Motorola is one of the world's leading providers of electronic equipment, systems, components and services for worldwide markets. Products include two-way radios, pagers, cellular telephones and systems, semiconductors, defense and aerospace electronics, automotive and industrial electronics, computers, data communications and information processing and handling equipment. Motorola was a winner of the first annual Malcolm Baldrige National Quality Award, in recognition of its superior company-wide management of quality processes.

The Communications Sector
The Communications Sector designs and manufactures two-way radios, pagers and other forms of electronic communications systems for agriculture, commercial, 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
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 Sector
The General Systems Sector 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
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
The Government Electronics Group specializes in research, development and production of electronic systems and equipment for the U.S. Department of Defense, NASA and other government agencies, commercial and international customers.

The Automotive and Industrial Electronics Group
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.

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

On the Cover
Magnified photo of a Motorola microprocessor circuit. Actual size is less than one-half inch per side. Top to bottom: Wrist Watch Pager; MICRO TAC 950 Personal Cellular Telephone; Photo of Neptune transmitted by Motorola equipment on Voyager Spacecraft.
Back Cover: Top to bottom: Motorola Total Customer Satisfaction card; VME board with 88000 family of RISC microprocessors; Codex network management screen; MTX-810 Portable Two-Way Radio; European vehicle engine control module.
## Financial Highlights

Motorola, Inc. and Consolidated Subsidiaries

Years ended December 31
(In millions, except as noted)

<table>
<thead>
<tr>
<th></th>
<th>1989</th>
<th>1988</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net sales</td>
<td>$9,620</td>
<td>$8,250</td>
</tr>
<tr>
<td>Earnings before income taxes</td>
<td>646</td>
<td>612</td>
</tr>
<tr>
<td>% to sales</td>
<td>6.7%</td>
<td>7.4%</td>
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<tr>
<td>Net earnings</td>
<td>498</td>
<td>445</td>
</tr>
<tr>
<td>% to sales</td>
<td>5.2%</td>
<td>5.4%</td>
</tr>
<tr>
<td>Net earnings per share (in dollars)</td>
<td>3.83</td>
<td>3.43</td>
</tr>
<tr>
<td>Research and development expenditures</td>
<td>784</td>
<td>665</td>
</tr>
<tr>
<td>Fixed asset expenditures¹</td>
<td>1,124</td>
<td>899</td>
</tr>
<tr>
<td>Working capital</td>
<td>1,164</td>
<td>689</td>
</tr>
<tr>
<td>Current ratio</td>
<td>1.42</td>
<td>1.26</td>
</tr>
<tr>
<td>Return on average invested capital (stockholders' equity plus long- and short-term debt, net of short-term investments)²</td>
<td>10.3%</td>
<td>11.0%</td>
</tr>
<tr>
<td>% of total debt less short-term investments to total debt less short-term investments plus equity²</td>
<td>23.7%</td>
<td>24.6%</td>
</tr>
<tr>
<td>Book value per common share (in dollars)</td>
<td>29.16</td>
<td>26.02</td>
</tr>
<tr>
<td>Year-end employment (in thousands)</td>
<td>104</td>
<td>102</td>
</tr>
</tbody>
</table>

¹Includes expenditures related to capitalized leases.
²Includes short-term investments categorized as cash and cash equivalents.

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To Our Stockholders and Other Friends

1989 was an exciting year for Motorola. Achieving our fourth consecutive year of sales and profit growth, we introduced products that demonstrated quality and technological leadership, and captured the imagination of our customers. As a winner of the first Malcolm Baldrige National Quality Award in 1988, we spread the quality message among our customers, suppliers and employees, and moved forward on our efforts to achieve Six Sigma quality by 1992. We created a university structure in employee training to help our associates develop the skills needed for the technologies of tomorrow.

The events of 1989 enhanced Motorola’s reputation as one of the most innovative, high-quality electronics companies in the world. This year’s report portrays the platforms on which we are building for the future. This strategic vision, appearing on pages 5-18, is arranged according to four major arenas of electronics—communications, components, computing and control. Operating and financial results by business sectors and groups appear on pages 19-24.

Sales in 1989 increased 17% to a record $9.62 billion from $8.25 billion in 1988. Earnings rose to a record $498 million, or $3.83 per share, from $445 million, or $3.43 per share, in 1988. Net margin on sales was 5.2%, compared with 5.4% a year earlier. Return on average invested capital was 10.3%, compared with 11.0% in 1988.

Higher orders in Motorola's major businesses give us the opportunity for continued growth in 1990 and beyond. The cellular telephone market continues to expand rapidly. Overall, the communications arena promises to be one of the major growth opportunities of the 1990s, as we develop new ways to serve the needs of our customers on the move.

The near-term outlook for the semiconductor industry is more modest, but we see improvement later in 1990, and a return to more traditional rates of growth in future years. More efficient short-cycle manufacturing has reduced inventory buildup and made the industry less volatile than in previous cycles.

We expect more rapid economic growth in 1990 in Asia and Europe than in the United States. Motorola is a global company with a strong financial base, and we are able to manage our businesses accordingly. Our leadership in quality and technology makes us confident that we can gain greater shares of growing markets throughout the world.

The General Systems Group was elevated to sector status in 1989, and the general managers of our three sectors received the new title of sector president. They are Arthur P. Sundry in the Communications Sector, James A. Norling in the Semiconductor Products Sector, and Edward F. Staiano in the General Systems Sector.

Left to right: George Fisher, Gary L. Tucker, Christopher B. Galvin
They continue to report to the Chief Executive Office, but have greater responsibility for setting the direction of their businesses.

On January 11, 1990, the final phase of the transition plan for the next generation of Chief Executive Office leadership was put into effect. The Board of Directors elected George Fisher chairman of the board and chief executive officer. He had served as chief executive officer and president since January 1988. Gary L. Tooker, formerly chief operating officer and senior executive vice president, was elected president and chief operating officer. Christopher B. Galvin joined the Chief Executive Office as senior executive vice president and assistant chief operating officer. He formerly was executive vice president and chief corporate staff officer.

Robert W. Galvin, who assumed the senior leadership position of the company in 1959, continues to serve as a full-time officer, but in a supporting role. His title has changed from chairman of the board to chairman of the Executive Committee, a newly constituted committee and position of the Board of Directors.

We join the Board in anticipating with pleasure the continuing full-time service of Bob Galvin. It is fitting that this step in the transition was put into effect on January 11, 1990, exactly 50 years after Paul Galvin, the founder of Motorola, invited his son Bob to perform his first function for the company by addressing its national sales convention banquet.

Throughout his career, he has built upon the key beliefs that form the foundation of the Motorola culture: respect for the dignity of the individual, and uncompromising integrity in everything we do. He has applied these values throughout a continuous process of purposeful motion and renewal. The result is a thriving company that constantly transforms itself while adhering to beliefs that are not subject to change.

Motorola University is designed to nurture the creative skills needed to be the best. We are committed to providing one week of training per year for every employee. This exemplifies the many innovations in human resources pioneered by Bob Galvin.

By building on our core beliefs, he has focused the corporation on serving our customers. Winning the Malcolm Baldrige National Quality Award in 1988 was an honor for Motorola, but was only one step toward achieving our fundamental objective of Total Customer Satisfaction. That award is appropriate recognition for the corporation, but, to an even greater extent, it is a fitting tribute to the quality of leadership of Bob Galvin. We deeply value his contributions of the past and his
continuing active leadership role as chairman of the Executive Committee of the Board of Directors.

Another phase of the management transition took place in December 1989, when William J. Weisz retired as an officer of Motorola. He had served as vice chairman and chief executive officer in 1986 and 1987, and had been vice chairman and officer of the Board until his retirement.

Bill's distinguished 41-year career at Motorola began in 1948, when the company's main products were television and radio receivers. Annual sales were $58 million, less than 1% of today's sales. As a junior development engineer, he worked on the Handie-Talkie® FM Radiophone, and later received several patents. His technological vision helped Motorola's small two-way communications business become the first to successfully incorporate solid-state technology and ultimately become the world leader.

He became president of Motorola in 1970, at the age of 43, succeeding Elmer Wavering under a management transition plan very similar to the program just completed. Bill Weisz was a member of the Chief Executive Office throughout Motorola's transformation from a consumer electronics company to a global leader in high-technology commercial and industrial electronics. Along with Bob Galvin, he continues to be a vigorous, eloquent champion of free enterprise and fair trade.

The Board of Directors acceded with reluctance to Bill’s request for retirement. We are pleased, however, that he will remain as vice chairman of the Board, as a consultant and Motorola representative on government advisory committees, and as a teacher of management at Motorola University.

The continuity demonstrated during the last 3½ years of executive transition shows that Motorola will keep building on its beliefs into the next decade and century. As the new generation of leadership, we are excited by the possibilities in the years to come. We assure you that enduring values and sound business and ethical principles will continue to guide the conduct of the corporation's affairs.

George Fisher 
Chairman of the Board and Chief Executive Officer

Gary L. Tooker 
President and Chief Operating Officer

Christopher B. Galvin 
Senior Executive Vice President and Assistant Chief Operating Officer
We have concluded a decade marked by a revolution in microelectronics and communications. The personal computer may have been its most visible symbol, but the technology has embedded itself in virtually all aspects of our daily lives. Our cars, our banks, our hospitals and our homes will never be the same. We have changed the way we watch and listen to news and entertainment. Nations have changed the way they govern and defend themselves. Factories and offices have changed the way they organize themselves.

Motorola products have been involved in many of these changes. In the last 10 years, our sales have grown from less than $3 billion to more than $9 billion. It is an impressive record, but it merely sets the stage for the final decade of the 20th Century.

Motorola is an exciting company with the technological platforms to build on its global success into the 1990s. These platforms are logical extensions of where the company has been. Fifty years ago, Motorola was a pioneer in providing information by two-way radio to people on the move. Our early efforts in solid-state electronics helped us to extend this leadership, and in the last decade, we have applied digital computing and control to the way information is communicated.

This has made our company unique, because no one knows more about radio transmission than Motorola, and no one has a broader portfolio of semiconductors than Motorola.

In the pages that follow, we would like to show you how we serve our customers in four interdependent arenas of electronics—communications, components, computing and control. These arenas are the platforms on which we are building.
The 1980s may be remembered as the decade of personal computing, but the 1990s may well be the decade of personal communicating. Motorola products like the MICRO TAC™ personal cellular telephone are already having a dramatic impact. As we move to an all-digital world, which allows transmission of data and images along with voice, it's not hard to imagine turning a personal telephone into a computer terminal and video device. Motorola, the master of radio communication and miniaturization, has the platforms to achieve such a breakthrough.

Our Communications Arena, which includes the cellular and radio communications businesses and parts of the government electronics business, accounts for more than half of our total sales. We are the world's leading supplier of cellular telephone systems as well as mobile and portable phones. These businesses are growing rapidly, and industry analysts expect the world market to increase from almost 7 million subscribers in 1989 to 100 million subscribers by the year 2000.

More than half our cellular revenues already come from outside the United States, even though many countries do not have any cellular capability at all, or have not begun competing systems. In many under-developed countries with only limited wireline systems, cellular radiotelephone may become the primary telecommunications system.

In the 1990s, the cellular world will evolve from analog to digital, and Motorola will maintain its leadership position. We are providing validation systems for the pan-European digital cellular network.

A new generation of digital telephone systems known as personal communication networks, or PCNs, also will enable users to make and receive calls with portable handsets. Motorola is part of a consortium that has received a license to develop and operate such a system in England.
Motorola is also the world leader in two-way land-mobile radio. The most familiar systems may be those used by police and fire departments, but our customers include a wide range of businesses and governmental agencies. Unlike cellular, a land-mobile radio system is a private or shared network that enables a user to connect more quickly and easily to the dispatcher controlling the system, or to other mobile or portable system units. We offer private systems on our customers' spectrum, as well as Specialized Mobile Radio systems, or SMRs, that are shared by different users.

As the world's largest manufacturer of paging systems and pagers, Motorola sets the standard for quality and performance. The Wrist Watch Pager, which we jointly developed with Timex Corp., combines a numeric display pager with a digital watch, and is compatible with existing paging systems used throughout the world.

The ability to design systems that are flexible enough to meet specific national regulatory requirements has helped make Motorola twice the size of our nearest two-way radio competitor in Europe. In Japan, we are the only non-Japanese company to supply pagers and car telephones to Nippon Telegraph & Telephone, and we supply equipment to newer Japanese common carriers as well. We are also pioneering the use of private shared trunked two-way radio systems called JSMRs in Japan.

Our share of revenues from radio communications services is increasing. Outside the U.S., we are joint venture partners in operating cellular telephone, trunking and paging systems. These service businesses provide steady revenues and a strong return on capital. They are also less affected by changes in the economic cycle.

We are pioneers in digital voice encryption, and our Secure Telephone Unit, or STU-III, program, is growing rapidly. It is designed to quickly secure sensitive voice and data telecommunications.

Sophisticated applications of radio communications are in military and aerospace markets. Motorola equipment has been on board virtually all U.S. space missions. Photos of the planet Neptune were transmitted by Motorola equipment on the Voyager 2 spacecraft.
Since the invention of the integrated circuit, the number of transistors on a chip of silicon has doubled every two or three years. This has brought revolutionary changes to the world of electronics. We can expect this trend to continue throughout the next decade, resulting in technology limited only by our imagination.

Motorola is in the forefront of this revolution. We are the largest merchant semiconductor manufacturer in North America, and one of the largest in the world. Our portfolio of 50,000 products is the broadest in the industry. We are the only U.S. company, and one of the few in the world, that is a leader in MOS and bipolar integrated circuit technology as well as discrete devices. Products pictured on these pages, like our MICRO TAC personal telephone and Wrist Watch Pager, are filled with Motorola semiconductors. By providing the most advanced components across the corporation, our semiconductor people benefit from leading-edge systems knowledge. Likewise, our close relationship with core customers augments our leadership in technology, enabling us to serve a wide range of automotive, communications, computing, consumer, industrial and military applications.

Microprocessors are often called “computer chips,” but in reality, they are the essential building blocks of the entire spectrum of electronic products and systems. Since introducing our M68000 family of 16- and 32-bit CISC (complex instruction set computer) microprocessors in 1979, we have sold more than 30 million devices. About 60% of them have been used in embedded control applications such as telephone switching equipment, laser printers and factory automation. The others are in personal computers and workstations. Systems in the 1990s also will be driven by processors based on our 88000 family of RISC (reduced instruction set computer) architecture.
We are the world leaders in 8-bit microcontrollers, which are used in cameras, compact disc players, videocassette recorders, cordless telephones and smart credit cards, as well as in automotive applications. We are developing leadership in such key areas as digital signal processing and the Integrated Services Digital Network. We are also among the leaders in logic devices and discrete semiconductors.

The breadth of our technology makes us a leader in chips that meet specific customer needs by combining a core processing unit with many peripheral devices on the chip itself. Our new 68300 family of 32-bit embedded controllers is designed for myriad applications.

In memory markets, Motorola is a leader in fast static random access memories (RAMs) and has re-entered the dynamic RAM marketplace. We serve our customers worldwide from wafer fabrication plants in Arizona, Texas, Scotland and Japan.

In the 1990s, we will see the full range of our technology portfolio embedded on a single chip. Using our spectrum of capabilities, we can integrate these technologies to create whole new categories of cell-based products, and develop entirely new markets. BICMOS, the combination of bipolar and CMOS technologies, will play an increasingly important role.

The superchip we developed with TRW, described on page 20, and our agreement with IBM Corp. to develop X-ray lithography show that we plan to be a leader in technology well into the 21st Century. To augment our own research and development programs, we are members of key industry consortia, such as Sematech. We intend to continue to set the industry pace, and build on our semiconductor business as the foundation for continued innovation in our equipment and systems businesses.
Toward the end of the 1960s, a Motorola transponder relayed the first words from the Moon to the Earth. Twenty years later, the computing power that made the lunar mission possible was available on a desktop. Today, a pocket calculator can be as powerful as an early mainframe computer.

As we look into the 1990s, we can see the convergence of communications, computing and control in a portable device the size of a personal telephone. Information will be in the form of voice, data or images. Digital signal processing, miniaturization and radio technology will make it possible. Motorola is building on these platforms.

We offer our customers products ranging from silicon chips to complete systems, along with the networks to tie these systems together. Our Computing Arena includes microcomputer boards and information processing and handling equipment.

Motorola microprocessors are at the core of our VME board-level products sold to computer manufacturers and value-added resellers. These products are designed for high-performance applications serving technical, commercial and government markets. Our newest Delta series models of RISC-based computer systems extend our ability to serve large multi-user customers in industrial, commercial, government and value-added reseller markets. These systems run on AT&T’s UNIX® operating system, designed for the more open, flexible systems environment of the 1990s.

In data communications, our Codex and Universal Data Systems subsidiaries provide a full range of products from modems and multiplexers to fully integrated digital communications networks. Codex has entered into several strategic partnerships to develop its digital networking activities. As the corporation becomes more global, the need for global information links will accelerate.

The emerging Integrated Services Digital Network (ISDN) illustrates the convergence of communications and computing. We are building
on our semiconductor technology to help customers migrate their networks to ISDN while making sure their existing equipment doesn't become prematurely obsolete.

The Control Arena serves the aerospace, defense, motor vehicle, industrial, and other markets with advanced electronic modules and equipment. It includes parts of our Government Electronics Group, the Automotive and Industrial Electronics Group, and some of our New Enterprises organizations.

High-technology automotive applications include powertrain and chassis electronics, power controls and sensor products. Among our newer product developments are engine management controls, anti-lock braking system controls, truck instrumentation, agricultural monitoring systems and theft alarm modules for automobiles.

We are in a unique position to develop key electronic products for the car of the future, such as voice-activated in-dash navigation systems and multiplex systems.

Our New Enterprises organization is involved in control systems for factories and hospitals. Motorola Computer X designs and manufactures real-time distributed systems for factory automation. Emtek Health Care Systems provides clinical information management systems for hospital intensive care units.
Motorola's corporate character is shaped by certain fundamental beliefs in personal integrity and the dignity of the individual. This creates a climate in which a dedicated workforce respects the needs of suppliers and customers alike. At Motorola, we build on our beliefs and thrive on change, creativity and innovation. It is an environment that encourages all our people to develop their own dreams. We know how the world should be for our customers, and this enables us to express our business vision as follows:

In each of our chosen arenas of the electronics industry, we will grow rapidly by providing our worldwide customers what they want, when they want it, with Six Sigma quality and best-in-class cycle time, as we strive to achieve our fundamental corporate objective of Total Customer Satisfaction, and to achieve our stated goals of increased global market share; best-in-class people, products, marketing, manufacturing, technology and service; and superior financial results.

Our semiconductor capability is the foundation of all our other businesses. A strong merchant semiconductor position is vital to driving the technology, cost and quality. We will grow faster than the market in each of our key semiconductor businesses. In equipment businesses, we will strive to grow faster than the components business so as to achieve a business mix that is less subject to the swings of the semiconductor industry. In international markets, our business will grow to about 50% of total revenues, compared with 40% today.

A key mission statement that will drive much of our future growth can be simply stated: "We will build on our semiconductor technology and market position to be the world's premier provider of products, systems and services for communication, computing and control for people and machines on the move." Motorola is the best positioned company in the world to effectively fulfill this mission.
Communications Sector sales exceeded $3.3 billion in 1989, up 10% from the previous year and more than Motorola's entire sales in 1980. Orders increased 18% and backlog was 20% higher than at the end of 1988. Worldwide demand increased for two-way radio systems, secure voice systems and radio data systems.

Operating profits were lower as a result of investments in product and system development, international distribution and radio data communications, as well as costs associated with a voluntary severance program.

Order growth in the United States was led by commercial, governmental and industrial markets. International orders increased rapidly in Asia, Australia, Japan, Canada and Europe.

We received large orders from trucking companies and government agencies for the new CoveragePLUS™ system of regional or nationwide two-way radio voice and data communication and vehicle location. CoveragePLUS uses our network of shared trunked Specialized Mobile Radio (SMR) systems to enable dispatchers to locate and communicate with vehicles.

In Europe, we received orders from taxi systems in Stockholm, Sweden; Helsinki, Finland; and Paris, France, for Mobile Data International's terminals and dispatch systems.

A license to operate a new public cordless phone service in the United Kingdom was awarded to a consortium of Motorola, Shaye Communications and Mercury Communications. This service will enable subscribers to place calls with cordless telephones through Telespoint base stations to be installed throughout the U.K.

We strengthened our worldwide leadership in paging with large orders in Australia, France, Sweden and the United Kingdom, along with Japan and other Asian countries. Motorola continues to be a major supplier to NTT and the new common carriers in Japan, shipping our one millionth pager to Japan in 1989.

In addition to the Wrist Watch Pager described on page 8, we introduced an alphanumeric display model of our Bravo™ pager. Our new KeyNote™ tone and voice pager is 40% smaller than its predecessor and is available in analog and digital signaling formats.

Our new Fascinator encryption technology for mobile two-way radios was the first commercial product of this type endorsed by the National Security Agency for Type I encryption, the agency's highest voice security level.

A new version of the Saber™ two-way radio is the industry's first advanced portable that can operate in secure voice, trunked or conventional systems. We also introduced an advanced trunking version of our Spectra™ mobile radio that can be equipped with digital voice security.

We broadened our Radius™ line of mobile and portable radios with new models for European markets and an on-site communications system featuring a desktop paging base station, a tone and voice pager, and a portable two-way radio that functions as a talkback pager. Our global network of Radius resellers was enlarged with a new distribution program in Australia and expansion in Canada, Latin America and Asia.

In January 1990, we announced formation of a new venture with International Business Machines Corp. to provide a nationwide radio data information service in the U.S. The new company, called ARDIS, will give companies and their mobile workforces access to their computer data bases and information systems through two-way radio data terminals.

Motorola Microwave is a new joint venture formed with TeleSciences, Inc., of Fremont, Calif., to develop, manufacture and distribute microwave radio equipment and systems. The new organization will serve worldwide markets and offer a complete range of microwave transmission products and services.

We continue to enhance our ability to provide customers with complete system solutions. These solutions are reflected in contracts ranging from an award from the Royal Canadian Mounted Police for a secure voice two-way system for wide-area communications in Quebec, to a SmartNet™ trunked two-way radio system for the Stockholm Arlanda Airport in Sweden.
The Semiconductor Products Sector achieved record sales and orders in 1989 and produced the world's densest, most complex "superchip."

Sales and orders both increased 11%, while backlog was 12% higher. Operating profits were lower as a result of pricing pressure on some commodity devices, increased investments for research and new facilities, and costs associated with a voluntary severance program.

Orders grew in all major market regions, led by Asia-Pacific and Japan. In key market segments, substantial growth took place in personal computer, consumer and communications. Each of the sector's major product categories recorded higher orders, led by memories, semi-custom logic devices and microprocessors.

The new "superchip," containing 4 million transistors, was designed by TRW, Inc. and fabricated by Motorola under the U.S. Department of Defense Very High Speed Integrated Circuits (VHSIC) Phase 2 program. Known as the CPUAX (central processing unit—arithmetic extended), the 0.5-micron device can perform 200 million floating point operations per second (MFLOPS), the computational equivalent of some supercomputers, and can automatically configure and repair itself. Although intended initially by TRW for defense and space applications, we will use the processing knowledge in future commercial products.

We are participating in the research and development of IBM's synchrotron X-ray lithography technology, which is expected to lead to semiconductors with device features below 0.25 micron.

Product partnerships in 1989 included an agreement with Digital Equipment Corp. to cooperatively design a Fiber Distributed Data Interface (FDDI) chip set supporting data transfer rates of up to 100 megabits per second in a local-area network. An agreement with Bull of France permits us to manufacture and sell the family of self-programmable, one-chip microcontrollers originally developed for the Bull-CP8 "smartcard" used in money transfer, access control and computer security.

We introduced our next-generation CISC (complex instruction set computer) microprocessor, the MC68040. With 1.2 million transistors, it delivers 20 million instructions per second and a sustained rate of 3.5 MFLOPS at 25MHz, 33% faster than its nearest competitor. It is compatible with the $4 billion software base of the M68000 family. The 040 has been endorsed as a platform for future products by 36 customers, including Apple Computer, Bull, Commodore, Hewlett-Packard/Apollo, Nixdorf and Unisys.

Our 88000 family expanded its position as a leading processor for RISC (reduced instruction set computer) systems, and we introduced a low-cost, 16 MHz version. Thomson CFS of France will use the 88000 in a variety of military and space applications and will manufacture a military version under an alternate source agreement with Motorola. More than 150 software packages for the 88000 are being developed by independent software vendors. These packages adhere to the 88000's binary compatibility standard (BCS), which permits the software to run on every 88000-based, BCS-compliant computer without modification.

We introduced the world's first 32-bit embedded microcontroller, the 68332. Based on our 68020 central processing unit, it has been selected by General Motors for control functions in future vehicles. The 68302 Integrated Multiprotocol Processor, was developed for communications applications.

Other new Motorola microcontrollers include a family of 19 customer-specifed devices that use existing "chassis" designs to provide customized processors. Our Boeing design center developed the new "DragonKat" microcontroller for portable products like hand-held translators.

For application-specific integrated circuits (ASICs), a new design concept called Customer-Defined Arrays combines array-based and cell-based chip architectures with multiple process technologies on a single circuit. Our new Open Architecture CAD System gives customers a complete ASIC development environment using industry-standard workstations and leading third-party design and verification tools.

We doubled our sales of fast static random access memories (RAMs) in 1989, introduced our 4-megabit dynamic RAM, and achieved volume production of 1-megabit DRAMs in our Japanese joint venture with Toshiba and our facilities in Arizona and Scotland.

Orders for our digital signal processor products were triple the 1988 level. New products included a high-speed 16-bit analog-to-digital converter.

We expanded our discrete portfolio with a family of Scanswitch™ devices for high-resolution video monitors; a line of radio frequency (RF) power modules for the cellular telephone market, and a series of RF amplifiers for applications such as television transmission. We also added to our family of ECLinPS™ high-performance logic devices, and developed a range of digital-analog custom and proprietary circuits.

Construction began on advanced manufacturing facilities in Austin, Texas, and Chandler, Ariz., and the Silicon Harbor facility in Hong Kong near completion.

We received the "Semiconductor Supplier of the Year" award from Dataquest, a market research firm, and we were named "Preferred Supplier" in the United Kingdom, based on a customer survey by Electronics Weekly.
The former General Systems Group achieved sector status in 1989 as sales increased 73% to $1.9 billion. Orders advanced 60%, backlog was 8% higher, and operating profits increased.

The MICRO TAC™ personal telephone was introduced in April and immediately established the technical benchmark for body-friendly communications as the smallest and lightest cellular phone on the market. It is the size of a wallet or checkbook, and fits into a pocket or purse, yet it offers the same power, features and performance found in larger cellular phones. Later in the year, we introduced the 9800 XL™ cellular phone, the second smallest, and enhanced the MICRO TAC for in-car use with a new three-watt extended system package.

Subscriber equipment sales were strong throughout the world, as we received several large orders from system operators. In Japan, demand of our J-TAC personal telephones increased dramatically.

Under a settlement in a patent infringement suit brought against Nokia Corp. and Tandy Corp., the two companies were licensed to use Motorola's cellular technology.

The cellular systems business continued to grow rapidly, and several joint ventures were established. In the United Kingdom, Cellnet awarded Motorola an order valued at about $150 million for analog cellular network expansion.

As the Information Systems Group accelerated its transition to digital-based private data and voice communications networks, sales declined 2%, orders increased 6% and backlog was flat. Operating profits were lower.

Demand for Codex high-speed leased-line V.32 modems was strong throughout the year, but did not offset declines in other segments of the analog modem market. The company took several steps to manage this business more efficiently and bring new networking and network management products to market more quickly. It reduced operating expenses, restructured into five product-line profit centers and created separate international and U.S. distribution divisions.

The percentage of Codex revenues from network products and customer services increased in 1989, and the trend is expected to accelerate. Additions to its product lines included:

- Enhancements to its high-end 9800™ Network Management System for medium-to-large network users;
- Two new entry-level products for X.25 networks, and U.S. availability of its international high-end 6600 Series Packet Network products;
- The 6310 EtherSpan Bridge, a local area network (LAN) multiplexing bridge linking T1 and high-speed LAN data traffic.

In Japan, the southwest cellular network connecting the Fukuoka, Hiroshima and Osaka areas was completed ahead of schedule and went into commercial service. A bilateral agreement between the United States and Japanese governments to expand access to telecommunications markets in Japan began to have a positive impact on cellular businesses, as well as third-party radio.

Pan-European Digital Cellular (GSM) validation systems were supplied to Norway (for all of Scandinavia), Spain, the U.K., and West Germany, and all began operating.

In the United States, the cutover of cellular systems in Los Angeles, Sacramento and San Diego, Calif., for Pacific Telesis and its affiliates was completed. The voice channel capacity of the new systems was greatly expanded.

The Computer Group achieved significant progress in 1989 with systems based on AT&T’s UNIX® operating system. We became one of the industry’s top ten UNIX systems suppliers, according to an analysis by International Data Corp. Unit shipments of UNIX systems nearly doubled during the year.

We maintained our leadership in the VME board market, introducing products based on the 88000 RISC microprocessor family and the 50MHz 68030 CISC processor. Several new models and software packages were added to our Delta series of computers.

Through its new DualVIEW™ Management Option, Codex provided IBM NetView™ users with an alternative to IBM-manufactured modems, as well as the ability to manage Codex’s 2600 Series modems concurrently from NetView™ or Codex network management systems.

The U.S. Defense Communications Agency awarded Codex its Bulk Modem requirements contract, valued at a minimum of $51 million over five years. The contract establishes Codex as the supplier of network processors and management systems, modems, digital transmission devices and related professional services for all Department of Defense contracting offices in the U.S.

Universal Data Systems had significant increases in sales and orders in 1989. It introduced several new products, including the industry’s first V.32 plug-in modem for the IBM PS/2 computer family, as well as models conforming to the new CCITT international standards for error correction and data compression.

A V.32 modem developed jointly between UDS and Elsa, GmbH, became the first such unit approved by the PTT in West Germany.

A major contract was received from Wendy’s International, Inc., a fast-food company, which plans to install IBM plug-in versions of the UDS V.32 modem in its company-owned restaurants throughout the U.S.
Government Electronics Group

The Government Electronics Group's sales increased 8% in 1989, orders were up 35% and backlog was 4% higher. Operating profits increased.

Completion of a strategic restructuring enabled the group to compete more effectively in a changing defense electronics environment.

Major contracts awarded in 1989 included a $70 million contract for the development of new architecture for Block I of the U.S. Army Joint STARS Ground Station Module. This system, which incorporates Motorola's 68030 32-bit microprocessor, will provide critical surveillance capability for combat, battle management and peacetime verification.

A $14.6 million contract was awarded from General Electric for 20 telemetry tracking and command transponders for the GPS BLOCK IIR program of navigational satellites.

Equipment designed and developed by the group is providing 100% of the vital communications link to the Magellan Venus probe, which was launched from the Space Shuttle Atlantis on April 28. The primary mission of Magellan is to provide a global view of the geological features of Venus, with sufficient resolution to identify objects as small as one-half mile across.

Automotive and Industrial Electronics Group

Sales in the Automotive and Industrial Electronics Group (AIEG) declined 3%, orders were down 2% and backlog was flat. Operating profits were lower, primarily because of investments in new program development and product launches. The 1988 results include the electronic appliance controls business, which was sold in January of 1989. Sales for the group's continuing operations rose slightly, despite a general slowdown in the North American automotive market.

AIEG expanded its product portfolio and geographic coverage. It received production orders for anti-lock braking system control modules, vehicle monitor modules and agricultural transmission controllers. The group also was awarded a development program for a programmable electronic controller.

Production shipments began for engine management controls for the European marketplace and an instrumentation and monitoring system for farm tractors. The group also began shipping pressure sensors for an automotive application to a new customer in Japan, marking AIEG's entry into the Japanese marketplace.

Operations began at a new state-of-the-art hybrid manufacturing facility in Elma, N.Y.

New Enterprises

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

Motorola Computer X introduced new lines of hardware and software for factory management and automation. Emtek Health Care Systems received strong commitments from leading medical institutions to install clinical information management systems.

Tegal Corp., a supplier of plasma etch and strip systems for the semiconductor industry, was sold to a management group led by Elliott Philofsky, president of Tegal.

Motorola Lighting, Inc. is a new business startup engaged in electronic ballasts for the lighting industry.
Motorola Management’s Discussion and Analysis of Financial Condition and Results of Operations

Motorola’s 1989 sales were $9.62 billion, up 17% from $8.25 billion in 1988. 1987 sales were $6.73 billion. The General Systems Products segment again contributed the highest rate of growth and now represents 19% of sales, up from 13% in 1988. Communications Products and Semiconductor Products maintained strong sales growth and their relative sales positions within Motorola at 33% and 30%, respectively.

Sales in the fourth quarter were $2.65 billion as compared to $2.19 billion in the same period in 1988 or a 21% increase. Earnings per share were $1.01 for the quarter as compared to $0.95 in the same period a year earlier.

Operating profit from all segments was $895 million in 1989, up from $804 million in 1988. In 1987 operating profit was $564 million. The General Systems Products segment became the Company’s most profitable operation in 1989, reflecting continued strong demand in the cellular systems business.

Net earnings of $498 million in 1989 or $3.83 per share exceeded 1988 net earnings of $445 million or $3.43 per share. In 1987, Motorola earned $308 million or $2.39 per share.

Motorola’s 1989 earnings reflect a third-quarter pre-tax provision of approximately $43 million covering the anticipated costs of a voluntary severance program. No such charge was provided in the 1988 or 1987 results.

Income taxes. The effective tax rate for 1989 of 23% compares favorably to the 1988 rate of approximately 27% and the 1987 rate of 26%. The decline reflects increased sales activity in international markets and the impact of lower taxes on earnings of foreign subsidiaries.
Liquidity and Capital Resources

Net cash provided by operations totalled a record $1.21 billion in 1989, $725 million in 1988 and $662 million in 1987, which continues to support capital investment in property, plant and equipment over an extended period.

Motorola's current ratio of 1.42 at the end of 1989, up from 1.26 at the end of 1988, and a net debt to net debt plus equity ratio of 23.7%, continue to support the ability to fund capital asset expansion, business acquisitions and joint-venture opportunities through debt or equity offerings, without over-burdening its capital structure.

Accounts receivable weeks outstanding have remained constant, although receivable levels have risen with increased sales and the impact of international trade terms which extend payments over a slightly longer time period. Inventory levels have remained relatively flat from the 1988 levels, reflecting continued emphasis on asset management. Inventory turns have improved to 3.6 at year-end, from 3.0 a year ago.

Short-term financing requirements are met by the Company's currently unused credit arrangements with U.S. and foreign banks totalling $1.11 billion.

In the third quarter of 1989, Motorola issued $1.32 billion principal amount at maturity of Liquid Yield Option™ Notes (LYON™)^, for cash proceeds of $405 million. The LYONs are zero-coupon, subordinated notes, have no periodic interest payments and are convertible into Motorola Common Stock. The issuance of the LYONs at a 6% effective yield will enhance earnings through the establishment of a rate substantially below the short-term commercial paper rates it replaced.

Fixed asset expenditures in 1989 of $1.12 billion were up over the 1988 and 1987 levels of $899 million and $658 million, respectively. Expenditures represent 12% of sales in 1989, compared to 11% in 1988 and 10% in 1987.

Expenditure levels reflect an ongoing commitment to manufacturing technology in all Motorola businesses and the capital intensive nature of the Semiconductor Products segment.

Research and development expenditures, exclusive of government funded work, increased to $784 million in 1989, an increase of 18% over 1988. Motorola continues to believe that a strong commitment to research and development drives long-term growth.

Effects of Inflation

Inflation rates in recent years have declined to a level that is less significant in its impact on operating decisions and ability to cover rising costs. Some of Motorola's operations, most notably the Semiconductor Products segment, experience price disinflation due to rapid advances in technology and intense competition. Motorola has been able to effectively respond to such varied market forces through increased productivity and cost containment programs.

---

^Liquid Yield Option and LYON are trademarks of Merrill Lynch & Co., Inc.
### Statements of Consolidated Earnings

**Motorola, Inc. and Consolidated Subsidiaries**

Years ended December 31  
(In millions, except per share amounts)

<table>
<thead>
<tr>
<th></th>
<th>1989</th>
<th>1988</th>
<th>1987</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Net sales</strong></td>
<td>$9,620</td>
<td>$8,250</td>
<td>$6,727</td>
</tr>
<tr>
<td><strong>Costs and expenses</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manufacturing and other costs of sales</td>
<td>5,905</td>
<td>5,040</td>
<td>4,071</td>
</tr>
<tr>
<td>Selling, general and administrative expenses</td>
<td>2,289</td>
<td>1,957</td>
<td>1,665</td>
</tr>
<tr>
<td>Depreciation expense</td>
<td>650</td>
<td>543</td>
<td>494</td>
</tr>
<tr>
<td>Interest expense, net</td>
<td>130</td>
<td>98</td>
<td>79</td>
</tr>
<tr>
<td><strong>Total costs and expenses</strong></td>
<td>8,974</td>
<td>7,638</td>
<td>6,309</td>
</tr>
<tr>
<td><strong>Earnings before income taxes</strong></td>
<td>646</td>
<td>612</td>
<td>418</td>
</tr>
<tr>
<td><strong>Income taxes provided on earnings</strong></td>
<td>148</td>
<td>167</td>
<td>110</td>
</tr>
<tr>
<td><strong>Net earnings</strong></td>
<td>$498</td>
<td>$445</td>
<td>$308</td>
</tr>
<tr>
<td><strong>Net earnings per share</strong></td>
<td>$3.83</td>
<td>$3.43</td>
<td>$2.39</td>
</tr>
<tr>
<td><strong>Average shares outstanding</strong></td>
<td>130.0</td>
<td>129.6</td>
<td>128.9</td>
</tr>
</tbody>
</table>

### Statements of Consolidated Stockholders' Equity

Years ended December 31  
(In millions, except per share amounts)

<table>
<thead>
<tr>
<th></th>
<th>1989</th>
<th>1988</th>
<th>1987</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Common Stock and Additional Paid-in Capital</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Balances at January 1</td>
<td>$1,240</td>
<td>$1,231</td>
<td>$1,202</td>
</tr>
<tr>
<td>Net earnings</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stock option plans</td>
<td>29</td>
<td>9</td>
<td>29</td>
</tr>
<tr>
<td>Dividends declared ($0.76 per share in 1989, $0.67 per share in 1988 and $0.64 per share in 1987)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Balances at December 31</td>
<td>$1,269</td>
<td>$1,240</td>
<td>$1,231</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>1989</th>
<th>1988</th>
<th>1987</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Retained Earnings</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Balances at January 1</td>
<td>$1,240</td>
<td>$1,231</td>
<td>$1,202</td>
</tr>
<tr>
<td>Net earnings</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stock option plans</td>
<td>29</td>
<td>9</td>
<td>29</td>
</tr>
<tr>
<td>Dividends declared ($0.76 per share in 1989, $0.67 per share in 1988 and $0.64 per share in 1987)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Balances at December 31</td>
<td>$1,269</td>
<td>$1,240</td>
<td>$1,231</td>
</tr>
</tbody>
</table>

See accompanying notes to consolidated financial statements.
### Consolidated Balance Sheets

Motorola, Inc. and Consolidated Subsidiaries

#### December 31

(\text{In millions, except per share amounts})

<table>
<thead>
<tr>
<th>Assets</th>
<th>1989</th>
<th>1988</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Current assets</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cash and cash equivalents</td>
<td>$231</td>
<td>$195</td>
</tr>
<tr>
<td>Short-term investments, at cost (approximating market)</td>
<td>202</td>
<td>145</td>
</tr>
<tr>
<td>Accounts receivable, less allowance for doubtful accounts</td>
<td>1,683</td>
<td>1,400</td>
</tr>
<tr>
<td>(1989 and 1988, $35)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inventories</td>
<td>1,173</td>
<td>1,144</td>
</tr>
<tr>
<td>Future income tax benefits</td>
<td>337</td>
<td>278</td>
</tr>
<tr>
<td>Other current assets</td>
<td>289</td>
<td>218</td>
</tr>
<tr>
<td><strong>Total current assets</strong></td>
<td>3,915</td>
<td>3,380</td>
</tr>
<tr>
<td>Property, plant and equipment, net</td>
<td>3,337</td>
<td>2,854</td>
</tr>
<tr>
<td>Other assets</td>
<td>434</td>
<td>476</td>
</tr>
<tr>
<td><strong>Total assets</strong></td>
<td>$7,686</td>
<td>$6,710</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Liabilities and Stockholders' Equity</th>
<th>1989</th>
<th>1988</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Current liabilities</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Notes payable and current portion of long-term debt</td>
<td>$787</td>
<td>$1,038</td>
</tr>
<tr>
<td>Accounts payable</td>
<td>789</td>
<td>650</td>
</tr>
<tr>
<td>Accrued liabilities</td>
<td>1,175</td>
<td>1,003</td>
</tr>
<tr>
<td><strong>Total current liabilities</strong></td>
<td>2,751</td>
<td>2,691</td>
</tr>
<tr>
<td>Long-term debt</td>
<td>755</td>
<td>343</td>
</tr>
<tr>
<td>Deferred income taxes</td>
<td>183</td>
<td>155</td>
</tr>
<tr>
<td>Other liabilities</td>
<td>194</td>
<td>146</td>
</tr>
<tr>
<td><strong>Stockholders' equity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Common stock, $$3$ par value</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Authorized shares: 1989, 300.0; 1988, 300.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Outstanding shares: 1989, 130.4; 1988, 129.7</td>
<td>391</td>
<td>389</td>
</tr>
<tr>
<td>Preferred stock, $$100$ par value issuable in series</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Authorized shares: 0.5 (none issued)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Additional paid-in capital</td>
<td>878</td>
<td>851</td>
</tr>
<tr>
<td>Retained earnings</td>
<td>2,534</td>
<td>2,135</td>
</tr>
<tr>
<td><strong>Total stockholders' equity</strong></td>
<td>3,803</td>
<td>3,375</td>
</tr>
<tr>
<td><strong>Total liabilities and stockholders' equity</strong></td>
<td>$7,686</td>
<td>$6,710</td>
</tr>
</tbody>
</table>

\textit{See accompanying notes to consolidated financial statements.}
## Statements of Consolidated Cash Flows

**Motorola, Inc. and Consolidated Subsidiaries**

**Years ended December 31**

*(In millions)*

<table>
<thead>
<tr>
<th></th>
<th>1989</th>
<th>1988</th>
<th>1987</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Operating</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net earnings</td>
<td>$498</td>
<td>$445</td>
<td>$308</td>
</tr>
<tr>
<td>Add (deduct) non-cash items</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depreciation</td>
<td>650</td>
<td>543</td>
<td>494</td>
</tr>
<tr>
<td>Net change in deferred income taxes</td>
<td>(31)</td>
<td>(60)</td>
<td>32</td>
</tr>
<tr>
<td><strong>Change in assets and liabilities, net of effects of acquisitions</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accounts receivable, net</td>
<td>(283)</td>
<td>(247)</td>
<td>(239)</td>
</tr>
<tr>
<td>Inventories</td>
<td>(29)</td>
<td>(223)</td>
<td>(90)</td>
</tr>
<tr>
<td>Other current assets</td>
<td>(71)</td>
<td>20</td>
<td>(56)</td>
</tr>
<tr>
<td>Accounts payable and accrued liabilities</td>
<td>334</td>
<td>325</td>
<td>222</td>
</tr>
<tr>
<td>Other assets</td>
<td>95</td>
<td>(49)</td>
<td>(64)</td>
</tr>
<tr>
<td>Other liabilities</td>
<td>48</td>
<td>(29)</td>
<td>55</td>
</tr>
<tr>
<td><strong>Net cash provided by operations</strong></td>
<td><strong>1,211</strong></td>
<td>725</td>
<td>662</td>
</tr>
<tr>
<td><strong>Investing</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Businesses acquired and advances to affiliated companies</td>
<td>(53)</td>
<td>(123)</td>
<td>—</td>
</tr>
<tr>
<td>Payments for property, plant and equipment</td>
<td>(1,094)</td>
<td>(873)</td>
<td>(638)</td>
</tr>
<tr>
<td>Other changes to property, plant and equipment, net</td>
<td>(39)</td>
<td>(58)</td>
<td>(30)</td>
</tr>
<tr>
<td>Increase in short-term investments</td>
<td>(57)</td>
<td>(42)</td>
<td>(58)</td>
</tr>
<tr>
<td><strong>Net cash used for investing activities</strong></td>
<td><strong>(1,243)</strong></td>
<td>(1,096)</td>
<td>(726)</td>
</tr>
<tr>
<td><strong>Financing</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increase (decrease) in notes payable and current portion of long-term debt</td>
<td>(251)</td>
<td>464</td>
<td>121</td>
</tr>
<tr>
<td>Increase in long-term debt</td>
<td>389</td>
<td>15</td>
<td>12</td>
</tr>
<tr>
<td>Issuance of common stock</td>
<td>29</td>
<td>9</td>
<td>29</td>
</tr>
<tr>
<td>Payment of dividends to stockholders</td>
<td>(99)</td>
<td>(83)</td>
<td>(83)</td>
</tr>
<tr>
<td><strong>Net cash provided by financing activities</strong></td>
<td><strong>68</strong></td>
<td><strong>405</strong></td>
<td><strong>79</strong></td>
</tr>
<tr>
<td><strong>Increase in cash and cash equivalents</strong></td>
<td><strong>$36</strong></td>
<td><strong>$34</strong></td>
<td><strong>$15</strong></td>
</tr>
</tbody>
</table>

*See accompanying notes to consolidated financial statements.*
Auditors' Report

Motorola, Inc. and Consolidated Subsidiaries

Peat Marwick

Certified Public Accountants

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, 1989 and 1988, 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, 1989. 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, 1989 and 1988, and the results of their operations and their cash flows for each of the years in the three-year period ended December 31, 1989 in conformity with generally accepted accounting principles.

January 18, 1990

Notes to Consolidated Financial Statements

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.

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

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 $69 million and $88 million in 1989 and 1988, respectively.

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.

Reclassifications: Certain amounts in the 1988 and 1987 financial statements and related footnotes have been reclassified to conform to the 1989 presentation. These reclassifications are not significant.
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.

**Components of Earnings before income taxes**

<table>
<thead>
<tr>
<th></th>
<th>1989</th>
<th>1988</th>
<th>1987</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>$342</td>
<td>$419</td>
<td>$245</td>
</tr>
<tr>
<td>Other nations</td>
<td>304</td>
<td>193</td>
<td>173</td>
</tr>
<tr>
<td>Total</td>
<td>$646</td>
<td>$612</td>
<td>$418</td>
</tr>
</tbody>
</table>

**Components of Income taxes provided on earnings**

<table>
<thead>
<tr>
<th></th>
<th>1989</th>
<th>1988</th>
<th>1987</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>United States</td>
<td>$117</td>
<td>$154</td>
<td>$38</td>
</tr>
<tr>
<td>Other nations</td>
<td>29</td>
<td>38</td>
<td>23</td>
</tr>
<tr>
<td>State income taxes (U.S.)</td>
<td>33</td>
<td>34</td>
<td>17</td>
</tr>
<tr>
<td>Deferred</td>
<td>179</td>
<td>226</td>
<td>78</td>
</tr>
<tr>
<td>Income taxes</td>
<td>(31)</td>
<td>167</td>
<td>32</td>
</tr>
</tbody>
</table>

**Differences between income tax expense computed at the U.S. Federal statutory tax rate and Income taxes provided on earnings**

<table>
<thead>
<tr>
<th></th>
<th>1989</th>
<th>1988</th>
<th>1987</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. Federal statutory tax rate</td>
<td>34%</td>
<td>34%</td>
<td>40%</td>
</tr>
<tr>
<td>Income tax expense at statutory rate</td>
<td>$220</td>
<td>$208</td>
<td>$167</td>
</tr>
<tr>
<td>Increase (decrease) in tax expense resulting from:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Taxes on earnings in other nations and U.S. possessions</td>
<td>(49)</td>
<td>(37)</td>
<td>(48)</td>
</tr>
<tr>
<td>State income taxes</td>
<td>21</td>
<td>23</td>
<td>10</td>
</tr>
<tr>
<td>Research and experimentation tax credit</td>
<td>(8)</td>
<td>(4)</td>
<td>(2)</td>
</tr>
<tr>
<td>Foreign Sales Corporation</td>
<td>(12)</td>
<td>(6)</td>
<td>(5)</td>
</tr>
<tr>
<td>Other</td>
<td>(24)</td>
<td>(17)</td>
<td>(12)</td>
</tr>
<tr>
<td>Income taxes</td>
<td>$148</td>
<td>$167</td>
<td>$110</td>
</tr>
</tbody>
</table>

Cash payments for income taxes were $159 million in 1989, $212 million in 1988 and $108 million in 1987. Income taxes have not been provided on the cumulative undistributed earnings of certain of the Company's foreign subsidiaries amounting to $649 million and $551 million at December 31, 1989 and 1988, respectively. It is intended that these earnings will be permanently invested in operations outside of 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, 1989, certain non-U.S. subsidiaries had loss carryforwards for financial reporting purposes of approximately $64 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.

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, 1992. The cumulative impact of adoption is not yet determinable.
3. Long-term Debt and Credit Facilities

<table>
<thead>
<tr>
<th>December 31</th>
<th>1989</th>
<th>1988</th>
</tr>
</thead>
<tbody>
<tr>
<td>12% eurodollar notes due 1994</td>
<td>$68</td>
<td>$68</td>
</tr>
<tr>
<td>11 3/8% eurodollar notes due 1997</td>
<td>93</td>
<td>93</td>
</tr>
<tr>
<td>8% ECU notes due 1992</td>
<td>60</td>
<td>59</td>
</tr>
<tr>
<td>8% sinking fund debentures due 2007 (callable at 104.0% reducing to 100.0% of the principal amount)</td>
<td>62</td>
<td>62</td>
</tr>
<tr>
<td>6 3/8% industrial revenue bonds due 2014</td>
<td>15</td>
<td>20</td>
</tr>
<tr>
<td>Zero coupon notes due 2009</td>
<td>413</td>
<td>46</td>
</tr>
<tr>
<td>Capitalized lease obligations</td>
<td>45</td>
<td>46</td>
</tr>
<tr>
<td>Other long-term debt</td>
<td>16</td>
<td>30</td>
</tr>
<tr>
<td>Less current maturities</td>
<td>17</td>
<td>35</td>
</tr>
<tr>
<td>Long-term debt</td>
<td>$755</td>
<td>$343</td>
</tr>
</tbody>
</table>

On September 7, 1989 Motorola issued $1.32 billion of zero coupon notes referred to as Liquid Yield Option™ Notes (LYON™), due September 7, 2009, for cash proceeds of $405 million. The LYONs are zero coupon subordinated notes convertible into 4.567 shares of Motorola common stock and have no periodic interest payments. Each note was priced to yield 6% to maturity.

Aggregate maturities and sinking fund requirements for long-term debt, in millions, during the next five years are as follows: 1990, $17; 1991, $16; 1992, $76; 1993, $6; 1994, $69.

The Company has domestic and international credit arrangements for short-term borrowings, generally with banks. On its domestic credit arrangements, it pays commitment fees of approximately 1/10% of the domestic lines of credit. Short-term credit lines totalled $1.95 billion at December 31, 1989, of which $1.11 billion remain unused. Domestic credit arrangements primarily back up the issuance of commercial paper.

Outstanding letters of credit aggregated approximately $99 million at December 31, 1989.

4. Property, Plant and Equipment

<table>
<thead>
<tr>
<th>December 31</th>
<th>1989</th>
<th>1988</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land</td>
<td>$107</td>
<td>$107</td>
</tr>
<tr>
<td>Buildings</td>
<td>1,575</td>
<td>1,420</td>
</tr>
<tr>
<td>Machinery</td>
<td>3,715</td>
<td>3,127</td>
</tr>
<tr>
<td>Equipment leased to others</td>
<td>356</td>
<td>325</td>
</tr>
<tr>
<td>Less accumulated depreciation</td>
<td>5,753</td>
<td>4,979</td>
</tr>
<tr>
<td>Property, plant and equipment, net</td>
<td>$3,337</td>
<td>$2,854</td>
</tr>
</tbody>
</table>

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, equipment is leased to others under noncancellable operating leases.

Rental expense, net of sublease income, was $125 million in 1989, $121 million in 1988 and $115 million in 1987.

Capital lease expenditures were $30 million in 1989, $26 million in 1988 and $20 million in 1987.

At December 31, 1989, future minimum lease revenues under noncancellable leases and lease obligations, net of minimum sublease rentals, were as follows:

<table>
<thead>
<tr>
<th>Lease Revenues</th>
<th>Lease Obligations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>$67</td>
</tr>
<tr>
<td>1991</td>
<td>37</td>
</tr>
<tr>
<td>1992</td>
<td>16</td>
</tr>
<tr>
<td>1993</td>
<td>7</td>
</tr>
<tr>
<td>1994</td>
<td>2</td>
</tr>
<tr>
<td>Beyond</td>
<td>1</td>
</tr>
</tbody>
</table>
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.

Company contributions to all profit-sharing plans totaled $48 million, $44 million and $22 million in 1989, 1988 and 1987, 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 provide a higher percentage of the employee's total retirement benefit.

The Company's noncontributory pension plan covers most domestic employees after one year of service. 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.

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% and a future compensation rate increase of 5.5% in both 1989 and 1988. The investment return assumption for the plan covering most domestic employees was 9.25% in 1989 and 1988. The investment return assumption for the plan covering elected officers was 8% in 1989.

**Components of net U.S. pension expense (income) for the regular pension plan**

<table>
<thead>
<tr>
<th></th>
<th>1989</th>
<th>1988</th>
<th>1987</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service costs</td>
<td>$57</td>
<td>$50</td>
<td>$20</td>
</tr>
<tr>
<td>Interest cost on projected obligation</td>
<td>26</td>
<td>20</td>
<td>18</td>
</tr>
<tr>
<td>Actual return on plan assets</td>
<td>(103)</td>
<td>(45)</td>
<td>(45)</td>
</tr>
<tr>
<td>Net amortization and deferral</td>
<td>51</td>
<td>(4)</td>
<td>4</td>
</tr>
<tr>
<td>Net pension expense (income)</td>
<td>$31</td>
<td>$21</td>
<td>$(3)</td>
</tr>
</tbody>
</table>

The net U.S. pension expense for the elected officers pension plan was $14 million, $9 million and $6 million in 1989, 1988 and 1987, respectively.

**U.S. Funded Plans at December 31**

<table>
<thead>
<tr>
<th></th>
<th>1989</th>
<th>1988</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actuarial present value of:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vested benefit obligation</td>
<td>$(242)</td>
<td>$(189)</td>
</tr>
<tr>
<td>Accumulated benefit obligation</td>
<td>(271)</td>
<td>(213)</td>
</tr>
<tr>
<td>Projected benefit obligation for service rendered to date</td>
<td>(373)</td>
<td>(289)</td>
</tr>
<tr>
<td>Plan assets at fair value, primarily listed stocks, bonds and cash equivalents</td>
<td>575</td>
<td>481</td>
</tr>
<tr>
<td>Plan assets in excess (deficit) of projected benefit obligation</td>
<td>202</td>
<td>192</td>
</tr>
<tr>
<td>unrecognized net (gain) loss from past experience different from assumptions</td>
<td>(140)</td>
<td>(90)</td>
</tr>
<tr>
<td>Unrecognized net transition (asset) liability</td>
<td>(103)</td>
<td>(114)</td>
</tr>
<tr>
<td>Pension asset (liability) recognized in balance sheet</td>
<td>$(39)</td>
<td>$ (9)</td>
</tr>
</tbody>
</table>
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. Amounts charged to earnings for all foreign plans were $15 million in 1989, $12 million in 1988 and $9 million in 1987.

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 totalled $4 million in each of the years 1989, 1988 and 1987. 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 1989, $24 million was provided for incentive awards, as compared to $25 million and $14 million in 1988 and 1987, 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
(In thousands of shares)

<table>
<thead>
<tr>
<th>1989</th>
<th>1988</th>
</tr>
</thead>
<tbody>
<tr>
<td>Options outstanding at January 1</td>
<td>6,002</td>
</tr>
<tr>
<td>Additional options granted</td>
<td>1,380</td>
</tr>
<tr>
<td>Options exercised</td>
<td>(797)</td>
</tr>
<tr>
<td>Options terminated, cancelled or expired</td>
<td>(83)</td>
</tr>
<tr>
<td>Options outstanding at December 31</td>
<td>6,502</td>
</tr>
<tr>
<td>Shares reserved for future options grants</td>
<td>7,829</td>
</tr>
<tr>
<td>Total shares reserved</td>
<td>14,331</td>
</tr>
<tr>
<td>Total options exercisable</td>
<td>5,099</td>
</tr>
</tbody>
</table>

Options exercised during 1989 were at per share prices ranging from $14.81 to $46.69. Options outstanding at December 31, 1989 were at per share prices ranging from $17.10 to $69.94.

### 7. Other Financial Data

#### Income Statement Information

<table>
<thead>
<tr>
<th>1989</th>
<th>1988</th>
<th>1987</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research and development</td>
<td>$784</td>
<td>$665</td>
</tr>
<tr>
<td>Maintenance and repairs</td>
<td>178</td>
<td>196</td>
</tr>
<tr>
<td>Foreign currency gains (losses)</td>
<td>(6)</td>
<td>1</td>
</tr>
<tr>
<td>Interest expense, net:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interest expense</td>
<td>168</td>
<td>135</td>
</tr>
<tr>
<td>Interest income</td>
<td>(35)</td>
<td>(37)</td>
</tr>
<tr>
<td>Amount capitalized</td>
<td>(3)</td>
<td>—</td>
</tr>
<tr>
<td>Interest expense, net</td>
<td>$130</td>
<td>$98</td>
</tr>
</tbody>
</table>

#### Balance Sheet Information

<table>
<thead>
<tr>
<th>1989</th>
<th>1988</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inventories:</td>
<td></td>
</tr>
<tr>
<td>Finished goods</td>
<td>$350</td>
</tr>
<tr>
<td>Work in process and production materials</td>
<td>823</td>
</tr>
<tr>
<td>Inventories</td>
<td>1,173</td>
</tr>
<tr>
<td>Accrued liabilities:</td>
<td></td>
</tr>
<tr>
<td>Compensation</td>
<td>264</td>
</tr>
<tr>
<td>Taxes other than income</td>
<td>97</td>
</tr>
<tr>
<td>Income taxes payable</td>
<td>67</td>
</tr>
<tr>
<td>Contribution to employees' profit sharing funds</td>
<td>48</td>
</tr>
<tr>
<td>Dividends payable</td>
<td>25</td>
</tr>
<tr>
<td>Other</td>
<td>674</td>
</tr>
<tr>
<td>Accrued liabilities</td>
<td>$1,175</td>
</tr>
</tbody>
</table>

#### Financial data of previously unconsolidated financial subsidiaries

<table>
<thead>
<tr>
<th>1989</th>
<th>1988</th>
<th>1987</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total revenue</td>
<td>$31</td>
<td>$26</td>
</tr>
<tr>
<td>Net earnings</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>Total assets</td>
<td>166</td>
<td>296</td>
</tr>
<tr>
<td>Total liabilities</td>
<td>(134)</td>
<td>(249)</td>
</tr>
<tr>
<td>Stockholder's investments and advances</td>
<td>$32</td>
<td>$47</td>
</tr>
</tbody>
</table>

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

As a result of the consolidation of the wholly-owned finance subsidiary, interest income of $31 million in 1989, $26 million in 1988 and $20 million in 1987 is included in Net sales. Interest expense of $20 million in 1989, $16 million in 1988 and $12 million in 1987 is included in Manufacturing and other costs of sales. In addition, finance receivables of $122 million in 1989 and $230 million in 1988 are included in Other assets.

The Company's cash payments for interest expense (net of amount capitalized) were $175 million in 1989, $157 million in 1988 and $87 million in 1987.
8. 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.

9. 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.

10. Information by Industry Segment and Geographic Region

<table>
<thead>
<tr>
<th>Industry segment information as of and for the years ended December 31</th>
<th>Net Sales</th>
<th>Operating Profit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communications Products</td>
<td>$3,310</td>
<td>$3,017</td>
</tr>
<tr>
<td>Semiconductor Products</td>
<td>3,036</td>
<td>2,741</td>
</tr>
<tr>
<td>General Systems Products</td>
<td>1,902</td>
<td>1,102</td>
</tr>
<tr>
<td>Information Systems Products</td>
<td>552</td>
<td>566</td>
</tr>
<tr>
<td>Government Electronic Products</td>
<td>698</td>
<td>648</td>
</tr>
<tr>
<td>Other Products</td>
<td>490</td>
<td>481</td>
</tr>
<tr>
<td>Adjustments and eliminations</td>
<td>(368)</td>
<td>(305)</td>
</tr>
<tr>
<td>Industry totals</td>
<td>$9,620</td>
<td>$8,250</td>
</tr>
<tr>
<td>General corporate expenses</td>
<td>(119)</td>
<td>(94)</td>
</tr>
<tr>
<td>Interest expense, net</td>
<td>(130)</td>
<td>(98)</td>
</tr>
<tr>
<td>Earnings before income taxes</td>
<td>$646</td>
<td>$612</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Communications Products</td>
<td>$2,348</td>
<td>$2,048</td>
</tr>
<tr>
<td>Semiconductor Products</td>
<td>2,590</td>
<td>2,245</td>
</tr>
<tr>
<td>General Systems Products</td>
<td>1,139</td>
<td>941</td>
</tr>
<tr>
<td>Information Systems Products</td>
<td>403</td>
<td>381</td>
</tr>
<tr>
<td>Government Electronic Products</td>
<td>396</td>
<td>389</td>
</tr>
<tr>
<td>Other Products</td>
<td>297</td>
<td>261</td>
</tr>
<tr>
<td>Adjustments and eliminations</td>
<td>(44)</td>
<td>(13)</td>
</tr>
<tr>
<td>Industry totals</td>
<td>7,129</td>
<td>6,252</td>
</tr>
<tr>
<td>General corporate assets</td>
<td>557</td>
<td>458</td>
</tr>
<tr>
<td>Consolidated totals</td>
<td>$7,686</td>
<td>$6,710</td>
</tr>
</tbody>
</table>
Notes to Consolidated Financial Statements

Motorola, Inc. and Consolidated Subsidiaries

(In millions, except as noted)

<table>
<thead>
<tr>
<th>Communications Products</th>
<th>Semiconductor Products</th>
<th>General Systems Products</th>
<th>Information Systems Products</th>
<th>Government Electronic Products</th>
<th>Other Products</th>
<th>General corporate</th>
</tr>
</thead>
<tbody>
<tr>
<td>$216</td>
<td>$182</td>
<td>$148</td>
<td>$124</td>
<td>$93</td>
<td>$102</td>
<td></td>
</tr>
<tr>
<td>536</td>
<td>435</td>
<td>327</td>
<td>306</td>
<td>253</td>
<td>227</td>
<td></td>
</tr>
<tr>
<td>182</td>
<td>98</td>
<td>31</td>
<td>55</td>
<td>52</td>
<td>27</td>
<td></td>
</tr>
<tr>
<td>36</td>
<td>39</td>
<td>30</td>
<td>36</td>
<td>30</td>
<td>25</td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>28</td>
<td>34</td>
<td>29</td>
<td>30</td>
<td>27</td>
<td></td>
</tr>
<tr>
<td>43</td>
<td>41</td>
<td>53</td>
<td>17</td>
<td>18</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>79</td>
<td>76</td>
<td>35</td>
<td>36</td>
<td>26</td>
<td>25</td>
<td></td>
</tr>
<tr>
<td><strong>Consolidated totals</strong></td>
<td><strong>$1,124</strong></td>
<td><strong>$899</strong></td>
<td><strong>$658</strong></td>
<td><strong>$603</strong></td>
<td><strong>$502</strong></td>
<td><strong>$448</strong></td>
</tr>
</tbody>
</table>

Expenditures and depreciation do not include amounts for equipment leased to others.

### Geographic area information as of and for the years ended December 31

<table>
<thead>
<tr>
<th>Net Sales</th>
<th>Operating Profit</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>$8,123</td>
</tr>
<tr>
<td>Other nations</td>
<td>-4,910</td>
</tr>
<tr>
<td>Adjustments and eliminations</td>
<td>(3,413)</td>
</tr>
<tr>
<td>Geographic totals</td>
<td>$9,620</td>
</tr>
<tr>
<td>General corporate expenses</td>
<td>(119)</td>
</tr>
<tr>
<td>Interest expense, net</td>
<td>(130)</td>
</tr>
<tr>
<td>Earnings before income taxes</td>
<td><strong>$646</strong></td>
</tr>
</tbody>
</table>

### Assets

<table>
<thead>
<tr>
<th></th>
<th>1989</th>
<th>1988</th>
<th>1987</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>$4,653</td>
<td>$4,131</td>
<td>$3,567</td>
</tr>
<tr>
<td>Other nations</td>
<td>2,605</td>
<td>2,211</td>
<td>1,652</td>
</tr>
<tr>
<td>Adjustments and eliminations</td>
<td>(129)</td>
<td>(90)</td>
<td>(95)</td>
</tr>
<tr>
<td>Geographic totals</td>
<td>7,129</td>
<td>6,252</td>
<td>5,124</td>
</tr>
<tr>
<td>General corporate assets</td>
<td>557</td>
<td>458</td>
<td>393</td>
</tr>
<tr>
<td><strong>Consolidated totals</strong></td>
<td><strong>$7,686</strong></td>
<td><strong>$6,710</strong></td>
<td><strong>$5,517</strong></td>
</tr>
</tbody>
</table>

The Company operates predominantly in one industry, electronic equipment, systems, and components. Operations involve the design, manufacture and sale of a diversified line of products, which include, but are not limited to, two-way radios, pagers, cellular telephones and systems; semiconductors, including integrated circuits and microprocessor units; data communication and distributive data processing equipment and systems; and electronic equipment and industrial electronics products. The Company operates manufacturing and distribution facilities outside of the United States. No single country outside of 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 $382 million for 1989, $298 million for 1988 and $205 million for 1987. 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 United States federal government agencies aggregated $1.07 billion for 1989, $1.05 billion for 1988 and $830 million for 1987. 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 $1.58 billion at December 31, 1989 and $1.34 billion at December 31, 1988.
## Five Year Financial Summary

### Years ended December 31

(In millions, except as noted)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Net sales</td>
<td>$9,620</td>
<td>$8,250</td>
<td>$6,727</td>
<td>$5,905</td>
<td>$5,456</td>
</tr>
<tr>
<td>Manufacturing and other costs of sales</td>
<td>5,905</td>
<td>5,040</td>
<td>4,071</td>
<td>3,656</td>
<td>3,413</td>
</tr>
<tr>
<td>Selling, general and administrative expenses</td>
<td>2,289</td>
<td>1,957</td>
<td>1,665</td>
<td>1,437</td>
<td>1,470</td>
</tr>
<tr>
<td>Depreciation expense</td>
<td>650</td>
<td>543</td>
<td>494</td>
<td>459</td>
<td>441</td>
</tr>
<tr>
<td>Interest expense, net</td>
<td>130</td>
<td>98</td>
<td>79</td>
<td>86</td>
<td>87</td>
</tr>
<tr>
<td>Total costs and expenses</td>
<td>8,974</td>
<td>7,638</td>
<td>6,309</td>
<td>5,638</td>
<td>5,411</td>
</tr>
<tr>
<td>Earnings before income taxes</td>
<td>646</td>
<td>612</td>
<td>418</td>
<td>267</td>
<td>45</td>
</tr>
<tr>
<td>Income taxes (benefits) provided on earnings</td>
<td>148</td>
<td>167</td>
<td>110</td>
<td>73</td>
<td>(27)</td>
</tr>
<tr>
<td>Net earnings</td>
<td>$ 498</td>
<td>$ 445</td>
<td>$ 308</td>
<td>$ 194</td>
<td>$ 72</td>
</tr>
<tr>
<td>Net earnings as a percent of sales</td>
<td>5.2%</td>
<td>5.4%</td>
<td>4.6%</td>
<td>3.3%</td>
<td>1.3%</td>
</tr>
</tbody>
</table>

### Per Share Data

(In dollars)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Net earnings</td>
<td>$ 3.83</td>
<td>$ 3.43</td>
<td>$ 2.39</td>
<td>$ 1.53</td>
<td>$ 1.36</td>
</tr>
<tr>
<td>Dividends declared</td>
<td>.76</td>
<td>.67</td>
<td>.64</td>
<td>.64</td>
<td>.64</td>
</tr>
</tbody>
</table>

### Balance Sheet

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total assets</td>
<td>$7,686</td>
<td>$6,710</td>
<td>$5,517</td>
<td>$4,826</td>
<td>$4,448</td>
</tr>
<tr>
<td>Working capital</td>
<td>1,164</td>
<td>689</td>
<td>867</td>
<td>759</td>
<td>892</td>
</tr>
<tr>
<td>Long-term debt</td>
<td>755</td>
<td>343</td>
<td>344</td>
<td>334</td>
<td>705</td>
</tr>
<tr>
<td>Total debt</td>
<td>1,542</td>
<td>1,381</td>
<td>917</td>
<td>786</td>
<td>1,076</td>
</tr>
<tr>
<td>Total stockholders' equity</td>
<td>$3,803</td>
<td>$3,375</td>
<td>$3,008</td>
<td>$2,754</td>
<td>$2,284</td>
</tr>
</tbody>
</table>

### Other Data

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Current ratio</td>
<td>1.42</td>
<td>1.26</td>
<td>1.47</td>
<td>1.50</td>
<td>1.71</td>
</tr>
<tr>
<td>Return on average invested capital</td>
<td>10.3%</td>
<td>11.0%</td>
<td>8.8%</td>
<td>5.9%</td>
<td>2.3%</td>
</tr>
<tr>
<td>Return on average stockholders' equity</td>
<td>13.9%</td>
<td>13.9%</td>
<td>10.7%</td>
<td>7.4%</td>
<td>3.2%</td>
</tr>
<tr>
<td>Year-end employment (in thousands)</td>
<td>104.0</td>
<td>102.0</td>
<td>97.7</td>
<td>94.4</td>
<td>90.2</td>
</tr>
<tr>
<td>Average shares outstanding</td>
<td>130.0</td>
<td>129.6</td>
<td>128.9</td>
<td>126.5</td>
<td>119.0</td>
</tr>
</tbody>
</table>

### Quarterly and Other Financial Data

(In millions, except per share amounts)

<table>
<thead>
<tr>
<th>(Unaudited)</th>
<th>1989</th>
<th>1988</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1st Qtr</td>
<td>2nd Qtr</td>
</tr>
<tr>
<td>Net sales</td>
<td>$2,175</td>
<td>$2,385</td>
</tr>
<tr>
<td>Gross profit</td>
<td>842</td>
<td>960</td>
</tr>
<tr>
<td>Net earnings</td>
<td>123</td>
<td>154</td>
</tr>
<tr>
<td>Net earnings per share</td>
<td>.95</td>
<td>1.18</td>
</tr>
<tr>
<td>Dividends:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stock prices:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High</td>
<td>47.63</td>
<td>60.38</td>
</tr>
<tr>
<td>Low</td>
<td>39.50</td>
<td>41.13</td>
</tr>
</tbody>
</table>

The number of holders of record of Motorola Common Stock on January 31, 1990 was 15,019.
Sectors, Groups and Divisions

Communications Sector
Communications Systems Group
Commercial Markets Systems Division
Digital Systems Division
Special/International Markets Systems Division
Distribution Service Group
National Service Division
Parts Division
Domestic Distribution Group
National Markets Division
Special Markets Division
State and Local Government Markets Division
International Group
Asia Division
International Markets Division
Pacific Division
Manufacturing Technologies Group
Component Products Division
Manufacturing Technologies Division
Mobile Data International
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
Opto, Sensor and Commodity Products Division
Power Products Division
RF Products Division
Final Manufacturing Group
International Semiconductor Group
Asia Pacific Semiconductor Products Division
European Semiconductor Group
Discrete and Analog Products Division (Toulouse)
European Logic and ASIC 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 Sector
Cellular Subscriber Group
International Subscriber Division
European Subscriber Division
North American Subscriber Division
Computer Group
Computer Systems Division
International Division
Microcomputer Division
Radio-Telephone Systems Group
Cellular Infrastructure Division
Field Service Division
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
Electronic Systems and Components Division

Motorola Worldwide

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, East Kilbride, Stotfold, Swindon
United States
Alabama
Huntsville
Arizona
Chandler, Mesa, Phoenix, Scottsdale, Tempe
California
Cupertino, Lawndale
Florida
Boynton Beach, Fort Lauderdale
Illinois
Arlington Heights, Northbrook, Schaumburg
Iowa
Mount Pleasant
Massachusetts
Canton, Mansfield
New Mexico
Albuquerque
New York
Arcade, Elma
Texas
Austin, Dallas, Fort Worth, Seguin
Washington
Bothell
Puerto Rico
Vega Baja
West Germany
Flensburg, Munich, Taunusstein
The CEO Quality Awards are Motorola's highest award for quality performance. Winners in 1989 were:

**Communications Sector**
MaraTrac®/Mitrek® Product Development, Manufacturing and Support Teams (Fort Worth, Texas)
HT600, MTX800 & MT1000 Manufacturing and Support Teams (Plantation, Fla.)
Thin Film Manufacturing/Support Teams (Plantation, Fla.)
Order Processing Organization and Management Information Systems (Schaumburg, Ill.)

**Semiconductor Products Sector**
Memory Division (Austin, Texas)
MOS Wafer and Purchasing Teams (Austin, Texas and Mesa, Ariz.)
Zener/Rectifier Processing Team (Phoenix, Ariz.)

**Automotive and Industrial Electronics Group**
Thick Film Ignition Engineering/Production Team (Arcade/Elma, N.Y., and Northbrook, Ill.)

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 1989 are:

Fred Cho  
Government Electronics Group, Scottsdale, Ariz.
Duane Lundy  
Government Electronics Group, Scottsdale, Ariz.
Phil Tobin  
Semiconductor Products Sector, Austin, Texas
Syd Wilson  
Semiconductor Products Sector, Phoenix, Ariz.
Ken Zdunek  
Communications Sector, Schaumburg, Ill.

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 1989 are:

Fred Cho  
Government Electronics Group, Scottsdale, Ariz.
Duane Lundy  
Government Electronics Group, Scottsdale, Ariz.
Phil Tobin  
Semiconductor Products Sector, Austin, Texas
Syd Wilson  
Semiconductor Products Sector, Phoenix, Ariz.
Ken Zdunek  
Communications Sector, Schaumburg, Ill.

**Directors of Motorola, Inc.**

George M. C. Fisher  
Gary L. Tooker  
Christopher B. Galvin  
Robert W. Galvin  
John F. Mitchell  
William J. Weisz  
David R. Clare  
Wallace C. Doud  
John T. Hickey  
Lawrence Howe  
Anne P. Jones  
Stephen L. Levy  
Walter E. Massey  
William G. Salatich  
Gardiner L. Tucker  
B. Kenneth West  
Elmer H. Wavering

Director Emeritus

Elmer H. Wavering

Formerly Vice Chairman and Chief Operating Officer, Motorola, Inc.
Elected Officers of Motorola, Inc.

**Corporate**

*George M. C. Fisher  
Chairman of the Board and  
Chief Executive Officer  
Age 49  
Years of Service 13

*Gary L. Tooker  
President and  
Chief Operating Officer  
Age 50  
Years of Service 27

*Christopher B. Galvin  
Senior Executive Vice  
President and Assistant  
Chief Operating Officer  
Age 39  
Years of Service 17

*Robert W. Galvin  
Chairman of the Executive  
Committee  
Age 67  
Years of Service 49

John F. Mitchell  
Vice Chairman of the Board  
and Officer of the Board  
Age 61  
Years of Service 36

**Finance**

Donald R. Jones  
Executive Vice President  
and Chief Financial Officer  
Age 59  
Years of Service 39

*Carl F. Koennemann  
Corporate Vice President  
and Assistant Chief  
Financial Officer  
Age 51  
Years of Service 19

Richard H. Weise  
Senior Vice President,  
General Counsel and  
Secretary  
Age 54  
Years of Service 21

Kenneth J. Johnson  
Corporate Vice President  
and Controller  
Age 54  
Years of Service 18

Victor R. Kopidlanzky  
Corporate Vice President  
and Assistant General  
Counsel  
Age 58  
Years of Service 24

A. Peter Lawson  
Corporate Vice President  
and Assistant General  
Counsel  
Age 43  
Years of Service 9

Garth L. Milne  
Corporate Vice President  
and Treasurer  
Age 47  
Years of Service 10

*Benny L. Smothermon  
Corporate Vice President  
and Director of  
International Finance  
Age 50  
Years of Service 13

**International Operations**

Carl E. Lindholm  
Executive Vice President,  
International Operations  
Age 60  
Years of Service 22

Wilhelm Braxmaier  
Corporate Vice President  
and Director for Eastern  
Europe  
Age 59  
Years of Service 21

Chi-Sun Lai  
Corporate Vice President  
and General Manager,  
Motorola China Ltd.  
Age 53  
Years of Service 19

**New Enterprises**

Levy Katzir  
Senior Vice President and  
General Manager, New  
Enterprises  
Age 57  
Years of Service 33

*Philip D. Gunderson  
Corporate Vice President,  
Engineering and Technology,  
Motorola Lighting, Inc.  
Age 51  
Years of Service 21

**Personnel**

James Donnelly  
Executive Vice President and  
Motorola Director of  
Personnel  
Age 50  
Years of Service 20

*Joseph F. Miraglia  
Senior Vice President and  
Assistant Motorola Director  
of Personnel  
Age 53  
Years of Service 11

Carlton Braun  
Corporate Vice President and  
Director, Educational  
Institutes and Labs  
Age 60  
Years of Service 39

William B. Dimitro  
Corporate Vice President and  
Director of Strategic  
Personnel Management  
Age 54  
Years of Service 16

*A. William Wiggenhorn  
President, Motorola  
University, and Corporate  
Vice President of Training  
and Education  
Age 45  
Years of Service 9

**Communications Sector**

*Arthur P. Sundry  
President and General  
Manager, Communications  
Sector, and Executive  
Vice President, Motorola, Inc.  
Age 61  
Years of Service 32

David K. Bartram  
Senior Vice President and  
Assistant General Manager,  
Communications Sector  
Age 53  
Years of Service 29

Morton L. Topfer  
Senior Vice President and  
Assistant General Manager,  
Communications Sector  
Age 53  
Years of Service 18

*Robert W. Bigony  
Senior Vice President and  
General Manager, International  
Group Communications Sector  
Age 48  
Years of Service 23

Gordon Comerford  
Senior Vice President and  
Group General Manager,  
Operations and Staff  
Age 53  
Years of Service 15

Ronald E. Greenwell  
Senior Vice President and  
General Manager, Domestic  
Distribution Group  
Age 51  
Years of Service 27

*William V. Braun  
Senior Vice President and  
Motorola Director of  
Research and Development  
Age 54  
Years of Service 31

C. Travis Marshall  
Senior Vice President and  
Motorola Director of  
Government Relations  
Age 63  
Years of Service 19

Vincent J. Ruener  
Senior Vice President for  
Patents, Trademarks and  
Licensing  
Age 62  
Years of Service 19

Richard Buetow  
Corporate Vice President and  
Motorola Director of  
Quality  
Age 58  
Years of Service 31

James D. Burge  
Corporate Vice President and  
Director of Government  
Affairs—Personnel  
Age 55  
Years of Service 31

James W. Gillman  
Corporate Vice President  
and General Patent Counsel  
Age 56  
Years of Service 16

*Les Shroyer  
Corporate Vice President  
and Director of Management  
Information Systems and  
Telecommunications  
Age 45  
Years of Service 5

*Mauro J. Walker  
Corporate Vice President  
and Motorola Director of  
Manufacturing  
Age 54  
Years of Service 18

*Robert L. Growney  
Senior Vice President and  
General Manager, Radio  
Technologies Group  
Age 47  
Years of Service 23

*Robert S. Hall  
Senior Vice President and  
General Manager, Manufacturing Technologies Group  
Age 60  
Years of Service 28

Kenneth R. Hessler  
Senior Vice President and  
General Manager, Distribution Service Group  
Age 56  
Years of Service 32

Theodore Saltzberg  
Senior Vice President and  
Director of Technology  
Age 62  
Years of Service 33

*Stanley A. DeCosmo  
Corporate Vice President  
and General Manager, Radius Division  
Age 44  
Years of Service 21

*Merle Gilmore  
Corporate Vice President  
and General Manager, Portable Products Division  
Age 41  
Years of Service 19

*Don Holt  
Corporate Vice President  
and Assistant General  
Manager, Domestic  
Distribution Group  
Age 60  
Years of Service 33

*Barclay Isherwood  
Corporate Vice President,  
Communications Sector,  
and President, Mobile Data  
International  
Age 44  
Years of Service 1

Wayne H. Leland  
Corporate Vice President  
and General Manager, U.S. Federal Government Division  
Age 46  
Years of Service 24

*Jerome C. Leonard  
Corporate Vice President  
and General Manager, Paging Division  
Age 52  
Years of Service 28

John E. Major  
Corporate Vice President and  
General Manager, Communications Systems Group  
Age 44  
Years of Service 11

*Dale J. Mischevski  
Corporate Vice President  
and Sector Director  
of Quality  
Age 47  
Years of Service 23

*Irvin A. Neruda  
Corporate Vice President  
and Sector Director of  
Finance  
Age 60  
Years of Service 39

*Larry D. Shockley  
Corporate Vice President  
and General Manager,  
International Markets  
Division  
Age 51  
Years of Service 25
James W. Wagner  
Corporate Vice President and General Manager, Mobile Products Group  
44 23

Francis T. Wapole  
Corporate Vice President and General Manager, Motorola Storno Communications Group  
45 23

Robert L. Wasni  
Corporate Vice President and General Manager, Paris Division  
57 33

**Semiconductor Products Sector**

*James A. Norling*  
President and General Manager, Semiconductor Products Sector, and Executive Vice President, Motorola, Inc.  
47 24

Thomas D. George  
Senior Vice President and Assistant General Manager, Semiconductor Products Sector  
49 10

Andre Borrel  
Senior Vice President and General Manager, International Semiconductor Group  
53 22

Gordon C. Chilton  
Senior Vice President and General Manager, Discrete and Special Technologies Group  
50 9

Murray A. Goldman  
Senior Vice President and General Manager, Microprocessor Products Group  
52 20

Gary M. Johnson  
Senior Vice President and General Manager, Standard Logic and Analog Integrated Circuits Group  
45 22

Geno Ori  
Senior Vice President and Director of Customer Relations  
52 27

Hector Ruiz  
Senior Vice President and Director of Technology Management  
44 11

Charles E. Thompson  
Senior Vice President and Director of World Marketing  
60 20

R. Gary Daniels  
Corporate Vice President and General Manager, Microcontroller Division  
52 23

**Global Systems Sector**

*Weldon D. Douglas*  
Corporate Vice President and Director, Sales and Marketing, Federal Segment  
52 29

Larry L. Gartin  
Corporate Vice President and Director, Sector Finance  
46 22

Jim George  
Corporate Vice President and General Manager, MOS Memory Products Division  
47 13

Thomas G. Gunter  
Corporate Vice President and General Manager, High-End MPU Division  
42 17

Brian O. Hilton  
Corporate Vice President and Director, Worldwide Distribution  
47 22

Bob J. Jenkins  
Corporate Vice President and Director, External Technology Evaluation  
55 25

George A. Needham  
Corporate Vice President and General Manager, Final Manufacturing Group  
54 28

*Michael J. Pollak*  
Corporate Vice President and General Manager, RF Division  
44 21

David L. Pulatie  
Corporate Vice President and Sector Director of Personnel  
47 24

*Fred Shlapak*  
Corporate Vice President and Director of European Marketing  
46 19

Paul J. Shimp  
Corporate Vice President and Director of Sector Support Operations  
50 25

C. D. Tam  
Corporate Vice President and General Manager, Asia Pacific Semiconductor Products Division  
45 21

Barry Waite  
Corporate Vice President and General Manager, Europe Semiconductor Group  
41 7

**Automotive and Industrial Electronics Group**

*Lawrence R. Paigeot*  
Senior Vice President and General Manager, Cellular Subscriber Group  
49 21

Bernard R. Smedley  
Senior Vice President and General Manager, Radio-Telephone Systems Group  
53 13

*Thomas A. Beaver*  
Corporate Vice President and General Manager, Motorola Computer Group  
47 25

*James A. Bernhart*  
Corporate Vice President and Director of Distribution, Cellular Subscriber Group  
57 30

*Don Burns*  
Corporate Vice President and General Manager, European Cellular Subscriber Division  
47 17

*Burnham Casterline*  
Corporate Vice President and Director of Quality and Manufacturing Technology  
60 32

John P. Saleius  
Corporate Vice President and General Manager, International Subscriber Division  
46 23

Robert N. Weishappel  
Corporate Vice President and General Manager, North American Subscriber Division  
45 19

**Information Systems Group**

John A. Lockitt  
Senior Vice President, Information Systems Group, and President, Codex Corporation  
47 12

*George R. Grumbles*  
Corporate Vice President, Information Systems Group, and President, Universal Data Systems  
56 11

**Government Electronics Group**

David G. Wolfe  
Senior Vice President and General Manager, Government Electronics Group  
54 25

James R. Baum  
Corporate Vice President and Assistant General Manager, Government Electronics Group  
59 32

*David M. Neuer*  
Corporate Vice President and General Manager, Strategic Electronics Division  
49 26

*Burnham Casterline*  
Corporate Vice President and Group Director of Personnel  
46 15

*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
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
Mobile Data Systems
Data Radio Networks
Portable and Mobile Data Terminals
RF Modems
Radio Paging Systems
Signaling and Remote Control Systems

Semiconductor Products Sector
Bipolar and MOS Analog ICs
Bipolar and MOS Digital ICs
Bipolar, BIMOS, CMOS and Combined Technology Semicustom Circuits
Custom and Semicustom Semiconductors
Customer Defined Arrays
Data Conversion Circuits
Digital Signal Processors
Fiber Optic Active Components
Field Effect Transistors (FETs)
Industrial Control Circuits
Interface Circuits
Microcomputers and Peripherals
Microcontroller ICs
Microprocessors and Peripherals
Microwave Transistors
MOS and Bipolar Memories
Motor Control Circuits
Open Architecture CAD Systems
Operational Amplifiers
Optoelectronics Components
Power Supply Circuits
Pressure and Temperature Sensors
Rectifiers
RF Modules
RF Power and Small Signal Transistors
SMARTmos™ Products
Telecommunications Circuits
Thyristors and Triggers
TMOS™ and Bipolar Power Products
Voltage Regulator Circuits
Zener and Tuning Diodes

General Systems Sector
Cellular Mobile, Portable, Transportable and Personal Subscriber Products
Cellular Radiotelephone Systems
Electronic Mobile Exchange (EMX) Series
HD, LD and HD II Series
Base Stations
Microcomputer (VME) Board Level Products
Multi-User Super Microcomputer Systems and Servers
Software for Workgroup and Network Computing Communications

Information Systems Group
Digital Service/Channel Service Units
Distributed Communications Processors
Electronic Data Switches
ISDN Terminal Adapters
LAN/WAN Internetworking Products
Micro-to-Mainframe Products
Modems: Leased Line, Dial, Custom and Limited Distance
Multiplexers: Statistical, Digital and Time Division
Network Design, Installation and Maintenance Services
Network Management Systems
Network Monitoring Services
Protocol Converters
T1/E1 Nodal Processors
X.25 Packet Switches and PADs

Government Electronics Group
Command, Control, Communications and Intelligence Systems
Countermeasures Systems
Electronic Proximity Fuze Systems
Electronic Test Systems
Intelligent Display Terminals and Systems
Manpack Satellite Communications
Missile Guidance Systems
Multi-function Radar Transponders
Positioning and Tracking Systems
Radar Data Links
Radar Surveillance Systems
Secure Communications
Space Communications Systems
Surveillance, Reconnaissance and Verification Support System (Joint STARS)
Tactical Communications
Tactical Simulation and Training Systems
Unmanned Airborne Vehicle Electronics

Automotive and Industrial Electronics Group
Agricultural Vehicle Controls
Anti-lock Braking System Controls
Automotive and Industrial Sensors
Automotive Body Computers
Gas and Diesel Engine Controls
Ignition Modules
Instrumentation
Keyless Entry Systems
Motor Controls
Multiplex Systems
Power Modules
Solid State Relays/Drivers
Steering Controls
Suspension Controls
Transmission Controls
Vehicle Navigation Systems
Vehicle Theft Alarm Modules
Voltage Regulators

New Enterprises
Deposition Equipment for the Semiconductor Industry
Electronic Ballasts for the Lighting Industry
Factory Automation Computer Control Systems
Software and Hardware for Hospital Intensive Care Units
Supervisory Control Data Acquisition (SCADA) Systems
Stockholder Reference Information

Transfer Agent, Registrar, Dividend Disbursing Agent and Dividend Reinvestment Agent
Harris Trust and Savings Bank, Corporate Trust Operations Division
P.O. Box 755, 111 West Monroe—11th Floor
Chicago, Ill. 60690
312-461-2339

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Corporate Offices
1303 E. Algonquin Road
Schaumburg, Ill. 60196
Or call 708-576-4995

Common Stock
Motorola common stock is listed on the New York, Midwest, London and Tokyo Stock Exchanges.

Annual Meeting of Stockholders
The annual meeting will be held on May 14, 1990. A notice of the meeting, together with a form of proxy and a proxy statement, will be mailed to stockholders on or about March 29, 1990, at which time proxies will be solicited by the Board of Directors.

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.

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OUR FUNDAMENTAL OBJECTIVE
(Everyone's Overriding Responsibility)

Total Customer Satisfaction

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