications	6,834	7,080	7,516	7,881	8,297	5.0%
Radio	6,513	7,608	8,654	9,785	10,556	12.8%
Broadcast and						
Studio	1,582	1,767	1,892	2,100	2,331	10.2%
Other	1,958	2,010	2,144	2,346	2,575	7.1%
Subtotal	\$ 26,961	\$ 29,548	\$ 32,176	\$ 35,226	\$ 37,917	8.9%
Industrial						
Security/Energy						
Management	\$ 2,211	\$ 2,388	\$ 2,388	\$ 2,678	\$ 2,905	7.1%
Manufacturing						
Systems	12,487	13,983	14,586	15,686	17,199	8.3%
Instrumentation	7,235	8,167	8,589	9,197	9,938	8.3%
Medical Equipment	5,345	5,757	6,072	6,432	6,858	6.4%
Commercial Aviation	2,216	2,394	2,582	2,657	2,838	6.4%
Other	5,669	6,394	6,964	7,671	8,466	10.5%
Subtotal	\$ 35,163	\$ 39,084	\$ 41,276	\$ 44,321	\$ 48,204	8.2%

(Continued)

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Table 1 (Continued)

North American Electronic Equipment Forecast (Millions of Dollars)

	1987	1988	1989	1990	1991	CAGR 1987-1991
Consumer						
Audio	\$ 324	\$ 332	\$ 357	\$ 395	\$ 407	5.9%
Video	5,127	5,291	5,647	6,254	6,577	6.4%
Personal Electronics	720	756	794	801	816	3.2%
Appliances	11,068	11,522	12,098	12,891	13,691	5.5%
Other	1,116	1,167	1,218	1,270	1,325	4.4%
Subtotal	\$ 18,355	\$ 19,067	\$ 20,114	\$ 21,611	\$ 22,816	5.6%
Military	\$ 48,200	\$ 45,500	\$ 45,000	\$ 44,500	\$ 44,600	(1.9%)
Transportation	\$ 10,199	\$ 10,964	\$ 11,692	\$ 13,152	\$ 14,809	9.8%
Total	\$240,750	\$255,997	\$271,398	\$286,713	\$304,130	6.0%

Note: Columns may not add to totals shown because of rounding.

Source: Dataquest
May 1988

Table 2 displays Dataquest's estimates of North American semiconductor consumption by application market. We forecast communications to be the fastest-growing market from 1987 through 1991, with the industrial and data processing application markets following very closely. In terms of market share, we see from Figure 1 that data processing accounts for the lion's share of semiconductors, or about 42 percent of North American semiconductor consumption.

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Table 2

North American Semiconductor Consumption Forecast (Millions of Dollars)

Segment	1987	1988	1989	1990	1991	CAGR 1987-1991
Data Processing						
Computer	\$ 3,379	\$ 4,403	\$ 4,168	\$ 4,749	\$ 5,532	13.1%
Data Storage						
Subsystems	862	1,192	1,216	1,373	1,609	16.9%
Data Terminals	185	207	196	215	243	7.0%
Input/Output	394	480	435	455	542	8.3%
Dedicated Systems	173	189	158	175	196	3.2%
Subtotal	\$ 4,993	\$ 6,471	\$ 6,172	\$ 6,968	\$ 8,122	12.9%
Communications						
Customer Premises	\$ 911	\$ 1,112	\$ 1,143	\$ 1,271	\$ 1,493	13.1%
Public Telecom-						
munications	345	425	400	437	520	10.8%
Radio	326	448	449	528	641	18.4%
Broadcast and Studio	111	139	136	156	189	14.4%
Other	84	106	98	112	141	13.8%
Subtotal	\$ 1,777	\$ 2,230	\$ 2,227	\$ 2,504	\$ 2,984	13.8%
Industrial						
Security/						
Energy Management	\$ 132	\$ 165	\$ 153	\$ 176	\$ 210	12.2%
Manufacturing						
System	764	936	923	1,057	1,205	12.1%
Instrumentation	355	476	435	502	602	14.1%
Medical Equipment	348	417	411	457	528	11.0%
Commercial Aviation	133	165	162	177	206	11.7%
Other	214	302	284	340	432	19.2%
Subtotal	\$ 1,946	\$ 2,461	\$ 2,368	\$ 2,708	\$ 3,183	13.1%

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Table 2 (Continued)
North American Semiconductor Consumption Forecast
(Millions of Dollars)

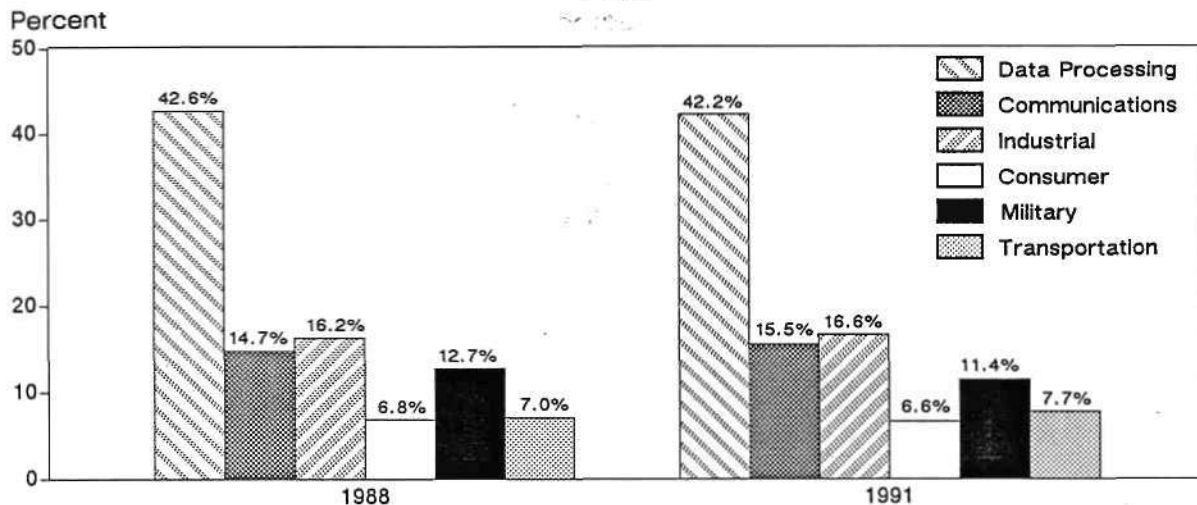
<u>Segment</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>CAGR</u> <u>1987-1991</u>
Consumer						
Audio	\$ 29	\$ 34	\$ 35	\$ 42	\$ 45	11.4%
Video	495	596	603	686	742	10.7%
Personal Electronics	38	50	49	51	55	9.6%
Appliances	274	320	282	323	382	8.7%
Other	31	37	33	35	41	6.9%
Subtotal	\$ 867	\$ 1,037	\$ 1,001	\$ 1,138	\$ 1,264	9.9%
Military	\$ 1,777	\$ 1,923	\$ 1,995	\$ 2,176	\$ 2,195	5.4%
Transportation	\$ 984	\$ 1,067	\$ 1,160	\$ 1,319	\$ 1,482	10.8%
Total	\$12,344	\$15,188	\$14,924	\$16,812	\$19,230	11.7%

Note: Columns may not add to totals shown because of rounding.

Source: Dataquest
May 1988

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Figure 1
North American Semiconductor Consumption
by Application Market



Source: Dataquest
May 1988

The following sections discuss each application market forecast, highlighting the markets we believe to be the most important to semiconductor suppliers.

Data Processing

Resurgence in the computer and peripherals markets is the source of accelerating growth in the data processing application market. Dataquest estimates that this market grew 10.4 percent in 1987 and expects growth to accelerate to 9.8 percent in 1988. Personal computers fueled the computer segment's growth to 13.4 percent in 1987. The computer storage and input/output segments follow personal computers as the fastest-growing segments with growth of 10.8 and 8.4 percent, respectively. Dedicated systems and terminals segments declined in 1987 by 12.6 and 3.9 percent, respectively.

As in the past, the computer segment continues to drive the current upturn in semiconductor industry sales. Dataquest estimates that 27 percent of total North American semiconductor sales in 1987 were to the computer industry. Of that 27 percent, we estimate that personal computers accounted for 37 percent. Our forecast for North American personal computer semiconductor consumption is an 11.8 percent CAGR for the period from 1987 through 1991. The dollar value of semiconductors used in PCs should be \$1.689 billion in 1988, a strong gain against 1987's \$1.252 billion figure. After a dip to \$1.560 billion in 1989, consumption is forecast to increase in 1990 and 1991, to \$1.742 billion and \$1.954 billion, respectively.

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Recent computer manufacturers' financial results show that the computer industry is doing more than replenishing inventory. Many of the major computer manufacturers' revenue and profits jumped in the first two quarters of 1987 compared with the same period in 1986. Computer manufacturers are selling equipment. Table 3 displays second-quarter financial results for selected data processing companies.

Table 3
Quarterly Revenue of Selected Data Processing Companies
(Millions of Dollars)

	<u>Second Quarter 1987</u>				<u>Second Quarter 1986</u>	
	<u>Sales</u>	<u>% Change 1986-1987</u>	<u>Earnings</u>	<u>% Change 1986-1987</u>	<u>Sales</u>	<u>Earnings</u>
Altos Computers	\$ 40.5	40.6%	\$ 3.0	275.0%	\$ 28.8	\$ 0.8
Amdahl	341.0	62.9%	31.0	1,048.1%	209.3	2.7
Apollo Computer	132.2	49.5%	7.6	660.0%	88.4	1.0
Apple	637.1	42.1%	53.5	65.6%	448.3	32.3
Commodore Int'l.	190.4	(8.7%)	1.9	68.3%	208.6	1.2
Compaq Computer	267.5	81.8%	30.7	219.8%	147.1	9.6
Convergent Technologies	104.7	41.1%	0.1	98.0%	74.2	(4.8)
Data General Corp.	942.1	189.6%	(104.4)	(5,320.0%)	325.3	2.0
Digital Equipment Corporation	2,669.1	22.7%	377.3	58.1%	2,175.7	238.6
Gould Inc.	232.5	3.0%	5.9	(42.7%)	225.7	10.3
Harris Corp.	562.1	(2.6%)	26.2	55.0%	577.2	16.9
Hewlett-Packard	2,054.0	14.5%	148.0	20.3%	1,794.0	123.0
Honeywell	1,575.0	18.7%	54.3	50.4%	1,326.4	36.1
IBM Corporation	12,798.0	4.3%	1,178.0	(9.7%)	12,268.0	1,305.0
Micropolis	70.9	28.2%	6.8	54.5%	55.3	4.4
NCR Corporation	1,359.6	16.3%	98.6	25.1%	1,168.8	78.8
Perkin-Elmer Corp.	363.8	4.0%	24.0	15.4%	349.9	20.8
Prime Computer	236.0	12.1%	15.7	37.7%	210.5	11.4
Seagate	250.1	76.6%	34.2	108.5%	141.5	16.4
Tandy Corporation	741.4	7.3%	44.2	63.1%	690.8	27.1
Texas Instruments	1,371.6	10.2%	61.9	403.3%	1,244.1	12.3
Unisys	2,275.0	70.1%	121.2	59.1%	1,337.6	76.2
Wang Laboratories	824.0	15.0%	32.0	3,900.0%	716.8	0.8
Xerox	<u>3,624.0</u>	14.9%	<u>154.0</u>	26.2%	<u>3,155.0</u>	<u>122.0</u>
Total	\$33,662.6	16.2%	\$2,405.7	12.2%	\$28,967.3	\$2,144.9

Source: Dataquest
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The pickup in new computer sales has had a positive effect on computer storage shipments. Micropolis, National Advanced Systems, and Seagate storage sales have soared in 1987 as compared with the same time the prior year. The demand is not only for storage in new computer products but also for increasing the storage capacity in the installed base of computers.

At first glance, the terminals segment looks mundane. However, this segment includes one of the fastest-growing types of electronic equipment—graphics and imaging terminals. Dataquest estimates graphics and imaging terminals growth of 16.2 percent in 1987 and continuing growth at a 16.8 percent CAGR from 1987 through 1991. Growth in the graphics industry has been driven by new semiconductor technology and new software applications such as electronic publishing and computer-aided design (CAD).

In the input/output segment, the most attractive equipment continues to be the page printer. The move to decentralized computing has led to decentralized printing. A desire for letter-quality printing and desktop publishing capabilities has opened up an area of opportunity for page printer vendors. According to Dataquest, page printer shipments grew 32 percent in 1987 and will taper off to an 18.2 percent CAGR in the long term, from 1987 through 1991. As the functions that page printers are required to perform become more complex, the need for sophisticated semiconductor technology in these products increases. This market is evolving as an area of opportunity for graphics processor and microprocessor manufacturers. We forecast page printer semiconductor consumption to grow at a 26 percent CAGR from 1987 through 1991, to \$211 million.

We estimate a decline in the dedicated systems segment of 12.6 percent in 1987 and a continuing decline at a CAGR of 1.1 percent through 1991. Dataquest believes that U.S. manufacturers' dedicated systems segment shipments will shrink as a result of the following three factors:

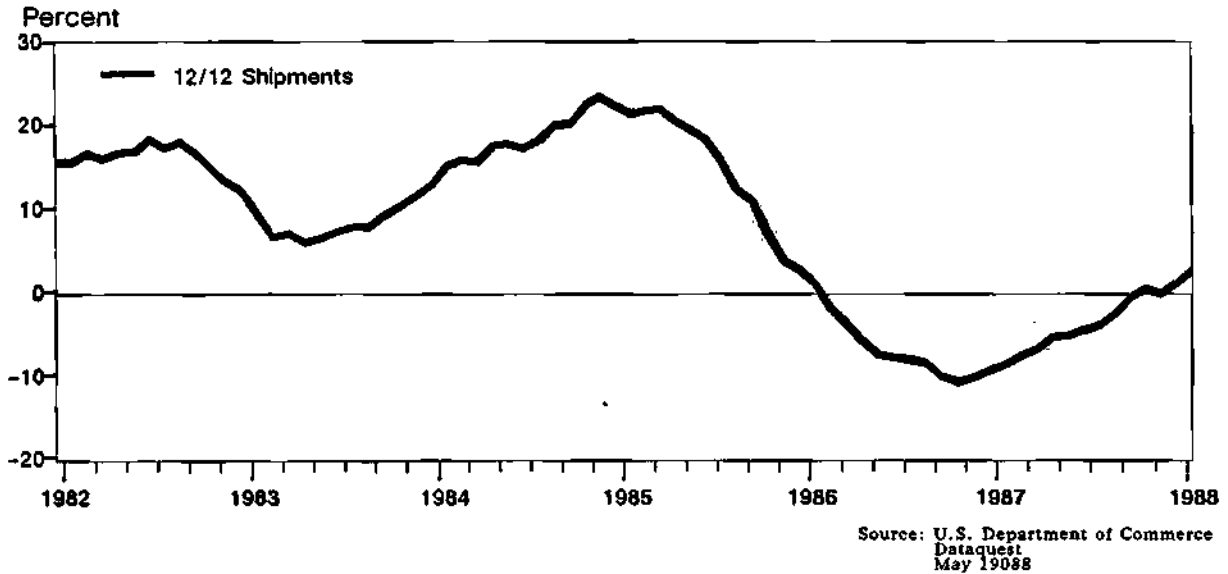
- Very high market penetration (mature market)
- Technology obsolescence
- International competition

Although there are definitional differences between Department of Commerce (DOC) data and Dataquest methodology, we believe that the DOC monthly data are a good source for aggregate top-level monthly statistics. The most recent DOC data, as shown in Figure 2, indicate that computer and office equipment shipments are recovering. The rate of decline of shipments has turned and is heading for positive growth.

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Figure 2

Computer and Office Equipment Shipments (12/12 Rate of Change)



Communications

Our assessment of the communications market put 1987 growth at 8.2 percent, with long-term growth of 8.9 percent from 1987 through 1991.

In the customer premises segment, data communications equipment continues to be the focus of the industry, specifically the following equipment types:

- T-1 multiplexers
- Statistical multiplexers
- Local area networks (LANs)
- Data PBXs
- Modems
- Front-end processors

Table 4 shows our estimates of semiconductor consumption for each of these equipment types.

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Table 4

Estimated North American Semiconductor Consumption (Millions of Dollars)

<u>Equipment Type</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>CAGR 1987-1991</u>
T-1 Multiplexer	\$ 22.0	\$ 35.0	\$ 38.0	\$ 41.0	\$ 44.0	18.9%
Statistical Multiplexer	\$ 23.0	\$ 25.0	\$ 19.0	\$ 19.0	\$ 21.0	(2.2%)
LAN	\$ 84.3	\$102.0	\$106.0	\$119.0	\$142.0	13.9%
Data PBX	\$ 12.0	\$ 13.0	\$ 11.0	\$ 11.0	\$ 11.0	(2.2%)
Modem	\$214.0	\$279.0	\$351.0	\$392.0	\$394.0	16.5%
Front-End Processor	\$ 43.0	\$ 56.0	\$ 57.0	\$ 66.0	\$ 81.0	17.2%

Source: Dataquest
May 1988

In the public telecommunications arena, declining growth in central office switching equipment moderated this segment's overall growth (5 percent CAGR from 1987 through 1991). Dataquest's forecast of central office switching equipment revenue showed a drop of 2 percent in 1987 and a decline of 4.5 percent from 1987 through 1991. We expect packet switching equipment to pick up the slack in this segment, however. We forecast packet switching equipment revenue to grow at a 21.7 percent CAGR from 1987 through 1991.

The 17.8 percent growth in 1987 in the radio segment is due in large part to the success of cellular mobile radio (CMR). We estimate that CMR base stations grew 71.8 percent in 1987 and expect a 28.3 percent CAGR from 1987 through 1991.

Broadcast and studio equipment grew 5.9 percent in 1987, with an expected 10.2 percent CAGR through 1991. Because of technology replacement, most of this growth will be in transmitters, cable television equipment, and video equipment.

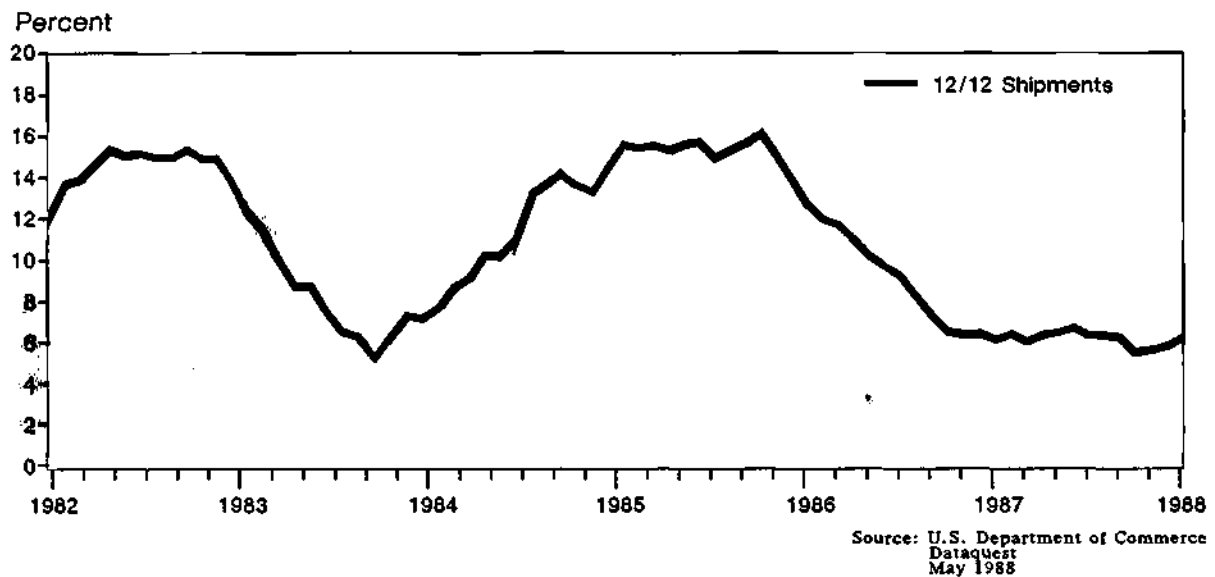
Figure 3 shows a 12/12 rate-of-change curve for communications equipment shipments. In 1987, shipments grew just over 6 percent, and we expect shipments to finish 1988 with between 7 and 8 percent growth.

Dataquest believes that the communications application market will be a consistent growth opportunity for semiconductor suppliers through 1991. We estimate that semiconductor consumption by the communications application market will grow at a 13.9 percent CAGR from 1987 through 1991.

End-Use Outlook

Data communications is the area of greatest opportunity for semiconductor manufacturers. Increasing use of digital technology, cost reductions, and higher bandwidths are trends in the data communications segment that will provide opportunities to semiconductor manufacturers.

Figure 3
Communications Equipment Shipments
(12/12 Rate of Change)



Industrial

The turnaround in other electronics industries has had a positive effect on the industrial market because electronics manufacturers are slowly expanding their capacity to keep pace with the new growth. Dataquest records a jump of 6 percentage points in 1987 industrial segment growth to 7.7 percent. We expect growth to accelerate to 11.2 percent in 1988, then to taper off to an 8.2 percent CAGR for the long term (1987 through 1991).

The recovery in the semiconductor industry has had a positive effect on portions of the manufacturing systems segment. However, decreases in automotive production had a detrimental effect on robotics sales in 1987. Robotics sales declined 4.2 percent.

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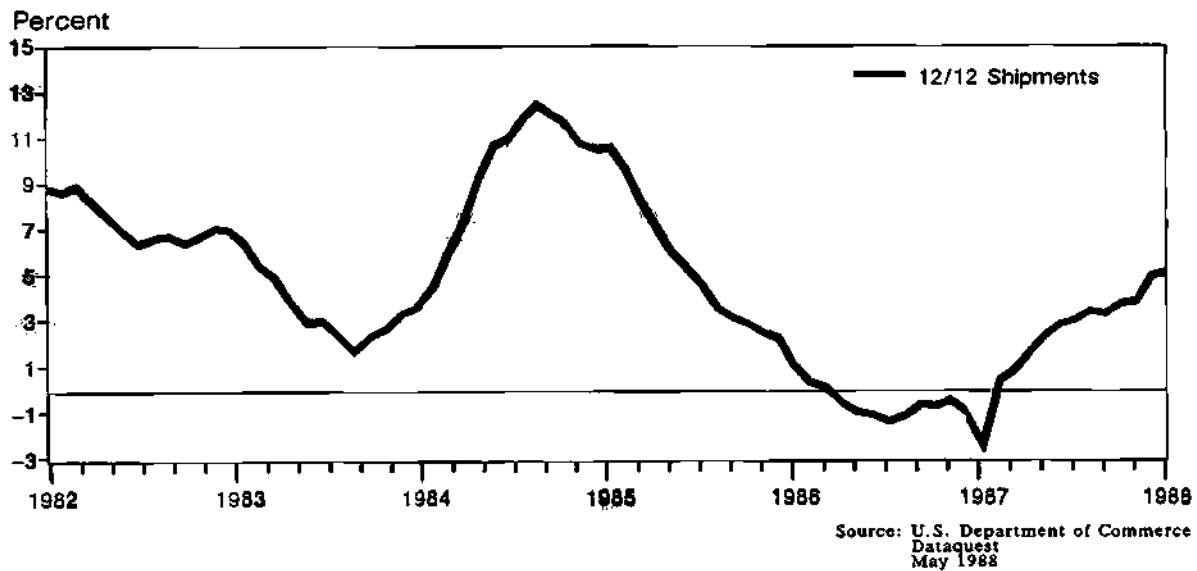
In the United States, the automotive industry has been a prime target for many vendors of manufacturing equipment and services. Automotive companies traditionally have allocated relatively large amounts of capital expenditures for automation and have acted as pioneers in the development and adoption of advanced automation techniques. With the downturn in automotive spending that started in 1986, automation companies are devising new strategies to target markets that either are emerging or represent new expansion opportunities.

The instrumentation market is also positively affected by the upturn in other electronic markets. This segment recorded a 10 percent increase in 1987 versus no growth in 1986. We forecast that growth in this segment will accelerate to 12.9 percent in 1988 and believe that the segment will grow at an 8.3 percent CAGR in the long term (1987 through 1991).

The latest DOC electronic instrument shipment data (December 1987) are displayed in Figure 4. The rate-of-change curve shows that instrument shipments have started to pick up, closing the year 4.0 percent above 1986.

Figure 4

Electronic Instrument Shipments (12/12 Rate of Change)



We expect the medical electronics segment to continue its recovery from the downturn in 1984 and 1985. We believe that this segment grew approximately 7 percent in 1987 and will continue to grow at a 6.4 percent CAGR from 1987 through 1991.

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New technology continues to be the impetus for growth in the medical electronics segment. Magnetic resonance imaging and implantable defibrillators are two examples of new products that are expected to grow through the forecast period.

Consumer

Overall, Dataquest expects the consumer application market to grow 7.9 percent in 1987 and to level off to a 5.6 percent CAGR from 1987 through 1991.

In the audio segment, portable systems and high-end audio systems are the key to new sales today. According to the Electronics Industry Association, sales of "boom boxes" and portable CDs increased in 1987 over the prior year.

The video segment grew just over 10 percent in 1987 and will continue to grow at a 6.4 percent CAGR from 1987 through 1991. The fastest-growing areas in this segment are VCRs and color televisions with stereo sound. Although VCR sales to dealers are virtually flat, Dataquest believes that there is growth in U.S. manufacturing as Japanese manufacturers move more VCR production to the United States to benefit from the strong yen.

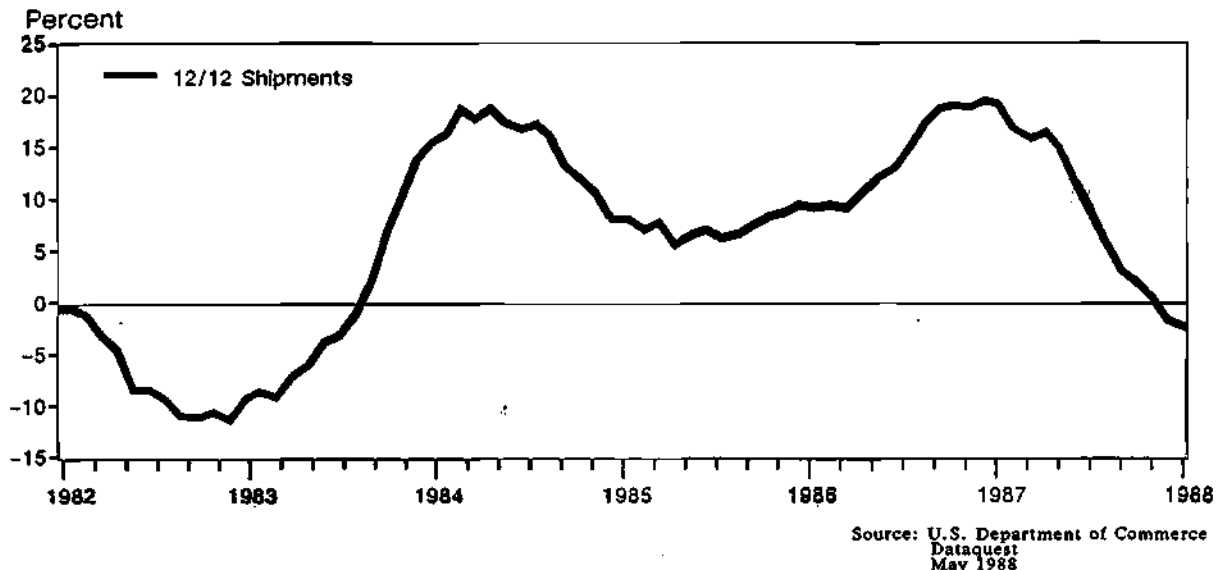
We estimate that color television sets make up 90 percent of the North American semiconductor video segment consumption. We expect this ratio to continue to hold out through 1991 because the color television market is the only consumer electronics market that has large-scale U.S. production capacity.

In the personal electronics segment, offshore manufacturing and a lack of new products from U.S. suppliers caused this market to decline in past years. However, Dataquest believes that trade friction and new American market participants will promote growth in the near future. The personal electronics segment increased 12.3 percent in 1987, and we expect continued growth at a 3 percent CAGR from 1987 through 1991.

The most recent DOC data show radio and television production (which we compare with our consumer application market) slowing to 0.7 percent at the end of 1987 in a 12/12 rate-of-change curve (see Figure 5). This was as a result of inventory buildup in mid-1987 and slow fourth quarter sales. Consumer electronics shipments finished 1987 approximately 8 percent higher than in 1986.

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Figure 5
Radio and Television Shipments
(12/12 Rate of Change)



Military

The outlook for military electronics remains much the same as when we began the year, indicating a gradual downward trend over the next three years followed by very slow growth out to 1997. The latest Electronics Industry Association forecast indicates that defense spending for electronic components will decline 5 percent to \$51.9 billion in 1988 and will remain essentially flat through 1993. This estimate was predicated on continued deficit-cutting measures by Congress, with defense spending receiving the lion's share of the reduction.

According to Dataquest, the military equipment market declined 3.0 percent in 1987 and will decline at a negative CAGR of 1.9 percent from 1987 through 1991.

The military market continues to need state-of-the-art technology, and the real opportunity for semiconductor manufacturers lies in retrofitting older equipment with new electronics. This is especially true in aircraft, where navigation systems are being revamped using 32-bit microprocessors and graphics displays. Based on the assumption of increasing penetration of semiconductors into electronic systems, we estimate that semiconductor consumption by the military market grew 13.8 percent in 1987 and that it will continue to grow at a 5.4 percent CAGR from 1987 to 1991.

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Transportation

In spite of vehicle unit production cutbacks in 1987 (see Table 5), the North American auto and truck electronics market still registered moderate growth. Auto and light truck production finished 1987 at 4.9 percent below unit production in 1986. However, automotive electronics revenue managed to grow 6.5 percent in 1987. This growth was primarily due to the rapid year-to-year increase in electronics devices per average vehicle. Dataquest estimates that the electronic content of the average North American automobile was \$805 in 1987, increasing from only \$549 in 1984 and representing a 13.6 percent CAGR. Growth in electronic engine control and factory-installed audio equipment is slowing as the 10 percent penetration mark approaches. However, strong growth is occurring in the body control, driver information, and safety and convenience areas. Electronic steering, antilock braking, advanced driver displays, and collision avoidance are examples of the new systems beginning to show up in new high-end automobiles.

Table 5
North American Automobile Production
(Units)

	January 1 to <u>December 19, 1986</u>	January 1 to <u>December 20, 1987</u>	% Change <u>1986-1987</u>
American Motor Corp.	43,336	15,994	(66.9%)
Chrysler Motors	1,275,880	1,068,772	(16.2%)
Ford Motor Co.	1,729,089	1,793,315	3.7%
General Motors	4,047,314	3,386,480	(16.3%)
Honda	231,510	318,587	37.3%
Mazda	0	3,997	N/M
Nissan	61,859	112,518	81.9%
Nummi	191,854	186,040	(3.0%)
Volkswagon	<u>81,524</u>	<u>64,977</u>	(20.3%)
Total U.S. Automobile	7,667,366	6,950,630	(9.3%)
Total Canadian Automobile	<u>1,047,051</u>	<u>788,972</u>	(24.6%)
Total North American Automobile	8,714,417	7,739,602	(11.2%)
Total North American Truck	<u>4,224,330</u>	<u>4,563,794</u>	8.0%
Total North American Automobile and Truck	12,938,747	12,303,396	(4.9%)
N/M = Not Meaningful			

Source: Automotive News
Dataquest
May 1988

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Being relatively immune to the consumer cycle, automobile and light truck sales—and thus the transportation electronics market—are expected to grow at a 9.8 percent CAGR through 1991. This will subsequently drive semiconductor consumption in transportation to 10.8 percent over the same period.

DATAQUEST CONCLUSIONS

The good news for North American semiconductor suppliers continues to be that the largest semiconductor-consuming market segment—personal computers—has pulled out of its slump and is in a period of accelerating growth.

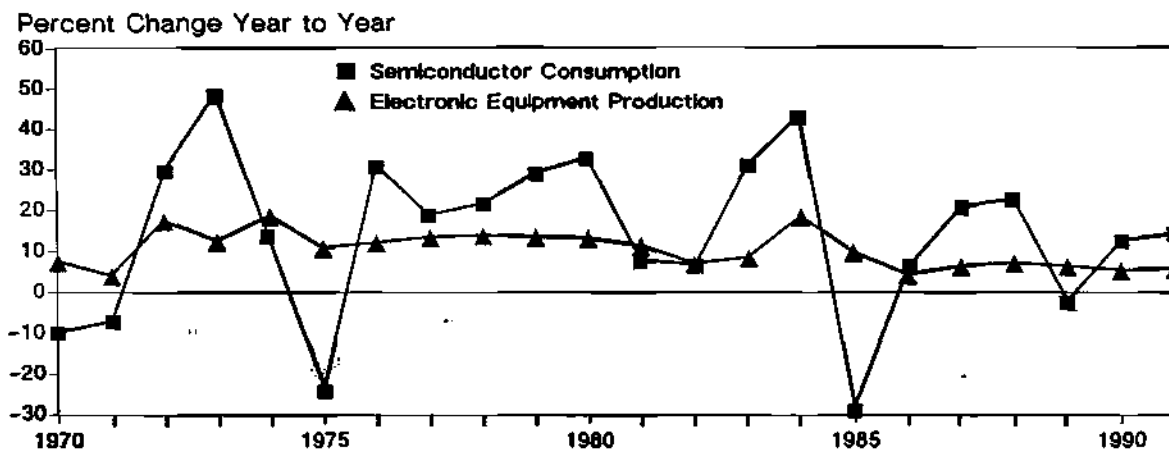
The bad news continues to be that, historically, each period of accelerating growth in the semiconductor industry has been followed by a subsequent decline. We expect this decline to occur in 1989, when semiconductor consumption is expected to drop 2 percent after growing 23 percent in 1988. The only semiconductor application markets in which we forecast semiconductor consumption to grow in 1989 are military (3.7 percent) and transportation (8.7 percent).

The point for semiconductor suppliers to remember is that in order to survive the downturn comfortably, it is a good idea to sell to more than one of the six application markets.

Figure 6 displays the historical relationship (1970 through 1987) between semiconductor consumption and electronic equipment production and includes our forecast through 1991.

Figure 6

Comparison of Semiconductor Consumption and Electronic Equipment Production



Source: Dataquest
May 1988

Investment Issues

The following is a list of the material in this section:

- Economic Data and Outlook
- • Current Industry Environment
- Capital Spending

NOTE: The arrow symbol indicates the latest document(s) correct location behind this subject tab.

Competitive Issues

The following is a list of the material in this section:

- Market Share Executive Summary
- Preliminary Market Share Estimates