Annual Report 1990

MOTOROLA INC.

About the Company

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 Malcolm Baldrige National Quality Award, in recognition of its superior company-wide management of quality processes.

On the Cover

One of the newest landmarks in Paris is architect I.M. Pei's pyramid entrance to the Louvre. Guards from Erom Sécurité S.A. use Motorola two-way communications equipment at the museum to protect some of the finest art treasures in the world.

In this year's report you will see how Motorola products and systems serve our customers throughout the world.

Contents

In each of our chosen arenas of the electronics industry, we plan to 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.

Financial Highlights

Years ended December 31	*Motorola, Inc. and Consolidated Subsidiaries*	
(In millions, except as noted)	**1990**	1989
Net sales	**$10,885**	$9,620
Earnings before income taxes	**666**	646
% to sales	**6.1%**	6.7%
Net earnings	**499**	498
% to sales	**4.6%**	5.2%
Net earnings per share (in dollars)	**3.80**	3.83
Research and development expenditures	**1,008**	810
Fixed asset expenditures[1]	**1,260**	1,124
Working capital	**1,404**	1,261
Current ratio	**1.46**	1.48
Return on average invested capital (stockholders' equity plus long- and short-term debt less short-term investments)[2]	**9.4%**	10.3%
% of total debt less short-term investments to total debt less short-term investments plus equity[2]	**23.7%**	23.7%
Book value per common share (in dollars)	**32.32**	29.16
Year-end employment (in thousands)	**105**	104

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

To Our Stockholders and Other Friends

George Fisher
Chairman of
the Board and
Chief Executive
Officer

In 1990, Motorola improved the way the world communicates. Drawing on the broadest portfolio of semiconductors in the world, we introduced electronic products, systems and services designed to make our customers more productive. We announced programs that will enable people to communicate without wires, by voice or data, anywhere from inside an office to the most remote portion of the Earth.

In striving to achieve our fundamental objective of Total Customer Satisfaction, we will focus on giving our worldwide customers what they want, when they want it, with Six Sigma quality. This year's report portrays some of the ways we are serving customers throughout the world, with ever improving quality.

To provide the platform for superior long-term financial performance and maximize our stockholders' long-term value, our strategy focuses on four interrelated arenas of electronics — communications, components, computing and control.

Financial Results While sales grew during 1990, earnings were the same as in 1989, as we continued to aggressively reduce prices and increase strategic investments, despite weaker economic conditions in some of our markets.

Sales increased 13 percent to $10.88 billion from $9.62 billion in 1989. Earnings were $499 million, or $3.80 per share, compared with $498 million, or $3.83 per share, a year earlier. Net margin on sales was 4.6 percent, compared with 5.2 percent a year ago. Return on average invested capital was 9.4%, compared with 10.3% in 1989.

We acknowledge the lower than desirable financial returns of 1990. Some stockholders and analysts believe we are over-investing in research and development and pursuing too many technologies in our strategic areas of interest. We respectfully disagree and believe that sustained, long-term investments in promising technologies provide the platform for solid, profitable growth.

Detailed operating and financial results by our various businesses in 1990 appear on pages 19-23. We were pleased by our semiconductor performance, where we gained market share in every major region of the world. In the Communications Sector, we have taken steps to address the profitability problem, while continuing to develop new products and systems. The potential growth in the communications arena is as exciting as ever.

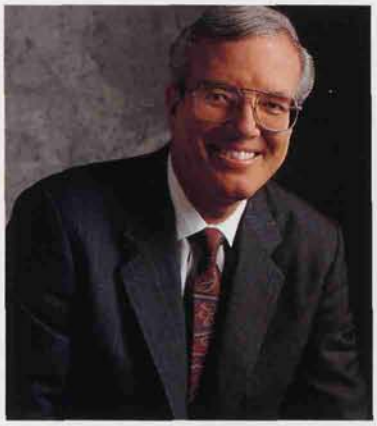
We expect to be operating in a recessionary environment in the U.S., Canada and the U.K. during the first half of 1991. The outlook is more favorable in other parts of Europe, as well as in Asia and Japan.

Our plans call for control of expenses throughout Motorola. We may make

additional cost adjustments in the event of changes in business conditions. At the same time, we see continued opportunities to provide our customers with products that enable them to be more efficient.

Motorola traditionally has been able to build on its strengths and gain against its competitors during low points in the economic cycle, and we plan to continue our investment in research and development.

Global Expansion Our customer base has become more global, and we are expanding accordingly. Non-U.S. revenues as a percentage of the total reached 44% in 1990, compared with 25% in 1985, on an international market basis. In the pages that follow, you will see how electronic products from Motorola are bringing the world closer together. Among the highlights of our global achievements in 1990:



Gary L. Tooker
President and
Chief Operating
Officer

•In Japan, our MicroTAC™ personal cellular telephone won the Foreign Product Design Award from the Ministry of International Trade and Industry. Our speech coder technology was selected as the official standard for digital cellular in Japan. We delivered the 10 millionth microcontroller to Sony for use in its line of 8 mm camcorders, and the 3 millionth controller to Canon for its EOS camera family.

•In Asia, we opened a major new semiconductor facility in Hong Kong, provided the radio system for the Asian Games in China, and shipped more than 500,000 pagers to Taiwan. We began supplying CT-2 digital cordless phones in Singapore and won awards for cellular phone systems in Indonesia and China. In India, our Motorola Blue Star joint venture produced its first data communications products.

•In Europe, we will supply the communications system for the Channel Tunnel linking England and France. We developed major elements of the Pan-European Digital Cellular System. In emerging Eastern European markets, we sold two-way radios in Romania and Yugoslavia, and cellular telephones in Hungary.

•In the United States, we moved toward completion of a nationwide voice and data communications vehicle location network and unveiled our technology for Wireless In-Building Networks.

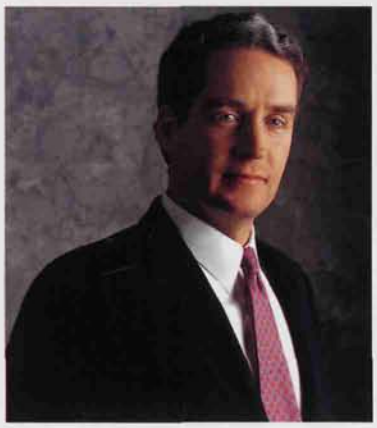
These are only a few examples of how Motorola is serving new customers in a changing world. You will see many more throughout this report.

New Technologies In addition to new technologies developed by our individual businesses, we continued research on systems that draw on our strengths throughout Motorola. One such example is the proposed Iridium™ global personal communications system, which has the potential to allow any human being on Earth — whether on land, at sea or in the air — to communicate with

any other person anywhere. The system is based on a constellation of 77 small satellites in low-Earth orbit, working together as a digital switched voice and data communications network in space. We already have presented the Iridium technology and service concept in more than 35 countries. Motorola's primary role would be to supply equipment. We envision a consortium to provide the service to local telephone companies.

Our Intelligent Vehicle Highway System (IVHS) technology addresses the growing concerns over traffic congestion and safety. We are designing products to bring the power of satellite, sensor, computer and communications equipment into the vehicle — to help determine the most efficient route to a destination based on real-time roadway and traffic conditions, and then guide the traveler along that route.

Iridium and IVHS are examples of the cooperative culture at Motorola, a culture that brings together all organizations and functions to serve the customer, wherever in the world that customer might be.



Christopher B. Galvin
Senior Executive
Vice President and
Assistant Chief
Operating Officer

Senior Management Robert W. Galvin, in addition to his full-time employment as chairman of the Executive Committee of the Board of Directors, has been elected chairman of the Board of Directors of Sematech, a nonprofit industry-government research consortium in Austin, Texas. He is also serving as chairman of the Board of Overseers of the Malcolm Baldrige National Quality Award.

Arthur P. Sundry, president and general manager of the Communications Sector and executive vice president of Motorola, retired after more than 30 years of service, all in the Communications Sector. Twelve years ago, his concern over improving our quality and better serving our customers was the catalyst that subsequently changed the tone of the entire corporation by launching Motorola on our latest decade of renewal. It is based on continual aggressive quality improvement leading to Six Sigma, only 3.4 defects per million.

Carl E. Lindholm, executive vice president and director of international operations, retired after 23 years of service. He also served in communications, as chief corporate staff officer, and as general manager of the Automotive and Industrial Electronics Group. He continues to serve as a consultant on international activities.

We acknowledge with appreciation the many contributions of Art Sundry and Carl Lindholm.

George Fisher Gary L. Tooker Christopher B. Galvin

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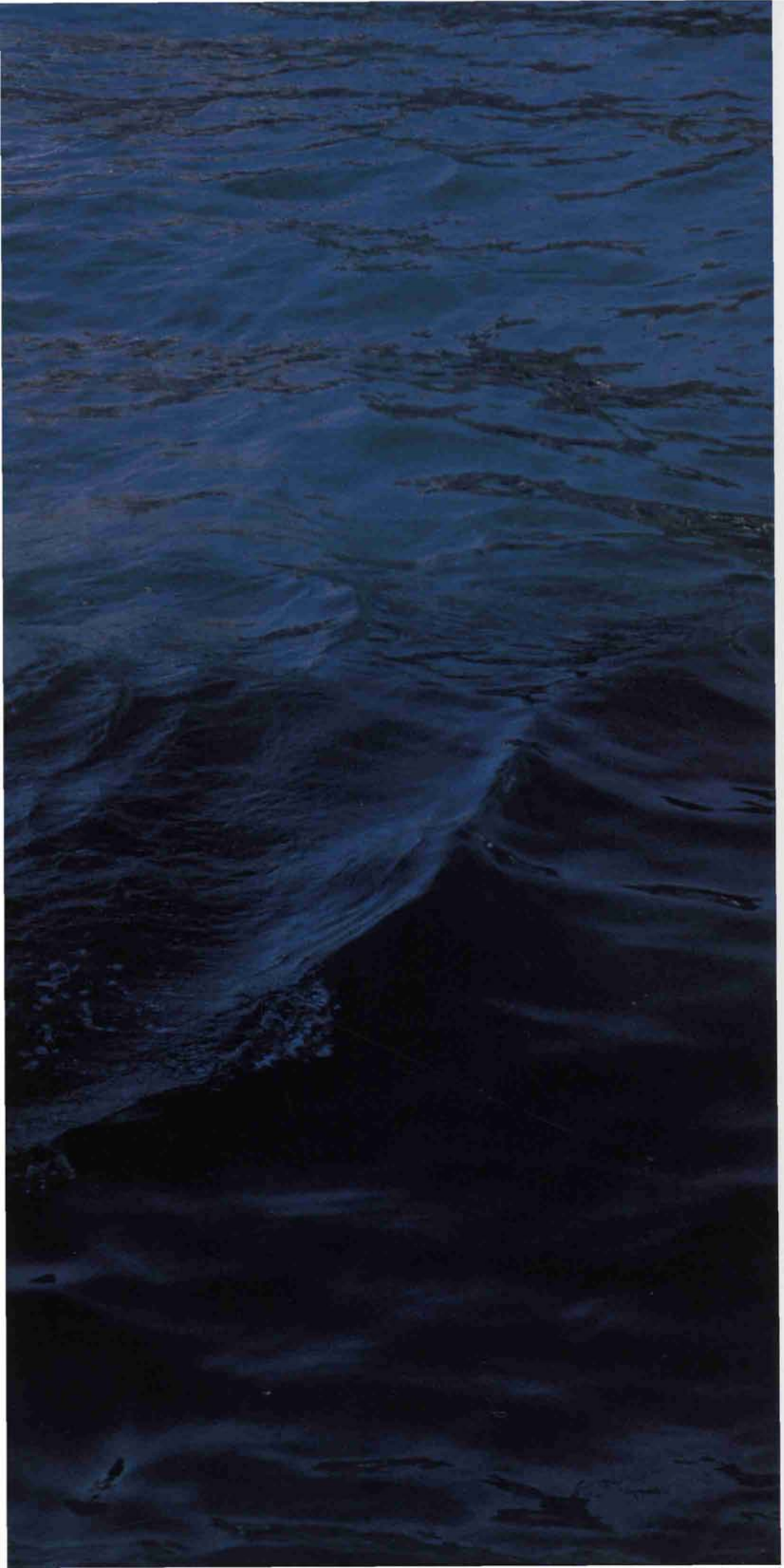


Portable cellular telephones are a way of life in Hong Kong. Motorola phones serve customers in one of the world's toughest environments for radio frequency communications — a high density of users, mountainous terrain, high rise steel and concrete buildings, and a harbor that bisects two major centers of the population. Hutchison Telephone Co., which has the most cellular subscribers in Hong Kong, operates two systems supplied by Motorola. Phones from Motorola are available in every major cellular market from Argentina to Zaire.

Amid the commercial bustle of Tokyo, a Motorola two-way communications system helps Footwork International Corp. save delivery time and fuel. The driver stays in touch by using a new data microphone, equipped with a liquid crystal display to keep information close at hand. The compact MG-100 mobile radio features a "hear-clear" function to reduce noise. It operates at 1.5 gigahertz on Motorola's new Japan Specialized Mobile Radio (JSMR-II) system. Shared trunking systems such as these are among the most advanced in the world.

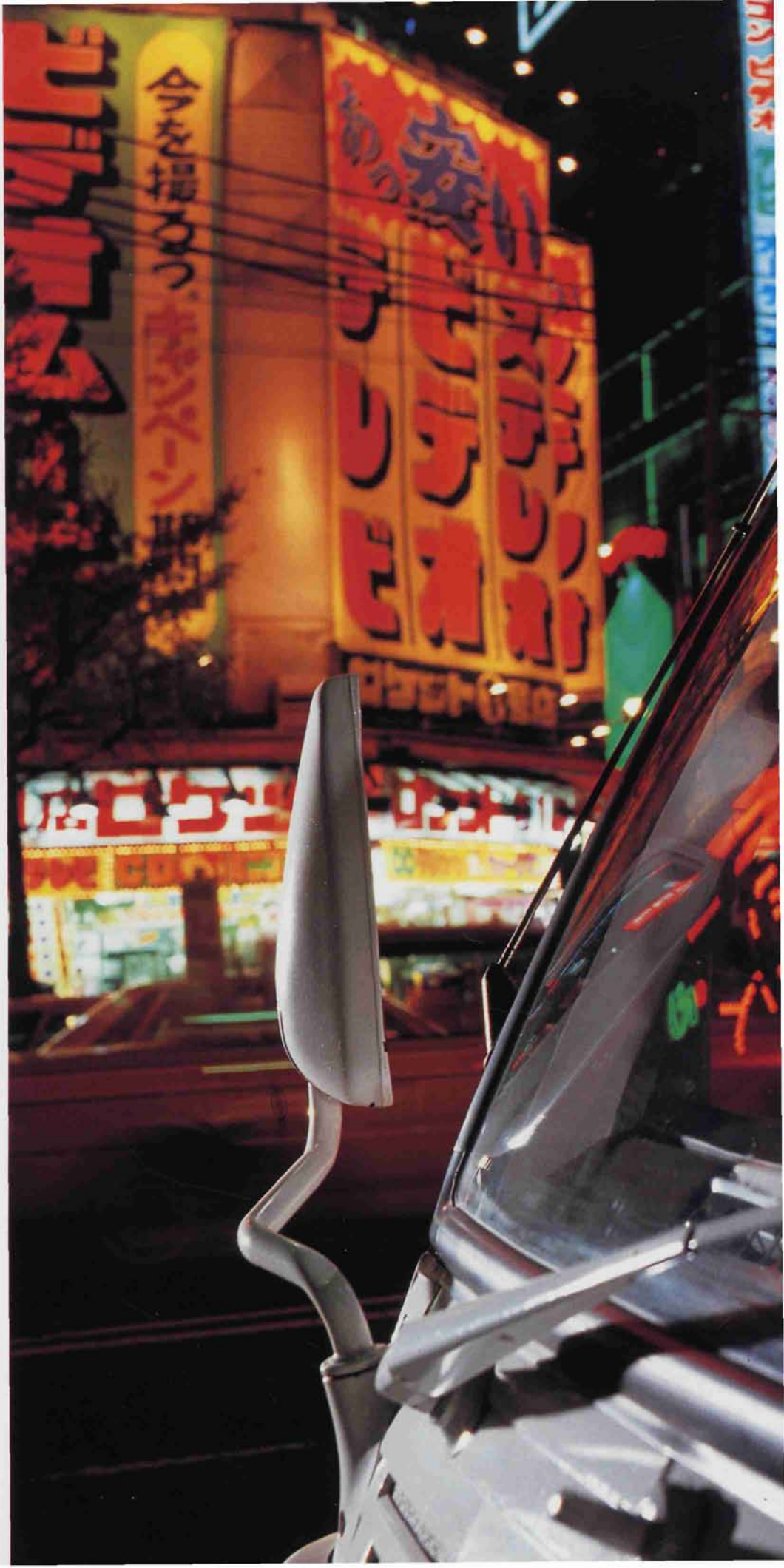
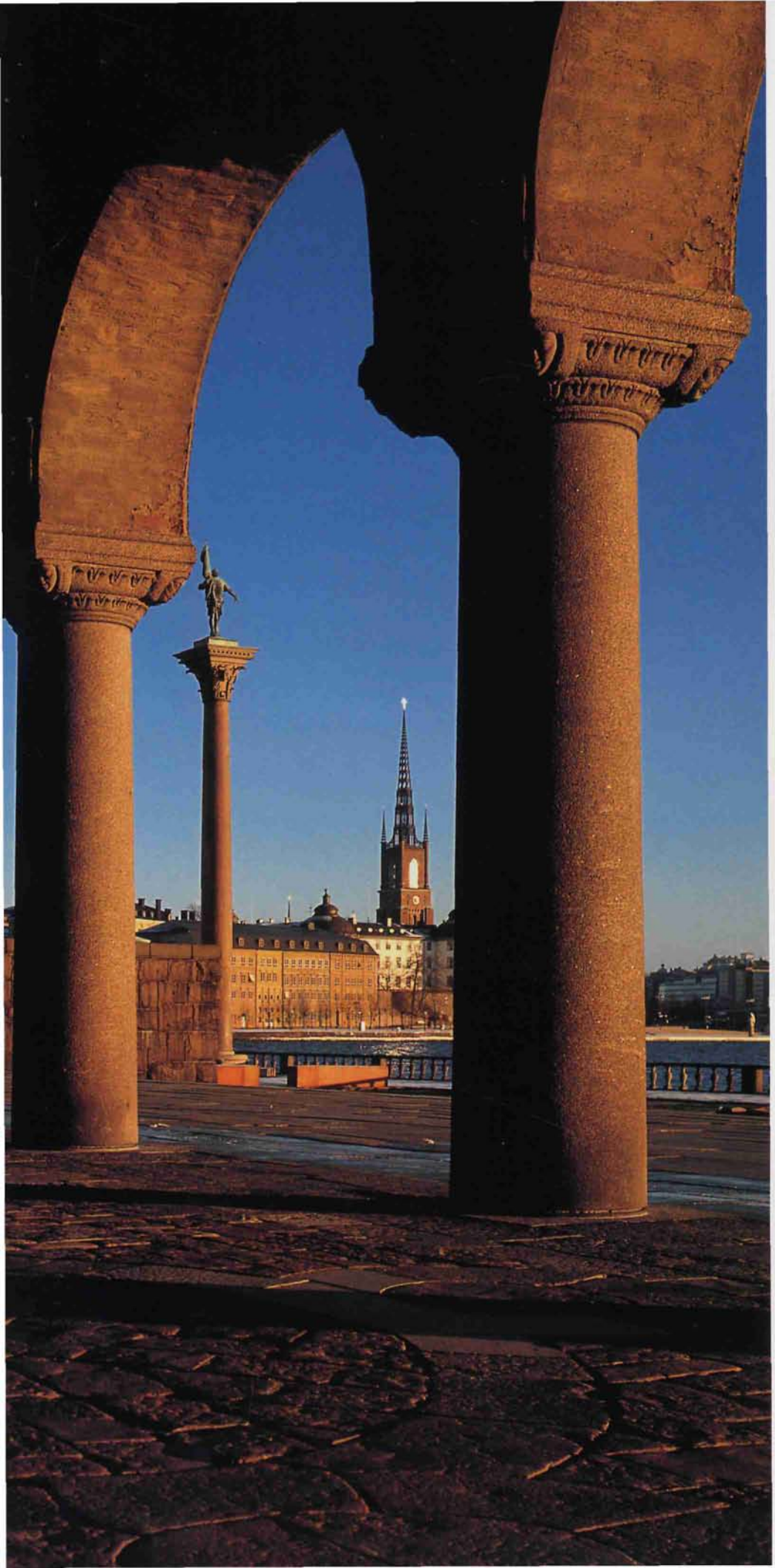
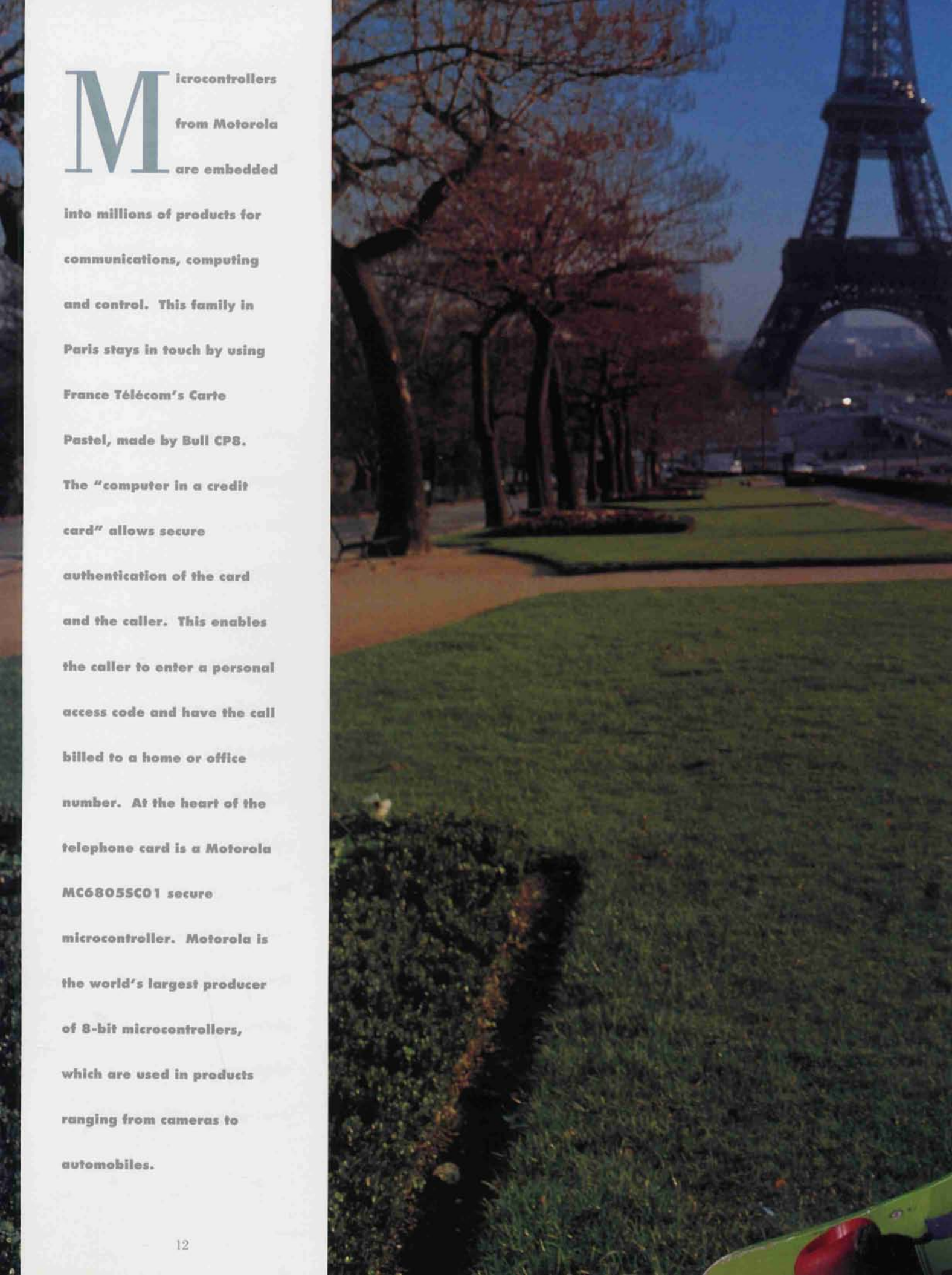



ABB Support
MATERIAL & TRANSPORT



Serving its customers in Stockholm, Sweden means that ASEA Brown Boveri (ABB) must provide rapid, efficient support services. ABB serves global markets ranging from power generation plants to robotics and advanced plastics. At the heart of each ABB operation is a highly efficient communications network. ABB Data chose a networking system based on a Motorola product, the Codex 6290 Fast Packet T1/E1 Multiplexer, to reduce costs and meet the demand for increased bandwidth. Codex is helping to meet the networking needs of global customers like ABB, which has 217,000 employees in 140 countries.

Microcontrollers from Motorola are embedded into millions of products for communications, computing and control. This family in Paris stays in touch by using France Télécom's Carte Pastel, made by Bull CP8. The "computer in a credit card" allows secure authentication of the card and the caller. This enables the caller to enter a personal access code and have the call billed to a home or office number. At the heart of the telephone card is a Motorola MC68055C01 secure microcontroller. Motorola is the world's largest producer of 8-bit microcontrollers, which are used in products ranging from cameras to automobiles.



Teacher Marcia Bailey and two students at Harlem High School in Harlem, Georgia review an algebra problem on a Motorola MultiPersonal™ Computer, the platform for Learning Logic, a software package developed by the National Science Center Foundation. The NSCF chose the powerful Motorola system because it offers color graphics and speed at prices that schools can afford. The interactive, self-paced software package is designed to improve math proficiency in U.S. schools. The MultiPersonal Computer is based on Motorola's 88000 RISC microprocessor family.

Major Businesses

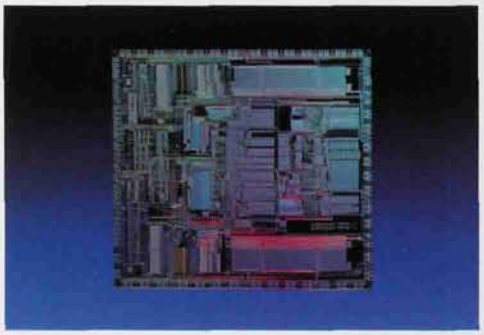
Communications Sector

Land Mobile Products

The Land Mobile Products Sector designs, manufactures and distributes two-way radios and other forms of electronic communications systems for a wide range of customers including agriculture, commercial, construction, education, state, local and federal government and health care markets, as well as for industrial, mining, petroleum, and transportation companies and utilities.

Paging and Telepoint Systems

The Paging and Telepoint Systems Group designs, manufactures and distributes products for paging and CT2 (telepoint) systems worldwide.



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.

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.

Information Systems Group

The Information Systems Group combines the capabilities of Codex Corporation and UDS to provide all the elements for distributed data and voice networks from basic modems to network management systems.

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 users and international customers.

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 components, modules and integrated electronic systems.

New Enterprises

The New Enterprises' organization manages Motorola's entry into strategically relevant, emerging, high growth, high technology business arenas, including hospital clinical information software systems, selected imaging systems, as well as data communications products and services.

Products

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

Components	Pagers	Second Generation Cordless Phones
CT2 (telepoint systems)	Radio Paging Systems	

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

Cellular Mobile, Portable, Transportable	HD, LD and HD II Series	Software for Workgroup and Network
and Personal Subscriber Products	Cellular Base Stations	Computing Communications
Cellular Radiotelephone Systems	Microcomputer (VME) Board Level Products	Real-Time Distributed Computing Systems
Electronic Mobile Exchange (EMX) Series	Multi-User Super Microcomputer	Wireless In-Building Network Products
Factory Automation Computer	Systems and Servers	
Control Systems		

Digital Service/Channel Service Units	Micro-to-mainframe Plug-in Boards	Network Management Systems
Distributed Communications Processors	Modems	Network Monitoring Services
Electronic Data Switches	Multiplexers	Protocol Converters
High Speed Digital Communication Products	Network Design, Installation and	T1/E1 Nodal Processors and Circuit Switches
ISDN Terminal Adaptors	Maintenance Service	X.25 Packet Switches and PADs
LAN/WAN Internetworking Products		

Drone and target command	Missile and aircraft instrumentation	Tactical communications transceivers
and control systems	Missile guidance systems	Tracking and command transponder systems
Electronic fuze systems	Satellite survey and positioning systems	Video processing systems
Electronic positioning and tracking systems	Secure telecommunications	and products
Fixed and satellite communications systems	Space communications systems	
Intelligent display terminals and systems	Surveillance radar systems	

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

Software and Hardware for Hospital	Supervisory Control and Data
Intensive Care Units	Acquisition (SCADA) Systems

Financial Contents

Communications Sector

Sales rose 8% to $3.6 billion and orders increased 9%. Order growth in the U.S. was led by radio common carrier and federal government markets. Internationally, orders grew most rapidly in the Asia-Pacific region. Worldwide demand increased for trunked and secure voice two-way radio systems and for paging products.

Operating profits were $225 million, down from $302 million in 1989. The decline was due to:

- Increased research and development costs for a broad mix of emerging opportunities in radio frequency (RF) communications, as well as expansion of traditional RF products. We believe these investments will provide favorable returns.
- Continued development of the radio data communications business, which promises to rapidly augment our voice and paging technologies. We intend to lead in RF data communications, just as we have led in the growing voice communications businesses.
- Expansion of international distribution channels to meet the growing worldwide popularity of our products and services. We moved aggressively into new markets as their window of opportunity opened. We believe the potential, both short- and long-term, is significant.
- Changes in our U.S. distribution organization, historically one of our greatest strengths. This resulted in notable changes and costs. It proved to be more disruptive, in terms of distribution efficiencies, than expected.
- Certain functions in some of the sector's mix of businesses suffered shortfalls in implementation and efficiency. We missed certain performance goals, while dealing with the heightened dynamics of the overall business. We believe that these particular inadequacies have been identified and are being resolved.

At the end of the year, the sector was divided into the Land Mobile Products Sector and the Paging and Telepoint Systems Group, to focus on the growth potential of wireless communications technologies in these businesses.

Morton L. Topfer, formerly senior vice president and assistant general manager of the Communications Sector, was promoted to president and general manager of the new Land Mobile Products Sector, headquartered in Schaumburg, Ill. Robert L. Growney, formerly senior vice president and general manager of the Radio Technologies Group in the Communications Sector, was promoted to general manager of the new Paging and Telepoint Systems Group, headquartered in Boynton Beach, Fla.

Land Mobile Products

The sector continued to invest heavily in technologies of the future, such as Specialized Mobile Radio (SMR) systems, wireless data communications and digital trunking.

In SMRs, or shared systems, we made major progress toward completion of our new CoveragePlus™ nationwide voice and data communication and vehicle location network in the U.S. More than 500 sites were installed by the end of 1990. The system enables dispatchers to locate and communicate directly with vehicles, by voice or with data messages, anywhere in the network. We introduced the 7100™ series of compact mobile radio data terminals, which will be used on the network.

In Japan, we installed our first 1.5 gigahertz (GHz) shared trunked radio system, called JSMR-II. The system includes newly developed repeaters and subscriber radios in the new frequency band. We began shipping our first 1.5 GHz mobile radio, the MG-100, and the 800 MHz MIB-5000, the world's smallest trunked mobile radios.

In China, new SMR systems were put in service in Beijing and Shanghai. In Europe, a contract was awarded in Switzerland for three systems that are to become part of the country's first shared trunking network. The German Postal and Telecommunications Ministry awarded a contract for a pilot shared radio data network for the Düsseldorf, Cologne and Bonn areas.

In radio data communications, ARDIS, our joint venture with IBM, became operational nationwide. By the end of the year, the radio data communications service had delivered more than 250 million messages. More than 30 customers were using ARDIS for applications such as field service, insurance claims, public safety and transportation.

Motorola received a contract for KDT® hand-held radio data terminals from United Parcel Service, for use of the ARDIS network. UPS uses the terminals to support its new On Call air pickup service.

The South Australia Police Department began operating a Motorola high-speed portable-based police data communications network, the largest system of its kind in the world.

We introduced two modems that are compatible with data networks such as ARDIS. The RPM 840 integrated portable radio data modem is complete with standard industry interface protocols. The RPM 400i modem can be integrated into products such as laptop computers and other hand-held computing devices.

We re-entered the marine VHF radiotelephone market with the introduction of the Radius® Triton II™ ship station radios. The Radius line of two-way radios was broadened with trunked mobiles for Canada and Latin America. The Radius distribution network was expanded with the addition of resellers in France and Germany, and with shipments to Romania and Yugoslavia.

Paging and Telepoint Systems

Motorola entered the market for advanced second-generation digital cordless telephones known as CT-2. This technology provides users low-cost cordless personal telephones that can be used in the office, at home, or outside these areas through base stations known as telepoints. They provide limited-range access to the public switched telephone network.

We introduced a full line of CT-2 infrastructure and subscriber equipment and began initial shipments to

Singapore Telecom. Other major orders were received in Malaysia, Thailand and Hong Kong.

In paging, Motorola was the first manufacturer to have a 280 MHz base station type accepted in Hong Kong, and the first to provide pagers for the newly allocated spectrum. In Japan, we introduced frequency synthesized pagers for Nippon Telegraph & Telephone. These pagers allow customers like NTT to quickly change the operating frequency for different system locations.

Major orders for pagers were placed by customers in Canada, Korea, Hong Kong, Thailand, China, Indonesia and Singapore. More than 500,000 pagers were shipped to Taiwan during 1990.

We introduced the Advisor™ pager, an alphanumeric unit with a four-line display and up to 32,000 characters of memory. Full production shipments of the Wristwatch™ pager began in the fourth quarter. Large orders were received from several major customers.

Motorola purchased Contemporary Communications Corp. of New Rochelle, N.Y. Contemporary holds one of only three nationwide one-way signaling licenses. The new services are being called EMBARC Communications Services. EMBARC (Electronic Mail Broadcast to A Roaming Computer) will use the one-way radio channel to transmit paragraph-size text messages, database updates and information services to laptop and notebook computers and personal organizers utilizing Motorola radio receivers.

Semiconductor Products Sector

Major contributions to our customers' success enabled the Semiconductor Products Sector to achieve record sales and orders in 1990.

Sales increased 13% to $3.4 billion and orders advanced 10%. Operating profits rose to $314 million from $189 million in 1989. The sector gained market share in every major region of the world.

The growth in orders was led by Asia-Pacific, Europe and Japan. International orders exceeded those in North America for the first time in the sector's history. Our focus on the Japanese market produced numerous design wins and expanded sales with key customers.

Order growth was highest in the following four major market segments: personal computer/workstation, communications, automotive and consumer. Demand was higher in most major product categories, led by digital signal processors, fast static random access memories, microcontrollers and microprocessors, along with CMOS gate arrays, MOS digital-analog and bipolar analog components.

The majority of these products contain application-specific, customer-specified or proprietary features. The movement toward higher systems integration on silicon resulted in new or expanded customer partnerships.

For example, we entered into a technology agreement with Philips for developing key components for compact disk-interactive (CD-I), a consumer-oriented multimedia system. We provided critical M68000 family microprocessor support to Apple Computer for its new Macintosh® family. We are developing a custom 16-bit microcontroller, in partnership with Toshiba, Nippondenso and Toyota, to use in future Toyota vehicles.

Our partnership with Northern Telecom produced successful demonstrations of industry standard components for the Integrated Services Digital Network (ISDN). New technology partnerships were signed with Delco Electronics, Cray Computer, IBM, Alcatel, and other major customers.

In a three-way partnership with Echelon Corp. and Toshiba, we will manufacture and market Echelon's Neuron® Multiprocessor. This intelligent controller can sense, control and communicate with other Neuron processors in a local operating network in factories, offices, homes and vehicles, as well as end-use products such as copiers and security systems.

To help our customers succeed, we introduced a spectrum of new technologies and products with higher integration, performance and features. More than 100 customers have adopted the MC68040, our third-generation 32-bit microprocessor for applications ranging from multiuser systems to personal computers. The "040" delivers 20 million instructions per second and a sustained rate of 3.5 million floating point operations per second at 25MHz, 30% faster than its closest competitor. Although it is a complete redesign of our M68000 architecture, the 68040 is compatible with the family's existing $4 billion software base.

We also introduced applications-oriented processors such as the 68340 Data Movement Engine, designed to move large data blocks rapidly. The new 96002 Media Engine™ creates vivid color graphics and stereo sound, with a peak performance of 50 million floating point operations per second. The 68EC030 is designed for embedded control applications. The DSP56100 family of 16-bit digital signal processors for voice and data applications offers cumulative performance of up to 240 million operations per second.

Our 88000 RISC (Reduced Instruction Set Computer) family continued to gain customer acceptance as a result of our strategies to provide superior performance, software standards and long-term software compatibility. Propelled by open architecture standardization and the 88open Consortium, the 88000's binary compatibility standard (BCS) permits compliant software to run on 88000-based systems from numerous manufacturers. In computing alone, more than 60 different system configurations were certified, spanning portable PCs to fault-tolerant systems. The 88000 software library expanded in 1990 from 150 to 1,500 applications ranging from spreadsheets to specialized programs.

Our second-generation RISC engine, the 88110, progressed on an aggressive development schedule for introduction in 1991. It is based on Symetric Superscaler™ technology, permitting instructions to be executed

simultaneously and eliminating instruction-sensitive performance degradation found in competing RISC processors. The 88110 promises sustained performance three to five times greater than our current generation 88100-88200 chip set, while maintaining full software compatibility.

We introduced our first 16-bit microcontroller, the MC68HC16, with on-chip control-oriented digital signal processing capability. It has been designed into many applications, including future vehicles from Chrysler Corp. Our customer-specified 8-bit microcontroller methodology expanded to nearly 100 processors for customers such as General Motors, Apple and Goldstar.

Two new standard cell systems offering mixed-signal (digital and analog) capability were introduced, along with new gate array families providing CMOS densities up to 318,000 gates. We developed numerous customer and/or applications-oriented components providing analog, digital, mixed mode and discrete capability. These included disk drive motor controls, surface-mount RF modules for cellular phones, and a cordless phone audio circuit. Many devices were developed for Motorola equipment businesses.

Other product introductions included the first in a line of Smart Discretes providing current protection; the Scanswitch™ family for CRT monitors, and more than 100 new bipolar and CMOS logic devices.

We expanded our portfolio of fast static random access memories with higher density versions, including the 1 megabit device, which is technologically equivalent to a 4 megabit dynamic RAM. We introduced a series of DRAM modules, expanded shipments of Toshiba-sourced 4-megabit DRAMs, and achieved record 1-megabit DRAM yields in our Scotland facility. As part of our on-going alliance with Toshiba, we will focus production of 4-megabit DRAMs in our joint venture factory in Japan, which was expanded for this purpose.

We continued to invest in our R&D and manufacturing network, opening our Silicon Harbour Center in Hong Kong and a design center in Germany. We began building the MOS 11 factory in Austin, Texas, a research and production center in Chandler, Ariz., and an assembly/test facility in Japan. We also upgraded many of our existing facilities. Sub-micron wafer processing began in our MOS 8 fab in Austin, and our Oak Hill complex in Austin was the first semiconductor facility to win the U.S. government's OSHA Star Award for safety and environmental excellence.

Electronic Data Interchange and certified supplier services were expanded to more customers in Asia, Europe and the U.S. For customer satisfaction efforts, we won awards such as the "Mark of Excellence" from Delco Electronics/General Motors, "Vendor of the Year" from Northern Telecom-Europe, and the Fujitsu Award. Reflecting overall performance, we won Dataquest's "Semiconductor Supplier of the Year" award for the second consecutive year.

Greater yields and efficiency resulted in record unit production of 7.5 billion devices, including 5.5 billion discrete semiconductors—the equivalent of one for every person on Earth.

General Systems Sector

Sales in the General Systems Sector advanced 39% to $2.6 billion, while orders rose 37%. Operating profits were $352 million, up from $340 million in 1989.

Cellular telephone businesses grew rapidly, particularly in subscriber equipment and in international markets. Strategic investments increased for digital cellular, wireless in-building networks and personal communications networks.

The MicroTAC™ personal telephone grew in popularity during the year. It won the foreign product design award from Japan's Ministry of International Trade and Industry, and won several other awards for technological innovation.

Shipments also increased for the Ultra Classic™ portable for three different cellular formats—AMPS, ETACS, and NORDIC 900. We began shipping subscriber units into Eastern Europe under an agreement with Hungarian Radiotelephone Ltd. We also received a contract to supply subscriber equipment to the Italian cellular operator, SIP.

The cellular systems market in the United States remains unsettled, due in part to confusion over industry standards for digital systems. We are investing in engineering for all major digital formats.

We announced the testing of a new cellular call handling system, Narrow Band AMPS, which has the potential to multiply cellular system capacity more than three-fold using existing cellular standards. This enhances the market for analog portable phones while the digital system standards are made final.

Motorola's speech coder technology was selected as the official standard for Japan digital cellular. In the United States, the Telecommunications Industry Assn. selected our speech coder as the official standard for U.S. digital cellular.

We were the first cellular subscriber manufacturer to complete the manufacturer's self test, part of a process for evaluating the Digital AMPS standard selected by the industry.

During the year, we expanded our system base in existing markets. We were awarded system contracts in several new markets, and we were notified by a few large customers that we are being replaced as equipment supplier.

Nippon Idou Tsushin Co. (IDO) awarded Motorola a contract for its Narrow Band TACS cellular system in the Tokyo-Nagoya corridor. With this award, our TACS system will ultimately serve all of Japan, when combined with the regional systems we supplied to Daini Denden, Inc. (DDI).

We were awarded contracts to supply three additional systems in China. The national telephone company in

Indonesia awarded us a contract for systems that are to eventually become part of a nationwide network.

In Germany, Bundespost Telekom qualified Motorola as one of three potential suppliers for the D1 (GSM digital) cellular network. In Sweden, Comvik awarded us the GSM operational network, and in the U.K., we shipped the first pre-operational base station for the nationwide GSM system. TELCEL S.A., Motorola's Spanish joint venture, was awarded the GSM operational system for Seville.

We signed agreements in principle with Alcatel and Siemens to cross-license each other's essential GSM Pan-European Digital Cellular patents.

In Latin America, we were awarded contracts in Argentina, Bolivia, Chile, the Dominican Republic, Guatemala, Mexico and Uruguay.

We unveiled the technology for our new Wireless In-Building Network (WIN), which is to provide high-speed communications among personal computers and other electronic equipment inside a building. The technology makes possible a whole family of wireless communications systems and components planned to be introduced in the 1990s. The first will enable wireless local area network (LAN) communications among personal computers.

The sector expanded its European Software Center in Cork, Ireland, to develop cellular systems. The cellular manufacturing center at Swindon, England, became operational, and a design engineering center was established in Fort Worth, Texas. The Cellular Subscriber Group broke ground for a new headquarters in Libertyville, Ill., and a manufacturing center in Easter Inch, Scotland.

In the Computer Group, the MultiPersonal™ Computer was introduced. Designed as an "office integrator" for the commercial desktop, it is based on the 88000 RISC microprocessor, AT&T's UNIX® operating system, and the X Window graphics standard developed by MIT. The system enhances office productivity through networked word-processing, spreadsheet and database benefits.

New functionality for the product includes the MultiPersonal Image Exchange, which enables users to send and receive facsimile documents on-line and route them to the proper network user. Scanned images can be modified and inserted into documents, which can be distributed electronically or stored on optical disk.

Motorola maintained its leadership as a supplier of VME processor modules. We began shipments of the MVME165, a microcomputer module built around the MC68040 microprocessor. It is designed for embedded control and distributed real-time applications.

General Automation Inc. will purchase our Delta Series 3000 and Delta Series 8000 computer systems under a long-term original equipment manufacturing (OEM) agreement. Major contracts for commercial systems were received from the State of Tennessee and Service Merchandise Co., Inc.

Information Systems Group

Sales increased 8% to $599 million and orders rose 14%. The group recorded an operating loss of $1 million, compared with operating profits of $18 million in 1989, because of the loss on the sale of the Codex Corp. headquarters building in Canton, Mass.

Codex introduced new products and systems aimed at building its ability to offer networking systems and products worldwide. As the domestic leased line modem market and the worldwide statistical multiplexer markets declined, Codex continued to gain larger shares of each market while making the transition to the networking systems business.

Investments in surface-mount technology and advanced manufacturing process resulted in several replacement products with smaller size and world-class quality and functionality.

The new Codex 3600 Communications Platform gives customers flexibility in migrating to digital at their own pace. It can run at 24,000 bits per second (bps) when configured as a leased-line modem. A simple upgrade allows customers to configure the platform as a digital transmission device. Complementing the platform is the new 3500 Digital Service Unit/Channel Service Unit and a terminal adaptor for the Integrated Services Digital Network (ISDN).

With Release 3 of the Codex 9800 Series Network Management System, Codex delivered an Operational Interface kit that allows Codex or other vendors to write interfaces to manage non-Codex products. Codex also introduced interfaces to the "supermanagers" offered by IBM, Digital Equipment and AT&T.

Codex won a major data networking contract from the Federal Aviation Administration, and began shipping products to the U.S. Defense Communications Agency as part of its Bulk Modem requirements contract.

Motorola Blue Star, Ltd., our data communications joint venture in Bangalore, India, began production of its first products. It received a contract from the Centre for Railway Information Systems for Indian-manufactured high-speed, leased-line modems and multiplexers based on Codex technology.

Sales and orders at UDS grew rapidly, mainly because of the high-speed dial-up modem market. Shipments of 9,600 bps V.32 modems more than doubled, while sales of digital products also increased.

Orders for V.32 modems included one from the Japanese National Railroad in Hokkaido, Japan. UDS became the first U.S. company to receive approval for a V.32 dial-up modem in Germany. In Egypt, the National Packet Switched Network (Arento) selected UDS V.32 and V.22bis models for its international network.

Products such as the UDS GlobalView™ Network Management System are designed to address the customers' need for control of the dial-up network.

Government Electronics Group

Sales decreased 2% to $685 million and orders were down 16%. Operating profits rose to $60 million from $46 million in 1989, reflecting the benefits of cost-containment programs.

The group's productivity improvement strategy is designed to improve competitiveness in its core businesses while penetrating related new domestic and international markets that have potential for producing commercial business opportunities.

We introduced the latest model of our Lightweight Satellite Terminals. The LST-5C radio provides full power to establish and maintain a worldwide satellite communications link with the use of only a lithium battery. Weighing only 8.5 pounds, the product also can be operated in a line-of-sight mode.

Our radio frequency subsystem on board the Magellan spacecraft has been successfully transmitting scientific data to tracking stations on Earth. Magellan's goal is to provide the first global view of Venus that is detailed enough to show the planet's geological features.

Equipment designed and produced at GEG is also providing the primary communications link to the Hubble Space Telescope. This first generation Tracking and Data Relay Satellite System (TDRSS) User Transponder will provide the communication link that allows scientists to control the telescope.

GEG's Joint Surveillance Target Attack Radar System (J-STARS) Ground Station Module successfully completed an operational field demonstration in Europe. The J-STARS system consists of the U.S. Air Force's E-8A airborne sensor radar and the U.S. Army's Ground Station Module.

New orders for the year included a $78.5 million contract for the FMU-139 fuze as well as an $8.5 million contract for the FMU-140 fuze. A $36.9 million contract for the MK45 target detecting device used on the Standard missile was also received.

A secure telecommunications business unit is being established within GEG. It produces equipment that protects information transmitted over voice and data networks for both commercial and government markets, including the SECTEL™ Secure Telephone Unit.

Automotive and Industrial Electronics Group

Sales were flat and orders rose 2%, despite a decline in the North American automotive market and general softness in other regional markets. Operating profits were higher.

We continued to expand product offerings and service to original equipment manufacturers in worldwide motor vehicle and industrial equipment markets.

AIEG received production orders for diesel engine control modules for both U.S. and European application. We also were awarded production orders for windshield wiper control modules and vehicle security devices, both of which are designed for U.S. automotive application, and received several orders for manifold absolute pressure sensors from European and U.S. customers. In addition, the group was awarded a production order for a control module from the U.S. plant of a Japanese automotive manufacturer.

We began production on several new programs for passenger car and light vehicle applications, including Chrysler/Jeep gasoline engine control modules, electronic distributorless ignition systems for Ford Motor Company and a polyimide-based ignition assembly for Ford's European Automotive Operations.

The group also started shipping diesel engine control modules to Cummins Engine Co. and began production shipments of Vehicle Management and Control (V-MAC®) modules to Mack Trucks, Inc.

We entered the chassis electronics market by shipping our first anti-lock braking system (ABS) control modules.

Development efforts continued for advanced vehicular systems in response to emerging multiplex applications in the automotive industry.

All AIEG Taiwan operations were relocated to our new state-of-the-art hybrid manufacturing facility in Elma, N.Y.

Motorola Management's Discussion and Analysis of Financial Condition and Results of Operations includes the Financial Results section of the Letter to Stockholders on pages 3-4 and the Review of Operations on pages 19-23, in addition to the following commentary. This commentary should be read in conjunction with the financial statements and footnotes, presented on pages 27-36, for a full understanding of Motorola's financial position and results of operations.

Results of Operations

Motorola's 1990 sales were $10.88 billion, up 13% from $9.62 billion in 1989. 1988 sales were $8.25 billion. International market sales, as measured by the locale of the end customer, have shown strong growth, with a 24.2% increase over 1989. The General Systems Products segment again contributed the highest rate of growth and now represents 23% of total sales, up from 19% in 1989.

Sales in the fourth quarter were $2.93 billion as compared to $2.65 billion in the same period of 1989, or an 11% increase. Earnings per share were 82 cents for the quarter as compared to $1.01 in the same period a year earlier.

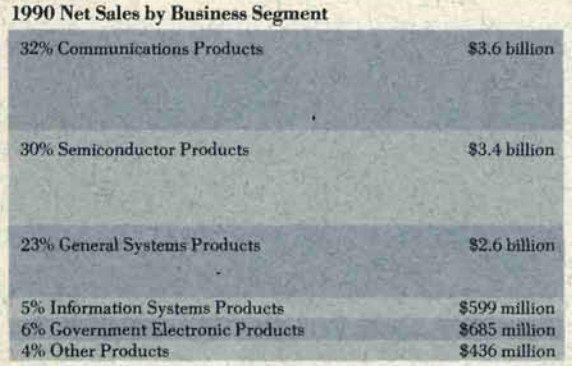
Operating profit from all segments was $951 million in 1990, up from $895 million in 1989. In 1988 operating profit was $804 million. The General Systems Products segment maintained its position as Motorola's most profitable segment in 1990. However, the Semiconductor Products segment showed the most improvement in 1990.

Net earnings of $499 million in 1990 were flat as compared to 1989, with 1990 per share earnings of $3.80 down slightly on increased shares outstanding, compared to 1989 per share earnings of $3.83. In 1988, Motorola earned $445 million or $3.43 per share.

Research and development expenditures increased to $1.01 billion in 1990, up from $810 million in 1989 and $665 million in 1988. As a percent of sales, Motorola continues to invest slightly less than 10% of every sales dollar in product development and technological advances.

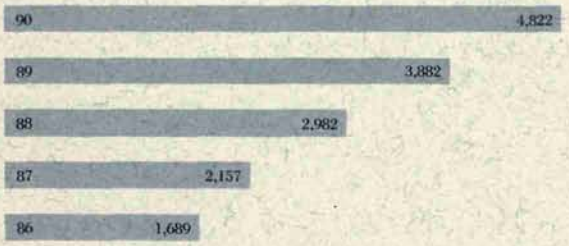
Income taxes. The effective tax rate for 1990 of 25% is up only slightly from the 1989 rate of 23% and down from the 1988 rate of 27%.

1990 Net Sales by Business Segment



International Market Sales*

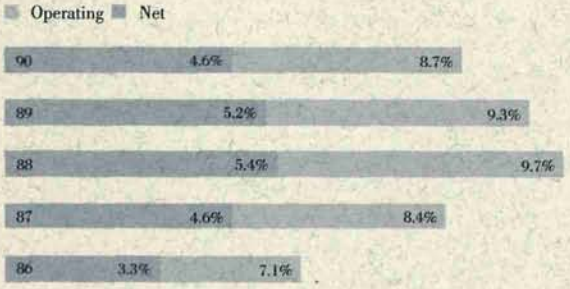
(In millions)



**As measured by the locale of the end customer.*

Profit Margins

(In percent)



Liquidity and Capital Resources

Net cash provided by operations showed an 8% increase in 1990 totalling $1.31 billion, up from $1.21 billion in 1989. In 1988, operating cash flow was $725 million.

Although receivable levels grew at a slower pace than sales, accounts receivable weeks outstanding remained constant at 8.0 weeks for 1990 and 1989. Inventory turns improved only slightly to 3.7 in 1990 from 3.6 in 1989. The temporary flattening in these asset employment indicators presents an opportunity to improve contributions to cash flow in 1991.

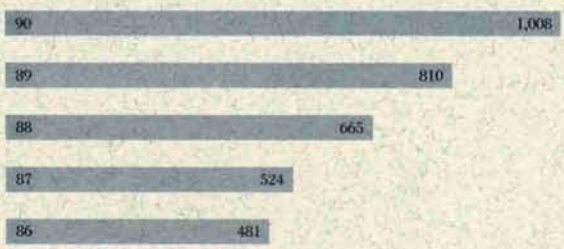
Motorola's net debt to net debt plus equity ratio of 23.7% for 1990 is even with 1989 and maintains a strong balance sheet with a ratio within the Company's financial policy guidelines.

As of December 31, 1990, the Company has domestic and international credit facilities totalling $1.78 billion, of which $788 million remain unused. Cash generated from operations and available credit facilities provide support for near term funding requirements.

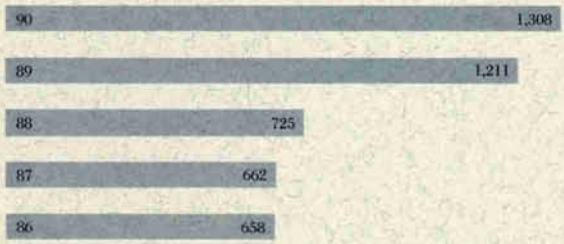
Fixed asset expenditures required to support current and long-term growth increased to $1.26 billion from $1.12 billion in 1989. The Company's expenditure level in relation to sales continued at 12% in 1990, consistent with 1989 and up slightly from 11% in 1988.

The Semiconductor Products segment continues to comprise the largest portion of fixed asset expenditures, with 43% of all such investments.

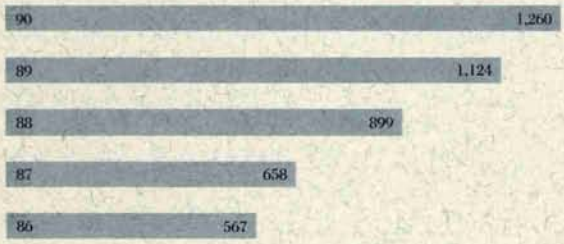
Research & Development Expenditures
(In millions)



Net Cash Provided by Operations
(In millions)



Fixed Asset Expenditures
(In millions)



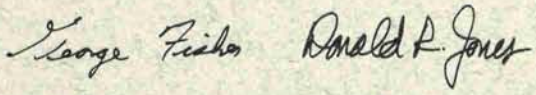
Management Responsibility for Financial Statements

Management is responsible for the preparation, integrity and objectivity of the consolidated financial statements and other financial information presented in this report. The accompanying consolidated financial statements were prepared in accordance with generally accepted accounting principles, applying certain estimates and judgments as required.

Motorola's internal controls are designed to provide reasonable assurance as to the integrity and reliability of the financial statements and to adequately safeguard, verify and maintain accountability of assets. Such controls are based on established written policies and procedures, are implemented by trained, skilled personnel with an appropriate segregation of duties, and are monitored through a comprehensive internal audit program. These policies and procedures prescribe that the Company and all employees are to maintain the highest ethical standards and that its business practices throughout the world are to be conducted in a manner which is above reproach.

KPMG Peat Marwick, independent auditors, are retained to audit Motorola's financial statements. Their accompanying report is based on an audit conducted in accordance with generally accepted auditing standards, which includes a review of internal controls to establish a basis for reliance thereon in determining the nature, timing, and extent of audit tests to be applied.

The Board of Directors exercises its responsibility for these financial statements through its Audit Committee, which consists entirely of independent non-management Board members. The Audit Committee meets periodically with the independent auditors and with the Company's internal auditors, both privately and with management present, to review accounting, auditing, internal controls and financial reporting matters.



George Fisher
Chairman of the Board
and Chief Executive Officer

Donald R. Jones
Executive Vice President
and Chief Financial Officer

Independent Auditors' Report

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, 1990 and 1989, 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, 1990. 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, 1990 and 1989, and the results of their operations and their cash flows for each of the years in the three-year period ended December 31, 1990 in conformity with generally accepted accounting principles.

KPMG Peat Marwick
Chicago, Illinois

January 16, 1991

Statements of Consolidated Earnings

Years ended December 31 — *Motorola, Inc. and Consolidated Subsidiaries*

(In millions, except per share amounts)	**1990**	1989	1988
Net sales	**$10,885**	$9,620	$8,250
Costs and expenses			
Manufacturing and other costs of sales	**6,882**	5,905	5,040
Selling, general and administrative expenses	**2,414**	2,289	1,957
Depreciation expense	**790**	650	543
Interest expense, net	**133**	130	98
Total costs and expenses	**10,219**	8,974	7,638
Earnings before income taxes	**666**	646	612
Income taxes provided on earnings	**167**	148	167
Net earnings	**$ 499**	$ 498	$ 445
Net earnings per share	**$ 3.80**	$ 3.83	$ 3.43
Average shares outstanding	**131.3**	130.0	129.6

Statements of Consolidated Stockholders' Equity

Years ended December 31

(In millions, except per share amounts)	**Common Stock and Additional Paid-in Capital**			**Retained Earnings**		
	1990	1989	1988	**1990**	1989	1988
Balances at January 1	**$1,269**	$1,240	$1,231	**$2,534**	$2,135	$1,777
Net earnings	**–**	–	–	**499**	498	445
Stock option plans	**55**	29	9	**–**	–	–
Dividends declared ($.76 per share in 1990 and 1989 and $.67 per share in 1988)	**–**	–	–	**(100)**	(99)	(87)
Balances at December 31	**$1,324**	$1,269	$1,240	**$2,933**	$2,534	$2,135

See accompanying notes to consolidated financial statements.

Consolidated Balance Sheets

December 31		*Motorola, Inc. and Consolidated Subsidiaries*	
(In millions, except per share amounts)		**1990**	1989
Assets	**Current assets**		
	Cash and cash equivalents	**$ 265**	$ 231
	Short-term investments, at cost (approximating market)	**312**	202
	Accounts receivable, less allowance for doubtful accounts (1990, $68; 1989, $35)	**1,857**	1,683
	Inventories	**1,245**	1,173
	Future income tax benefits	**419**	337
	Other current assets	**354**	289
	Total current assets	**4,452**	3,915
	Property, plant and equipment, net	**3,778**	3,337
	Other assets	**512**	434
	Total assets	**$8,742**	$7,686
Liabilities and Stockholders' Equity	**Current liabilities**		
	Notes payable and current portion of long-term debt	**$ 995**	$ 787
	Accounts payable	**889**	789
	Accrued liabilities	**1,164**	1,078
	Total current liabilities	**3,048**	2,654
	Long-term debt	**792**	755
	Deferred income taxes	**203**	183
	Other liabilities	**442**	291
	Stockholders' equity		
	Common stock, $3 par value		
	Authorized shares: 1990, 300.0; 1989, 300.0		
	Outstanding shares: 1990, 131.7; 1989, 130.4	**395**	391
	Preferred stock, $100 par value issuable in series		
	Authorized shares: 0.5 (none issued)	**—**	—
	Additional paid-in capital	**929**	878
	Retained earnings	**2,933**	2,534
	Total stockholders' equity	**4,257**	3,803
	Total liabilities and stockholders' equity	**$8,742**	$7,686

See accompanying notes to consolidated financial statements.

Statements of Consolidated Cash Flows

Years ended December 31 — *Motorola, Inc. and Consolidated Subsidiaries*

(In millions)		1990	1989	1988
Operating	Net earnings	**$ 499**	$ 498	$ 445
	Add (deduct) non-cash items			
	Depreciation	**790**	650	543
	Net change in deferred income taxes	**(62)**	(31)	(60)
	Amortization of debt discount	**26**	—	—
	Change in assets and liabilities, net of effects of acquisitions			
	Accounts receivable, net	**(173)**	(283)	(247)
	Inventories	**(72)**	(29)	(223)
	Other current assets	**(65)**	(71)	20
	Accounts payable and accrued liabilities	**186**	306	321
	Other assets	**28**	95	(49)
	Other liabilities	**151**	76	(25)
	Net cash provided by operations	**1,308**	1,211	725
Investing	Businesses acquired and advances to affiliated companies	**(117)**	(53)	(123)
	Payments for property, plant and equipment	**(1,256)**	(1,094)	(873)
	Other changes to property, plant and equipment, net	**39**	(39)	(58)
	Increase in short-term investments	**(110)**	(57)	(42)
	Net cash used for investing activities	**(1,444)**	(1,243)	(1,096)
Financing	Increase (decrease) in notes payable and current portion of long-term debt	**208**	(251)	464
	Increase in long-term debt	**7**	389	15
	Issuance of common stock	**55**	29	9
	Payment of dividends to stockholders	**(100)**	(99)	(83)
	Net cash provided by financing activities	**170**	68	405
Increase in Cash and Cash Equivalents		**$ 34**	$ 36	$ 34

See accompanying 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 are 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.

Property, Plant and Equipment: Property, plant and equipment is stated at cost less accumulated depreciation. Depreciation is recorded principally using the declining-balance method, based on the estimated useful lives of the assets (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. The Company enters into foreign exchange contracts to hedge its investments in foreign subsidiaries. Gains and losses on these hedges are also included in net earnings.

The Company periodically enters into foreign exchange contracts to hedge identifiable transactions. Gains and losses from these contracts are classified in net earnings in the same category as the underlying transaction.

Reclassifications: Certain amounts in the 1989 and 1988 financial statements and related footnotes have been reclassified to conform to the 1990 presentation. These reclassifications are not significant.

2 Income Taxes

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

Components of Earnings before income taxes

	1990	1989	1988
United States	$381	$342	$419
Other nations	285	304	193
Total	$666	$646	$612

Components of Income taxes provided on earnings

	1990	1989	1988
Current			
United States	$147	$117	$154
Other nations	51	29	38
State income taxes (U.S.)	31	33	34
	229	179	226
Deferred	(62)	(31)	(59)
Income taxes	$167	$148	$167

Differences between income tax expense computed at the U.S. Federal statutory tax rate of 34% and Income taxes provided on earnings

	1990	1989	1988
Income tax expense at statutory rate	$226	$220	$208
Taxes on non-U.S. earnings	(37)	(49)	(37)
State income taxes	20	21	23
Foreign Sales Corporation	(23)	(12)	(6)
Tax credits	(4)	(8)	(4)
Other	(15)	(24)	(17)
Income taxes	$167	$148	$167

Deferred income tax expense (benefit)

	1990	1989	1988
Depreciation	$ 6	$ 35	$ 26
Deferred taxes on non-U.S. earnings	21	33	10
Employee benefits	(23)	(27)	6
Inventory valuations	(13)	(11)	(19)
Completed contract accounting	7	(10)	(13)
General business credit carryforward	—	—	13
Long-term equipment leases	—	—	(10)
Other, net	(60)	(51)	(72)
Net change in deferred taxes	$(62)	$(31)	$(59)

Income tax payments were $236 million in 1990, $159 million in 1989 and $212 million in 1988.

Income taxes are not provided on cumulative undistributed earnings of certain non-U.S. subsidiaries amounting to $739 million and $649 million at December 31, 1990 and 1989, respectively. It is intended that these earnings will be permanently invested in operations outside of the U.S. Should these earnings be distributed, foreign tax credits would reduce the additional U.S. income tax which would be payable.

At December 31, 1990, certain non-U.S. subsidiaries had loss carryforwards for financial reporting purposes of approximately $61 million.

The Internal Revenue Service has examined the Federal income tax returns for Motorola, Inc. through 1985 and the returns have been settled through 1983. In connection with the audits for the years 1984 and 1985, the IRS has proposed adjustments to the Company's income and tax credits for those years which would result in substantial additional tax. The Company disagrees with most of the proposed adjustments and is contesting them. In the opinion of the Company's management, the final disposition of these matters will not have a material adverse effect on the business or financial position of the Company.

In December 1987, the FASB issued SFAS 96, Accounting for Income Taxes, requiring 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 Debt and Credit Facilities

December 31 Long-term debt	1990	1989
12% eurodollar notes due 1994	$ 68	$ 68
11½% eurodollar notes due 1997	93	93
8⅝% ECU notes due 1992	69	60
8% sinking fund debentures due 2007 (callable at 103.7% reducing to 100.0% of the principal amount)	62	62
6.15% industrial revenue bonds due 2014	20	15
Zero coupon notes due 2009	438	413
Capitalized lease obligations	38	45
Other long-term debt	23	16
	811	772
Less current maturities	19	17
Long-term debt	$ 792	$755

Short-term debt	1990	1989
Commercial paper	$ 733	$507
Notes to banks	224	244
Other short-term debt	19	19
	976	770
Add current maturities	19	17
Notes payable and current portion of long-term debt	$ 995	$787

The zero coupon notes due 2009, referred to as Liquid Yield Option™ Notes (LYON™), have a face value of $1.32 billion. The LYONs are subordinated notes, have no periodic interest payments, are convertible into 4.567 shares of Motorola common stock and were priced to yield 6% to maturity. The notes may be redeemed by the holders in specified circumstances prior to the stated maturity date.

Aggregate maturities and sinking fund requirements for long-term debt, in millions, during the next five years are as follows: 1991, $19; 1992, $88; 1993, $7; 1994, $69; 1995, $9.

The industrial revenue bonds have an interest rate which is resettable annually or for the remaining life of the bonds. The rate changed from 6.15% to 5.75% on January 1, 1991 for 1991.

The Company has domestic and international credit facilities for short-term borrowings, generally with banks. It pays commitment fees of approximately 1/10% on its domestic credit facilities and generally no fees on its foreign credit facilities. Short-term credit facilities totalled $1.78 billion at December 31, 1990, of which $788 million remain unused. Domestic credit facilities primarily back up the issuance of commercial paper, while foreign credit facilities generally support working capital requirements.

Outstanding letters of credit aggregated approximately $116 million at December 31, 1990.

4 Property, Plant and Equipment

December 31	1990	1989
Land	$ 116	$ 107
Buildings	1,771	1,575
Machinery	4,257	3,715
Equipment leased to others	415	356
	6,559	5,753
Less accumulated depreciation	2,781	2,416
Property, plant and equipment, net	$3,778	$3,337

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 principally noncancellable operating leases. In addition, equipment is leased to others under noncancellable operating leases.

Rental expense, net of sublease income, was $132 million in 1990, $125 million in 1989 and $121 million in 1988.

Capital lease expenditures were $4 million in 1990, $30 million in 1989 and $26 million in 1988.

At December 31, 1990, future minimum lease revenues under noncancellable leases and lease obligations, net of minimum sublease rentals, were as follows:

	Lease Revenues	Lease Obligations
1991	$66	$124
1992	38	101
1993	19	61
1994	8	36
1995	3	22
Beyond	1	63

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 totalled $51 million, $48 million and $44 million in 1990, 1989 and 1988, respectively.

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. The plan contains provisions for funding the participants' expected retirement benefits when the participants meet the minimum age and years of service requirements.

Benefits under all pension plans are valued based upon the projected unit credit cost method. The assumptions used to develop the projected benefit obligations for the plans for 1990 and 1989 were as follows:

Discount rate for obligations	9%
Future compensation increase rate	5.5%
Investment return assumption	9.25%

Components of net U.S. pension expense for the regular pension plan

	1990	1989	1988
Service costs	$ 63	$ 57	$ 50
Interest cost on projected obligation	34	26	20
Actual return on plan assets	(11)	(103)	(45)
Net amortization and deferral	(47)	51	(4)
Net pension expense	$ 39	$ 31	$ 21

The net U.S. expense for the elected officers pension plan was $14 million in 1990 and 1989 and $9 million in 1988.

U.S. Funded Plans at December 31	1990		1989	
	Regular	Elected Officers	Regular	Elected Officers
Actuarial present value of:				
Vested benefit obligation	$(341)	$(26)	$(242)	$(27)
Accumulated benefit obligation	(365)	(40)	(271)	(39)
Projected benefit obligation for service rendered to date	(476)	(54)	(373)	(53)
Plan assets at fair value, primarily listed stocks, bonds and cash equivalents	575	34	575	29
Plan assets in excess of (less than) projected benefit obligation	99	(20)	202	(24)
Unrecognized net (gain) loss from past experience different from assumptions	(88)	11	(140)	13
Unrecognized prior service cost	1	32	2	36
Unrecognized net transition (asset) liability	(91)	11	(103)	12
Pension asset (liability) recognized in balance sheet	$ (79)	$ 34	$ (39)	$ 37

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 $25 million in 1990, $15 million in 1989 and $12 million in 1988.

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 $5 million in 1990 and $4 million in 1989 and 1988. There are no significant post-retirement health care benefit plans in foreign countries.

In December 1990, the FASB issued SFAS 106, Accounting for Postretirement Benefits Other than Pensions, which requires employers to recognize expense on the accrual basis during the periods that employees render services. The Company has not yet adopted SFAS 106. The FASB has deferred the required implementation until January 1, 1993. The cumulative impact of adoption has not yet been fully determined and is not reasonably estimable at this time.

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 1990, $23 million was provided for incentive awards, as compared to $24 million and $25 million in 1989 and 1988, 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)	1990	1989
Options outstanding at January 1	**6,502**	6,002
Additional options granted	**1,595**	1,380
Options exercised	**(1,555)**	(797)
Options terminated, cancelled or expired	**(47)**	(83)
Options outstanding at December 31	**6,495**	6,502
Shares reserved for future options grants	**278**	1,826
Total shares reserved	**6,773**	8,328
Total options exercisable	**4,877**	5,099

Options exercised during 1990 were at per share prices ranging from $17.10 to $57.44. Options outstanding at December 31, 1990 were at per share prices ranging from $17.10 to $87.25.

7 Other Financial Data

Income Statement Information

	1990	1989	1988
Research and development	**$1,008**	$810	$665
Maintenance and repairs	**207**	178	196
Foreign currency gains (losses)	**(27)**	(6)	1
Interest expense, net:			
Interest expense	**180**	168	135
Interest income	**(40)**	(35)	(37)
Amount capitalized	**(7)**	(3)	—
Interest expense, net	**$ 133**	$130	$ 98

Balance Sheet Information

	1990	1989
Inventories:		
Finished goods	**$ 405**	$ 350
Work in process and production materials	**840**	823
Inventories	**1,245**	1,173
Accrued liabilities:		
Compensation	**255**	264
Taxes other than income	**96**	97
Income taxes payable	**48**	67
Contribution to employees' profit sharing funds	**51**	48
Dividends payable	**25**	25
Other	**689**	577
Accrued liabilities	**$1,164**	$1,078

Financial data of consolidated financial subsidiaries

	1990	1989	1988
Total revenue	**$ 15**	$ 31	$ 26
Net earnings	**5**	7	7
Total assets	**120**	166	296
Total liabilities	**(84)**	(134)	(249)
Stockholders' investments and advances	**$ 36**	$ 32	$ 47

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.

Finance subsidiary interest income of $15 million in 1990, $31 million in 1989 and $26 million in 1988 is included in Net sales. Interest expense of $8 million in 1990, $20 million in 1989 and $16 million in 1988 is included in Manufacturing and other costs of sales. In addition, finance receivables of $93 million in 1990 and $122 million in 1989 are included in Other assets.

The Company's cash payments for interest expense (net of amounts capitalized) were $113 million in 1990, $175 million in 1989 and $157 million in 1988.

8 Commitments and Contingencies

During 1990, the Company adopted SFAS 105, which requires disclosure of information about financial instruments with off-balance-sheet risk and about concentration of credit risk for all financial instruments.

The Company had $446 million of forward foreign exchange contracts outstanding as of December 31, 1990. Management believes that these forward contracts should not subject the Company to undue risk due to foreign exchange movements because gains and losses on these contracts should offset losses and gains on the assets, liabilities and transactions being hedged.

Obligations under commitments to extend or guarantee financing and recourse under receivable sale arrangements aggregated $262 million as of December 31, 1990. Commitments to extend or guarantee financing include commitments for customer financing and for the financing of non-consolidated affiliates. Customer financing commitments require the customer to meet certain conditions established in the financing arrangements. Commitments represent the maximum amounts available under these arrangements and may not be completely utilized.

As of December 31, 1990, the Company had no significant concentrations of credit risk.

The Company is a defendant in various suits and claims which arise in the normal course of business. 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.

9 Information by Industry Segment and Geographic Region

Industry segment information as of and for the years ended December 31

	Net Sales			Operating Profit					
	1990	1989	1988	**1990**		1989		1988	
Communications Products	**$ 3,560**	$3,310	$3,017	**$ 225**	**6.3%**	$ 302	9.1%	$326	10.8%
Semiconductor Products	**3,433**	3,036	2,741	**314**	**9.2%**	189	6.2%	268	9.8%
General Systems Products	**2,648**	1,902	1,102	**352**	**13.3%**	340	17.9%	107	9.7%
Information Systems Products	**599**	552	566	**(1)**	**(.2%)**	18	3.2%	68	12.0%
Government Electronic Products	**685**	698	648	**60**	**8.8%**	46	6.6%	25	3.8%
Other Products	**436**	490	481	**–**	**.1%**	4	.7%	19	4.0%
Adjustments and eliminations	**(476)**	(368)	(305)	**1**	**–**	(4)	–	(9)	–
Industry totals	**$10,885**	$9,620	$8,250	**951**	**8.7%**	895	9.3%	804	9.7%
General corporate expenses				**(152)**		(119)		(94)	
Interest expense, net				**(133)**		(130)		(98)	
Earnings before income taxes				**$ 666**	**6.1%**	$ 646	6.7%	$612	7.4%

	Assets			Fixed Asset Expenditures			Depreciation		
	1990	1989	1988	**1990**	1989	1988	**1990**	1989	1988
Communications Products	**$2,616**	$2,348	$2,048	**$ 234**	$ 216	$182	**$159**	$124	$ 93
Semiconductor Products	**2,851**	2,590	2,245	**548**	536	435	**345**	306	253
General Systems Products	**1,503**	1,139	941	**223**	182	98	**101**	55	52
Information Systems Products	**386**	403	381	**47**	36	39	**35**	36	30
Government Electronic Products	**363**	396	389	**31**	32	28	**31**	29	30
Other Products	**304**	297	261	**44**	43	41	**19**	17	18
Adjustments and eliminations	**(20)**	(44)	(13)	**–**	–	–	**–**	–	–
Industry totals	**8,003**	7,129	6,252	**1,127**	1,045	823	**690**	567	476
General corporate	**739**	557	458	**133**	79	76	**50**	36	26
Consolidated totals	**$8,742**	$7,686	$6,710	**$1,260**	$1,124	$899	**$740**	$603	$502

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

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

	Net Sales			Operating Profit					
	1990	1989	1988	**1990**		1989		1988	
United States	**$ 8,759**	$ 8,123	$ 7,017	**$ 682**	**7.8%**	$ 623	7.7%	$628	8.9%
Other nations	**5,896**	4,910	3,968	**308**	**5.2%**	313	6.4%	228	5.7%
Adjustments and eliminations	**(3,770)**	(3,413)	(2,735)	**(39)**	**–**	(41)	–	(52)	–
Geographic totals	**$10,885**	$ 9,620	$ 8,250	**951**	**8.7%**	895	9.3%	804	9.7%
General corporate expenses				**(152)**		(119)		(94)	
Interest expense, net				**(133)**		(130)		(98)	
Earnings before income taxes				**$ 666**	**6.1%**	$ 646	6.7%	$612	7.4%

	Assets		
	1990	1989	1988
United States	**$5,041**	$4,653	$4,131
Other nations	**3,084**	2,605	2,211
Adjustments and eliminations	**(122)**	(129)	(90)
Geographic totals	**8,003**	7,129	6,252
General corporate assets	**739**	557	458
Consolidated totals	**$8,742**	$7,686	$6,710

*As measured by the locale of the revenue-producing operations.

The Company operates predominantly in the electronic equipment, systems, and components industry. 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. Manufacturing and distribution operations in any one foreign country do not account for more than 10% of consolidated Net sales or Total assets.

Operating profit (revenues less operating expenses) excludes general corporate expenses, net interest and income taxes. Intersegment sales, principally semiconductor components, amounted to $489 million for 1990, $382 million for 1989 and $298 million for 1988. Intersegment and intergeographic transfers are accounted for on an arm's length pricing basis and comply with domestic and foreign tax regulations.

Identifiable assets (excluding intersegment receivables) are the Company's assets that are identified to classes of similar products or operations in each geographical area. Corporate assets are primarily administrative headquarters, cash, and marketable securities.

Sales to United States Federal government agencies aggregated $1.08 billion for 1990, $1.07 billion for 1989 and $1.05 billion for 1988. No other single customer or group under common control represented 10% or more of the Company's sales.

The equity in net assets of non-U.S. subsidiaries amounted to $1.84 billion at December 31, 1990 and $1.58 billion at December 31, 1989.

10 Stockholder Rights Plan

The Company previously distributed a dividend of one preferred share purchase right on each share of the Company's common stock outstanding on November 20, 1988. Each share of common stock issued thereafter also received one right. 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 or exchange offer for 30% or more of the Company's common stock. The rights have no voting power, expire on November 20, 1998 and may be redeemed 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 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. If one of the events in the prior sentence occurs, the Board of Directors may initially exchange one outstanding and exercisable right for one share of the Company's common stock (or the equivalent). The Board may suspend the exercisability of the rights in specified circumstances.

Five Year Financial Summary

Years ended December 31 — *Motorola, Inc. and Consolidated Subsidiaries*

(In millions, except as noted)		1990	1989	1988	1987	1986
Operating Results	Net sales	**$10,885**	$9,620	$8,250	$6,727	$5,905
	Manufacturing and other costs of sales	**6,882**	5,905	5,040	4,071	3,656
	Selling, general and administrative expenses	**2,414**	2,289	1,957	1,665	1,437
	Depreciation expense	**790**	650	543	494	459
	Interest expense, net	**133**	130	98	79	86
	Total costs and expenses	**10,219**	8,974	7,638	6,309	5,638
	Earnings before income taxes	**666**	646	612	418	267
	Income taxes provided on earnings	**167**	148	167	110	73
	Net earnings	**$ 499**	$ 498	$ 445	$ 308	$ 194
	Net earnings as a percent of sales	**4.6%**	5.2%	5.4%	4.6%	3.3%
Per Share Data *(In dollars)*	Net earnings	**$ 3.80**	$ 3.83	$ 3.43	$ 2.39	$ 1.53
	Dividends declared	**.76**	.76	.67	.64	.64
Balance Sheet	Total assets	**$ 8,742**	$7,686	$6,710	$5,517	$4,826
	Working capital	**1,404**	1,261	758	932	803
	Long-term debt	**792**	755	343	344	334
	Total debt	**1,787**	1,542	1,381	917	786
	Total stockholders' equity	**$ 4,257**	$3,803	$3,375	$3,008	$2,754
Other Data	Current ratio	**1.46**	1.48	1.29	1.52	1.54
	Return on average invested capital	**9.4%**	10.3%	11.0%	8.8%	5.9%
	Return on average stockholders' equity	**12.3%**	13.9%	13.9%	10.7%	7.4%
	Year-end employment (in thousands)	**105.0**	104.0	102.0	97.7	94.4
	Average shares outstanding	**131.3**	130.0	129.6	128.9	126.5

Quarterly and Other Financial Data

(In millions, except per share amounts)

(Unaudited)	1990 Quarters				1989 Quarters			
	1st	**2nd**	**3rd**	**4th**	1st	2nd	3rd	4th
Net sales	**$2,533**	**$2,715**	**$2,703**	**$2,934**	$2,175	$2,385	$2,408	$2,652
Gross profit	**904**	**1,024**	**980**	**1,095**	842	960	886	1,027
Net earnings	**127**	**161**	**102**	**109**	123	154	89	132
Net earnings per share	**.98**	**1.22**	**.78**	**.82**	.95	1.18	.69	1.01
Dividends declared and paid	**.19**	**.19**	**.19**	**.19**	.19	.19	.19	.19
Stock prices:								
High	**69.88**	**88.13**	**88.13**	**66.50**	47.63	60.38	62.00	61.75
Low	**54.50**	**64.13**	**59.13**	**49.88**	39.50	41.13	51.00	53.00

The number of holders of record of Motorola Common Stock on January 31, 1991 was 15,020.

Sectors, Groups and Divisions

Communications Sector
Land Mobile Products
Worldwide Systems Group
Private Systems Division
Shared Systems Division
Mobile Data Division
Worldwide Radio Products Group
Private Radio Division
Shared Radio Division
Worldwide Conventional Radio Division
Worldwide Communications Services Group
U.S. Network Services Division
Worldwide Parts Division
North American Group
Communications and Electronics Group
Government Markets Division
National Markets Division
Special Markets Division
Federal Markets Division
Radius Division
North America Service and Systems Integration Group
European Region Group
International Group
Asia Division
International Markets Division
Pacific Division
Sector Support Group

Paging and Telepoint Systems
Paging Division
Components Division
Semiconductor Products Sector
Discrete and Materials Technologies Group
Power Products Division
RF Products Division
Opto, Sensor and Commodity Products Division
European Semiconductor Group
Discrete and Analog Products Division
European Logic and ASIC Division
MOS Memory and Microprocessor Division
Microprocessor and Memory Technologies Group
Advanced Microcontroller Division
CSIC Microcontroller Division
High-End Microprocessor Division
MOS Digital-Analog Integrated Circuits Division
MOS Memory Products Division
Logic and Analog Technologies Group
Application Specific Integrated Circuits Division
Bipolar Analog Integrated Circuits Division
Logic Integrated Circuits Division
Asia Pacific Semiconductor Division
Japanese Semiconductor Division

General Systems Sector
Cellular Subscriber Group
Pan American Subscriber Group
U.S. Markets Division
International Cellular Subscriber Group
European Cellular Subscriber Division
Computer Group
Commercial Systems Division
International Computer Division
Technical Systems Division
Field Service Division
Radio-Telephone Systems Group
Cellular Infrastructure Group
North American Infrastructure Division
European Infrastructure Division
International Infrastructure Division
Information Systems Group
Codex Corp.
UDS
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
Germany
Flensburg, Munich, Taunusstein
Hong Kong
Kowloon, Tai Po
Ireland
Cork
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, Torrence
Florida
Boynton Beach, Plantation
Illinois
Arlington Heights, Northbrook, Schaumburg
Iowa
Mount Pleasant
Massachusetts
Mansfield
New Mexico
Albuquerque
New York
Elma
Texas
Austin, Dallas, Fort Worth, Seguin
Washington
Bothell
Puerto Rico
Vega Baja

Elected Officers of Motorola, Inc.

As of January 1, 1991	Age	Years of Service
Corporate		
George Fisher Chairman of the Board and Chief Executive Officer	50	14
Gary L. Tooker President and Chief Operating Officer	51	28
Christopher B. Galvin Senior Executive Vice President and Assistant Chief Operating Officer	40	18
Robert W. Galvin Chairman of the Executive Committee of the Board of Directors	68	50
John F. Mitchell Vice Chairman of the Board and Officer of the Board	62	37
Finance		
Donald R. Jones Executive Vice President and Chief Financial Officer	60	40
***Carl F. Koenemann** Senior Vice President and Assistant Chief Financial Officer	52	20
Richard H. Weise Senior Vice President, General Counsel and Secretary	55	22
Kenneth J. Johnson Corporate Vice President and Controller	55	19
Victor R. Kopidlansky Corporate Vice President and Assistant General Counsel	59	25
A. Peter Lawson Corporate Vice President and Assistant General Counsel	44	10
Garth L. Milne Corporate Vice President and Treasurer	48	11
Benny L. Smothermon Corporate Vice President and Director of International Finance	51	14
Europe		
***David K. Bartram** Senior Vice President and Executive Director, Motorola Europe	54	30
***Parviz Mokhtari** Corporate Vice President and Director for Eastern Europe	49	8
International Operations		
***Richard W. Heimlich** Corporate Vice President and Director, International Strategy	49	8
***Noe Kenig** Corporate Vice President and Director, Latin American Operations	67	18
Chi-Sun Lai Corporate Vice President and General Manager, Motorola China Ltd.	54	20
Elisha Shahmoon Corporate Vice President and Managing Director, Motorola Israel Ltd.	51	20
Japanese Group		
Arnold S. Brenner Executive Vice President and General Manager, Japanese Group	53	31
Toshiaki Irie Corporate Vice President and Chairman, Nippon Motorola Limited	57	6
Richard W. Younts Corporate Vice President and President, Nippon Motorola Limited	51	23
New Enterprises		
***Levy Katzir** Senior Vice President, Motorola, and President, Motorola Lighting, Inc.	58	34
Philip D. Gunderson Corporate Vice President, Engineering and Technology, Motorola Lighting, Inc.	52	22
Personnel		
James Donnelly Executive Vice President and Motorola Director of Personnel	51	21
Joseph F. Miraglia Senior Vice President and Assistant Motorola Director of Personnel	54	12
***Theodore Saltzberg** Senior Vice President and Director of Software Programs, Motorola University	63	34
Carlton Braun Corporate Vice President and Director, Educational Institutes and Labs	61	40
Robert L. Hammer Corporate Vice President and Director of Strategic Personnel Management	55	17
A. William Wiggenhorn President, Motorola University, and Corporate Vice President of Training and Education	46	10
Staff		
***David W. Hickie** Executive Vice President and Chief Corporate Staff Officer	57	28
Keith J. Bane Senior Vice President and Motorola Director of Strategy	51	17
William V. Braun Senior Vice President and Motorola Director of Research and Development	55	32
***Richard Buetow** Senior Vice President and Motorola Director of Quality	59	32
C. Travis Marshall Senior Vice President and Motorola Director of Government Relations	64	20
Vincent J. Rauner Senior Vice President for Patents, Trademarks and Licensing	63	20
***James D. Burge** Corporate Vice President and Director of Employment Regulatory Affairs	56	32
James W.Gillman Corporate Vice President and General Patent Counsel	57	17
Les Shroyer Corporate Vice President and Director of Management Information Systems and Telecommunications	46	6
Mauro J. Walker Corporate Vice President and Motorola Director of Manufacturing	55	19
Communications Sector		
Land Mobile Products		
***Morton L. Topfer** President and General Manager, Land Mobile Products Sector, and Senior Vice President, Motorola	54	19
***Robert W. Bigony** Senior Vice President and General Manager, North America Group	49	24
***Gordon Comerford** Senior Vice President and Director, Shared Network Strategy	54	16
***Ronald E. Greenwell** Senior Vice President and General Manager, International Group	52	28
***Robert S. Hall** Senior Vice President and General Manager, Sector Support Group	61	29
***Kenneth R. Hessler** Senior Vice President and General Manager, North America Service and Systems Integration Group	57	33
***John E. Major** Senior Vice President and General Manager, Worldwide Systems Group	45	12
***Richard G. Day** Corporate Vice President and General Manager, Government Markets Division	46	24
***Stanley A. DeCosmo** Corporate Vice President and General Manager, Motorola Communications and Electronics	45	22
***Paul Fowler** Corporate Vice President and General Manager, Shared System Division	47	20
***Merle Gilmore** Corporate Vice President and General Manager, Worldwide Radio Products Group	42	20
***Don Holt** Corporate Vice President and Assistant General Manager, Motorola Communications and Electronics	61	34
***Wayne H. Leland** Corporate Vice President and General Manager, Private Systems Division	47	25
***Harry M. Mankodi** Corporate Vice President and Sector Director of Quality	50	22
***Dale J. Misczynski** Corporate Vice President and General Manager, Worldwide Communications Services Group	48	24
Irvin A. Neruda Corporate Vice President and Sector Director of Finance	61	40
***Robert M. Placko** Corporate Vice President and Sector Director of Personnel	40	16
Larry D. Shockley Corporate Vice President and General Manager, International Markets Division	52	26
***James A. Wagner** Corporate Vice President, Motorola, and Senior Vice President, Technology and Operations, ARDIS	45	24
***Francis T. Wapole** Corporate Vice President and General Manager, European Region Group	46	24
***Robert L. Wasni** Corporate Vice President and General Manager, Worldwide Parts Division	58	34
***Dave Wooldridge** Corporate Vice President and General Manager, Federal Markets Division	59	16

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

Paging and Telepoint Systems

***Robert L. Growney** 48 24
Senior Vice President and General Manager, Paging and Telepoint Systems Group

***Gerald Brunning** 50 26
Corporate Vice President and General Manager, Components Division

***S. Michael Corrigan** 47 12
Corporate Vice President and Director of Personnel

***Jerome C. Leonard** 53 29
Corporate Vice President and General Manager, Paging Division

Semiconductor Products Sector

James A. Norling 48 25
President and General Manager, Semiconductor Products Sector, and Executive Vice President, Motorola, Inc.

Thomas D. George 50 11
Senior Vice President and Assistant General Manager, Semiconductor Products Sector

***Andre Borrel** 54 23
Senior Vice President and General Manager, Discrete and Materials Technologies Group

***Murray A. Goldman** 53 21
Senior Vice President and General Manager, Microprocessor and Memory Technologies Group

***Gary M. Johnson** 46 23
Senior Vice President and General Manager, Logic and Analog Technologies Group

Geno Ori 53 28
Senior Vice President and Director of Customer Relations

***David L. Pulatie** 48 25
Senior Vice President and Sector Director of Personnel

***Hector Ruiz** 45 12
Senior Vice President and Director of Sector Technology

Charles E. Thompson 61 21
Senior Vice President and Sector Director of World Marketing

***R. Gary Daniels** 53 24
Corporate Vice President and Assistant General Manager, Microprocessor and Memory Technologies Group

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Corporate Vice President and Director, Sector Finance

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Don Burns 48 18
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***William E. Spencer** 44 14
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Government Electronics Group

***David G. Wolfe** 55 26
Executive Vice President and General Manager, Government Electronics Group

James R. Baum 60 33
Corporate Vice President and Assistant General Manager, Government Electronics Group

***Durrell W. Hillis** 50 27
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***Frank Langford** 46 12
Corporate Vice President and Director of Finance

***Ralph Love** 58 27
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Corporate Vice President and General Manager, Communications Division

Julie A. Sackett 47 16
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Automotive and Industrial Electronics Group

Frederick T. Tucker 50 25
Senior Vice President and General Manager, Automotive and Industrial Electronics Group

***John J. Pelland** 47 17
Corporate Vice President and General Manager, Automotive Powertrain and Chassis Electronics Division

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Gary L. Tooker
Christopher B. Galvin
Robert W. Galvin
John F. Mitchell

William J. Weisz
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David R. Clare
Retired; formerly President, Johnson & Johnson
Wallace C. Doud
Retired; formerly Vice President, International Business Machines Corporation
John T. Hickey
Retired; formerly Executive Vice President and Chief Financial Officer, Motorola, Inc.
Lawrence Howe
Executive Director, Civic Committee of the Commercial Club of Chicago
Anne P. Jones
Partner, Sutherland, Asbill & Brennan law firm
Donald R. Jones
Stephen L. Levy
Retired; Senior Advisor and Deputy Representative for the Chief Executive Office, Motorola, Inc.
Walter E. Massey
Vice President for Research and for Argonne National Laboratory, The University of Chicago
William G. Salatich
Retired; formerly President, Gillette North America, and Vice Chairman of the Board, Gillette Company
Gardiner L. Tucker
Retired; formerly Vice President for Science and Technology, International Paper Company
B. Kenneth West
Chairman of the Board and Chief Executive Officer, Harris Bankcorp, Inc.

Director Emeritus

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

CEO Quality Awards

The Chief Executive Office Quality Award is Motorola's highest award for quality performance. Winners in 1990 were:

Automotive and Industrial Electronics Group
Sectel SBU Team/Teams
Scottsdale, Ariz.
Seguin, Texas
Northbrook, Ill.

Communications Sector
Radius Division
Mount Pleasant, Iowa
Motorola Penang
Malaysia
Shirley Ooi
Penang, Malaysia
Fixed Products Division
Circuit Technology Department
Schaumburg, Ill.

Motorola Electronics Pte. Ltd.
Singapore
Motorola Israel Ltd.
Arad Factory

Government Electronics Group
Voyager Program
Chandler, Ariz.
Apache Program
Scottsdale, Ariz.
FMU-139 Fuze Team
Scottsdale, Ariz.

General Systems Sector
Cellular Personnel
Arlington Heights, Ill.
North American Subscriber Distributions Oprs.
Arlington Heights, Ill.

Nippon Motorola Ltd.
Semiconductor Products Division of Nippon Motorola
Tokyo, Japan

Semiconductor Products Sector
KLM Metal Finishing Team
Malaysia
Bipolar I Wafer Fab & Support
Mesa, Ariz.
Manufacturing Centers of Excellence
Kuala Lumpur;
Hong Kong;
Manila, Philippines;
Taiwan;
Korea;
Tempe, Ariz.

Corporate Staff
Finance
Worldwide Finance Organization
Schaumburg, Ill.
Corporate Audit Department
Schaumburg, Ill.

1990 Dan Noble Fellows

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

Fellows chosen in 1990 are:

John Bjornholt
Government Electronics Group, Scottsdale, Ariz.

David Borth
Corporate Research & Development, Schaumburg, Ill.
Jim Edwards
Automotive & Industrial Electronics Group
Northbrook, Ill.
Mike Kotzin
General Systems Sector
Arlington Heights, Ill.
Paul Lin
Semiconductor Products Sector
Austin, Texas

Bill Martino
Semiconductor Products Sector
Austin, Texas
Bernard Sigmon
Government Electronics Group
Scottsdale, Ariz.
Phil Smith
Semiconductor Products Sector
Austin, Texas
Robert Vyne
Semiconductor Products Sector
Tempe, Ariz.
Eric Ziolko
Communications Sector
Schaumburg, Ill.

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, Il 60690
312-461-2339

Investor Relations

Security analysts, investment professionals and shareholders should direct their business related inquiries to:

Investor Relations
Corporate Offices
1303 E. Algonquin Road
Schaumburg, Il 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 13, 1991. A notice of the meeting, together with a form of proxy and a proxy statement, will be mailed to stockholders on or about March 28, 1991, 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, 1303 E. Algonquin Road, Schaumburg, Il 60196.

Auditors

KPMG Peat Marwick
303 E. Wacker Drive
Chicago, Il 60601

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