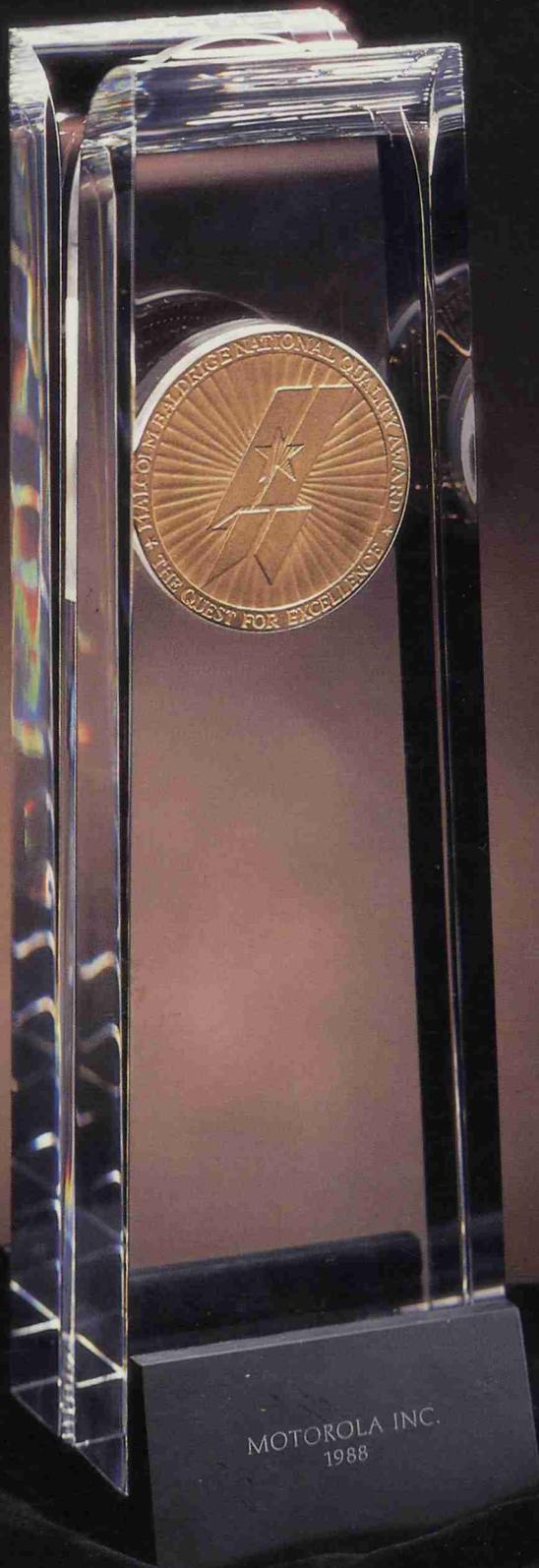


*In 1988, Motorola
was a winner of the
first Malcolm Baldrige
National Quality
Award. We were
the only major
manufacturer to
win company-wide.*



Corporate Overview

Motorola, Inc. is one of the world's leading manufacturers of electronic equipment, systems and components produced for both United States and international markets. Motorola is one of the few end-equipment manufacturers that can draw on expertise in both semiconductor technology and government electronics.

On the Cover
The Malcolm Baldrige National Quality Award was established by Congress to motivate U.S.-based companies to improve their worldwide competitiveness through quality strategies. The award is named after former U.S. Secretary of Commerce Malcolm Baldrige.

The Communications Sector designs and manufactures two-way radios, pagers and other forms of electronic communications systems for agriculture, commercial business, construction, education, state, local and federal government and health care markets, as well as for industrial, mining, petroleum, radio common carrier, telephone, and transportation companies and utilities.



The Semiconductor Products Sector designs and produces a broad line of discrete semiconductors and integrated circuits, including microprocessors, microcomputers and memories, to serve the advanced systems needs of the computer, consumer, automotive, industrial, federal government/military and telecommunications markets.



The General Systems Group designs and manufactures computer-based cellular radiotelephone systems, mobile and portable radiotelephones, microcomputer boards, and information processing and handling equipment, such as multi-user microcomputer systems.



The Information Systems Group combines the capabilities of Codex Corp. and Universal Data Systems to provide all the elements for distributed data systems, from basic



modems to integrated network management systems.

The Government Electronics Group specializes in research, development and production of advanced electronic systems and equipment for the U.S. Department of Defense, NASA and other government agencies, commercial users and international customers.



The Automotive and Industrial Electronics Group serves the motor vehicle and industrial equipment industries through the development and production of a variety of electronic modules, components and power conversion equipment.



The New Enterprises organization manages Motorola's entry into completely new businesses in emerging high-growth, high-technology arenas, including semiconductor equipment, hospital clinical information systems and real-time distributed computing systems, as well as automation systems for factories, utilities and the semiconductor industry.



Financial Highlights

Years ended December 31

(In millions of dollars, except per share data)

	1988	1987
Net sales	\$8,250	\$6,727
Earnings before income taxes	612	418
% to sales	7.4%	6.2%
Net earnings	445	308
% to sales	5.4%	4.6%
Net earnings per share	3.43	2.39
Research and development expenditures	665	524
Fixed asset expenditures ¹	899	658
Working capital	689	867
Current ratio	1.26	1.47
Return on average invested capital (stockholders' equity plus long- and short-term debt, net of short-term investments) ²	11.0%	8.8%
% of total debt less short-term investments to total debt less short-term investments plus equity ²	24.6%	19.0%
Book value per common share	26.02	23.27
Year-end employment (approximate)	102,000	97,700

¹ Includes expenditures related to capitalized leases.

² Includes short-term investments categorized as cash and cash equivalents.

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Annual Meeting of Stockholders

The annual meeting will be held on May 1, 1989. A notice of the meeting, together with a form of proxy and a proxy statement, will be mailed to stockholders on or about March 17, 1989, at which time proxies will be solicited by the Board of Directors.

Transfer Agent and Registrar

Harris Trust and Savings Bank
111 W. Monroe Street
Chicago, Ill. 60603

Auditors

Peat Marwick Main & Co.
303 E. Wacker Drive
Chicago, Ill. 60601

Form 10-K

After the close of each fiscal year, Motorola submits a report on Form 10-K to the Securities and Exchange Commission containing certain additional information concerning its business. A copy of this report may be obtained without charge by addressing your request to the Secretary, Motorola, Inc., Corporate Offices, Motorola Center, 1303 E. Algonquin Road, Schaumburg, Ill. 60196.

To Our Stockholders and Other Friends

In Motorola's 60th Anniversary year of 1988, we were honored as a leader in quality and customer satisfaction. We focused on global expansion, and we achieved record sales and profits.

In our 1987 Annual Report, we described five key initiatives designed to help us reach our fundamental objective of total customer satisfaction. The first Malcolm Baldrige National Quality Award, shown on this year's cover, is a fitting symbol of the progress we have made on these key initiatives. We have improved quality, reduced cycle time, focused on product and manufacturing leadership, and created a more participative and cooperative culture among employees, customers and suppliers. We could not have won without the support of all these people.

Profit Improvement Profit improvement is a key long-term initiative, and our efforts are discussed in detail in the Financial Review on pages 19 and 20. The results for 1988 show that we have made progress. Sales increased 23% to a record \$8.25 billion from \$6.73 billion in 1987. Earnings climbed to a record \$445 million, or \$3.43 per share, from \$308 million, or \$2.39 per share, in 1987.

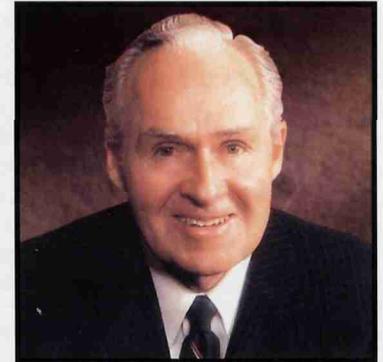
Net margin on sales rose to 5.4% from 4.6% a year earlier. Return on average invested capital was 11.0%, compared with 8.8% in 1987.

Dividend Increased In November, the Board of Directors increased the regular quarterly dividend rate to 19 cents per share from 16 cents.

Board of Directors Christopher B. Galvin, senior vice president and chief corporate staff officer, was elected to the Board of Directors at the 1988 Annual Meeting. M. Joseph Lambert, a director since 1979, and Arthur C. Nielsen, Jr., a director since 1968, are not standing for re-election to the Board at the next Annual Meeting. We acknowledge with appreciation their many contributions to Motorola over these years.

Global Expansion The globalization of Motorola is one of the more profound trends that has been developing within the corporation over the last few years. Non-U.S. revenues as a percentage of the total have increased from approximately 27% in 1985 to more than 36% in 1988.

To strengthen our effort and harmonize our activities in Europe, we created a new corporate organization. Gerhard Schulmeyer was promoted to the new position of executive vice president and deputy to the Chief Executive Office for Europe. His areas of emphasis include customer satisfaction, management and organizational development, government and industrial relations, as well as leadership of strategic initiatives among our various European businesses.

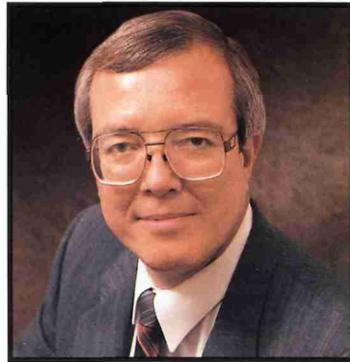


*Left to Right:
Robert W. Galvin,
George Fisher,
Gary L. Tooker*

In Japan, we listed our stock on the Tokyo Stock Exchange in November. Our stock is also listed on the New York, Midwest and London Stock Exchanges. The Tokyo listing underscores the importance of Japan as a market for our products and services. It also recognizes the importance of Tokyo as an international financial center. The listing will help us to further develop our relationships with the Japanese business and investment communities. Our major investment in time, money and

energy in Japan is paying off.

In China, we have embarked on a major effort to increase our penetration of this huge potential market. Our business there is growing rapidly in two-way radio systems, paging, cellular telephone and semiconductor products.



The Future As we continue to improve quality and reduce cycle times, we expect to extend our leadership and gain greater shares of high-growth markets throughout the world.

In 1989 and beyond, we will build on our success. We are confident of achieving even higher levels of quality and customer satisfaction, and we believe that this continuing improvement will be reflected in our financial performance.

We expect economic growth in 1989, although the overall rate of growth of the general world economy may lessen. We have taken proper steps to manage our businesses efficiently in this environment. We plan to increase our capital investment, as well as our research and development spending. We will be able to take advantage of expected opportunities as they arise. The global climate has improved for efficient manufacturers based in the United States. We expect to continue to benefit from this trend.

The dedication of our people to our fundamental objective of total customer satisfaction worldwide, our excellence in manufacturing globally, and our leadership in technology all combine to give us the ability to grow profitably, with confidence in the future.

A handwritten signature in cursive script, reading "Robert W. Galvin".

Robert W. Galvin,
Chairman of the Board

A handwritten signature in cursive script, reading "George Fisher".

George Fisher,
Chief Executive Officer
and President

A handwritten signature in cursive script, reading "Gary L. Tooker".

Gary L. Tooker,
Chief Operating Officer and
Senior Executive Vice President

Six Sigma Quality

The Malcolm Baldrige National Quality Award recognized a process that Motorola initiated with renewed energy in 1979. Sales revenue was growing steadily, but key distribution executives communicated that in the changing competitive marketplace, our customers were expecting even higher levels of product and service quality. By 1981, a new goal had been set. It appeared to be impossible—a tenfold improvement in quality in five years.



“Customer satisfaction through better quality is the goal.”
U.S. President Reagan, presenting the first Malcolm Baldrige National Quality Award to Motorola, Inc., The White House, November 14, 1988. Robert W. Galvin, left, accepts the award for the corporation.

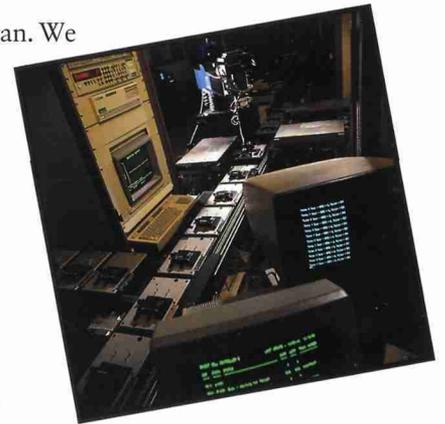
The culture changed. At meetings of operating and policy committees, a review of our quality program became the first item on the agenda, not the last. We established regular quality system reviews of all operations and developed training courses to teach quality at every level of the company. Engineers strove to improve product design for manufacturability, operations management tightened manufacturing process controls, and customer satisfaction increased.

In 1986, a more formal program of customer visits began. We asked customers what they liked about Motorola and what they did not like. These visits resulted in a reformulation of our basic goals and objectives.

Motorolans around the world teamed up to achieve the initial goal of a tenfold improvement in quality in five years, only to discover that the goal had not been ambitious enough. In January 1987, we stated a new goal: “Improve product and services quality 10 times by 1989, and at least 100-fold by 1991. Achieve Six Sigma capability by 1992. With a deep sense of urgency, spread dedication to quality to every facet of the corporation, and achieve a culture of continual improvement to assure total customer satisfaction.”

In statistical terms, Six Sigma translates into a defect rate of 3.4 parts per million for a product or service, which is virtual perfection. To achieve it, major company-wide investments have been made, beginning with education. More than \$45 million each year is invested for training, 40% of it devoted to quality. This has resulted in dramatic improvements throughout Motorola as we implement advanced techniques in both new and existing facilities. These new processes and changes cover the entire cycle from order entry to delivery of product.

The Malcolm Baldrige National Quality Award acknowledges Motorola’s leadership in managing a corporate-wide quality process. Yet, we remind ourselves, on behalf of our customers, that we have a long way to go to reach our long-term goal of virtual perfection in all of our products and services. As a result of this award, Motorolans around the world have rededicated themselves to achieving this goal.



This flexible “factory of the future” in Boynton Beach, Fla., produces high-quality custom Bravo® pagers in minutes instead of several days. Programmable robots are controlled by an integrated computer network.

Communications Sector



The MTX-900 portable can be operated as a conventional or trunked two-way radio.



The Privacy Plus 750 mobile radiophone is a trunked two-way radio with full duplex telephone interconnect for making phone calls.

The Communications Sector achieved record sales and operating profits in 1988. New products and systems, along with quality, cycle time and manufacturing leadership initiatives, contributed to the record performance.

Sales rose 23% to \$3 billion in 1988. New orders increased 15%, and backlog was down 1%. Operating profits increased significantly. The 1988 results include the operations of MDI Mobile Data International Inc. of Richmond, British Columbia, acquired in July of 1988. Mobile Data develops and markets two-way radio data communications systems worldwide.

Order growth in the U.S. was paced by radio common carrier, transportation, telephone and industrial markets. International orders grew rapidly in Japan, Australia, Canada and Europe, as well as much of the Asia-Pacific region.

Worldwide demand continued strong for both voice and data communications equipment, especially for paging, trunked two-way radio systems, and secure voice communications systems. Trunking provides the computer-aided sharing of channels by many users. Secure voice systems offer encrypted communication for security and privacy unmatched by any conventional system.

Worldwide Systems Growth Several major contracts in 1988 reflect our ability to provide complete system solutions of the highest quality. For example, the Royal Hong Kong Police Force awarded Motorola a contract for more than \$30 million to be the radio communications supplier of one of the world's most advanced public safety communications systems. This integrated emergency and operational communications system will feature our microcomputer-controlled Saber™ portable and Spectra® mobile radios. The system will combine, for the first time, internal operational requirements with public emergency call communications into a single network, enabling the Royal Hong Kong Police to route calls automatically to various departments.

Radio Taxi of London awarded MDI a \$6.5 million contract for a turnkey system that includes 1,500 MDI data terminals along with host computers and taxi dispatch software. MDI also received a multimillion-dollar award from Boston Gas for its new 9100 Mobile Data Terminal.

London Bus placed a major order for our Starnet™ trunking system, including 4,000 Storno® mobiles and 500 Storno® portables. This voice and data system will aid dispatchers in locating and routing buses throughout the London area.

We formed a joint venture with BCE Mobile Communications, Inc., a sister company of Bell Canada, to set up a data radio network in Canada. This shared system will enable a variety of subscribers to use the network for on-line access to their own computers and data bases from wireless hand-held portable and in-vehicle mobile two-way radio data terminals.



The MaraTrac™ mobile two-way radio includes an easy-to-use dash-mounted control head (left) and a unique hand-held LED display microphone and control head.



These custom Bravo® pagers set the standard for quality, with a mean time between failures of more than 150 years.

We strengthened our worldwide leadership in paging, especially in Asian markets. We are now the No. 1 pager supplier in Japan, Singapore and the People's Republic of China. Significant paging orders were also received in Hong Kong, Korea, the United Kingdom, West Germany, Denmark, and the U.S. In Japan, we introduced a trunked portable that enabled us to offer the

first portable shared trunking radio service in the Japanese market. We also developed a Japanese version of our numeric display Sensar® pager.

In the U.S., the New York Transit Authority placed an order for more than \$40 million for a city-wide trunked system to provide radio and data communications for its bus operations in all five boroughs of New York City.

The City of Los Angeles placed an \$18 million order for a simulcast radio system that will enable the Los Angeles Fire Department to improve dispatching operations and use available channels more efficiently.

Two major contracts for our 900 MHz Smartnet™ II trunked system were received from telephone companies, one from Bell of Pennsylvania for \$9 million and the other from New Jersey Bell for \$8.5 million. Both systems feature our Spectra mobiles and our new MTX900™ portables for use in field service.

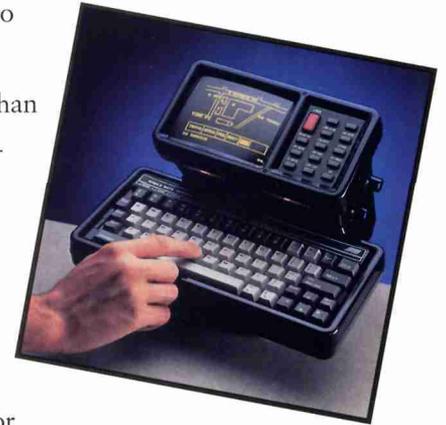
We introduced many leadership products and systems in support of our Total Customer Satisfaction objective. Two new trunking systems are based on our Smartnet trunking technology. Our new SmartWorks™ system provides single-site coverage with many of the advanced features of a Smartnet system. Our new Smartnet Shared System enables our advanced trunked portables, mobiles and base stations to be used on an existing Specialized Mobile Radio (SMR) network, thereby reducing a customer's investment in infrastructure equipment.

Two new trunked mobile radios, the Privacy Plus® 250 Mobilephone and the Privacy Plus® 750 Radiophone, feature full duplex telephone interconnect service. For our customers who need conventional dispatch systems, we introduced the compact, two-channel HT10™ portable and the synthesized MaraTrac™ mobile two-way radios.

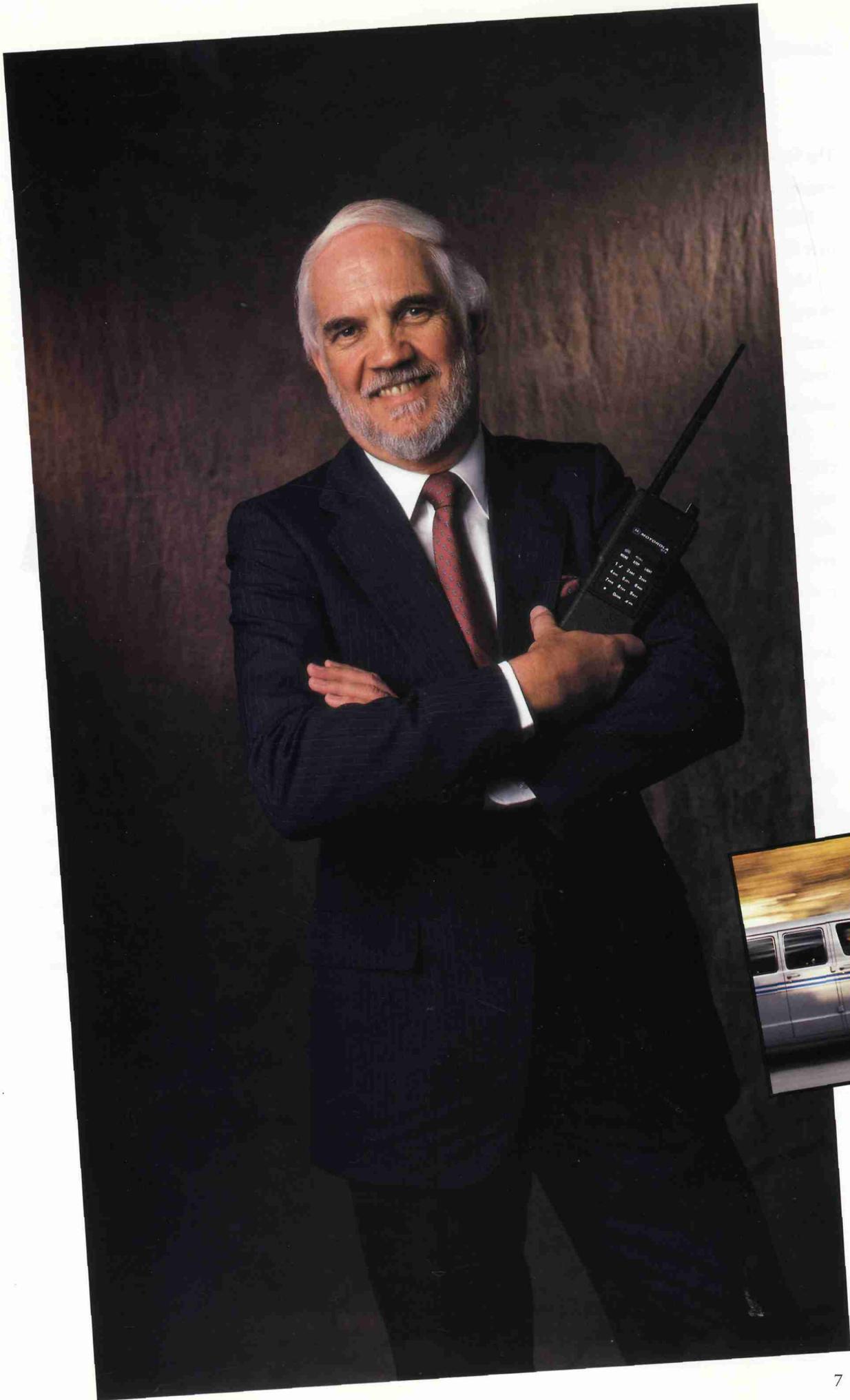
We also broadened our Radius® line of economically priced radios with three new portables and two new mobiles and expanded our network of Radius product resellers in both domestic and international markets.

We implemented four new advanced production lines to support our new products, and we improved the delivery cycle of our two-way radios and pagers. In our Fort Worth, Texas, facility, for example, we reached new milestones in product reliability, reduced cycle time, and improved space utilization.

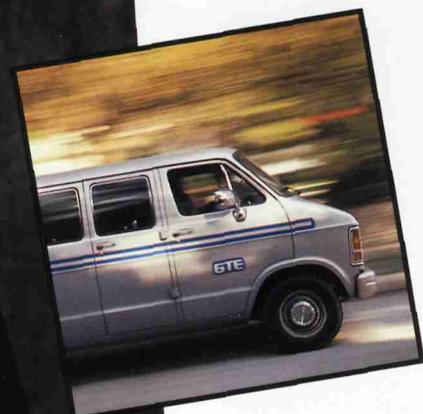
We announced plans to expand our Boynton Beach, Fla., paging plant and our Taunusstein facility in West Germany and to build a new facility in the U.K.



MDI's 9100 Mobile Data Terminal is a computer workstation for the user on the move. It offers an integrated radio, improved design and the ability to upgrade.



Adrian Snow, a senior radio systems engineer for GTE South Area Telephone Operations in Florida, holds an STX® portable radio, part of a new Smartnet™ advanced two-way communications system. The system promises to increase the productivity of field maintenance personnel in six counties on Florida's west central coast. Data such as engineering drawings will eventually be transmitted to vehicles on the move.



Semiconductor Products Sector

The Semiconductor Products Sector achieved record sales and orders, launched important new products, and expanded its Total Customer Satisfaction thrust.

Sales grew 25% to \$2.74 billion, orders climbed 21%, and backlog rose 14% over the 1987 year-end level. Operating profits were sharply higher.

Market demand was strong during the year in all major regions. Orders were sharply higher in Japan, followed by Asia-Pacific, Europe and North America. Orders were higher in key market segments, led by substantial gains in communications, consumer (including personal computer) and industrial.

All major product categories achieved growth in orders. Exceptional demand for DRAMs (dynamic random access memories) required the allocation of these devices throughout the year. Despite the increased demand, we were able to improve deliveries to our customers. Delivery lead times were less than 13 weeks for most products, as a result of reduced manufacturing cycle times.

Product Technology We introduced new products and expanded device families to make our customers more competitive in their marketplaces. Motorola offers the industry's most comprehensive portfolio of integrated circuits and discrete semiconductors.

One of our most significant introductions was our 88000 RISC (Reduced Instruction Set Computer) microprocessor family. Its architecture includes many features of the super-minicomputer market. Designed as an ultra-high-performance complement to our line of M68000 CISC (Complex Instruction Set Computer) microprocessors, the 88000 family includes the 88100 RISC microprocessor and 88200 cache/memory management unit. Our 88000 had won more than 50 design-ins by year-end, when general sampling began.

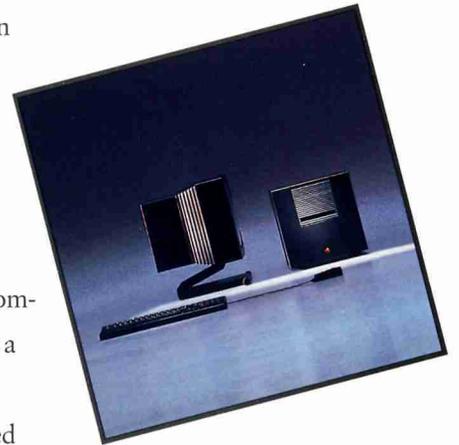
To rapidly establish Motorola's RISC architecture as an industry standard, 52 major computer hardware and software companies joined the 88open Consortium Ltd. It is developing conventions and standards for software compatibility among 88000 users.

More than 50 manufacturers have introduced personal computers and workstations based upon our second-generation MC68030 processor. Many of these customers also employed our MC68882 math co-processor in their applications. To support our microprocessor thrust, we signed an agreement with AT&T giving us early access to UNIX® System V Release 4.0 and later releases.

We augmented our digital signal processing portfolio with the DSP96001, the first in a family of 32-bit general purpose processors with floating point capability. To expand our leadership in microcontrollers and microcomputers, we introduced several new or enhanced 8-bit devices.



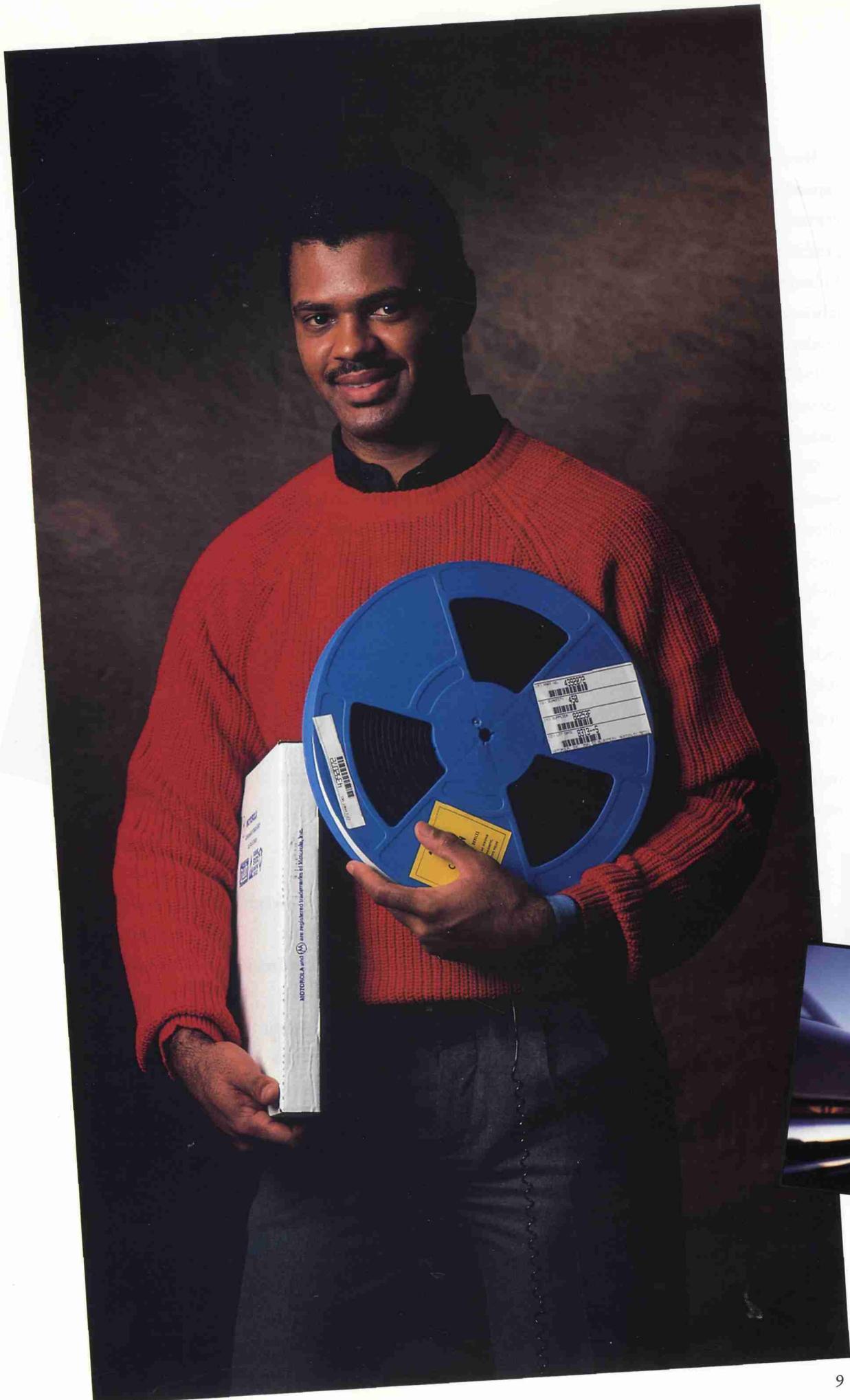
A single printed circuit board contains the advanced Motorola microprocessors used in the NeXT™ Computer System.



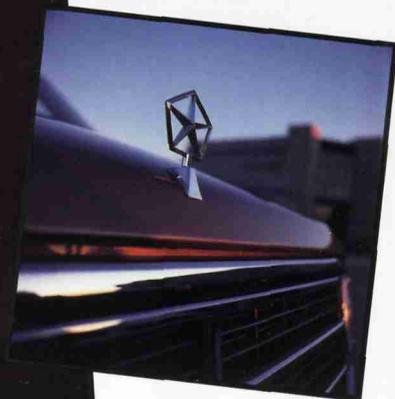
The NeXT™ Computer System uses Motorola's MC68030 microprocessor, as well as our DSP 56001 digital signal processor to provide high-quality sound, speech and data communications functions.

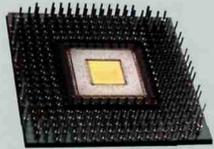


Our 88000 RISC family includes such features as multiprocessing, fault tolerance and high-performance graphics.



Jeffery Morris, specialist at Motorola's new "just-in-time" warehouse in Huntsville, Ala., holds a reel of MC68HC11 microprocessors bound for Chrysler's Acustar, Inc., Electronics Division in Huntsville. More than 46 million semiconductors are shipped annually from the Motorola facility, built exclusively to supply Acustar. Using Electronic Data Interchange, orders are delivered several times daily, directly to automated material handling equipment, without incoming inspection by the customer.





New high-density CMOS arrays can achieve densities up to 105,000 gates.

We constructed facilities for the production of 1-megabit DRAMs and expanded our portfolio of SRAMs (static random access memories). Our joint venture facility with Toshiba Corp., located in Sendai, Japan, began volume production of 1-megabit DRAMs and microprocessors in the fourth quarter. Volume production is scheduled for the first half of 1989 at our upgraded wafer fabrication facilities in East Kilbride, Scotland and Mesa, Ariz. Excellent initial results were achieved in all three facilities.

In SRAMs, we introduced two series of application specific memories designed for systems using high-performance microprocessors, and added higher speed, higher density devices to our portfolio of fast SRAMs.

We began producing our high-density CMOS (Complementary Metal Oxide Semiconductor) and ultra-high-performance bipolar gate array families. Our new ultra-high performance bipolar ECL family, named ECLinPS™, gained enthusiastic customer response. We also introduced an advanced CMOS logic line, FACT, under an agreement with National Semiconductor Corp.

We introduced a variety of new bipolar and MOS analog circuits, including a complete C-Quam® AM stereo receiver on a chip for the portable radio market, and a series of frequency synthesizers for cordless phone applications.

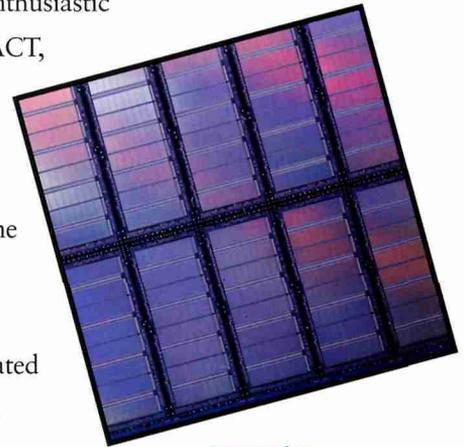
We augmented our discrete semiconductor business with the acquisition of the radio frequency (RF) business of TRW Inc. A new, fully integrated manufacturing facility in Seremban, Malaysia, began volume production of surface-mount transistors. Matsushita Electric Industry Corp. of Japan will use a substantial amount of this facility's output.

We added new discrete products, including the first in a new family of Z-switch™ power Darlington transistors offering voltage transient protection.

Manufacturing Technology Our worldwide design centers and major research laboratories made key advances in next-generation processing technologies, packaging development, new materials, and advanced equipment capabilities. We formed a new Final Manufacturing R&D Center, and opened circuit design centers in East Kilbride, Scotland, and Toulouse, France. We began construction of a new manufacturing and design center in Hong Kong.

We expanded our Electronic Data Interchange system into Japan and the Asia-Pacific region, providing direct linkage with over 60 major customers worldwide. We made substantial progress in implementing our Six-Sigma roadmap, and began using a new Demand-Driven Manufacturing System providing automatic scheduling and quote reservation capabilities.

In Japan, we won a major project to supply an automotive engine control unit, and focused on strategic design-ins for our proprietary and custom devices.



1-megabit DRAMs, shown midway in the manufacturing process, began volume production in Motorola's joint venture facility in Sendai, Japan.



Both of Apple Computer's new Macintosh IIx® and Macintosh SE/30 personal computers are based on our second-generation MC68030 32-bit microprocessor.

General Systems Group

The General Systems Group grew rapidly in 1988 as the cellular telephone businesses expanded their worldwide leadership and the Computer Group introduced a record number of new products. Sales rose 38%, orders advanced 51%, and backlog was 78% higher. Operating profits were up sharply.

Cellular Telephones Orders for cellular subscriber equipment grew rapidly.

Motorola is the world's leading supplier of cellular mobiles and portables. Among the newest products is a voice-activated Digital Voice Caller™ model that enables a motorist to make a call without touching the handset. For confidential conversations the new Private Link™ model digitally encrypts a call.

We introduced a new mobile phone for the Nordic 900 MHz market as well as models for other European markets. We began manufacturing operations in Korea and Australia. In Asia, we received orders for subscriber equipment in Singapore and the People's Republic of China, and added to our leading position in Hong Kong and Thailand.

Cellular Systems We continued our strong growth in cellular infrastructure awards, with the cumulative total exceeding 200 systems worldwide at the end of 1988. More than 175 Motorola systems are in operation in 10 countries. We are the world's largest supplier of infrastructure equipment.

In the United Kingdom, Cellnet continued a major expansion of its nationwide cellular system. We were awarded major contracts for several new EMX-2500 switches, along with E-TACS and LD-TACS base stations. The distributed nationwide network totals more than 20 switches, and uses Motorola's Distributed Mobile Exchange (DMX) capability.

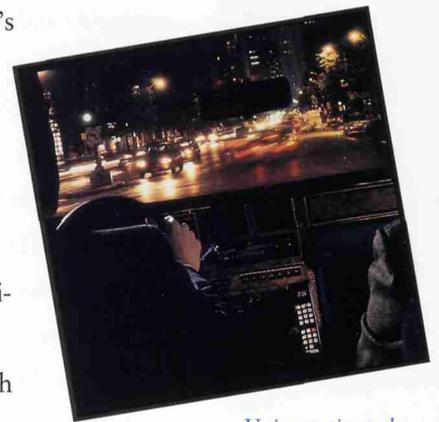
We received awards for validation systems for Pan-European Digital Cellular, also designated Group Special Mobile (GSM), in the U.K., Spain, Norway, Sweden, Denmark and Finland. The first GSM validation mobiles were shipped in the fourth quarter of 1988. With these awards, Motorola is being recognized as a major provider of digital cellular systems. In addition to the U.K. validation system, Cellnet selected Motorola to supply the first phase of its operating system, with an initial award valued at \$100 million.

In the Far East, we signed contracts for three systems in Japan. The Osaka system is being implemented, and the Chugoku and Kyushu systems are to begin in early 1989. In Korea, a major expansion of the Seoul system was implemented in time for the 1988 Summer Olympics.

In the United States, Pactel selected Motorola to replace existing cellular infrastructure systems in San Diego, Los Angeles and Sacramento, Calif. A key factor in the award was Motorola's 4-cell reuse pattern, which provides the



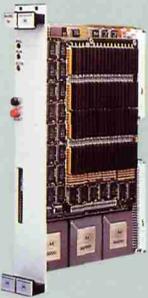
*End-to-end
privacy for
conversations
on cellular as well
as conventional
telephone
systems is
assured with
Private Link™
models.*



*Voice-activated
Digital Voice
Caller™ model
allows operation
of this cellular
phone hands free
and eyes free.*



The Model 8600SDP software development computer enables customers to develop RISC applications.



The MVME181 Microcomputer Board is Motorola's first VME board based on the MC88000 RISC architecture.

increased subscriber density that the customer needs in these rapidly growing markets. The replacement is made possible by the development of co-exchange operation between Motorola switches and existing switches. We also are adding infrastructure equipment to many other systems throughout the U.S. as the number of subscribers continues to increase.

A Motorola joint venture in Argentina was awarded the tender to operate the cellular system for the greater Buenos Aires area, while Motorola's joint venture in Austria was selected by the PTV to supply its nationwide TACS system.

Computer Group The Computer Group introduced a record number of new products in 1988 and experienced significant growth in equipment orders.

Major new products included the first VME (VersaModule Eurocard) board using Reduced Instruction Set Computer (RISC) architecture, as well as two boards based on the Motorola MC68030 microprocessor. Board-level products are sold to computer manufacturers and value-added resellers.

We introduced several new models of the VME Delta™ Series of computers based on the MC68030. These systems, Model 3300 and Model 3800, offer the flexibility to serve a wide range of industrial and technical applications.

We expanded our System 8000™ family with the Model 850, the first supermicrocomputer on the market to be based on a 33MHz MC68030 microprocessor. It is designed for customers who need increased processing capability and higher speed for large applications such as the management of data bases. The new System 8000, Model 610, is suited for the value-added reseller market and for workgroups in a network environment.

Several new software products were added as a result of strategic partnerships. Our agreement with Hunter Systems gives us X-DOS™, a new technology that converts MS-DOS programs into UNIX® programs. Our alliance with Insignia Solutions provides us with SoftPC™, a software emulator that resides on our UNIX platforms and exactly emulates an IBM personal computer. (UNIX is a trademark of AT&T, and MS-DOS is a trademark of Microsoft Corp.)

With these two software agreements, users can add the entire 50,000 program library of personal DOS applications under operating systems of UNIX.

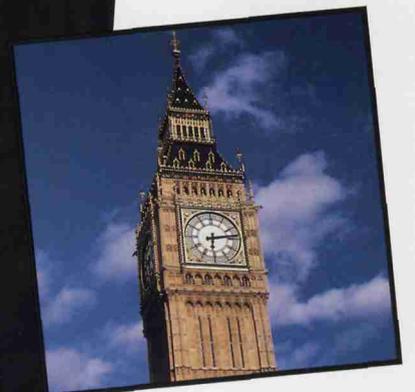
We expanded our commitment to open system architectures when we acquired the Urbana (Ill.) Development Center of Gould, Inc. This acquisition, combined with existing strategic agreements with AT&T and Unisoft, dramatically expanded our technical activity in UNIX.



Ricoh Corp., develops equipment based on the Motorola System 8000 that allows customers to scan and transmit copy over T1 networks for newspaper printing worldwide.



One of the world's fastest growing cellular telephone markets is the United Kingdom, with nearly 500,000 subscribers in just four years of operation. Motorola's leadership position in end-user equipment has been achieved with products such as the 8500X portable shown here. We are also the supplier of infrastructure equipment for one of the two countrywide cellular systems.



Information Systems Group

The Information Systems Group continued its transition to a broadly based supplier of digital communication networks. Sales rose 7%, orders declined 3% and backlog was 11% lower. Operating profits were down significantly, in the face of fairly turbulent market conditions.

Prices eroded in traditional transmission product markets as customers migrated to digital transmission facilities and technologies. Codex scaled back operating expenses by reducing its workforce and cutting some program-related expenses, while continuing to invest in new product technologies.

Global business grew as Codex strengthened international distribution and multinational customer service. Codex also expanded its domestic indirect sales program and introduced a value-added distributor program.

Codex improved its customer service by adding a new software upgrade program, decreasing service response time and offering longer, standardized warranties. It also expanded professional services such as remote network management and disaster recovery.

Product quality, already at industry-leading levels, continued to improve. Xerox Corp. selected Codex from among more than 13,000 suppliers for its Award of Excellence.

Codex introduced several products to support its strategic networking thrust. The Flexible Networking Exchange (FNX) combines X.25, SNA and statistical multiplexing technologies. It is a standards-based product, supported by Codex's high-end network management systems. FNX will allow customers to build networks from one integrated hardware and software base.

Two network management interfaces to IBM NetView also were introduced. These interfaces help customers retain their investments in IBM systems.

In its efforts to seek strategic alliances based on open-architecture standards, Codex joined Digital Equipment Corp.'s Enterprise Management Alliance as a founding member. It will develop access modules for its network management system products to interface with Digital's network management platform.

Universal Data Systems added major new products to its data communications line. The model V.3225 modem is a 9,600 bit-per-second (bps) full-duplex V.32 modem with 2400/1200 bps capability and data compression. Depending on the type of data sent, error-free throughput rates of 19,200 bps can be achieved. This product, along with aggressive pricing, is designed to maintain UDS' market leadership.

UDS expanded its line of micro-to-mainframe products with the introduction of the Sync-up™ V.32. It conforms to the V.32 standard and provides 9,600 bps full duplex communication over the dial-up network. Optional software packages permit remote communication with various IBM hosts.



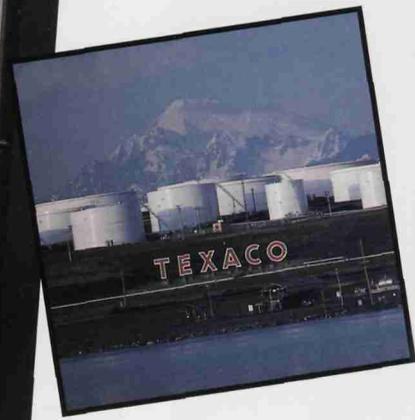
*Codex 9300
View interfaces
with SNA or
IBM NetView
environments in
small-to-
medium-sized
networks.*



*The V.3225
modem was a
major addition
to the data
communica-
tions line of
Universal Data
Systems.*



Codex 6745 Flexible Networking Exchanges provide Texaco, Inc. with advanced integrated networking capabilities. These units statistically allocate bandwidth and add functionality to ensure data integrity throughout Texaco's worldwide network at triple the capacity of Codex devices they replace. Tom Beck, director of telecommunications for Texaco, says Codex stands behind its products and helps identify opportunities to make the oil company more competitive.



Government Electronics Group

Government Electronics Group (GEG) sales increased 20% in 1988, orders declined 18%, and backlog was 15% lower. Operating profits rose sharply from very depressed levels in 1987.

The group began a strategic restructuring designed to meet changing market demands. It includes consolidation of facilities, integration of like businesses and a reduction in workforce. This will create efficiencies that should allow for increased competitiveness in the future. The plan will create opportunities to identify and attract new business, as well as ensuring that current customer needs are met effectively.

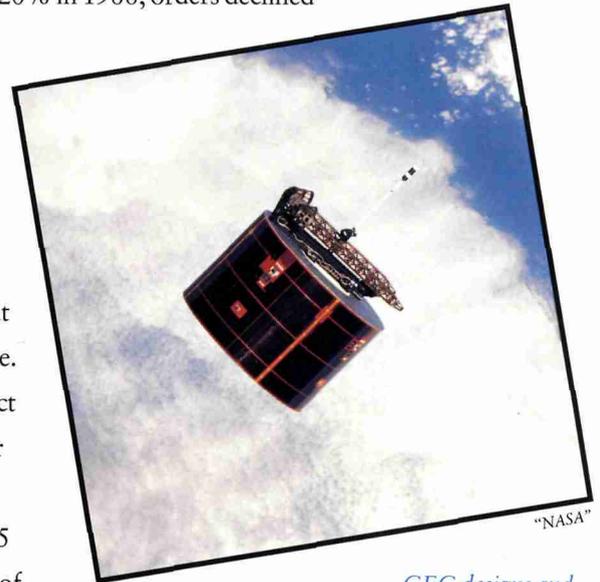
Major contracts included two awards totaling \$55.5 million from the U.S. Army for continuing production of FMU-139 A/B electronic fuzes, which are used by the Air Force, Navy and Marine Corps for the MK-80 series ordnance. We also were awarded two contracts totaling \$36 million for high-speed encryption devices for trunked tactical ground mobile communications.

We received several contracts for follow-on production of Space Communications Security Equipment. These contracts will meet customers' needs through the 1990s and eventually will exceed \$40 million.

We also were selected by the McDonnell Douglas and GE/RCA team to provide communications and tracking subsystems for the Space Station.

Significant growth took place in the Secure Telephone Unit (STU-III) program. The STU-III was developed by GEG and is produced by the Automotive and Industrial Electronics Group. The Communications Sector and UDS also are involved in the program, which is designed to quickly secure the nation's voice and data telecommunications for sensitive and classified matters within and among Congress, the Defense Department, various governmental agencies and military and defense contractors. Motorola received a \$51 million award for additional production of the telephone.

GEG reduced cycle times in many areas and continued its campaign to achieve Six Sigma Quality. A unit of the Tactical Electronics division received the Quality Excellence Award from the American Society for Quality Control for outstanding achievement in the use and implementation of statistical tools.



GEG designs and builds communications equipment used aboard NASA and commercial space vehicles.



A Delta 183 satellite transponder, similar to the model pictured, is to provide vital communication links to Earth during a planned Strategic Defense Initiative experiment.



The KG-94A digital encryption/decryption device ensures the integrity of transmitted information for the military, U.S. Government and approved commercial users.

Automotive and Industrial Electronics Group



Piezoresistive pressure sensors in electronic engine controls aid the precise control of air-fuel mixture.



An advanced polyimide mapped ignition control module built for European markets can be used with different engine configurations.

Sales in the Automotive and Industrial Electronics Group (AIEG) declined 4% in 1988, orders were down 4%, and backlog was 11% lower than a year ago. Operating profits were slightly higher. The 1987 results include the alternator and electromechanical meter business, which was sold in the first quarter of 1988. Late in the year, AIEG also announced the sale of its electronic appliance controls business.

The group's continuing businesses enjoyed good growth and profitability. Resources are now focused on advanced vehicular electronics and related industrial applications, which had higher orders in 1988 and have greater growth potential.

AIEG expanded its powertrain electronics portfolio with new engine control programs for passenger car and diesel truck applications, and began producing the first of a series of mapped ignition programs for the European market. In addition, we made major progress in penetrating the chassis electronics market by winning development and production sourcing awards for anti-lock braking system control modules.

The body electronics business concentrates on products related to vehicle comfort, convenience and safety. We began production shipments of instrument clusters for trucks, theft alarm modules for automobiles and electronic hitch controls for agricultural applications.

The group expanded its sensors and power controls business with additional pressure sensor programs for automotive and heavy vehicles, a development program for a variety of solid state relays and an ignition licensing agreement in Mexico. Development efforts also include motor controls for application in the Asia/Pacific and Americas regions and advanced automotive multiplexing.

We intensified customer support activities as full operations began in our Detroit Application and Systems Engineering Center and our environmental testing laboratory in Northbrook, Ill. We began construction of an electronic assembly plant in Elma, N.Y., to produce sensors and ignition products.

AIEG continues to be recognized by customers for its product quality and service. All of our U.S. plants and our U.K. facility achieved Ford Motor Co. "Q1 Supplier" status. We also received Ford Parts and Service Division's Partnership Performance Award and Chrysler Corp.'s Quality Excellence Award.

Fred Tucker succeeded Gerhard Schulmeyer as senior vice president and general manager of AIEG. Parviz Mokhtari succeeded Mr. Tucker as corporate vice president and assistant general manager of the group.



Our Detroit Application and Systems Engineering Center, dedicated in 1988, supports the development of advanced vehicular electronics.

New Enterprises

The New Enterprises organization's charter is to enable Motorola to enter completely new businesses in emerging high-growth, high-technology arenas.

Initial sales of *Motorola Computer X™* systems have been for factory automation. Honeywell, Inc. announced its expanded TDC3000 architecture. It includes the Manufacturing Automation System/Controller products based on the Motorola Computer X real-time distributed computer platform. Motorola Computer X and Stratus Computer, Inc. signed an agreement to jointly offer products in computer-integrated manufacturing.

Emtek Health Care Systems provides clinical information management systems for hospital intensive care units. These systems use a distributed network of workstations based on Motorola microprocessors. Emtek has installed its first system at Harborview Medical Center in Seattle, an affiliate of the University of Washington, and has signed contracts with several other academic medical centers.

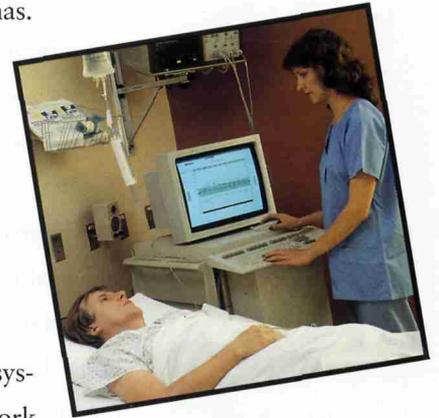
Dacscan designs and produces supervisory control and data acquisition systems (SCADA) for utility markets and cell controller systems for factory automation. The cell control products, based on the Motorola Computer X platform, have been well accepted for the monitoring and control of factories.

In the semiconductor equipment arena, *Tegal* has become a leader in the single wafer etching and stripping business. Tegal supplies equipment to U.S., Japanese and European semiconductor manufacturers. *Spectrum CVD, Inc.* designs and manufactures thin film deposition equipment required for manufacturing the next generation of submicron structures by the semiconductor industry. *CTX International* and *Phase 2 Automation* are two smaller companies that have been combined to serve the factory automation market in clean-room environments.

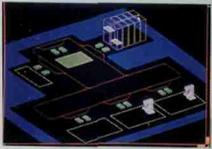
ISDN Laboratory

Motorola has created an Integrated Services Digital Network (ISDN) laboratory at our Schaumburg, Ill., headquarters. In partnership with Ameritech and Northern Telecom, we are beginning an ISDN trial in Chicago and Phoenix. ISDN will eventually link our global operations to improve internal communication, productivity and customer satisfaction.

The trial will feature Motorola products ranging from semiconductors to cellular telephone networks. Gateways and terminal adaptors from our Information Systems Group will be used. These devices interface non-ISDN analog terminals and personal computers to ISDN, which allows voice, data and images to be transmitted. Our Semiconductor Products Sector is developing a family of ISDN components with Northern Telecom.



Emtek systems provide physicians and nurses with electronic versions of patient records. The automated systems collect data from bedside vital signs monitors, nurse's measurements and other hospital computer systems.



This view of an automated metalworking plant is displayed on a Motorola Computer X™ real-time system.

Financial Review

Management's Discussion and Analysis

Financial Condition Motorola has achieved its third consecutive year of improved financial results as 1988 sales and earnings reached record levels. The company continued to maintain a strong balance sheet, although the level of debt in 1988 increased from \$917 million to \$1.38 billion. The increased debt results from higher weeks of accounts receivables, slightly lower inventory turnover, an increase in fixed asset expenditures and the acquisition of several strategically important businesses, including MDI Mobile Data International Inc. and the radio frequency (RF) semiconductor business of TRW Inc.

Credit facilities totaling \$1.44 billion were in place at the end of 1988, an increase of \$449 million from the end of 1987. Of the available lines of credit facilities, \$387 million remained unused at December 31, 1988.

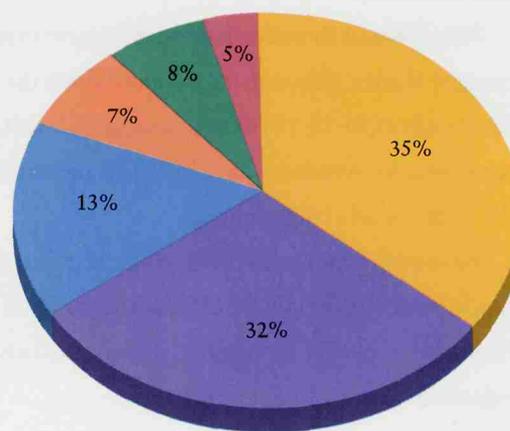
The current ratio declined to 1.26 at the end of 1988 from 1.47 at the end of 1987. The percentage of net total debt to net total debt plus equity (debt to equity) rose to 24.6% from 19.0% a year ago. This ratio would have been 20.4% and 14.6% for the indicated periods without the consolidation of Motorola Inc.'s financing subsidiary, Motorola Credit Corp., as described in the Notes to Consolidated Financial Statements. Working capital declined by \$178 million to \$689 million principally due to an increase in notes payable and current portion of long-term debt. The higher level of capital expenditures and the business acquisitions referred to above were financed through increased short-term borrowings.

Management believes the company continues to have sufficient capital resources to meet the needs of its businesses.

Return on Average Invested Capital The company's return on average invested capital increased to 11.0% from 8.8% in 1987. The return on average invested capital for 1988 would have been 11.6% without the impact of consolidating the company's financing subsidiary. Although this is the third consecutive year of improvement, the result remains below the level management believes the company should achieve. The company's participative management program remains the primary vehicle for focusing the efforts of all employees on continuing to improve return on net assets (RONA), which is the individual business equivalent to return on average invested capital.

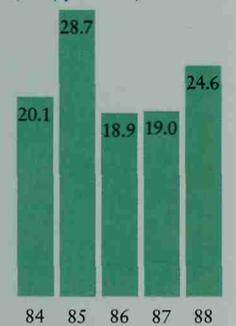
Operations The record sales level reached this year was the result of strong growth in volume in each of the company's three largest segments: Communications Products, Semiconductor Products and General Systems Products. The Communications Products segment grew at a rate comparable to that of the total company and represents 35% of total company sales. The Semiconductor Products segment remained at 32% of total sales. General Systems Products, now being reported as a separate segment, had the highest rate of sales growth in 1988 and represent 13% of sales.

1988 Net Sales by Business Segment



Communication Products	\$3.02 billion
Semiconductor Products	2.74 billion
General Systems Products	1.10 billion
Information Systems Products	566 million
Government Electronic Products	648 million
Other Products	481 million

Net Debt to Net Debt plus Equity* (as of year end)

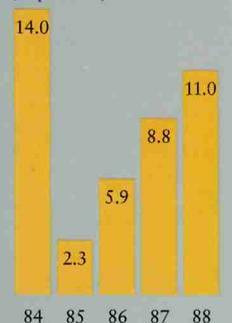


*Total Debt Less Short-Term Investments

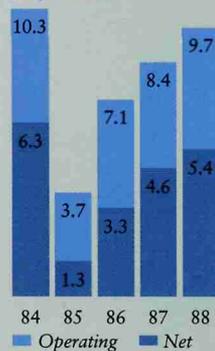
Total Debt Less Short-Term Investments plus Stockholders' Equity

Return on Average Invested Capital

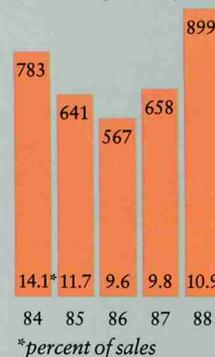
(in percent)



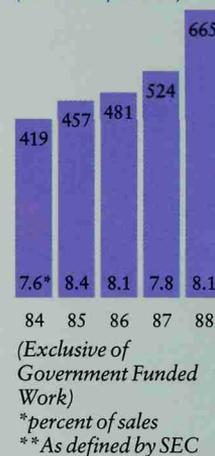
Profit Margins
(in percent)



Fixed Asset Expenditures
(millions of dollars)



Research and Development**
(millions of dollars)



The Government Electronic Products segment maintained its 8% share of the company's sales while the Information Systems Products segment growth rate slowed, and its share of total sales declined to 7%. The Other Products segment maintained its 5% share of the company's sales. Operating and net profits of the company improved for the third consecutive year, although the margin remains below management's profitability targets. Operating profits were 9.7% of sales in 1988 compared with 8.4% in 1987. Net earnings increased to 5.4% of sales from 4.6% in 1987. The improved company profit margins resulted from improvements achieved by the General Systems Products segment, the Semiconductor Products segment and the Government Electronic Products segment. Operating profits increased due to improvements in the ratio to sales of selling, general and administrative expenses as well as depreciation.

As noted in the individual discussions of our businesses elsewhere in this report, we see opportunities for each of our businesses to achieve additional growth and profitability in 1989. Information on the company's operating profits and assets by product and market segments is shown in Note 11 on pages 29 and 30 of this report.

Receivables and Inventories Average weeks of receivables increased in 1988 to 8.1 weeks from 7.6 weeks in 1987. Year-end receivables totaled \$1.4 billion in 1988, up from \$1.1 billion a year ago. Most of this increase is attributable to the record sales levels achieved in 1988. The remaining portion, as well as the deterioration in average weeks outstanding, is to a large degree attributable to the company's sales mix continuing to shift toward international markets where sales terms are traditionally longer. This trend, along with a shift of sales mix to more complex products and systems orders, will make achieving a lower level of receivables a difficult challenge.

Inventory turnover, based upon a more stringent cost of goods sold definition used internally, decreased to 3.1 turns from 3.2 turns at year-end 1987. Year-end inventory increased to \$1.14 billion from \$909 million in 1987. As we enter 1989, we believe we can reestablish an improving trend of inventory utilization that occurred in previous years through continuing dedication to our initiative on total cycle time reduction.

Fixed Asset Expenditures Investment in fixed assets increased in 1988, both in dollars and as a percent of sales, although it remained within the normal historical range. Expenditures for the year were \$899 million, or 10.9% of sales, compared with \$658 million, or 9.8%, a year ago. As shown in the segment information on page 29 of this report, the Semiconductor Products segment continues to represent the largest level of investment.

Research and Development Research and development expenditures, exclusive of government funded work, increased by 27% to \$665 million and represented 8.1% of sales in 1988. Management maintains a strong commitment to continued investment in research and development as the critical ingredient to drive long-term growth.

Statements of Consolidated Earnings

Years ended December 31

(In millions of dollars, except per share data)

	1988	1987	1986
Net sales	\$8,250	\$6,727	\$5,905
Manufacturing and other costs of sales	5,040	4,071	3,656
Selling, general and administrative expenses	1,957	1,665	1,437
Depreciation expense	543	494	459
Interest expense, net	98	79	86
Total costs and other expenses	7,638	6,309	5,638
Earnings before income taxes	612	418	267
Income taxes provided on earnings	167	110	73
Net earnings	\$ 445	\$ 308	\$ 194
Net earnings per share	3.43	2.39	1.53
Average shares outstanding (in millions)	129.6	128.9	126.5

See accompanying notes to consolidated financial statements.

Statements of Consolidated Stockholders' Equity

Years ended December 31

(In millions of dollars, except per share data)

	Common Stock and Additional Paid-in Capital			Retained Earnings		
	1988	1987	1986	1988	1987	1986
Balances at January 1	\$1,231	\$1,202	\$ 844	\$1,777	\$1,552	\$1,440
Net earnings	—	—	—	445	308	194
Stock option plans	9	28	18	—	—	—
Stock issuance	—	—	334	—	—	—
Contributions to Employee Stock Ownership Plan	—	1	6	—	—	—
Dividends declared (\$.67 per share in 1988, \$.64 per share in 1987 and in 1986)	—	—	—	(87)	(83)	(82)
Balances at December 31	\$1,240	\$1,231	\$1,202	\$2,135	\$1,777	\$1,552

See accompanying notes to consolidated financial statements.

Consolidated Balance Sheets

(In millions of dollars,
except per share data)

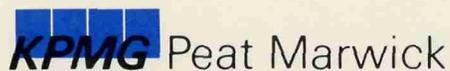
December 31		1988	1987
Assets			
Current assets			
Cash and cash equivalents		\$ 195	\$ 161
Short-term investments, at cost (approximating market)		145	98
Accounts receivable, less allowance for doubtful accounts (1988, \$35; 1987, \$32)		1,400	1,124
Inventories:			
Finished goods		328	237
Work in process and production materials		816	672
Future income tax benefits		278	201
Other current assets		218	237
Total current assets		3,380	2,730
Property, plant and equipment, net		2,854	2,444
Other assets		476	343
Total assets		\$6,710	\$5,517
Liabilities and Stockholders' Equity			
Current liabilities			
Notes payable and current portion of long-term debt		\$1,038	\$ 573
Accounts payable		650	546
Accrued liabilities		928	663
Income taxes payable		75	81
Total current liabilities		2,691	1,863
Long-term debt		343	344
Deferred taxes		155	137
Other liabilities		146	165
Stockholders' equity			
Common stock, \$3 par value.			
Authorized shares (in millions): 1988, 300.0; 1987, 300.0			
Outstanding shares (in millions): 1988, 129.7; 1987, 129.3		389	388
Preferred stock, \$100 par value issuable in series.			
Authorized shares (in millions): 0.5 (none issued)		—	—
Additional paid-in capital		851	843
Retained earnings		2,135	1,777
Total stockholders' equity		3,375	3,008
Total liabilities and stockholders' equity		\$6,710	\$5,517

See accompanying notes to consolidated financial statements.

Statements of Consolidated Cash Flows

(In millions of dollars)	Years Ended December 31	1988	1987	1986
Operating	Net earnings	\$ 445	\$308	\$194
	Add (deduct) non-cash items			
	Depreciation	543	494	459
	Net change in deferred taxes	(60)	32	(26)
	Change in assets and liabilities, net of effects of acquisitions			
	Accounts receivable, net	(247)	(239)	18
	Inventories	(223)	(90)	14
	Other current assets	20	(56)	(35)
	Accounts payable and accrued liabilities	332	260	84
	Income taxes payable	(7)	(38)	54
	Other assets	(49)	(64)	(120)
	Other liabilities	(29)	55	16
	Net cash provided by operations	725	662	658
Investing	Cost of businesses acquired, net of cash received	(123)	—	(36)
	Payments for property, plant and equipment	(873)	(638)	(565)
	Other changes to property, plant and equipment, net ...	(58)	(30)	11
	(Increase) decrease in short-term investments	(42)	(58)	23
	Net cash used for investing activities	(1,096)	(726)	(567)
Financing	Increase in notes payable and current portion of long-term debt	464	121	81
	Principal payments under capital lease obligations	16	2	2
	Increase (decrease) in long-term debt	(1)	10	(418)
	Issuance of common stock	9	29	358
	Payment of dividends to stockholders	(83)	(83)	(82)
	Net cash provided by (used for) financing activities	405	79	(59)
	Increase in cash and cash equivalents	\$ 34	\$ 15	\$ 32

See accompanying notes to consolidated financial statements.



Certified Public Accountants

Peat Marwick Main & Co.
303 East Wacker Drive
Chicago, Illinois 60601
(312) 938-1000

The Board of Directors and Stockholders
of Motorola, Inc.:

We have audited the accompanying consolidated balance sheets of Motorola, Inc. and consolidated subsidiaries as of December 31, 1988 and 1987, and the related statements of consolidated earnings, stockholders' equity, and cash flows for each of the years in the three-year period ended December 31, 1988. These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these consolidated financial statements based on our audits.

We conducted our audits in accordance with generally accepted auditing standards. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatements. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of Motorola, Inc. and consolidated subsidiaries at December 31, 1988 and 1987, and the results of their operations and their cash flows for each of the years in the three-year period ended December 31, 1988 in conformity with generally accepted accounting principles.

Peat Marwick Main & Co.

January 20, 1989

1. Summary of Significant Accounting Policies

Consolidation: The consolidated financial statements include the accounts of the Company and all majority-owned subsidiaries. All significant intercompany accounts and transactions have been eliminated in consolidation.

Restatements: In 1988, the Company adopted Statements of Financial Accounting Standards (SFAS) 94 and 95. SFAS 94 requires the consolidation of all majority-owned subsidiaries. In prior years, the Company accounted for its investments in financial subsidiaries on the equity basis. SFAS 95 requires a Statement of Consolidated Cash Flows and certain related disclosures in place of the Statement of Consolidated Changes in Financial Position presented in prior years. Certain amounts in prior years' financial statements have been restated to conform with SFAS 94 and 95.

Inventories: Inventories are valued at the lower of average cost (which approximates computation on a first-in, first-out basis) or market (i.e., net realizable value or replacement cost), less progress payments on long-term contracts. Progress payments included in net inventories were \$88 million and \$111 million in 1988 and 1987, respectively.

Investment Tax Credits: Investment tax credits are recorded under the flow-through method.

Property, Plant and Equipment: Property, plant and equipment is stated at cost. The cost of buildings, machinery and equipment is depreciated, generally by the declining-balance method, over the estimated useful lives of such assets, as follows: buildings and building equipment, 5-50 years, machinery and equipment, 2-12 years.

Foreign Currency Translation: The Company uses the U.S. dollar as the functional currency for financial reporting. Gains and losses from translation to U.S. dollars are included in net earnings.

Statement of Cash Flows: The Company considers all highly liquid investments purchased with an original maturity of three months or less to be cash equivalents.

Reclassifications: Certain amounts in the 1987 and 1986 financial statements and related footnotes have been reclassified to conform to the 1988 presentation. These reclassifications are not significant.

2. Income Taxes

The Company provides for income taxes based on earnings reported for financial statement purposes. Income tax expense differs from income taxes currently payable because of timing differences in the recognition of certain income and expense items for tax and financial statement purposes.

The components of earnings before income taxes are as follows:

(In millions of dollars)	1988	1987	1986
U.S. and U.S. possessions	\$419	\$245	\$139
Other nations	193	173	128
Total	<u>\$612</u>	<u>\$418</u>	<u>\$267</u>

The components of income tax expense (benefit) are as follows:

(In millions of dollars)	1988	1987	1986
Current:			
United States	\$152	\$ 35	\$ 54
Other nations	40	26	39
State income taxes (U.S.)	34	17	6
	<u>226</u>	<u>78</u>	<u>99</u>
Deferred	(59)	32	(26)
Income taxes	<u>\$167</u>	<u>\$110</u>	<u>\$ 73</u>

The Company's cash payments for income taxes were \$212 million in 1988, \$108 million in 1987 and \$21 million in 1986.

Income tax expense computed at U.S. statutory federal tax rates differs from the Company's actual income tax expense, summarized as follows:

(In millions of dollars)	1988	1987	1986
U.S. statutory federal tax rate	34%	40%	46%
Income tax expense at statutory rate ...	\$208	\$167	\$123
Increase (decrease) in tax expense resulting from:			
Taxes on earnings in other nations and U.S. possessions	(37)	(48)	(37)
Investment tax credit	1	1	(9)
Research and experimentation tax credit	(4)	(2)	(5)
State income taxes	23	10	4
Foreign Sales Corporation	(6)	(5)	(4)
Other	(18)	(13)	1
Income taxes	<u>\$167</u>	<u>\$110</u>	<u>\$ 73</u>

An analysis of changes in the deferred income tax accounts is as follows:

(In millions of dollars)	1988	1987	1986
General business credit carryforward ..	\$ 13	\$ 39	\$ (1)
Completed contract accounting	(13)	(21)	5
Depreciation	26	28	3
Earnings of foreign subsidiaries anticipated to be repatriated	8	9	8
Income from long-term lease of equipment	(10)	(22)	(6)
Inventory valuations	(19)	5	5
Capitalization of expense items	(6)	(3)	(7)
Other, net	(58)	(3)	(33)
Net change in deferred taxes	<u>\$ (59)</u>	<u>\$ 32</u>	<u>\$ (26)</u>

Income taxes have not been provided on the undistributed earnings of certain of the Company's foreign subsidiaries amounting to \$551 million, \$462 million and \$353 million at December 31, 1988, 1987 and 1986, respectively. It is intended that these earnings will be permanently invested in operations outside the United States. Should these earnings be distributed, foreign tax credits would reduce the additional U.S. income tax which would be payable.

At December 31, 1988, certain non-U.S. subsidiaries had loss carryforwards for financial reporting purposes of approximately \$53 million.

The Internal Revenue Service has examined the Federal income tax returns for Motorola, Inc. through 1983 and the returns have been settled through that year, except for certain immaterial items which the Company is contesting. The settlement did not result in a material adverse effect on the business or financial position of the Company.

In December 1987, the Financial Accounting Standards Board (FASB) issued SFAS 96, Accounting for Income Taxes, which requires an asset and liability approach in accounting for deferred income taxes. The Company has not yet adopted SFAS 96. The FASB has deferred the required implementation until January 1, 1990. Based upon the analyses performed to date, the Company believes adoption of the Statement will result in a substantial reduction in the recorded carrying value of net future income tax benefits. However, the cumulative impact of adoption has not yet been fully determined.

3. Long-term Debt and Backup Credit Facilities

Long-term debt at December 31 consisted of the following:

(In millions of dollars)	1988	1987
Floating rate debt:		
Foreign notes payable (generally at prevailing local rates) due in installments to 1993	\$ 14	\$ 13
Fixed rate debt:		
12% eurodollar notes due December 15, 1994 ..	68	68
11½% eurodollar notes due May 9, 1997	93	93
8⅝% ECU notes due July 16, 1992	59	65
8% sinking fund debentures due October 1, 2007 (callable at 104.3% reducing to 100.0% of the principal amount)	62	62
7¾% industrial revenue bonds due January 1, 2014	20	20
Capitalized lease obligations	46	34
Other long-term debt	16	7
	<u>378</u>	<u>362</u>
Less current maturities	35	18
Long-term debt	<u>\$343</u>	<u>\$344</u>

During 1988, the carrying value of the ECU notes decreased approximately 10% as a result of a change in exchange rates.

The industrial revenue bond rate changed from 7¾% to 6½% on January 1, 1989 for 1989.

The aggregate maturities and sinking fund requirements for long-term debt during the next five years are as follows:

(In millions of dollars)	1989	1990	1991	1992	1993
	35	14	12	72	1

Notes to Consolidated Financial Statements Continued

The Company has backup credit arrangements for short-term borrowings with various banks for which it pays commitment fees of approximately 1/10% of the lines of credit. The short-term backup credit lines totaled \$1.44 billion at December 31, 1988, of which \$387 million remain unused. The backup lines of credit primarily support the issuance of commercial paper. Borrowings are generally at the market rate.

Outstanding letters of credit aggregated approximately \$59 million at December 31, 1988.

4. Property, Plant and Equipment

Property, plant and equipment at December 31 consisted of the following:

(In millions of dollars)	1988	1987
Land	\$ 107	\$ 88
Buildings	1,420	1,258
Machinery	3,127	2,694
Equipment leased to others	325	316
	<u>4,979</u>	<u>4,356</u>
Less accumulated depreciation	2,125	1,912
Property, plant and equipment, net	<u>\$2,854</u>	<u>\$2,444</u>

5. Leases

The Company owns most of its major facilities, but does lease certain office, factory and warehouse space, land, data processing and other equipment under noncancellable operating leases. In addition, the Company leases equipment to others under noncancellable operating leases.

Rental expense, net of sublease income, was \$121 million in 1988, \$115 million in 1987 and \$111 million in 1986.

At December 31, 1988 future minimum lease revenues under noncancellable leases and lease obligations were as follows:

Year ending December 31: (In millions of dollars)	Future Lease Revenues	Future Lease Obligations
1989	\$79	\$71
1990	42	53
1991	19	40
1992	7	24
1993	3	18
Later	0	85

Future lease obligations have been reduced by minimum sublease rentals.

The Company incurred capital lease obligations of \$26 million in 1988, \$20 million in 1987 and \$2 million in 1986.

6. Employee Benefit and Incentive Plans

Retirement Benefits: The Company and certain subsidiaries have profit-sharing plans, principally contributory, in which all eligible employees participate. The Company

makes contributions to profit-sharing funds in the United States and other nations, which are generally based upon percentages of pretax earnings, as defined, from those operations.

The Company contributions to all profit-sharing plans totaled \$44 million, \$22 million and \$9 million in 1988, 1987 and 1986, respectively. Both the profit-sharing and pension plans covering most domestic employees were amended, effective January 1, 1988, such that the noncontributory pension plan will prospectively provide a higher percentage of the employee's total retirement benefit.

The Company's noncontributory pension plan, covering most domestic employees after one year of service, was amended as noted above. The benefit formula is dependent upon employee earnings and years of service. The Company's policy is to fund the accrued pension cost or the amount allowable based on the full funding limitations of the Internal Revenue Service, if less.

The Company has a noncontributory pension plan for its elected officers which was amended in the fourth quarter of 1988. The amended plan contains provisions for funding the participants expected retirement benefits when the participants meet the minimum age and years of service requirements. This plan was unfunded prior to 1988.

The Company has an unfunded noncontributory pension plan covering selected domestic employees. The provisions of the plan are such that no future service costs will be incurred by the Company. The amount of pension expense for 1988 and the projected benefit obligation are not significant.

Benefits under all plans are valued based upon the projected unit credit cost method. The actuarial present value of the projected benefit obligations was calculated using a discount rate of 9% in 1988 compared to 8.25% in 1987 and a future compensation rate increase of 5.5% in both 1988 and 1987. The investment return assumption for the plan covering most domestic employees was 9.25% and 8.0% in 1988 and 1987, respectively. The investment return assumption for the plan covering elected officers was 8.0% in 1988.

The components of net U.S. pension expense (income) for the regular pension plan are as follows:

(In millions of dollars)	1988	1987	1986
Service cost	\$50	\$20	\$15
Interest cost on projected obligation	20	18	17
Actual return on plan assets	(45)	(45)	(67)
Net amortization and deferral	(4)	4	27
Net pension expense (income) ...	<u>\$21</u>	<u>\$ (3)</u>	<u>\$ (8)</u>

The net U.S. pension expense for the elected officers pension plan was \$9 million, \$6 million and \$5 million in 1988, 1987 and 1986, respectively.

(In millions of dollars)	1988		1987	
	Funded Regular	Plans Elected Officers	Funded Regular	Unfunded Elected Officers
Actuarial present value of:				
Vested benefit obligation	\$(189)	\$(45)	\$(167)	\$(27)
Accumulated benefit obligation	\$(213)	\$(60)	\$(184)	\$(39)
Projected benefit obligation for service rendered to date	\$(289)	\$(64)	\$(250)	\$(44)
Plan assets at fair value, primarily listed stocks, bonds and cash equivalents	481	50	446	—
Plan assets in excess (deficit) of projected benefit obligation ...	192	(14)	196	(44)
Unrecognized net (gain) loss from past experience different from assumptions ...	(90)	3	(59)	5
Unrecognized prior service cost	3	40	—	—
Unrecognized net transition (asset) liability	(114)	14	(125)	15
Pension asset (liability) recognized in balance sheet	\$ (9)	\$ 43	\$ 12	\$(24)

The Company uses a five-year market-related asset value method of amortizing actuarial gains and losses.

Net transition amounts and prior service costs are being amortized over periods ranging from 10 to 15 years.

Certain foreign subsidiaries have varying types of retirement plans providing benefits for substantially all of their employees. The Company has adopted SFAS 87 for certain of its significant foreign subsidiaries. Essentially all of the cost of these plans is borne by the subsidiaries. Amounts charged to earnings for all foreign plans were \$12 million in 1988, \$9 million in 1987 and \$7 million in 1986.

In addition to providing pension benefits, the Company provides certain health care benefits to its retired employees. The majority of its domestic employees may become eligible for these benefits if they reach normal retirement age while working for the Company. The cost of retiree health care benefits is recognized as expense when claims are paid and totaled \$4 million in 1988, 1987 and 1986, respectively. There are no significant post-retirement health care benefit plans in foreign countries.

Management Incentive: The Company may provide up to 7% of its annual consolidated pretax earnings, as defined in the Motorola Executive Incentive Plan, for the payment of cash incentive awards to key employees. During 1988, \$25 million was provided for incentive awards, as compared to provisions of \$14 million and \$3 million in 1987 and 1986, respectively.

Stock Options: Under the Company's employee stock option plans, shares of common stock have been made available for grant to key employees. The exercise price of each option granted is 100% of market value on the date of the grant. Shares subject to option under these plans are as follows:

(In thousands of shares)	1988	1987
Options outstanding beginning of year	5,256	5,409
Additional options granted	1,269	1,177
Options exercised	(475)	(1,235)
Options terminated, cancelled or expired	(48)	(95)
Options outstanding at end of year	6,002	5,256
Shares reserved for possible future options grants	3,123	4,344
Total shares reserved	9,125	9,600
Total options exercisable	4,735	4,082

Options exercised during 1988 were at per share prices ranging from \$12.08 to \$43.81. Options outstanding at December 31, 1988 were at per share prices ranging from \$14.81 to \$69.94.

7. Other Financial Data

(In millions of dollars)	1988	1987	1986
Research and development expenditures	\$665	\$524	\$481
Maintenance and repair expenditures ...	\$196	\$162	\$128
Foreign currency gains (losses)	\$ 1	\$ 8	\$ 4
Other assets:			
Finance receivables	\$230	\$206	\$160
Other	246	137	119
Other assets	\$476	\$343	\$279
Accrued liabilities:			
Taxes (other than income taxes)	\$109	\$ 81	\$ 61
Contribution to employees' profit sharing funds	44	22	9
Accrued compensation	232	191	148
Dividends payable	25	21	21
Other	518	348	297
Accrued liabilities	\$928	\$663	\$536
Interest expense	\$135	\$ 96	\$105
Interest income	(37)	(15)	(15)
Amount capitalized	—	(2)	(4)
Interest expense, net	\$ 98	\$ 79	\$ 86

Notes to Consolidated Financial Statements Continued

As a result of the consolidation of Motorola Credit Corporation, a wholly-owned finance subsidiary, interest income of \$26 million in 1988, \$20 million in 1987 and \$17 million in 1986 is included in Net sales. In addition, interest expense of \$16 million in 1988, \$12 million in 1987 and \$9 million in 1986 is included in Manufacturing and other costs of sales.

The Company's cash payments for interest expense (net of amount capitalized) were \$157 million in 1988, \$87 million in 1987 and \$96 million in 1986.

8. Financial Subsidiaries

In 1988, the Company adopted SFAS 94, which requires the consolidation of all majority-owned subsidiaries. The following is a summary of financial information for the Company's previously unconsolidated financial subsidiaries for years ending December 31:

(In millions of dollars)	1988	1987	1986
Total revenue	<u>\$ 26</u>	\$ 20	\$ 17
Net earnings	<u>\$ 7</u>	\$ 5	\$ 4
Total assets	<u>\$296</u>	\$228	\$201
Total liabilities	<u>(249)</u>	(195)	(147)
Stockholder's investment and advances..	<u>\$ 47</u>	\$ 33	\$ 54

The finance subsidiary purchases customer obligations under long-term contracts from the Company at net carrying value. The insurance subsidiary insures some of the Company's property risks.

9. Stockholder Rights Plan

On November 9, 1988, the Company declared a dividend distribution of one preferred share purchase right on each share of the Company's common stock outstanding on November 20, 1988. Each right may be exercised to buy one-thousandth of a share of the Company's Junior Participating Preferred Stock, Series A at an exercise price of \$150 per one-thousandth of a share (subject to adjustment) if a person or group acquires 20% or more of the Company's common stock or announces a tender offer or exchange offer for 30% or more of the Company's common stock. The rights, which do not have voting power, expire on November 20, 1998 and may be redeemed by the Company at a price of \$.05 per right prior to the public announcement that 20% or more of the Company's shares have been accumulated by a person or group. If the Company is acquired in a merger or other business combination transaction or 50% or more of its assets or earning power are sold at any time after the rights become exercisable, each right entitles the holder to buy a number of shares of common stock of the acquiring company having a market value of twice the exercise price of the right. If a person or group acquires 20% or more of the Company's common stock or if a 20% holder merges with the Company without exchange of the Company's common stock or engages in specified self-dealing transactions with the Company, each right, not owned by such holder, entitles its holder to buy a number of shares of the Company having a market value of twice the exercise price of the right.

10. Contingencies

The Company is a defendant in various suits and claims which arise in the normal course of business and is obligated under repurchase and other agreements principally in connection with the financing of sales.

In the opinion of management, the ultimate disposition of these matters will not have a material adverse effect on the business or financial position of the Company.

11. Information by Industry Segment and Geographic Region

Information about the Company's operations in different industry segments for the years ended December 31 is summarized below (in millions of dollars and percent of net sales):

	Net Sales			Operating Profit					
	1988	1987	1986	1988		1987		1986	
Communications Products	\$3,017	\$2,459	\$2,204	\$326	10.8%	\$255	10.4%	\$244	11.1%
Semiconductor Products	2,741	2,193	1,807	268	9.8%	171	7.8%	81	4.5%
General Systems Products (A)	1,102	801	698	107	9.7%	56	7.0%	14	2.0%
Information Systems Products	566	528	465	68	12.0%	83	15.7%	75	16.2%
Government Electronic Products	648	540	525	25	3.8%	8	1.5%	33	6.3%
Other Products (A)	481	415	388	19	4.0%	(6)	(1.4%)	(22)	(5.8%)
Adjustments and eliminations	(305)	(209)	(182)	(9)	—	(3)	—	(3)	—
Industry totals	\$8,250	\$6,727	\$5,905	804	9.7%	564	8.4%	422	7.1%
General corporate expenses				(94)		(67)		(69)	
Interest expense, net				(98)		(79)		(86)	
Earnings before income taxes				\$612	7.4%	\$418	6.2%	\$267	4.5%

	Assets		
	1988	1987	1986
Communications Products	\$2,048	\$1,690	\$1,405
Semiconductor Products	2,245	1,875	1,617
General Systems Products (A)	941	599	551
Information Systems Products	381	361	360
Government Electronic Products	389	371	350
Other Products (A)	261	272	269
Adjustments and eliminations	(13)	(44)	(40)
Industry totals	6,252	5,124	4,512
General corporate assets	458	393	314
Consolidated totals	\$6,710	\$5,517	\$4,826

	Fixed Asset Expenditures			Depreciation		
	1988	1987	1986	1988	1987	1986
Communication Products	\$182	\$148	\$128	\$ 93	\$102	\$ 94
Semiconductor Products	435	327	249	253	227	203
General Systems Products (A)	98	31	25	52	27	27
Information Systems Products	39	30	44	30	25	21
Government Electronic Products	28	34	46	30	27	19

Expenditures and depreciation for property, plant and equipment do not include amounts for equipment leased to others.
 (A) Restated to reflect products transferred from Other Products to General Systems Products, a new industry segment.

Notes to Consolidated Financial Statements Continued

Information about the Company's operations in different geographic regions for the years ended December 31 is summarized below (in millions of dollars and percent of net sales):

	Net Sales			Operating Profit					
	1988	1987	1986	1988		1987		1986	
United States	\$7,017	\$5,869	\$5,275	\$628	8.9%	\$375	6.4%	\$300	5.7%
Other nations	3,968	2,937	2,250	228	5.7%	209	7.1%	164	7.3%
Adjustments and eliminations	(2,735)	(2,079)	(1,620)	(52)	—	(20)	—	(42)	—
Geographic totals	<u>\$8,250</u>	<u>\$6,727</u>	<u>\$5,905</u>	<u>804</u>	<u>9.7%</u>	<u>564</u>	<u>8.4%</u>	<u>422</u>	<u>7.1%</u>
General corporate expenses				(94)		(67)		(69)	
Interest expense, net				(98)		(79)		(86)	
Earnings before income taxes				<u>\$612</u>	<u>7.4%</u>	<u>\$418</u>	<u>6.2%</u>	<u>\$267</u>	<u>4.5%</u>

	Assets		
	1988	1987	1986
United States	\$4,131	\$3,567	\$3,302
Other nations	2,211	1,652	1,278
Adjustments and eliminations	(90)	(95)	(68)
Geographic totals	<u>6,252</u>	<u>5,124</u>	<u>4,512</u>
General corporate assets	<u>458</u>	<u>393</u>	<u>314</u>
Consolidated totals	<u>\$6,710</u>	<u>\$5,517</u>	<u>\$4,826</u>

The Company operates predominately in one industry, electronic equipment and components. Operations involve the design, manufacture and sale of a diversified line of electronic products, which include, but are not limited to, two-way radio and communications systems; semiconductors, including integrated circuits and microprocessor units; data communication and distributive data processing equipment and systems; and electronic equipment and industrial electronic products. The Company operates manufacturing and distribution facilities outside the United States. No single country outside the United States accounts for more than 10% of consolidated net sales or total assets.

Operating profit was computed as total revenues less operating expenses which exclude general corporate expenses, net interest and income taxes. Identifiable assets are those assets of the Company that are identified to classes of similar products or operations in each geographical

area, excluding intersegment receivables. Corporate assets are principally cash and marketable securities and the corporate administrative headquarters. Intersegment sales, principally semiconductor components, amounted to \$298 million for 1988, \$205 million for 1987 and \$177 million for 1986. Intersegment and intergeographic transfers are accounted for on an arm's length pricing basis and are consistent with rules and regulations of domestic and foreign taxing authorities.

Sales to the United States federal government agencies aggregated \$1.05 billion for 1988, \$830 million for 1987 and \$809 million for 1986. No other single customer (or group of customers under common control) accounted for 10% or more of the Company's sales.

The equity in the net assets of non-U.S. subsidiaries amounted to \$1.34 billion at December 31, 1988 and \$951 million at December 31, 1987.

Five Year Financial Summary

Years ended December 31	1988	1987	1986	1985	1984
Operating Results (In millions of dollars)					
Net sales	\$8,250	\$6,727	\$5,905	\$5,456	\$5,547
Manufacturing and other costs of sales	5,040	4,071	3,656	3,413	3,215
Selling, general and administrative expenses	1,957	1,665	1,437	1,470	1,479
Depreciation expense	543	494	459	441	353
Interest expense, net	98	79	86	87	34
Total costs and other expenses	7,638	6,309	5,638	5,411	5,081
Earnings before income taxes	612	418	267	45	466
Income taxes (benefits) provided on earnings	167	110	73	(27)	79
Cancellation of DISC taxes	—	—	—	—	(38)
Net earnings	\$ 445	\$ 308	\$ 194	\$ 72	\$ 387
Net earnings excluding DISC tax cancellation	\$ 445	\$ 308	\$ 194	\$ 72	\$ 349
Net earnings excluding DISC tax cancellation as a percent of sales	5.4%	4.6%	3.3%	1.3%	6.3%
Per Share Data (In dollars)					
Net earnings	\$ 3.43	\$ 2.39	\$ 1.53	\$.61	\$ 3.27
Net earnings excluding DISC tax cancellation	\$ 3.43	\$ 2.39	\$ 1.53	\$.61	\$ 2.95
Dividends declared	.67	.64	.64	.64	.61
Balance Sheet (In millions of dollars)					
Total assets	\$6,710	\$5,517	\$4,826	\$4,448	\$4,266
Working capital	689	867	759	892	964
Long-term debt	343	344	334	705	531
Total debt	1,381	917	786	1,076	716
Total stockholders' equity	\$3,375	\$3,008	\$2,754	\$2,284	\$2,278
Other Data					
Current ratio	1.26	1.47	1.50	1.71	1.76
Return on average invested capital	11.0%	8.8%	5.9%	2.3%	14.0% ¹
Return on average stockholders' equity	13.9%	10.7%	7.4%	3.2%	16.4% ¹
Year-end employment (approximate)	102,000	97,700	94,400	90,200	99,900
Average shares outstanding (in millions)	129.6	128.9	126.5	119.0	118.5

¹Excludes cancellation of DISC taxes.

Quarterly and Other Financial Data (Unaudited)

The principal market for Motorola Common Stock is the New York Stock Exchange. The table below sets forth the high and low sales price per share for Motorola Common

(In millions of dollars, except per share data)

	1988				1987			
	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
Net sales	\$1,955	\$2,095	\$2,007	\$2,193	\$1,551	\$1,644	\$1,677	\$1,855
Gross profit before depreciation	783	810	770	847	598	667	662	729
Net earnings	114	120	87	124	56	80	70	102
Net earnings per share	.88	.93	.67	.95	.44	.62	.54	.79
Dividends:								
Declared	.16	.16	.16	.19	.16	.16	.16	.16
Paid	.16	.16	.16	.16	.16	.16	.16	.16
Stock prices:								
High	53.50	54.63	54.50	42.75	57.75	63.88	74.00	73.75
Low	38.50	43.50	40.25	35.88	35.63	51.38	51.25	35.00

Stock as reported by the New York Stock Exchange and the dividends declared and paid for the periods indicated.

The number of holders of record of Motorola Common Stock on January 30, 1989 was 14,647.

Communications Sector

Communications Systems Group
Commercial Markets Systems Division
Government Markets Systems Division
Selected Markets Systems Division
Distribution Service Group
Parts Division
Domestic Distribution Group
Commercial Markets Division
National Markets Division
State and Local Government Markets Division
International Group
International Markets Division
MDI Mobile Data International Inc.
Manufacturing Technologies Group
Component Products Division
Motorola Storno Communications Group
Radio Technologies Group
Fixed Products Division
Mobile Products Division
Portable Products Division
Paging Products Division
Radius Division
U.S. Federal Government Division

Semiconductor Products Sector

Discrete and Special Technologies Group
Power Products Division
RF and Optoelectronic Products Division
Small Signal and Sensor Products Division
Zener/Rectifier Products Division
Final Manufacturing and Equipment Engineering Group
International Semiconductor Group
Asia Pacific Semiconductor Products Division
European Semiconductor Group
Discrete and Analog Products Division (Toulouse)
Microsystems, ASIC and Digital Products Division (Munich)
MOS Memory and Microprocessor Division (East Kilbride)
Microprocessor Products Group
High End MPU Division
Microcontroller Division
Standard Logic and Analog Integrated Circuits Group
Bipolar Analog Integrated Circuits Division
Logic Integrated Circuits Division
MOS Digital-Analog Integrated Circuits Division
Application Specific Integrated Circuits Division
MOS Memory Products Division

General Systems Group

Cellular Subscriber Group
International Subscriber Division
European Subscriber Division
North American Subscriber Division
Computer Group
Computer Systems Division
Field Service Division
International Division
Microcomputer Division
Radio-Telephone Systems Group

Information Systems Group

Codex Corp.
Universal Data Systems

Government Electronics Group

Communications Division
Strategic Electronics Division
Tactical Electronics Division

Automotive and Industrial Electronics Group

Automotive Powertrain and Chassis Electronics Division
Automotive Body Electronics Business
Sensors and Power Controls Business

Major facilities in:

Australia
Melbourne
Canada
British Columbia
Richmond
Ontario
Brampton, North York
Costa Rica
Guadalupe
Denmark
Copenhagen
France
Angers, Bordeaux, Toulouse
Hong Kong
Kowloon
Israel
Arad, Tel Aviv
Japan
Aizu Wakamatsu, Sendai, Tokyo
Korea
Seoul
Malaysia
Kuala Lumpur, Penang, Seremban
Mexico
Guadalajara, Leon, Mexico City
Philippines
Manila
Singapore
Switzerland
Geneva
Taiwan
Chung-Li
United Kingdom
Basingstoke, Camberley, East Kilbride, Stotfold
United States
Alabama
Huntsville
Arizona
Chandler, Mesa, Phoenix, Scottsdale, Tempe
California
Cupertino, Lawndale, Petaluma
Florida
Boynton Beach, Fort Lauderdale
Illinois
Arlington Heights, Northbrook, Schaumburg
Iowa
Mount Pleasant
Massachusetts
Canton, Mansfield
New Mexico
Albuquerque
New York
Arcade
Texas
Austin, Dallas, Fort Worth, Seguin
Puerto Rico
Bayamon, Vega Baja
West Germany
Flensburg, Munich, Taunusstein

CEO Quality Awards

The Chief Executive Office Quality Award is Motorola's highest award for quality performance. Winners in 1988 were:

Communications Sector

Motorola Electronics Pte. Ltd. (Singapore)
Genesis Charger Manufacturing/Support Teams (MEPL-Singapore)
Motorola GmbH, Frankfurt, West Germany
Central Engineering Services and Technical Writing Group
Motorola Ltd., Basingstoke, England

General Systems Group

LD8 Cellular Infrastructure Manufacturing Team

Information Systems Group

Codex Customer Administration Department
Codex 2300 Series Modem Quality Improvement Team

Government Electronics Group

FMU-139 Fuze Team

Automotive and Industrial Electronics Group

Seguin, Texas, EEC-IV Team/Short Cycle Manufacturing Committee and Northbrook, Ill., EEC-IV Customer Service

New Enterprises

Tegal Back-End Production Department

Nippon Motorola Ltd.

MOS 7 Wafer Fabrication Team

Corporate Staff

Jack Germain, Retiring Senior Vice President and Motorola Director of Quality

1988 Dan Noble Fellows

The Dan Noble Fellow is the highest honorary award that can be made to a technologist within Motorola. It recognizes outstanding technical creativity, innovative ability and productive achievements. It is named for Dan Noble, a visionary technological pioneer, former vice chairman of Motorola and chairman of its Science Advisory Board.

Fellows chosen in 1988 are:

Byron Bynum
Semiconductor Products Sector, Tempe, Ariz.

Bruce Fette
Government Electronics Group, Scottsdale, Ariz.

Steve Flannagan
Semiconductor Products Sector, Austin, Texas

Robert I. Foster
Government Electronics Group, Scottsdale, Ariz.

Ira Gerson
Corporate Research and Development, Schaumburg, Ill.

Richard Vilmur
General Systems Group, Arlington Heights, Ill.

Directors of Motorola, Inc.

Robert W. Galvin
George M. C. Fisher
Gary L. Tooker
William J. Weisz
John F. Mitchell

David R. Clare
President and Chairman of the Executive Committee, Johnson & Johnson

Wallace C. Doud
Retired; formerly Vice President, International Business Machines Corporation

Christopher B. Galvin

John T. Hickey
Retired; formerly Executive Vice President and Chief Financial Officer, Motorola, Inc.

Lawrence Howe
Executive Director, Civic Committee of the Commercial Club of Chicago; formerly Vice Chairman, Jewel Companies, Inc.

Anne P. Jones
Partner, Sutherland, Asbill & Brennan law firm

Donald R. Jones

M. Joseph Lambert
Retired; formerly Senior Vice President and Chief Financial Officer, Kraft, Inc.

Stephen L. Levy
Retired; Senior Advisor and Deputy Representative for the Chief Executive Office, Motorola, Inc.

Walter E. Massey
Vice President for Research and for Argonne National Laboratory, The University of Chicago

Arthur C. Nielsen, Jr.
Chairman Emeritus, A.C. Nielsen Company

William G. Salatich
Retired; formerly President, Gillette North America, and Vice Chairman of the Board, Gillette Company

Gardiner L. Tucker
Retired; formerly Vice President for Science and Technology, International Paper Company

B. Kenneth West
Chairman of the Board and Chief Executive Officer, Harris Bankcorp, Inc.

Director Emeritus
Elmer H. Wavering
Formerly Vice Chairman and Chief Operating Officer, Motorola, Inc.

Elected Officers Of Motorola, Inc.

	As of 1/1/89 Years of Age Service			Years of Age Service			Years of Age Service	
Corporate								
Robert W. Galvin <i>Chairman of the Board</i>	66	48	*Elisha Shahmoon <i>Corporate Vice President and Managing Director, Motorola Israel Limited</i>	49	18	James D. Burge <i>Corporate Vice President and Motorola Director of Government Affairs — Personnel</i>	54	30
George M.C. Fisher <i>Chief Executive Officer and President</i>	48	12	Japanese Group			*James W. Gillman <i>Corporate Vice President and General Patent Counsel</i>	55	15
Gary L. Tooker <i>Chief Operating Officer and Senior Executive Vice President</i>	49	26	*Arnold S. Brenner <i>Executive Vice President and General Manager, Japanese Group</i>	51	29	Communications Sector		
William J. Weisz <i>Vice Chairman of the Board and Officer of the Board</i>	61	40	Toshiaki Irie <i>Corporate Vice President and Chairman, Nippon Motorola Limited</i>	55	4	Arthur P. Sundry <i>Executive Vice President and General Manager, Communications Sector</i>	60	31
John F. Mitchell <i>Vice Chairman of the Board and Officer of the Board</i>	60	35	Richard W. Younts <i>Corporate Vice President and President, Nippon Motorola Limited</i>	49	21	David K. Bartram <i>Senior Vice President and Assistant General Manager, Communications Sector</i>	52	28
*Gerhard Schulmeyer <i>Executive Vice President and Deputy to the Chief Executive Office for Europe</i>	50	8	Personnel			Morton L. Topfer <i>Senior Vice President and Assistant General Manager, Communications Sector</i>	52	17
Levy Katzir <i>Senior Vice President and General Manager, New Enterprises</i>	56	32	James Donnelly <i>Executive Vice President and Motorola Director of Personnel</i>	49	19	*Gordon Comerford <i>Senior Vice President and Group General Manager, Operations and Staff</i>	52	14
*Wilhelm Braxmaier <i>Corporate Vice President and Director for Eastern Europe</i>	58	20	Joseph F. Miraglia <i>Corporate Vice President and Assistant Motorola Director of Personnel</i>	52	10	*Ronald E. Greenwell <i>Senior Vice President and General Manager, Domestic Distribution Group</i>	50	26
Finance			*Carlton Braun <i>Corporate Vice President and Director, Educational Institutes and Labs</i>	59	38	*Kenneth R. Hessler <i>Senior Vice President and General Manager, Distribution Service Group</i>	55	31
Donald R. Jones <i>Executive Vice President and Chief Financial Officer</i>	58	38	William B. Dimitro <i>Corporate Vice President and Director, Career Direction Center</i>	59	21	*Theodore Saltzberg <i>Senior Vice President and Director of Technology</i>	61	32
David W. Hickie <i>Senior Vice President and Assistant Chief Financial Officer</i>	55	26	A. William Wiggenhorn <i>Corporate Vice President and Director, Motorola Training and Education Center</i>	44	8	Robert W. Bigony <i>Corporate Vice President and General Manager, Communications International Group</i>	47	22
Richard H. Weise <i>Senior Vice President, General Counsel and Secretary</i>	53	20	Staff			R. LaVance Carson <i>Corporate Vice President and General Manager, National Markets Division</i>	59	35
Kenneth J. Johnson <i>Corporate Vice President and Controller</i>	53	17	Christopher B. Galvin <i>Senior Vice President and Chief Corporate Staff Officer</i>	38	21	*Merle L. Gilmore <i>Corporate Vice President and General Manager, Paging Products Division</i>	40	18
H. Richard Klotz <i>Corporate Vice President and Director of Taxes</i>	62	13	*Keith J. Bane <i>Senior Vice President and Motorola Director of Strategy</i>	49	15	Robert L. Growney <i>Corporate Vice President and General Manager, Radio Technologies Group</i>	46	22
Victor R. Kopidlansky <i>Corporate Vice President and Assistant General Counsel</i>	57	23	C. Travis Marshall <i>Senior Vice President and Motorola Director of Government Relations</i>	62	18	Robert S. Hall <i>Corporate Vice President and General Manager, Manufacturing Technologies Group</i>	59	27
A. Peter Lawson <i>Corporate Vice President and Assistant General Counsel</i>	42	8	*Vincent J. Rauner <i>Senior Vice President for Patents, Trademarks and Licensing</i>	61	18	Robert L. Hammer <i>Corporate Vice President and Sector Director, Personnel</i>	53	15
Garth Milne <i>Corporate Vice President and Treasurer</i>	46	9	William V. Braun <i>Corporate Vice President and Motorola Director of Research and Development</i>	53	30			
International Operations			*Richard C. Buetow <i>Corporate Vice President and Motorola Director of Quality</i>	57	30			
Carl E. Lindholm <i>Executive Vice President, International Operations</i>	59	21						
*Chi-Sun Lai <i>Corporate Vice President and General Manager, Motorola China Limited</i>	52	18						

	Years of Age Service		Years of Age Service		Years of Age Service			
Wayne H. Leland <i>Corporate Vice President and General Manager, U.S. Federal Government Division</i>	45	23	Gary M. Johnson <i>Senior Vice President and General Manager, Standard Logic and Analog Integrated Circuits Group</i>	44	21	C. D. Tam <i>Corporate Vice President and General Manager, Asia/Pacific Semiconductor Products Division</i>	44	20
Jerome C. Leonard <i>Corporate Vice President and General Manager, Portable Products Division</i>	51	27	Geno Ori <i>Senior Vice President and Director of Customer Relations</i>	51	26	* Barry Waite <i>Corporate Vice President and General Manager, European Semiconductor Group</i>	40	6
John E. Major <i>Corporate Vice President and General Manager, Communications Systems Group</i>	43	10	* Hector Ruiz <i>Senior Vice President and Director of Technology Management</i>	43	10	General Systems Group Edward F. Staiano <i>Executive Vice President and General Manager, General Systems Group</i>	52	15
Robert J. Mueller <i>Corporate Vice President and General Manager, State and Local Government Markets Division</i>	59	29	Charles E. Thompson <i>Senior Vice President and Director of World Marketing</i>	59	19	* Lawrence R. Paggeot <i>Senior Vice President and General Manager, Cellular Subscriber Group</i>	48	20
* Irvin A. Neruda <i>Corporate Vice President and Sector Controller</i>	59	38	* R. Gary Daniels <i>Corporate Vice President and General Manager, Microcontroller Division</i>	51	22	* Bernard R. Smedley <i>Senior Vice President and General Manager, Radio- Telephone Systems Group</i>	52	12
* Donald F. Sauls <i>Corporate Vice President and Sector Director of Finance</i>	61	36	* Weldon D. Douglas <i>Corporate Vice President and General Manager, Power Products Division</i>	51	28	Carl F. Koenemann <i>Corporate Vice President and Director of Finance</i>	50	18
* James W. Wagner <i>Corporate Vice President and General Manager, Mobile Products Division</i>	43	22	Larry L. Gartin <i>Corporate Vice President and Director, Sector Finance</i>	45	21	* John P. Salcius <i>Corporate Vice President and General Manager, International Subscriber Division</i>	45	22
* Francis T. Wapole <i>Corporate Vice President and General Manager, Motorola Storno Communications Group</i>	44	22	* Jim George <i>Corporate Vice President and General Manager, MOS Memory Products Division</i>	46	12	Robert N. Weisshappel <i>Corporate Vice President and General Manager, North American Subscriber Division</i>	44	18
Robert L. Wasni <i>Corporate Vice President and General Manager, Parts Division</i>	56	32	* Thomas G. Gunter <i>Corporate Vice President and General Manager, High-End MPU Division</i>	41	16	Information Systems Group * John A. Lockitt <i>Senior Vice President, Information Systems Group, and President, Codex Corporation</i>	46	15
Semiconductor Products Sector James A. Norling <i>Executive Vice President and General Manager, Semiconductor Products Sector</i>	46	23	* Brian O. Hilton <i>Corporate Vice President and Director, Worldwide Distribution</i>	46	21	Government Electronics Group David G. Wolfe <i>Senior Vice President and General Manager, Government Electronics Group</i>	53	24
Thomas D. George <i>Senior Vice President and Assistant General Manager, Semiconductor Products Sector</i>	48	9	* Bob J. Jenkins <i>Corporate Vice President and Director of External Technology Evaluation</i>	54	24	James R. Baum <i>Corporate Vice President and Assistant General Manager, Government Electronics Group</i>	58	31
Andre Borrel <i>Senior Vice President and General Manager, International Semiconductor Group</i>	52	21	George A. Needham <i>Corporate Vice President and General Manager, Final Manufacturing and Equipment Engineering Group</i>	53	27	Automotive and Industrial Electronics Group * Frederick T. Tucker <i>Senior Vice President and General Manager, Automotive and Industrial Electronics Group</i>	48	23
Gordon C. Chilton <i>Senior Vice President and General Manager, Discrete and Special Technologies Group</i>	49	8	Michael J. Pollak <i>Corporate Vice President and General Manager, Logic Integrated Circuits Division</i>	43	20	* Parviz Mokhtari <i>Corporate Vice President and Assistant General Manager, Automotive and Industrial Electronics Group</i>	47	6
Murray A. Goldman <i>Senior Vice President and General Manager, Microprocessor Products Group</i>	51	19	David L. Pulatie <i>Corporate Vice President and Sector Director of Personnel</i>	46	23	* Philip D. Gunderson <i>Corporate Vice President and Director of Technology</i>	50	20
			Paul J. Shimp <i>Corporate Vice President and Director of Sector Support Operations</i>	49	24			

* Assumed new title or advanced in rank since previous Annual Report.

Motorola Products

Communications Sector

Automatic Vehicle Location Systems
Closed Circuit Television Systems
Communications Control Centers
Communications System Installation and Maintenance
Data Communications Systems
Data Radio Networks
Mobile Data Terminals
Portable Data Terminals
Emergency Medical Communications Systems
FM Two-Way Radio Products
Base Station and Repeater Products
Mobile Products
Portable Products
FM Two-Way Radio Systems
Advanced Conventional Systems
Digital Voice Protection
Communications Systems
Trunked Radio Systems
HF Single Sideband Communications Systems
Integrated Security and Access Control Systems
Microwave Communications Systems
Radio Paging Systems
Signaling and Remote Control Systems

Semiconductor Products Sector

Bipolar and CMOS Analog ICs
Bipolar and CMOS Digital ICs
Bipolar, BIMOS and CMOS Macrocell Arrays, HCMOS Standard Cells
Control Circuits
Custom and Semicustom Semiconductors (ASICs)
Data Conversion Circuits
Digital Signal Processors
Fiber Optic Active Components
Field Effect Transistors (FETs)
Industrial Control Circuits
Interface Circuits
Manufacturing Automation Protocol (MAP) Products
Microcomputers and Peripherals
Microprocessors and Peripherals
Microwave Transistors
MOS and Bipolar Memories
Motor Control Circuits
Operational Amplifiers
Optoelectronics Components
Power Supply Circuits
Pressure and Temperature Sensors
Rectifiers
RF Power and Small Signal Transistors
SMARTpower™ Products
Telecommunications Circuits
Thyristors and Triggers
TMOS™ and Bipolar Power Products
Voltage Regulator Circuits
Zener and Other Diodes

General Systems Group

Cellular Mobile and Portable Subscriber Products
Cellular Radiotelephone Systems
Electronic Mobile Exchange (EMX) Series
HD and LD Series Cellular Base Stations
Microcomputer (VME) Board Level Products
Minicomputer Systems and Peripherals
Multi-User OEM Microcomputer Systems
OEM Operating Systems
Software for Distributed Data Processing, Work Group Computing and Office Automation

Information Systems Group

Digital Service/Channel Service Units
Distributed Communications Processors
Electronic Data Switches
Micro-to-Mainframe Products
Modems: Leased Line, Dial, Custom and Limited Distance
Multiplexers: Statistical, Digital and Time Division
Network Management Monitoring Service
Network Management Systems
Protocol Converters
Switched Network Modems
T1 Nodal Processors
X.25 Concentrators and Gateways

Government Electronics Group

Antenna and Microwave Systems
Artificial Intelligence Language Tools
Battlefield Management Systems (Joint STARS)
C³I Systems
Countermeasures Systems
Distributed Processing Systems
Drone Command and Control Systems
Electronic Defense Systems
Electronic Fuze Systems
Electronic Positioning and Tracking Systems
Electronic Test Systems
Fixed and Satellite Communications Systems
Intelligent Display Terminals and Systems
Manpack Satellite Communications
Missile and Aircraft Instrumentation
Missile Guidance Systems
Satellite Data Systems
Satellite Power Electronics
Satellite Survey and Positioning Systems
Scoring Systems
Secure Communications
Space Communications Systems
Space Payload Systems
Surveillance Radar Systems
Survival Transceivers

Tactical Communications
Tracking and Command Transponder Systems
Training Systems
Unattended Airborne Vehicle Electronics
Video Processing Systems and Products

Automotive and Industrial Electronics Group

Anti-lock Braking System Controls
Automotive and Industrial Sensors
Automotive Body Controls
Gas and Diesel Engine Controls
Ignition Modules
Instrumentation
Motor Controls
Steering Controls
Suspension Controls
Transmission Controls
Vehicle Navigation Systems
Vehicle Theft Alarm Modules
Voltage Regulators

New Enterprises

Deposition Equipment for the Semiconductor Industry
Disk Fabrication Automation Equipment and Systems
Etching Equipment for the Semiconductor Industry
Factory Automation Computer Control Systems
Semiconductor Wafer Fabrication and Automation Equipment/Systems
Software and Hardware for Hospital Intensive Care Units
Statistical Process Control Systems
Supervisory Control Data Acquisition (SCADA) Systems



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