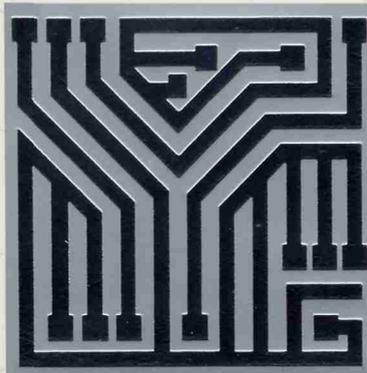


Annual Report 1983



**MOTOROLA INC.**



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Motorola, Inc., is one of the world's leading manufacturers of electronic equipment, systems and components produced for both United States and international markets. Motorola products include two-way radios, other forms of electronic communications systems, semiconductors, defense and aerospace electronics, automotive and industrial electronic equipment, data communications and information processing and handling equipment. Motorola is one of the few end-equipment manufacturers that can draw on expertise in both semiconductor technology and government electronics.

As the cover suggests, semiconductor technology is at the center of today's world. Throughout the pages of this report, you will see some of Motorola's distinctive product offerings and some of the people who make them possible.

## Financial Highlights

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

(In millions of dollars, except per share data)	1983	1982
Net sales	<b>\$4,328</b>	\$3,786
Earnings before income taxes and extraordinary gain*	<b>309</b>	212
% to sales	<b>7.1%</b>	5.6%
Net earnings before extraordinary gain*	<b>244</b>	170
% to sales	<b>5.6%</b>	4.5%
Earnings per share before extraordinary gain*	<b>6.26</b>	4.64
Research and development expenditures	<b>336</b>	278
Fixed asset expenditures	<b>406</b>	355
Working capital	<b>894</b>	924
Current ratio	<b>2.07</b>	2.57
Return on average invested capital (stockholders' equity plus long- and short-term debt, net of marketable securities)	<b>12.2%</b>	9.1%
% of total debt less marketable securities to total debt less marketable securities plus equity	<b>4.3%</b>	12.8%
Book value per common share	<b>49.46</b>	44.40
Year-end employment (approximate)	<b>88,800</b>	78,800

\*See note 2 to the consolidated financial statements regarding the 1982 extraordinary gain.

### Annual Meeting of Stockholders

The annual meeting will be held on May 7, 1984. A notice of the meeting, together with a form of proxy and a proxy statement, will be mailed to stockholders on or about March 23, 1984, at which time proxies will be solicited by the Board of Directors.

### Form 10-K

At 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 by addressing your request to the Secretary, Motorola, Inc., Corporate Offices, Motorola Center, 1303 E. Algonquin Road, Schaumburg, Ill. 60196.

### Transfer Agent and Registrar

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

### Auditors

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

## To Our Stockholders and Friends

Motorola's financial performance improved steadily throughout 1983, with each quarter showing better results than the previous one. Sales surpassed \$4 billion for the first time, while profit margins and return on capital turned upward.

The favorable 1983 results are in contrast to the two previous years, when, despite a difficult economic climate, we elected to nurture important strategic programs. We are gratified by the increasingly apparent success of that strategy and the dedication of our employees throughout the world.

Sales and other revenues for 1983 were \$4.33 billion, up 14 percent from \$3.79 billion in 1982. Earnings rose to \$244 million, or \$6.26 per share, from \$170 million, or \$4.64 per share, a year earlier.

Net margin on sales improved in 1983 to 5.6 percent, compared with 4.5 percent in 1982. Return on average invested capital (stockholders' equity plus long- and short-term debt, net of marketable securities) was 12.2 percent compared with 9.1 percent in 1982.

The 1982 earnings figures mentioned above exclude an extraordinary gain of \$8 million, or 23 cents a share, which resulted from an exchange of stock for outstanding debentures.

### **Operations Overview**

The Communications Sector's sales increased 6 percent, while operating profits declined from 1982, as the sector increased its heavy spending on new technology, including new products, systems and factory automation. Research and development spending increased 24 percent in 1983. World-wide new orders rose 19 percent.

The pace and profitability of the Communications business improved as the year ended. Fourth quarter sales and operating profits were substantially

higher than for the third quarter and higher than for the fourth quarter of 1982, signifying both strengthening momentum in the sector's traditional businesses and major shipments of cellular radiotelephone products. World-wide backlog at the end of 1983 was 62 percent higher than a year earlier.

The Semiconductor Products Sector had record sales, operating profits and new orders. Sales climbed 23 percent and operating profits were substantially higher. New orders advanced 63 percent, while order backlog was more than double the year-end 1982 level.

Momentum grew throughout the year in all major market segments and across the sector's product portfolio. Automotive, distribution, communications and consumer segments were especially strong. The overall demand led to a firming of prices and longer lead times for many devices, despite significantly stepped-up production.

Sales were up 6 percent in the Information Systems Group, while new orders rose 20 percent. The group incurred a small operating loss for the year after recording an \$11 million charge for the discontinuation of a line of central processing equipment acquired by Four-Phase Systems shortly before its acquisition by Motorola. Otherwise the group would have recorded a small operating profit in both the fourth quarter and the year.

Performance of the Automotive and Industrial Electronics Group improved sharply. Sales and new orders both increased 31 percent. Operating profits rose significantly, while backlog was 15 percent higher. Emphasis on electronic engine controls and instruments, digital appliance controls and display systems enabled the group to advance in growing segments of the economy.

The Government Electronics Group's sales rose 15 percent in 1983, while new

orders climbed 21 percent. Operating profits improved and backlog increased 26 percent. The group continued to stress technological development and benefited from a strong U.S. defense budget.

### **Fixed Asset Expenditures**

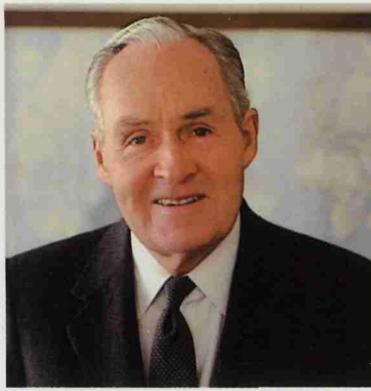
We spent \$406 million in 1983 to acquire new fixed assets, up 14 percent from \$355 million in 1982. Along with the growing rate of orders booked, sales and operating profits in most of our businesses, the pace of fixed asset expenditures was moving upward as 1983 ended. The "backlog" of approved projects which had not yet been expended was approximately 45 percent higher at December 31, 1983, than a year earlier. Details of new or expanded plants are discussed elsewhere in this report.

### **Research and Development**

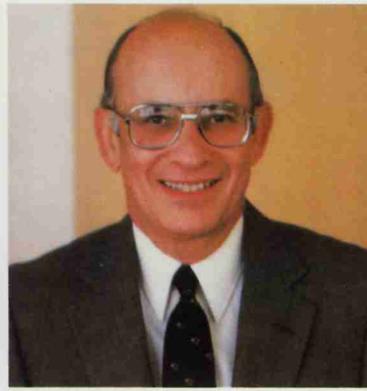
Motorola's research and development expenditures, exclusive of government-funded work, rose 21 percent in 1983 to \$336 million from \$278 million in 1982. The products discussed throughout this report are the result of our coordinated research efforts.

### **Management and Board of Directors**

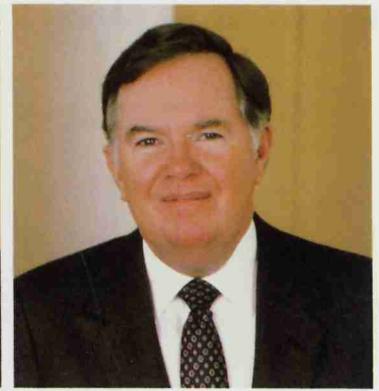
In January and February 1984 the Board of Directors approved and we implemented a restructuring of the officers' group below our office. The title of executive vice president was reactivated and assigned to the heads of our major businesses and corporate headquarters functions. These senior officers, along with ourselves, continue to constitute the Policy Committee of the Corporation. The restructuring also included the promotion of other major officers to senior vice president and the election of still another group of formerly appointed officers to the corporate vice president rank. The list of elected offi-



Robert W. Galvin



William J. Weisz



John F. Mitchell

cers which appears on pages 34 and 35 indicates which of these officers has advanced in rank or assumed a new position since our last annual report to stockholders.

Shortly after the elected officer changes discussed above, the general managers of the sectors, groups and corporate departments also appointed new officers of their organizations. In keeping with past practice, these executives are considered to be officers of their respective sectors, groups or corporate departments.

We believe that this restructuring of our officership levels not only provides more appropriate recognition and increased advancement opportunity for senior Motorola managers, but also augments the strength and depth of leadership which will better posture Motorola for the growth opportunities that lie ahead.

In accordance with Motorola's policy on tenure of directors, Charlotte T. Reid and Elmer H. Schulz, directors since 1979 and 1968 respectively, are not standing for re-election to the board at the next annual meeting. We acknowledge with appreciation their many contributions to Motorola over these years.

### Share Distribution

At the annual meeting May 7, 1984, stockholders will be asked to increase Motorola's authorized common stock to 150 million shares from 50 million shares. If approved, the Board of Directors intends to authorize a 3-for-1 stock split in the form of a 200 percent stock dividend. The new stock certificates would be mailed on June 1, 1984 to stockholders of record May 18. The board expects to declare an initial quarterly dividend of 16 cents per share on the stock after the distribution, equivalent to 48 cents quarterly on the shares before the split. This represents an increase of 20 percent over the current

rate of 40 cents quarterly.

### Outlook

Our performance in 1983 indicates that Motorola's strategy has succeeded in positioning the company in businesses with exciting growth potential.

Among the segments of our company that performed the best in 1983 are those that benefited throughout the year from the consumer-driven recovery in the United States. Our Semiconductor Products Sector and Automotive and Industrial Electronics Group, which sell components to manufacturers of consumer goods, led the way.

The capital goods portion of the U.S. economy, which began to improve in the latter part of the year, is expected to continue to advance in 1984. Spending for high-technology equipment to improve productivity promises to be especially strong. We expect our Communications Sector and Information Systems Group to benefit from this phase of the economic recovery.

Certain factors could moderate this growth. Interest rates could remain too high to permit a prolonged recovery. The strength of the U.S. dollar could continue to have a negative impact on some of our international operations. The debt burden of developing nations also remains a serious concern.

Nevertheless, the U.S. recovery in 1983 has improved the outlook for the world economies. We have seen strong growth in our Asia-Pacific markets, while Europe is advancing at a slower rate. We expect these trends to continue.

Given our strong financial position and the projected long-term demand for our products, our expenditures for fixed assets, as well as for research and development, will continue to increase in 1984. New communications programs represent major opportunities and challenges and will require further

investment. We will continue to build up our semiconductor capacity, and we intend also to support the projected growth in the Information Systems, Automotive and Industrial Electronics, and Government Electronics Groups.

Quality and productivity improvement remain high priorities, and this effort will be moving forward briskly in 1984. Inventory control and asset management are long-range programs designed to keep us competitive with other companies throughout the world and to improve our position in all phases of the economic cycle. The dedication of our people has enabled these programs to succeed and has generated healthy optimism.

We look forward to continued growth in sales and earnings in 1984 and for the longer term.

Yours very truly,

Robert W. Galvin  
Chairman

William J. Weisz  
Vice Chairman

John F. Mitchell  
President

## GROUPS:

**Communications Distribution**

**Communications International**

**Fixed & Mobile**

**Portable/Paging/Systems/  
Components**

## DIVISIONS:

**Commercial Markets**

**Components**

**Distribution Service**

**European**

**Fixed**

**Government Markets**

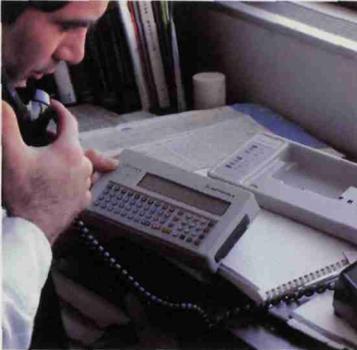
**Mobile**

**Paging**

**Portable**

**Special Markets**

**Systems**



(Above) PCX™ portable radiodata terminal contains the memory and processing power of a personal computer. A desktop unit recharges the battery.

(Opposite) At High Tech Service Center in Schaumburg, Ill., technicians can diagnose immediately any Motorola-installed cellular radiotelephone system in the U.S.

The sector's performance was improving as 1983 ended. Sales for the year increased 6 percent to a record \$1.62 billion. Operating profits declined as the sector accelerated its already heavy spending on technology, including new products, systems and factory automation. Research and development spending increased 24 percent in 1983.

Fourth quarter sales and operating profits were substantially higher than for the third quarter and higher than for the fourth quarter of 1982, signifying both strengthening momentum in the sector's traditional businesses and major shipments of cellular radiotelephone products. Worldwide backlog at the end of 1983 was 62 percent higher than a year earlier.

Domestic new orders rose more than 20 percent over 1982, led by substantial growth in the radio common carrier market as well as the commercial, industrial and utility markets. In the commercial markets the construction segment was especially strong.

Despite slower growth in state and local spending, new orders also increased in the government markets. Major orders included a \$32.6 million contract from the Federal Bureau of Investigation to supply and install state-of-the-art communications systems.

International new orders increased 14 percent, despite further strengthening of the U.S. dollar and continued weakness in Latin American economies.

The sector established a Components Division that consolidates the design, manufacturing and sales activities related to frequency sensitive components, subassembly ceramic products and materials, batteries and printed wiring boards. Headquartered in Franklin Park, Ill., the Components Division formerly was part of the Communications Systems Division.

During 1983, construction began on two additions to the Schaumburg facility. They will add 157,000 square feet of manufacturing and laboratory space, primarily for cellular equipment manufacture. A 333,000 square-foot paging campus began operating in Boynton Beach, Fla. Paging activities previously shared the Fort Lauderdale facility. Opening of the Boynton Beach campus allows expansion of both paging and portable products manufacturing. In Basingstoke, England, the sector opened a 120,000 square-foot manufacturing,

engineering and administrative facility, and sold its existing 68,000 square-foot building.

## Cellular Radiotelephone

The sector's sustained investment in cellular radiotelephone began to bear fruit during 1983 as worldwide activity increased dramatically. New orders for cellular systems climbed sharply and shipments accelerated in the third and fourth quarter.

In December, the Federal Communications Commission granted the first U.S. non-wireline commercial license for a Motorola Dyna T•A•C® cellular system operated by American TeleServices in Washington, D.C., and Baltimore. This system had been previously operated on a market-trial basis for more than two years, with one million calls processed.

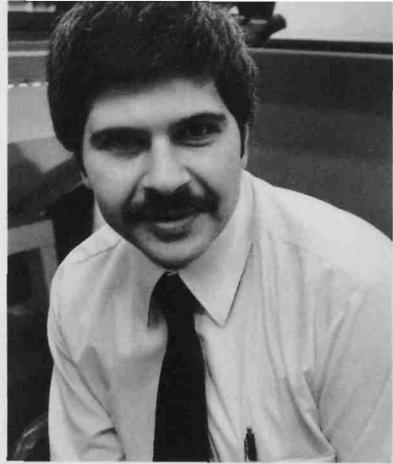
Motorola's Dyna T•A•C portable became the first cellular portable telephone to receive FCC type-acceptance. Shipments will begin in 1984.

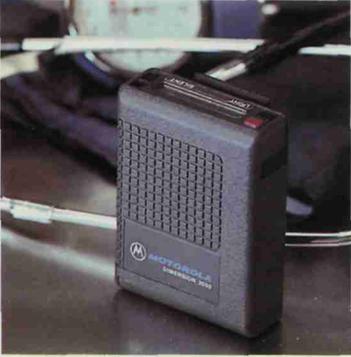
The sector received a contract from Advanced Mobile Phone Service (AMPS), a subsidiary of AT&T, for digital switches and associated cell site equipment. The contract covers nine cities initially and potentially up to 32 cities. The additional system orders are conditional upon the granting of construction permits to AMPS by the FCC. Initial orders from the contract are estimated to be \$50 million. Other new orders came from the Indianapolis Telephone Co. and the Milwaukee Telephone Co., two nonwireline cellular system operators.

The British Telecom-Securicor joint venture awarded the sector a contract to provide a nationwide 800/900 MHz cellular system in the United Kingdom. Phase I, with a value of approximately \$30 million, will cover several cities.

As part of a \$22 million order received in 1982, the sector began shipping cellular equipment to Mobilnet Inc., a subsidiary of General Telephone & Electronics.

Delivery and commercial cutover of 20 to 30 Dyna T•A•C systems is expected for 1984, part of an overall cellular opportunity that could total \$2 billion worldwide for Motorola over the next 10 years.





(Top) Dimension 2000™ pager can display a message of up to 24 characters, 12 at a time.

(Above) Dyna T-A-C mobile cellular radiotelephones undergo final testing before delivery to customers.

(Opposite) New CENTRACOM™ Series II advanced communication control center features distributed multiprocessor control systems and digital audio switching to expand the ability to control radio, telephone, resource management, closed-circuit TV monitor and alarm and control systems in one centralized modular workstation.

### Portable Radio/Data System

Motorola's unique radio/data system, which provides two-way communications between a 28-ounce terminal and a remote host computer, underwent extensive testing in Chicago during 1983. A system has been developed for IBM, the first customer, for use by its field service personnel. The Chicago system should achieve full customer acceptance in the second quarter of 1984. Systems will be installed for IBM in more than 250 additional cities during 1984 and 1985.

The system's portable computer terminal contains a 4-watt 800 MHz radio, a telephone modem, and the memory and processing power of a personal computer. The FCC has type-accepted and certified the portable unit, and the sector has begun shipping production units for the IBM system.

At average traffic levels, the system can support 1,500 users on a single frequency within a geographic area. The sector has started marketing the system to other customers in communications, public safety, transportation and field service. Several pilot programs are being planned.

The sector continued to be a major supplier of Pocket Bell pagers to Nippon Telegraph and Telephone of Japan. More than 100,000 Motorola pagers were in service in the NTT system in 1983, and they continue to meet or exceed NTT's stringent quality standards.

### New Products

Motorola's leadership in paging was enhanced by the introduction of several new products. Shortly after the FCC authorized the use of broadcast FM radio subcarrier channels for paging and other nonbroadcast uses, the sector introduced its SCA 1000™ FM high capacity tone-alert pager.

The sector demonstrated the world's first numeric display pager at 900 MHz, the Dimension 2000™ pager, and introduced the compact tone- and visual-alert Envoy™ pager. The lines of BPR2000™ numeric pagers and OPTRX™ numeric and alphanumeric pagers were expanded.

Several lines of two-way radios also were expanded with new options and new models. The new MVS-20™ mobile voice storage option enables up to 20 seconds of voice information to be digitally recorded in selected mobiles,

then reviewed by either mobile or base station operators, eliminating the need for callbacks. A new version of the MX300™ synthesized series of Handie-Talkie® portable two-way radios was introduced for military, international and industrial users who must operate in rugged environments or corrosive atmospheres. New models of the MSR2000™ and MSF5000™ base stations also were introduced.

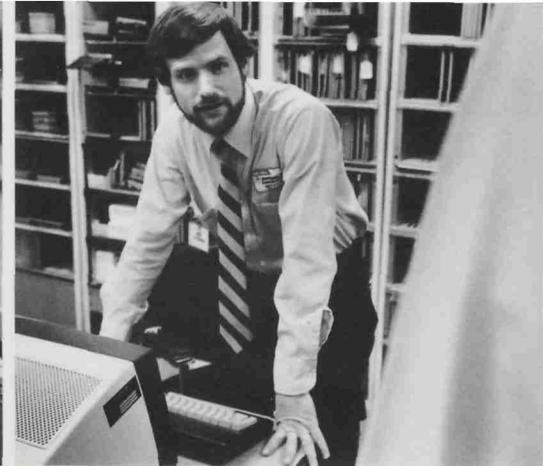
The U.S. International Trade Commission (ITC) and the Commerce Department upheld Motorola's claim that Japanese manufacturers were selling tone-only pagers in the U.S. at lower prices than the same manufacturers sold comparable products in Japan. The ITC decision culminated 11 months of study and deliberation by the commission and the Commerce Department. It authorized U.S. Customs to collect cash deposits equal to the weighted average dumping margins, which were found to range from 70 to 109 percent.

### Motorola at the Olympics

As an official sponsor of the games of the XXIII Olympiad in Los Angeles, Motorola is installing, operating and maintaining a complete two-way radio communications and wide-area paging system covering a 200-mile region. The equipment will be used by the Los Angeles Olympic Organizing Committee and its staff, international athletic officials, the press and broadcasters. Motorola also was selected as an official sponsor of the 1984 Winter Olympic games in Sarajevo, Yugoslavia. The sector supplied a two-way communications system to the Yugoslav Olympic Organizing Committee and provided a display paging system for the committee, sports teams and broadcasters.

The sector continued to emphasize quality and productivity in all of its facilities and operations in 1983. The Participative Management Program contributed to major improvements. All eligible U.S. employees are now on the program.

The sector also continued a high level of investment in factory automation with increased use of automatic testing, mechanized assembly, factory robotics, and automated office equipment, as well as greater engineering application of computer-aided design, computer-aided manufacturing.



## Semiconductor Products Sector (SPS)

### GROUPS:

**Bipolar Integrated Circuits**

**Discrete Semiconductor**

**International Semiconductor**

**MOS Integrated Circuits**

### DIVISIONS:

**Assembly Manufacturing and Equipment Engineering**

**Bipolar IC Wafer Processing and Development**

**Digital Products**

**European Semiconductor**

**High Frequency and Optical Products**

**Linear and Military Products**

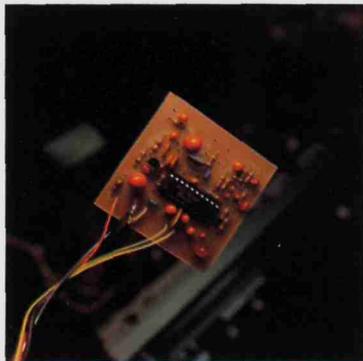
**Logic and Special Functions Products**

**Memory Products**

**Microprocessor Products**

**MOS IC Wafer Processing and Development**

**Power Products**



(Above) Key component in Motorola's C-QUAM® AM stereo system is a one-chip bipolar integrated circuit that decodes incoming AM stereo signals.

(Opposite) Technicians in Austin, Texas, attend training session in "clean room," where microprocessors are produced in an atmosphere free of dust and contamination.

A strategy designed to capitalize on the economic recovery resulted in the sector establishing records in sales, new orders and operating profits for 1983.

Worldwide sales climbed 23 percent to \$1.60 billion. New orders increased 63 percent over 1982, and operating profits were substantially higher. Reflecting the steady increase in orders from quarter to quarter, the sector's backlog at the close of 1983 was more than double the 1982 year-end level.

Growing momentum in sales and new orders throughout the year was evident in all major market segments and across the SPS product portfolio, the broadest in the semiconductor industry. Important factors in achieving this success included major new-product introductions, capacity additions and a continuing strong focus on productivity, quality and asset utilization.

In the United States, the automotive, distribution, communications and consumer market segments were especially strong, while the computer, federal government and industrial segments grew moderately. This increased demand resulted in a general firming of prices and in longer lead times for many devices, despite significantly stepped-up production.

### International Growth

The International Semiconductor Group achieved record sales and new orders, aided by a rapidly expanding Asia-Pacific market and a midyear economic recovery in Europe.

Market growth in Europe was excellent, as measured in local currencies. At its East Kilbride, Scotland, plant, the group refurbished the existing wafer processing lines and began equipping a new, automated assembly and test module for mid-1984 production.

In the Asia-Pacific region, sales were sharply higher than in 1982. New bipolar linear integrated circuits directed at the cordless telephone and black-and-white television markets contributed to the growth. The group's Asia-Pacific headquarters in Hong Kong consolidated its administration, marketing and final test operations in a new 100,000 square-foot facility.

In Japan, semiconductor sales growth was significant. A new assembly and test module was placed into operation at the MOS (metal

oxide semiconductor) plant in Aizu Wakamatsu.

To meet specialized requirements of world markets, the European Design Center in Geneva, Switzerland, completed devices for use in telecommunications, consumer, automotive and industrial markets.

### New Bipolar IC Products

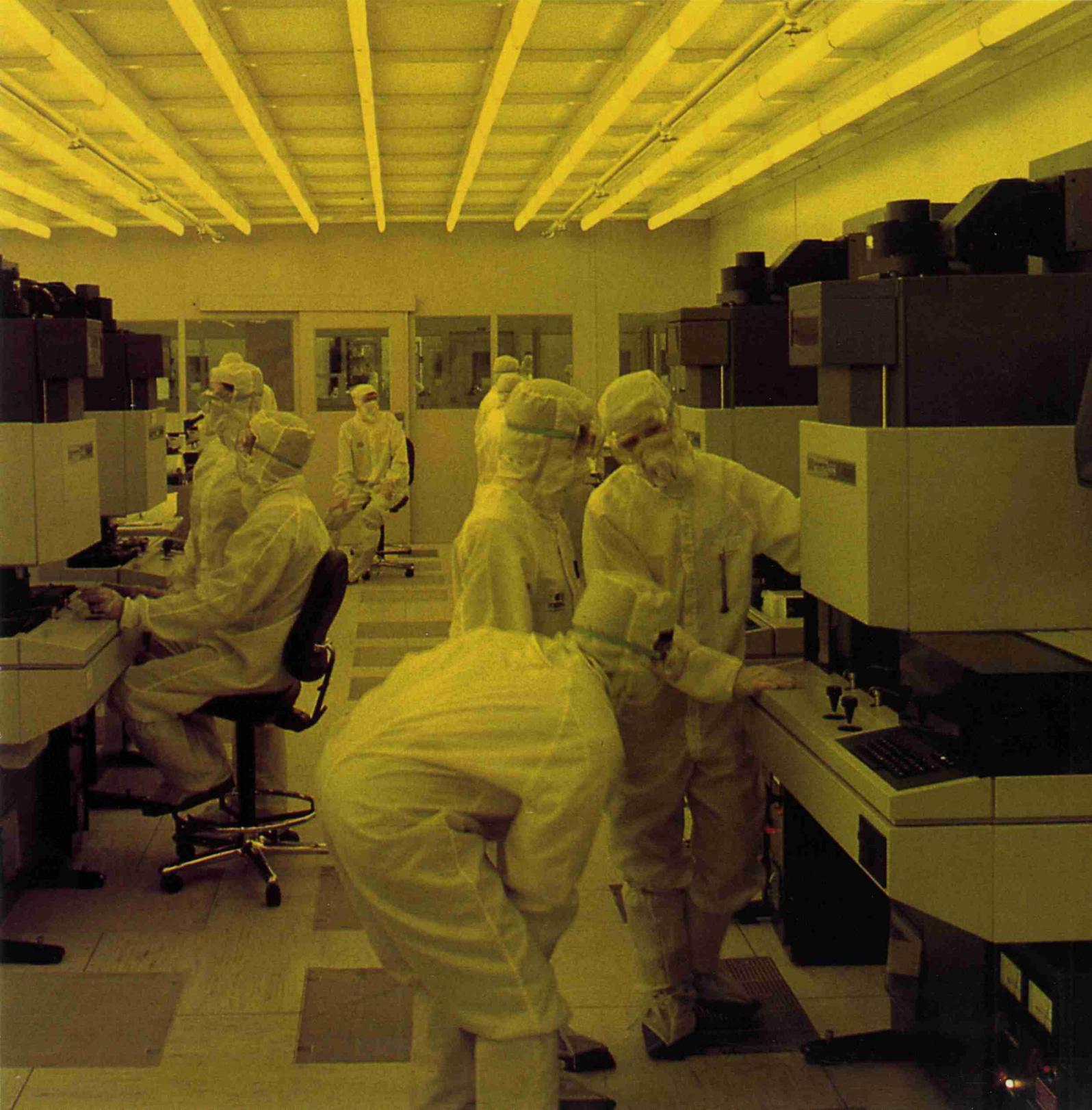
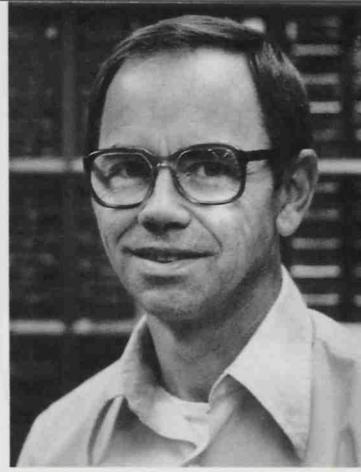
In the Bipolar Integrated Circuits Group, growth was substantial in all market segments and product lines in its digital, linear and military businesses. The group expanded its offerings in the ALS (Advanced Low-power Schottky), FAST (Fairchild Advanced Schottky Transistor-logic) and MECL (Motorola Emitter Coupled Logic) 10KH logic families. Production of Low-power Schottky logic devices, used in most mainframe, business and personal computers, expanded greatly. Two new Macrocell Arrays, the MCA 2500 ECL and MCA 2800 ALS, were put into production during 1983. These are customer-designed, semicustom logic devices. Under an alternate source agreement, Motorola was licensed to produce ECL programmable array logic circuits and a series of buffers and dynamic random access memory drivers.

New linear products included a floppy disk write controller circuit, and a high-performance quad operational amplifier for use in automotive, cable TV and mobile communications. The group also introduced a number of digital and linear devices designed for the military market.

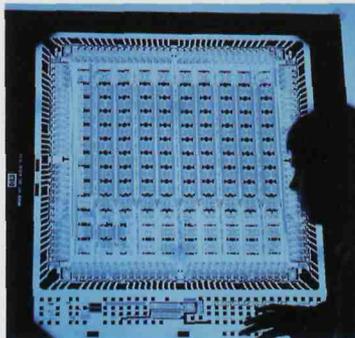
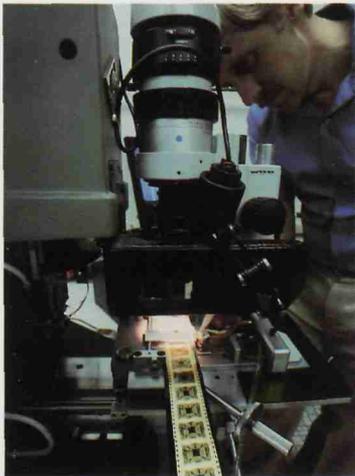
### Discrete Market Advances

In the Discrete Semiconductor Group, optoelectronic, power and RF (radio frequency) products enjoyed exceptionally high demand during 1983. The group introduced a series of RF circuits designed for cellular mobile radio applications; a low-noise, high-gain gallium arsenide FET (field-effect transistor); a high-performance 5.0 watt 800 MHz transistor and a hybrid amplifier featuring automatic gain control. The group also expanded the use of its Power TMOS (MOS using a T-shaped channel) technology to a variety of new products, including additions to the Power MOSFET line, a high-voltage silicon controlled rectifier, and a family of quad FET multiples.

In optoelectronics, the group introduced a line of low-cost fiber-optic emitters and detectors. Volume production began for the first in a series of smartpower products, which combine



## Semiconductor Products Sector (SPS)



(Top) At a laboratory in Phoenix, Ariz., engineers conduct research in automated tape bonding, an advanced packaging technique in the manufacture of very large scale integrated circuits.

(Above) Engineer in Mesa, Ariz., studies details of semicustom integrated circuit design for Motorola's Macrocell (gate) Array program. Uncommitted building blocks of logic such as this MCA2800 are automatically connected to provide "customized" integrated circuits for telecommunications, data processing and other customers.

(Opposite) Fiber-optic links have the potential to replace wire in countless commercial and industrial applications, reducing weight and increasing reliability. Motorola has pioneered in the development and mass production of the emitter and detector chips used in low-cost optoelectronic systems.

power transistor and CMOS (complementary MOS) technologies to fabricate single-chip devices for intelligent control applications.

### Microprocessor Families Expand

In the MOS Integrated Circuits Group, sales and orders were higher across its microprocessor, logic, memory and microsystems portfolios. The microprocessor business grew briskly as several customers announced new products based on Motorola 8-bit and 16-bit devices. Production began on the MC68010, a "virtual memory" version of the 16-bit microprocessor. The number of 68000 peripheral devices increased to 17 with the introduction of a two-channel data communication circuit and a two-channel DMA (direct memory access) controller. Motorola also entered into a licensing agreement with AT&T for the System V/68™, a UNIX operating system for MC68000 products. (UNIX is a trademark of AT&T.) Development progressed on schedule for the third-generation MC68020, a 32-bit HCMOS microprocessor with more than double the 68000's capabilities, and on the companion HCMOS MC68881 Floating Point Co-processor.

The group also introduced the low-cost MC6804 family of 8-bit microcomputers; an HCMOS microcomputer for portable, low-power applications; a microcomputer combining ROM (read-only memory) with EEPROM (electrically erasable programmable ROM); and three new microcomputers with secure EPROM, which prevents unauthorized reading of the memory contents after programming the device. Volume production began on the industry's first EPROM versions of CMOS microcomputers.

The Microsystems Operation achieved record production of its VME modules, an MC68000-based family of board-level products. Demand also was high for development systems, including the HDS200 and HDS400 "real time emulation" systems; and the new VME/10, a single-user high-performance microcomputer based on the MC68010. Software development continued to receive emphasis, both through Motorola's own resources and by independent software firms.

The group introduced 47 high-performance CMOS logic parts to expand this family to 110 devices, the most in the industry. Customer designs began on HCMOS Macrocell Arrays in both 2400-gate and 4800-gate versions.

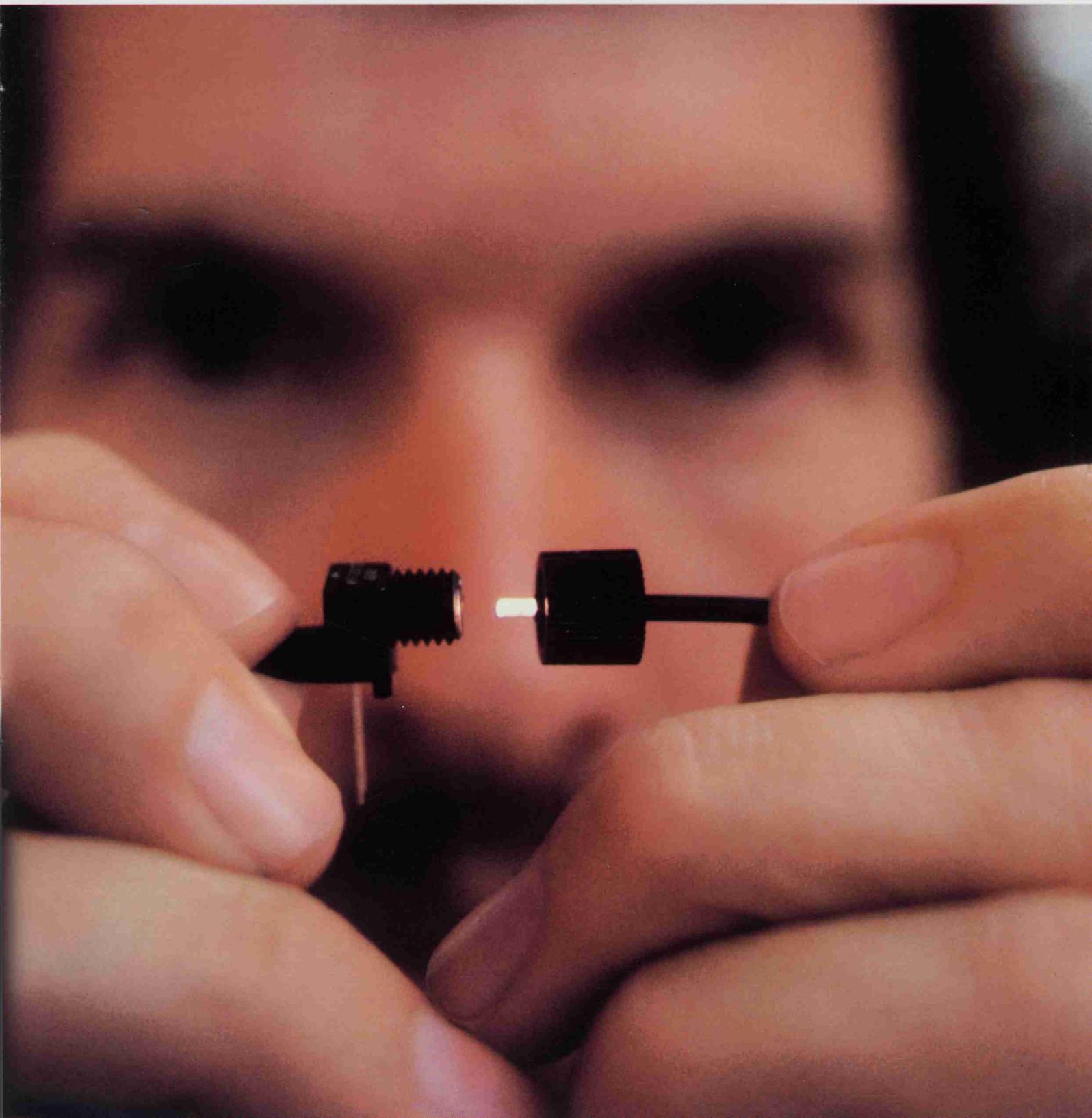
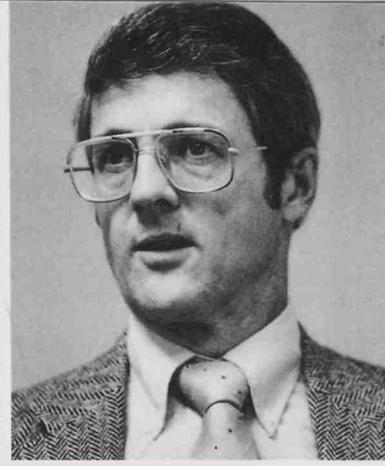
Motorola continued to be a leading supplier of 64K dynamic random access memories by nearly tripling its production during the year. Sampling began in the fourth quarter for a third-generation reduced-size 64K DRAM. Limited evaluation sampling of the next-generation 256K DRAM was achieved in preparation for widespread sampling and production in the first half of 1984. Other memory product introductions included two 16K fast static RAMs and a 256K ROM.

### Productivity and Quality

During 1983, SPS emphasized asset management, productivity and process improvements, computer-aided design and computer-aided manufacturing, enhanced Management Information Systems support, and the customer-service issues of quality and on-time delivery. All eligible U.S. employees were on the Participative Management Program by the end of the first quarter.

The sector established six new divisions: the Assembly Manufacturing and Equipment Engineering Division, the Bipolar IC Wafer Processing and Development Division, the Digital Products Division, the Logic and Special Functions Products Division, the Memory Products Division, and the MOS IC Wafer Processing and Development Division. Several key functions were consolidated into a new organization, Sector Support Operations.

SPS completed construction of its 142,000 square-foot automated assembly and test facility in Chandler, Ariz., and a VLSI (very large-scale integration) wafer processing module at its Austin, Texas, plant. Construction of a new 226,000 square-foot facility in Austin for the MOS group's Microprocessor Division proceeded on schedule for mid-1984 occupancy.



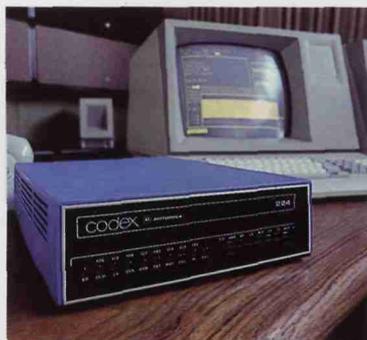
## ORGANIZATIONS:

**Codex Corporation**

**Four-Phase Systems, Inc.**

**International Division**

**Universal Data Systems**



*(Top) New Codex 224 modem doubles the rate at which information can be transmitted over ordinary dial-up telephone lines, thus reducing costs and improving response time of data terminals linked to the system.*

*(Above) Automatic radial lead insertion equipment reduces manufacturing time for modems at UDS facility in Huntsville, Ala.*

*(Opposite) The new Four-Phase Series 2000 family of communicating desktop computers incorporates Motorola microprocessor technology to meet the needs of distributed offices in large corporate networks. The Series 2000 addresses applications in service-oriented industries like insurance, financial services, transportation and government.*

The group made progress during 1983 in addressing the growing worldwide demand for more effective ways to handle information through data processing and data transmission.

Sales rose 6 percent while new orders advanced 20 percent. Backlog at the end of 1983 was 25 percent higher than a year ago. ISG incurred a small operating loss for the year after recording an \$11 million charge for the discontinuation of a line of central processing equipment acquired by Four-Phase Systems shortly before its acquisition by Motorola. Otherwise the group would have recorded a small operating profit in both the fourth quarter and the year.

Advanced communications integrated with information processing is the heart of ISG's strategy. To satisfy the increasing diversity and complexity of data processing and data communications requirements, the group significantly expanded its product offerings in both areas.

Four-Phase extended its Series 4000 family of clustered systems. The additional products are one- to eight-terminal systems that will enable Four-Phase to support small-office environments.

Four-Phase's new Series 2000 family of communicating desktop computers incorporates Motorola microprocessors, advanced Winchester disk technology, the UNIX operating system and industry-standard software to meet the needs of distributed offices in large corporate networks. (UNIX is a trademark of AT&T.) Four-Phase also expanded its offering for programmers, systems analysts and other software development personnel by introducing MAESTRO™, a software development computer system, in the U.S. market.

New products from Codex Corp. and Universal Data Systems further enhanced ISG's comprehensive networking capability. The group strengthened its position in the rapidly growing market for public switched dial network products. Codex introduced Models 224 and V.22 bis. The UDS 9600 A/B data modem, which also allows users to double their previous dial-up data throughput, has been exceptionally well received in the marketplace.

## Strategic Planning

Extensive strategic planning efforts in all units of ISG set the stage for expansion into major new businesses. One particular opportunity is due to the increasing use of local area networks (LANs). The market for data distribution within a building or complex is closely allied to Codex's established expertise in long-haul data distribution. Codex moved into the market by signing a contract with Ungermann-Bass, Inc. Under the agreement, Codex will market Ungermann-Bass' Net/One local area network and cable multiplexer.

Synergy within ISG and Motorola was a major focus of the planning. The field engineering organization of the Microsystems Operations of the Semiconductor Products Sector was merged with the Four-Phase service networks. This combination increases geographical service coverage and improves customer response times.

Synergy within ISG was demonstrated when Four-Phase won a major order from the Internal Revenue Service. The contract, valued at approximately \$38 million, involves replacement of the IRS' existing data entry equipment by about 168 Four-Phase Systems IV/80 and IV/95 minicomputers. Codex will supply the local distribution equipment to interconnect all of the Four-Phase systems within each regional service center.

ISG increased its commitment to international markets in 1983 by establishing a European headquarters and expanding direct sales and service operations for Four-Phase, Codex and UDS products in the United Kingdom, West Germany, France, Belgium and Sweden.

## Facilities Expansion

In the United States, Codex's product operations departments moved into an 80,000 square-foot building in Canton, Mass. A neighboring building also is to be occupied by Codex in the first quarter of 1984, in preparation for the eventual relocation of Codex headquarters to Canton. UDS completed a 150,000 square-foot manufacturing extension of its facilities, bringing the total plant in Huntsville, Ala., to 250,000 square feet.

Howard Thrailkill was appointed a vice president of ISG and president of Four-Phase Systems. He joined the group after more than 20 years in the computer industry.



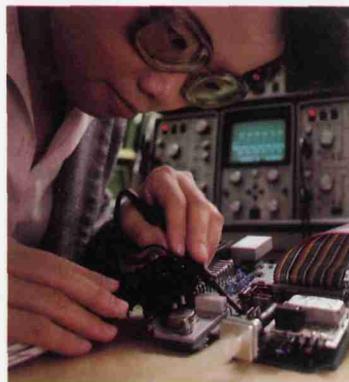
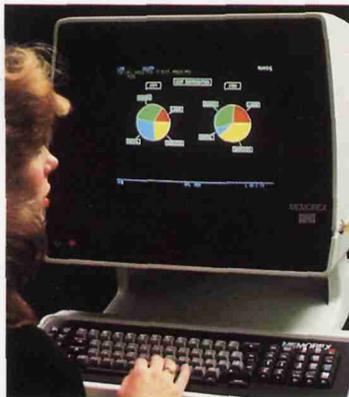
## **BUSINESSES:**

**Automotive Electronics Division**

**Industrial Electronics Unit**

**Telecommunications**

**International Operations**



*(Top) AIEG's high-performance color graphics terminal.*

*(Above) Software package of an electronic engine control module is tested with an in-vehicle emulator prior to on-the-road use.*

*(Opposite) Manufacture and inspection of silicon capacitive absolute pressure sensors, part of a new generation of electronic engine controls.*

The group's performance again improved sharply in 1983. Business portfolio changes over the last several years enabled AIEG to phase out of the U.S. radio and European alternator markets and move aggressively into fast-growing high-technology portions of the automotive, home appliance and computer industries. Continued cost-control and quality-improvement programs also contributed to the group's success.

Sales increased 31 percent over 1982 and operating profits rose significantly. Worldwide new orders were up 31 percent, while backlog at the end of 1983 was 15 percent greater than a year earlier.

## **New Technologies and Products**

Important new technologies and products reflect AIEG's commitment to move toward markets with high growth potential.

During 1983, the Automotive Electronics Division introduced a new generation of electronic engine controls. The system consists of the fourth generation control (EEC-IV), thick-film ignition modules (TFI-IV) and a device using a new sensor technology, the silicon capacitive absolute pressure sensor. This device is the first of a new family of sensors being developed for automotive applications.

Chrysler Corp. awarded the division its electronic instrument cluster business on at least one new car line for model years 1985 through 1987. The division also began shipments to Chrysler of the Piezo Resistive Transducer (PRT) module.

A joint development effort was established in fuel injection technology with Holley Carburetor, a division of Colt Industries. This technology also was introduced to European car manufacturers and two prototype programs have been initiated.

The division has a 10-year exclusive development and manufacturing agreement with Valeo S.A. for all of their electronic requirements in all of their product families.

In other technological developments, the Industrial Electronics Unit received a contract for developing the "bit mapping" logic circuitry for a cathode ray tube (CRT) display. Bit mapping is a relatively new method of forming images on a CRT screen by selecting from a family of basic geometric shapes to

form a picture. The unit also began volume shipments of appliance controls to two new customers.

AIEG signed a contract with a large original-equipment manufacturer for the development and supply over the next five years of the group's first telecommunications products.

## **European Facilities**

During 1983, AIEG built a new factory in Angers, France, for the manufacture of engine electronics products using hybrid thick-film technology. In addition, significant investments in the Stotfold, England, facility will provide an advanced capability for the production of microprocessor-based products and display units.

The group completed the sale of its French alternator manufacturing facility to a new company managed and 60 percent owned by Valeo, S.A. Motorola maintains a minority interest.

## **Quality and Productivity**

A new computer-aided design (CAD) system went into operation at the AIEG headquarters in Schaumburg, Ill. This system reduces cost through shorter design time and improved quality.

In overall quality, AIEG again exceeded its formal plans calling for a five-year tenfold improvement. Special quality recognitions included the "Top 100 Suppliers" award from General Electric Co. for the fourth consecutive year, and the "Outstanding Supplier" award from Magic Chef.

"Certified Supplier" designations from many customers also attest to AIEG's reputation for quality. This certification means that the customer no longer inspects the group's products, but sends them directly to the production area, saving both time and money.

The Participative Management Program (PMP) continued to be implemented with very positive results. Asset management techniques received increased attention during 1983, resulting in a decrease in accounts receivable weeks and a significant improvement in inventory turnover and total asset turnover.



## **BUSINESSES:**

**Communications Division**

**Radar Operations**

**Tactical Electronics Operations**



*(Top) Engineers perform proof-of-concept testing on baseband signal processor. Technologies developed will be used in NASA's proposed Advanced Communications Technology Satellite.*

*(Above) Robot places liquid masking material on printed circuit boards at GEG manufacturing methods laboratories.*

*(Opposite) Optical comparator checks vendor's printed circuit board as part of GEG's Supplier Quality Assurance programs.*

GEG had solid growth in 1983, with sales increasing 15 percent and new orders up 21 percent. Operating profits improved. Backlog was 26 percent higher than at the end of 1982.

The group benefited from a strong U.S. defense budget, which allowed it to selectively pursue business areas in which it has a distinctive competence. Successful completion of several international contracts and a lower-than-average percentage of marginal or problem programs also contributed significantly to the higher profits.

### **New Technologies**

GEG emphasized its development of new technologies and processes aimed at improving quality, reliability and technical performance in many product lines. The group received an advanced engineering contract from the U.S. Army for developing the next generation squad radio, which will use state-of-the-art high density packaging. The new radio also will take advantage of new developments in spread spectrum techniques, which offer low probability of detection.

Development work continued on the next generation of satellite payloads. GEG is a member of an industry team under contract with NASA for the Advanced Communications Technology Satellite (ACTS) program, which would use the group's baseband processor containing 13 custom large-scale integrated circuits. These chips offer the advantage of communication switching in the satellite instead of on the ground.

Miniaturization and adaption to severe environments is being explored in GEG's fuze and radar technology development. Fuzes are continually being refined for improved signal processing and range resolution through the use of microcomputers. In environmental testing, the group added a pyrotechnic shock facility, one of the few such facilities in the United States. It tests equipment that must survive the type of shock generated by separation of stages in a rocket or by explosive bolt cutting.

### **Major Contracts**

Significant contract awards received during 1983 include:

- A \$26 million production award from the U.S. Naval Sea Systems Command to manufacture, test and deliver target detecting devices for the Navy's Standard Missile, and an additional \$16.7 million for development, production and associated test equipment for an improved version of these devices.
- A \$10 million facilities contract by the U.S. Army for manufacturing facilities and test equipment to support future FMU-139 fuze production contracts. The group also received a \$7 million initial production contract for these fuzes from the U.S. Navy.
- An \$8.2 million contract from the U.S. Navy for DKW transponders for use in integrated target control systems (ITCS).
- A second \$7.5 million increment awarded by the U.S. Air Force as follow-on production funding for ALT-16 solid-state amplifiers used aboard B-52 aircraft.
- A \$4.8 million award from the U.S. Army to test and deploy hardware and software for a ground station to be used with an airborne, joint-service radar system called J-Star. An additional \$1.8 million award for long-lead materials was also received. The program has the potential for the group of an additional \$50 million to \$100 million over the next five years.

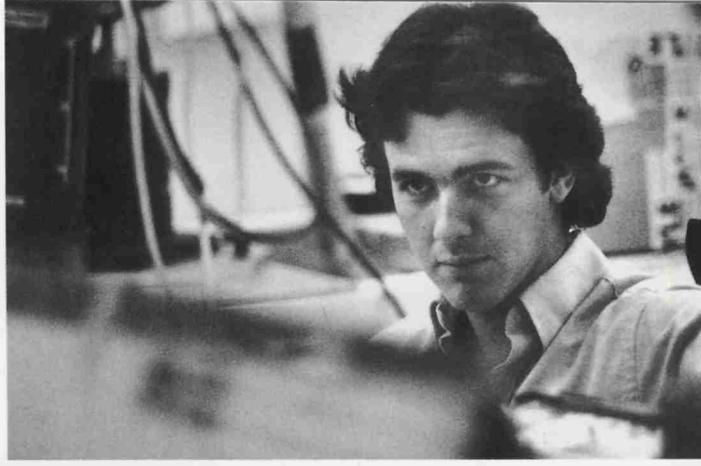
### **Quality Awards**

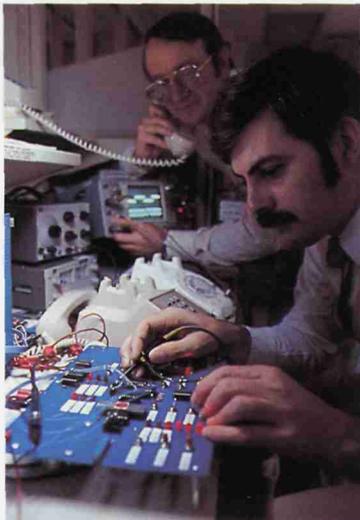
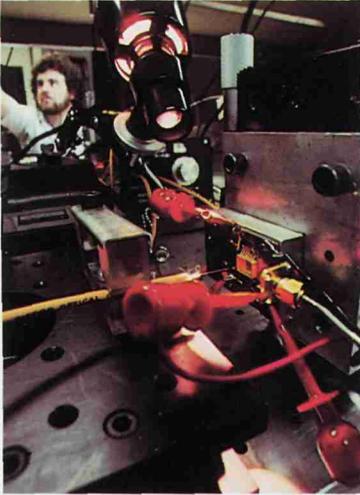
GEG received several quality-related customer citations, including an A+ quality rating from General Dynamics for radar transponders.

The U.S. Coast Guard credited GEG's Side-Looking Airborne Modular Multimission Radar system (SLAMMR™) with significantly contributing to one of its most successful ice patrol efforts. The Coast Guard located more than 2,000 icebergs and hazards to shipping in the North Atlantic in 1983.

During 1983, GEG completed two phases of its new Tactical Electronics Operations complex, which presently totals 300,000 square feet. A 210,000 square-foot addition is to be completed by the third quarter of 1984, bringing the complex to a total of more than 500,000 square feet.

The group also acquired a 160-acre parcel in Chandler, Ariz., for future growth.





(Top) Using gallium arsenide-based IC technology, engineers are developing an optical signal distribution device at GEG facility in Gilbert, Ariz.

(Above) Integrated circuits for telecommunications equipment are developed at SPS lab in Austin, Texas.

We at Motorola are dedicated to being a technological leader in every field we pursue and to transforming the resulting expertise into useful, high-quality products and services. This is why we place such strong emphasis on research and development along with quality and productivity improvement programs.

### Research and Development

Motorola is one of the few end-equipment manufacturers that can draw on expertise in both semiconductor technology and government electronics. The new products illustrated in this report are the result of coordinated research and development programs.

In communications, these efforts include radio transmission of digital data, cellular radiotelephone, voice privacy encoding and decoding, and expansion of radio spectrum space through devices that operate at higher frequencies.

Our success depends on a strong standard semiconductor component base, as seen in the expansion of the M68000 family of microprocessors and thousands of other devices. In addition, the Motorola Integrated Circuits Applications Research Laboratory (MICARL) develops custom and semicustom circuits for use by other Motorola sectors and groups.

We are also continuing to push forward in IC fabrication technology through our successful participation in the U.S. Department of Defense's Very High Speed Integrated Circuit (VHSIC) program. Along with TRW Inc., the prime contractor, and Sperry Corp. we have developed a four-port memory using Motorola's 1.25 micrometer CMOS process. Fully functional units of this leadership part were produced in 1983.

Our Information Systems Group is developing a new series of products based on the MC68000 microprocessor and other Motorola semiconductor technology. ISG's distinctive systems will combine distributed processors and local networking.

In government electronics, high-speed signal processing is being improved in many communications, radar and tactical products through the use of very large-scale integra-

tion (VLSI). This allows many reliable digital functions to be packaged in small, lightweight form. Leadless chip carriers also permit smaller cost-efficient systems. In electro-optic technology, development continues on a method of integrating laser and conventional logic devices on the same gallium arsenide chip. This method reduces size, weight, cost and power consumption while increasing speed.

### Quality

Our research commitment has helped us to achieve the highest standards of quality. Defects must be "designed out," that is, eliminated at their source. Motorola is in the middle of a formal program to increase quality tenfold over five years. While we have always had a reputation for high quality, the marketplace of the future will require even better performance. Many of our operations have made significant progress in achieving their five-year goals.

This commitment can be seen throughout the company. In the Communications Sector, for example, the Partnership for Growth Program, which stresses improved communications and mutual goals with suppliers, is making progress toward zero defects in incoming parts and more cost-effective approaches in the timing of deliveries.

During 1983, the Semiconductor Products Sector was recognized by many of its customers for achieving stringent quality requirements. It received Hewlett-Packard Co.'s first outstanding-quality award given to a semiconductor supplier. All of the sector's operating groups, as well as the Government Electronics Group, passed quality audits by the U.S. Department of Defense.

The Information Systems Group and Automotive and Industrial Electronics Group also won quality awards from customers. The Government Electronics Group formed a Supplier Quality Assurance program to communicate Motorola's quality objectives to key suppliers.

This is only a brief sampling of the recognition we have received in our efforts to provide our customers with products and services of the highest quality.

## Financial Review

### Balance Sheet

As 1983 ended, Motorola's financial strength was greater than it had been for several decades although, paradoxically, two of the several statistics by which we and others have classically appraised the strength of a balance sheet have declined. As will be explained below, these changes, in the current ratio and the amount of working capital, result importantly from greatly improved working asset management.

At December 31 Motorola's total debt was \$270 million, down from \$378 million a year earlier. Also, cash and marketable securities increased from 1982's \$149 million to \$207 million. Consequently, the year-end ratio between debt and debt plus stockholders' equity was 12.2 percent, down from 18.2 percent for December 1982. Net of marketable securities, these ratios were 4.3 percent for 1983 and 12.8 percent for 1982.

### Receivables and Inventories

Continued good progress in the control of accounts receivable and inventories made a major contribution to these reductions in borrowings. At year-end 1983 accounts receivable represented 6.5 weeks of sales vs. 7.1 weeks as 1982 ended and compared with 9.2 weeks at December 1978. If 1978's relative level of accounts receivable had continued through 1983, year-end borrowings would have been twice the actual level, with consequent deterioration in the debt/capital ratios. While improvement in inventory management has been of more recent beginning, it, too, has made a major contribution to low debt and financial strength. Had the same inventory/cost of sales ratio existed at December 31, 1983 as five years earlier, inventories (and borrowings) would have been \$210 million greater, with most of these "savings" occurring in 1983.

While we believe some modest additional reductions can and should be made in weeks of accounts receivable, we have targeted substantial further gains in inventory turnover.

### Current Ratio and Working Capital

Other than the current maturity portion of long term debt (\$8 million) Motorola has no borrowings in its current liabilities. However, through 1983, current liabilities did increase \$248 million, primarily reflecting the increasing pace of operations, profitability, and fixed asset

expenditures as the year ended. Trade payables, accruals and taxes payable were all substantially higher. As a result of current assets increasing only 14 percent via better management of receivables and inventories, and current liabilities increasing 42 percent, working capital actually declined (for the first time in many years) from \$924 million to \$894 million. The current ratio similarly dropped from 2.57/1 at December 1982 to 2.07/1 at the end of 1983.

As stated above, we strongly believe that the better quality of working capital assets and our greatly reduced debt, both in absolute terms and as a portion of capital at work, represent further strengthening of our financial position despite the lower working capital and current ratios.

Of the \$182 million December 31 balance of marketable securities, \$70 million were as yet unrepatriated earnings of our Puerto Rican subsidiaries. During 1983 we did repatriate \$100 million from Puerto Rico. Because we do provide appropriate tollgate tax reserves for the Puerto Rican earnings, there was no associated charge to our reported earnings.

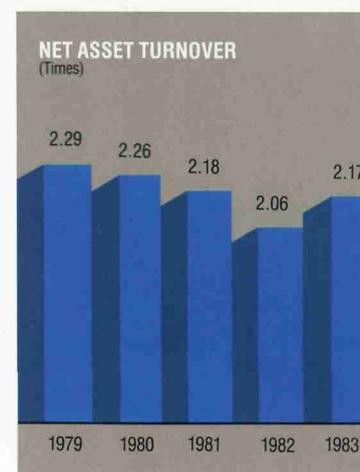
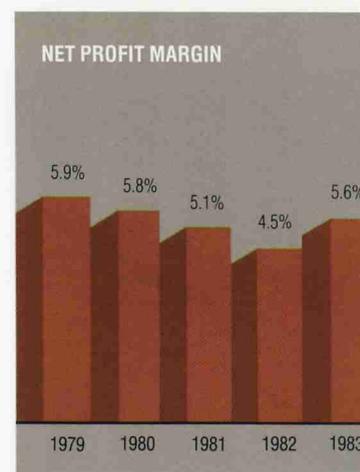
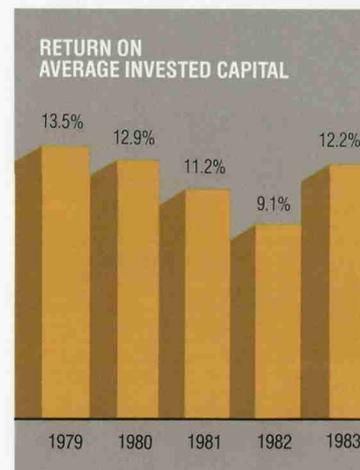
### Fixed Assets

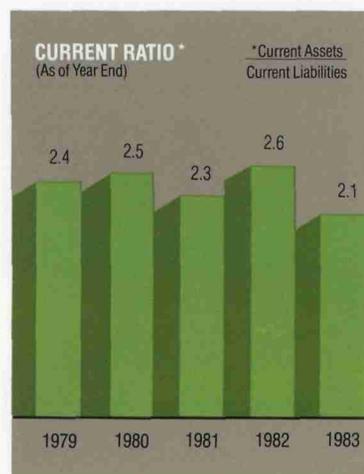
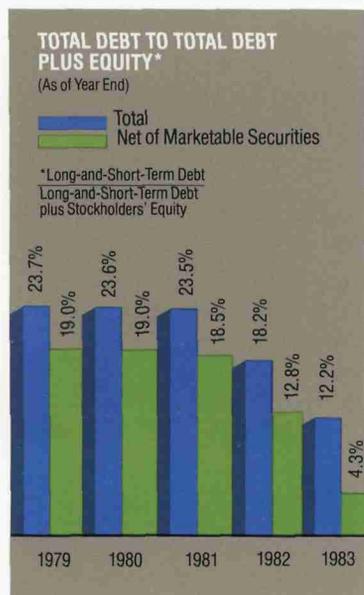
As reported in the Chief Executive Office Letter, 1983 fixed asset expenditures of \$406 million rose 14 percent from 1982's \$355 million. Lengthening lead times and rapidly changing technology caused the level of approved projects, in process but not yet completed, to increase 45 percent from a year earlier. Thus we expect fixed asset spending to show a sharper rise in 1984.

### Debt—Lines of Credit

Even though our \$270 million total debt is a relatively small portion of total capital, only \$91 million carries fixed interest rates. \$150 million of notes payable and commercial paper was supported by our \$326 million revolving credit/term loan agreement with 12 banks. Additionally, at December 31, 1983, we had \$204 million of unused annually renewable lines of credit.

During 1983 we did issue \$21 million of 30-year Industrial Development Revenue Bonds and similar securities, with interest rates primarily at 7¾ percent and to finance expansion of certain of our Puerto Rican facilities.





### Earnings

While operating and net margins and return on invested capital in 1983 increased from 1982, these key measures of profitability were still lower than what we expect of our businesses over the longer term. The lower margins recorded over the past few years, however, importantly reflect our continued high level of strategic investment despite relatively weak U.S. and world economies. A variety of cost control, productivity and other programs have been directed at margin improvement and further gains in asset management.

We continue to believe that the quality of our reported earnings is high. The absence of inventory holding gains, lower—and therefore better quality—inventories and receivables, as well as our traditional conservative posture on reserves and accruals, all contribute to this fine quality of earnings.

### Pension Provisions

Contributing to the above mentioned high quality of earnings is the status of funding of our employee retirement obligations. Most retirement benefits for Motorola employees are provided through profit sharing plans for which company cost is provided and funded annually. The defined benefit pension plan for most U.S. employees remains one of the best funded such plans in the nation. Note 8 to the financial statements indicates that, as of January 1, 1983 (the date of the most recent actuarial calculation), plan assets were \$234 million, significantly exceeding the present value of accumulated vested and non-vested benefits of \$111 million.

We continue to notice the Preliminary Views being considered by the Financial Accounting Standards Board which would cause assets and actuarially estimated liabilities of corporate sponsored pension plans to be included on the balance sheets of sponsoring corporations. While we vigorously disagree with the wisdom of the Preliminary Views we did, during 1983, go through detailed calculations of how this change would impact the

Motorola balance sheet. As we commented to the stockholders a year ago, the generously funded status of our defined benefit pension plan would cause the proposed change to have a somewhat positive effect on the apparent quality of Motorola's balance sheet.

### Tax Rate

For 1983, our effective rate of taxes on income was 21 percent, slightly higher than 20 percent in 1982. Lower effective tax rates on earnings in other nations and U.S. possessions, through tax holidays as well as the Investment Tax Credit and the Research and Development Tax Credit in the U.S., are the principal causes of the difference between 21 percent and the U.S. statutory rate of 46 percent. Due to the changing mix of our businesses and the improving profitability of certain U.S. operations, we expect a further modest increase in the effective tax rate in 1984 and beyond.

### Currencies

For several years we have been managing Motorola's non-U.S. currencies exposure on an "economic" basis—attempting to neutralize our exposure to possible currency rate changes. Thus, reported balance sheet translation gains or losses from such rate changes have been insignificant.

However, certain of our businesses have been negatively impacted by the strong and strengthening U.S. dollar which has made U.S. exports less competitive and has reduced the dollar-stated profitability of many of our international operations.

### Timing of Report

Members of Motorola's financial staffs are proud of the fact that results for the year 1983 were released to the press and the public on January 23, 1984, 11 days earlier than for the prior year and 25 days earlier than for 1980. We believe that the ability to accelerate our financial reporting reflects improved internal control.

## Statements Of Consolidated Earnings And Retained Earnings

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

(In millions of dollars, except per share data)	1983	1982	1981
<b>Net Sales</b>	<b>\$ 4,328</b>	<b>\$ 3,786</b>	<b>\$ 3,570</b>
Manufacturing and other costs of sales	2,593	2,269	2,086
Selling, general and administrative expense	1,113	1,013	985
Depreciation of plant and equipment	289	244	205
Interest expense, net	24	48	35
Total costs and other expenses	4,019	3,574	3,311
Earnings before income taxes and extraordinary gain	309	212	259
Income taxes	65	42	77
<b>Net earnings before extraordinary gain</b>	<b>244</b>	<b>170</b>	<b>182</b>
Extraordinary gain (note 2)	—	8	—
<b>Net earnings</b>	<b>244</b>	<b>178</b>	<b>182</b>
Retained earnings at beginning of year	1,185	1,066	934
Cash dividends declared (\$1.60 per common share in 1983, 1982 and 1981)	(62)	(59)	(50)
Retained earnings at end of year	\$ 1,367	\$ 1,185	\$ 1,066
<b>Net earnings per share before extraordinary gain (note 2)</b>	<b>\$ 6.26</b>	<b>\$ 4.64</b>	<b>\$ 5.10</b>
<b>Net earnings per share</b>	<b>\$ 6.26</b>	<b>\$ 4.87</b>	<b>\$ 5.10</b>
Average shares outstanding (in thousands)	39,046	36,506	35,714

## Statements Of Consolidated Additional Paid-In Capital

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

(In millions of dollars)	1983	1982	1981
Balance at beginning of year	\$ 400	\$ 236	\$ 216
Share option and other employee share purchase plans	25	14	14
Conversion of convertible debentures	38	—	2
Acquisition by Four-Phase Systems, Inc.	—	—	4
Common stock sold in public offering and exchanged for outstanding debentures	—	150	—
Balance at end of year	\$ 463	\$ 400	\$ 236

See accompanying notes to consolidated financial statements.

## Consolidated Balance Sheets

Motorola, Inc. and Consolidated Subsidiaries, as of December 31

Assets	(In millions of dollars, except share data)	1983	1982
<b>Current assets:</b>			
Cash		\$ 25	\$ 21
Short-term investments, at cost (approximating market)		182	128
Accounts receivable, less allowance for doubtful accounts (1983, \$23; 1982, \$24)		655	553
Inventories:			
Finished goods		103	111
Work in process and production materials		576	542
Future income tax benefits		103	79
Other current assets		86	78
Total current assets		1,730	1,512
<b>Property, plant and equipment:</b>			
Land		44	44
Buildings		717	597
Machinery		1,366	1,161
Accumulated depreciation		(849)	(691)
Property, plant and equipment, net		1,278	1,111
Equipment leased to others, net		151	155
Investment in nonconsolidated finance subsidiaries		44	36
Sundry assets		33	19
Total assets		\$3,236	\$2,833
<b>Liabilities and Stockholders' Equity</b>			
<b>Current liabilities:</b>			
Current maturities of long-term debt		\$ 8	\$ 9
Accounts payable		340	223
Accrued liabilities		398	318
Income taxes payable		90	38
Total current liabilities		836	588
Long-term debt		262	369
Noncurrent deferred taxes		108	112
Other noncurrent liabilities		82	64
<b>Stockholders' equity:</b>			
Common stock, \$3 par value.			
Authorized shares: 50,000,000			
Outstanding shares: 1983—39,384,281; 1982—38,293,489		118	115
Preferred stock, \$100 par value issuable in series.			
Authorized shares: 500,000 (none issued)		—	—
Additional paid-in capital		463	400
Retained earnings		1,367	1,185
Total stockholders' equity		1,948	1,700
Total liabilities and stockholders' equity		\$3,236	\$2,833

See accompanying notes to consolidated financial statements.

# Statements Of Consolidated Changes In Financial Position

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

(In millions of dollars)	1983	1982	1981
<b>Operations</b>			
Net earnings before extraordinary gain	\$244	\$170	\$182
Add (deduct) noncash items:			
Depreciation	289	244	205
Change in deferred taxes	(28)	16	8
Funds provided from net earnings before extraordinary gain	505	430	395
Funds provided by (used for)			
Accounts receivable, net	(102)	(10)	(37)
Inventories	(26)	(2)	(77)
Other current assets	(8)	(6)	3
Accounts payable and accrued liabilities	197	(18)	70
Income taxes payable	52	(28)	18
Sundry assets	(14)	12	—
Other noncurrent liabilities	18	8	19
Net funds provided by operations	622	386	391
<b>Financing</b>			
Extraordinary gain (note 2)	—	8	—
Increase (decrease) in long-term debt and current maturities thereof	(108)	(55)	44
Issuance of common stock	66	172	21
Advances to nonconsolidated finance subsidiaries	(8)	(9)	(2)
Net funds provided by (used for) financing	(50)	116	63
<b>Dividends Declared</b>	<b>(62)</b>	<b>(59)</b>	<b>(50)</b>
<b>Investments</b>			
Fixed asset expenditures	(406)	(355)	(345)
Expenditures for equipment leased to others	(72)	(80)	(66)
Disposals and other changes to plant and equipment, net	26	17	18
Net funds used for investments	(452)	(418)	(393)
Net increase in cash and marketable securities	<b>\$ 58</b>	<b>\$ 25</b>	<b>\$ 11</b>

See accompanying notes to consolidated financial statements.



Certified Public Accountants

Peat Marwick Plaza  
303 East Wacker Drive  
Chicago, Illinois 60601  
(312) 938-1000

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

We have examined the consolidated balance sheets of Motorola, Inc. and consolidated subsidiaries as of December 31, 1983 and 1982, and the related statements of consolidated earnings and retained earnings, additional paid-in capital and changes in financial position for each of the years in the three-year period ended December 31, 1983. Our examinations were made in accordance with generally accepted auditing standards and, accordingly, included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

In our opinion, the aforementioned consolidated financial statements present fairly the financial position of Motorola, Inc., and consolidated subsidiaries at December 31, 1983 and 1982, and the results of their operations and changes in their financial position for each of the years in the three-year period ended December 31, 1983, in conformity with generally accepted accounting principles applied on a consistent basis.

*Peat, Marwick, Mitchell & Co.*

January 23, 1984

**1. Accounting Policies:** Following is a summary of accounting policies used in the preparation of these consolidated financial statements.

*Consolidation:* The consolidated financial statements include the accounts of the Company and all majority-owned subsidiaries except for financial subsidiaries, which are accounted for on the equity basis. All significant intercompany accounts and transactions have been eliminated in consolidation.

*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).

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

*Property, Plant and Equipment and Equipment Leased to Others:* Property, plant and equipment is stated at cost. Equipment leased to others is stated at cost, net of accumulated depreciation. The cost of buildings, machinery and equipment is depreciated generally by the declining-balance method over the estimated useful lives of such assets, as follows: Buildings and building equipment, 5-50 years; machinery and equipment, 2-12 years.

*Foreign Currency Translation:* Effective January 1, 1983, Motorola adopted the provisions of Statement of Financial Accounting Standards No. 52 (SFAS 52). If SFAS 52 had been in effect in 1982 and 1981, the presentation of the Company's financial statements as a whole would not have been materially different. The Company uses the U.S. dollar as the functional currency for financial reporting. Gains and losses from remeasurement to U.S. dollars are included in the determination of net income in the period in which they occur.

**2. Extraordinary Gain:** During the fourth quarter 1982, pursuant to an underwriting agreement, the Company issued 2 million new shares of common stock at \$78.10 per share. Approximately 80 percent of these shares were sold for cash. The remaining shares were exchanged for \$41 million aggregate principal amount of the Company's 4¾% debentures and 8% sinking fund debentures, resulting in an extraordinary gain of \$8 million which is stated net of additional profit sharing expense and its related income tax effect.

**3. Long-Term Debt and Lines of Credit:** Long-term debt at December 31 consisted of the following:

(In millions of dollars)	1983	1982
<b>Floating Rate Debt:</b>		
Notes payable (generally at prevailing prime rates) due in installments to 1991	\$ 23	\$ 26
Notes payable supported by revolving credit commitments from banks (generally at prevailing prime rates)	69	170
Commercial paper supported by revolving credit commitments from banks	81	64
<b>Fixed Rate Debt:</b>		
4¾% debentures due April 1, 1986	6	6
8% sinking fund debentures due October 1, 2007 (callable at 105.8% reducing to 100.0% of the principal amount)	62	62
7¾% industrial revenue bonds due January 1, 2014	20	0
Other notes payable and capital lease obligations (at interest rates from 7% to 14%) due in installments to 2007	9	8
<b>Convertible Debentures:</b>		
4½% convertible guaranteed debentures retired July 1, 1983	0	2
9½% convertible subordinated debentures (at 14.9 shares per \$ thousand principal amount) due June 15, 2001, retired during 1983	0	40
	270	378
Less current maturities, included in current liabilities	(8)	(9)
Long-term debt	\$262	\$369

**Floating Rate Debt and Lines of Credit:** Motorola had total lines of credit of \$616 million consisting of \$326 million of revolving credit agreements and \$290 million of annually renewable (but withdrawable at any time) lines of credit. \$359 million of the available lines of credit remain unused at December 31, 1983. The Company pays commitment fees generally of ¼% of unused lines of credit. Borrowings are generally at the prevailing prime rate.

It is the Company's intention to maintain the availability of the revolving credit agreement during 1984, and therefore certain notes and commercial paper which would be classified as short-term absent these agreements, are classified as long-term as follows at December 31:

(In millions of dollars)	1983	1982
Banks and other	\$ 69	\$170
Commercial paper	81	64
Amount classified as long-term	\$150	\$234

Due to changes in the revolving credit agreement in 1983, there is no longer any restriction of Retained Earnings as it relates to dividend payments. Under the agreement effective in 1982, \$873 of Retained Earnings were not restricted as to dividend payments.

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

(In millions of dollars)				
1984	1985	1986	1987	1988
8	7	10	3	97

Maturities and sinking fund requirements in the year 1983 include commercial paper and notes payable supported by revolving credit commitments.

**4. Leases**

**Lease Commitments:** The Company owns most of its major facilities, but does lease certain office, factory and warehouse space, land, data processing and other sundry equipment.

Total rental expense for all noncapital leases reduced by minor amounts of sublease rental income was \$87 million in 1983, \$73 million in 1982, and \$61 million in 1981.

Minimum future obligations on all noncancellable leases, net of minimum sublease rentals, with initial terms of one year or more in effect at December 31, 1983, are as follows for the period ending December 31:

(In millions of dollars)	
Year	Amount
1984	\$ 55
1985	34
1986	24
1987	18
1988	12
Later	100

Some of the leases contain renewal options for varying periods. Certain leases include options to purchase during or at the end of the lease term.

**Lease Revenues:** Minimum future lease revenues of the Company's equipment for lease under noncancellable operating leases in effect at December 31, 1983, are as follows for the periods ending December 31:

(In millions of dollars)	
Year	Amount
1984	\$ 41
1985	20
1986	9
1987	2
1988	—

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

The components of earnings before income taxes and extraordinary gain are as follows:

(In millions of dollars)	1983	1982	1981
U.S. and U.S. possessions	\$236	\$178	\$229
Other nations	73	34	30
Total	\$309	\$212	\$259

The components of the provision for income taxes are as follows:

(In millions of dollars)	1983	1982	1981
Taxes currently payable:			
United States	\$ 68	\$ 12	\$ 53
Other nations	12	8	5
State income taxes (U.S.)	13	6	11
Total currently payable	93	26	69
Total change in deferred taxes	(28)	16	8
Total income tax expense	\$ 65	\$ 42	\$ 77

A reconciliation of the statutory corporate income tax rate with the statement of consolidated earnings effective income tax rate (before the 1982 extraordinary gain) is as follows:

	1983	1982	1981
Statutory U.S. Federal corporate income tax rate	46.0%	46.0%	46.0%
Increase (decrease) in tax rate resulting from:			
Taxes on earnings in other nations and U.S. possessions	(11.9)	(10.1)	(8.5)
Investment tax credit	(7.7)	(13.8)	(9.1)
Qualified research and development tax credit	(5.1)	(6.0)	(1.3)
State income taxes	1.6	2.0	2.3
Other	(1.9)	1.9	.4
Effective tax rate	21.0%	20.0%	29.8%

Income taxes have generally been provided on aggregate earnings of the Company's Domestic International Sales Corporations. Income taxes have been provided on that portion of the Company's undistributed earnings of subsidiaries that is anticipated to be repatriated in the future. Income taxes have not been provided on the Company's undistributed earnings of subsidiaries (\$201 million, \$150 million, \$140 million at December 31, 1983, 1982 and 1981, respectively), to the extent it is intended these earnings will be permanently invested in operations outside the United States. Should these earnings be distributed, foreign tax credits would reduce the additional U.S. income tax which would be payable.

At December 31, 1983, certain non-U.S. subsidiaries had loss carryforwards of approximately \$50 million.

The Internal Revenue Service has examined the Federal income tax returns for Motorola, Inc. through 1978 and the returns have been settled through 1975. While the company has not agreed to all

proposed adjustments for the years 1976 through 1978, it is the opinion of management that any adjustments will have no material adverse effect.

An analysis of the changes in deferred taxes is as follows:

(In millions of dollars)	1983	1982	1981
Depreciation	\$ 5	\$ 8	\$ 7
Income tax on profits of Domestic International Sales Corporations	6	8	4
Earnings of foreign subsidiaries anticipated to be repatriated in the future	(2)	9	9
Research and development costs	(6)	(4)	(5)
Income from long-term lease of equipment	(5)	15	1
Tax credits recognized as increases (reductions) in deferred taxes	(9)	(9)	—
IRS audit adjustments expected to reverse in subsequent years	—	(2)	—
(Increase) decrease in:			
Inventory valuations	(13)	(7)	(5)
Future employee benefits	(7)	3	(4)
Other, net	3	(5)	1
Total change in deferred taxes	\$ (28)	\$ 16	\$ 8

## 6. Contingencies

The Company is one of 22 defendants in a 1974 lawsuit brought by Zenith Radio Corporation ("Zenith") in which Zenith alleges conspiracies and violations of antitrust and antidumping laws and also challenges the purchase by Matsushita Electric Industrial Co., Ltd. of Japan ("MEI") of certain of the assets and business of Motorola's former home television business.

The suit claims damages in excess of \$300 million (and the trebling of that amount) against the defendants jointly and individually plus costs and attorneys fees. It also seeks divestiture by MEI of the assets purchased from Motorola.

If MEI is assessed with litigation damages as a result of their purchase, or if divestiture is ordered, Motorola has agreed to share to a limited extent any loss incurred by MEI up to a maximum of \$20 million.

In 1981 a U.S. District Court granted the Company's motion for summary judgment and dismissed all charges against the Company and all other defendants. Zenith appealed that decision to the U.S. Court of Appeals, Third Circuit, which affirmed the District Court's decision in December 1983 with regard to Motorola and one other defendant and reversed the decision with regard to MEI and other defendants. Both Zenith and MEI have the right to seek an appeal to the U.S. Supreme Court from this decision. Management believes that the Company acted properly throughout and has denied any conspiracy or other violation of law alleged by Zenith.

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

In the opinion of management, the ultimate disposition of these

matters will not have a material adverse effect on the business or financial position of the Company.

**7. Nonconsolidated Finance Subsidiaries:** Following is a summary of financial information for the Company's finance subsidiaries:

(In millions of dollars)	1983	1982	1981
Total revenues	\$ 14	\$ 18	\$ 18
Net income	2	3	3
Total assets	\$133	\$127	
Total liabilities	(103)	(98)	
Stockholders' investment	\$ 30	\$ 29	

The finance subsidiaries purchase customer obligations under long-term contracts from the Company at net carrying value.

## 8. Employee Benefit Plans

**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. Amounts of \$13 million in 1983, \$5 million in 1982, and \$11 million in 1981 were provided for incentive awards for those years.

**Retirement Benefits:** The Company and certain subsidiaries have profit-sharing plans, principally contributory, in which all eligible employees participate. The Company contributions to profit-sharing funds in the United States and other nations, which are generally based upon percentages of pretax earnings from those operations, as defined, were \$42 million in 1983, \$22 million in 1982, and \$36 million in 1981.

The Company has a noncontributory pension plan covering most domestic employees after one year of service. The Company's policy is to fund pension costs as accrued. Expense for the plan under the aggregate cost valuation method was the following:

(In millions of dollars)	1982	1981
1983		
\$12	\$11	\$12

On January 1, 1983, the Company changed the actuarial method for valuing pension assets to respond better to changes in market value. A change in one of the plan benefits, in 1982, also had an impact in 1983. The net effect of these changes on pension expense was insignificant. As of January 1, 1982, the Company changed certain of its actuarial assumptions which had the effect of reducing 1982's pension cost by \$4 million.

Actuarial valuation and plan asset data for the Company is set forth below.

(In millions of dollars)	As of January 1	
	1983	1982
Net plan assets available to pay benefits	\$234	\$189
Actuarial present value of accumulated plan benefits	111	94
Vested accumulated plan benefits	91	78
Interest rate assumed	7%	7%

Certain foreign subsidiaries have varying types of retirement plans providing benefits for substantially all of their employees. Essentially all of the cost of these plans is borne by the subsidiaries. Amounts charged to earnings for the plans were \$7 million in 1983, \$4 million in 1982, and \$3 million in 1981.

**Stock Options:** Under the Company's employee stock option plans, shares of common stock have been made available for grant to key employees of the Company and certain subsidiaries. The exercise price of each option granted is 100% of market value on the date of grant.

Shares subject to option under these plans during 1983 and 1982 are as follows:

(In thousands of shares)	1983	1982
Options outstanding beginning of year	1,840	2,058
Additional options granted	296	277
Options exercised	(495)	(428)
Options terminated, cancelled or expired	(64)	(67)
Options outstanding at end of year	1,577	1,840
Shares reserved for possible future options grants	1,066	1,335
Total shares reserved	2,643	3,175
Total options exercisable	967	938

Options exercised during both 1983 and 1982, including options previously granted to employees of Four-Phase Systems, Inc., were at per share prices of \$17.87 to \$80.75. Options outstanding at December 31, 1983 were at per share prices of \$19.83 to \$144.63.

## 9. Other Financial Data

(In millions of dollars)	1983	1982	1981
Interest expense	\$ 39	\$ 68	\$ 64
Interest income	(11)	(15)	(20)
Interest capitalized	(4)	(5)	(9)
Net interest	\$ 24	\$ 48	\$ 35
Research and development expense	336	278	251
Foreign currency gains	8	10	13
Accrued liabilities:			
Taxes (other than income taxes)	\$ 46	\$ 41	
Contribution to employees' pension and profit-sharing funds	52	32	
Accrued compensation	115	84	
Dividends payable	16	15	
Other	169	146	
Total accrued liabilities	\$398	\$318	

**10. Information by Industry Segment and Geographic Region:** Information about the Company's operations in different industry segments for the years ended December 31 is summarized below (in millions of dollars):

	NET SALES			OPERATING PROFIT		
	1983	1982	1981	1983	1982	1981
Communications Products	\$1,620	\$1,527	\$1,443	\$ 92	\$139	\$165
Semiconductor Products	1,601	1,297	1,278	213	104	131
Information Systems Products	514	485	412	(5)	34	43
Other products	696	565	518	81	37	19
Adjustments and eliminations	(103)	(88)	(81)	(4)	(7)	(4)
Industry totals	\$4,328	\$3,786	\$3,570	377	307	354
General corporate expenses				(47)	(47)	(57)
Interest expense, net				(24)	(48)	(35)
Other, net				3	—	(3)
Earnings before income taxes and extraordinary gain				\$309	\$212	\$259

The 1983 operating loss for Information Systems includes an \$11 million charge for the discontinuation of a line of central processing equipment. Information Systems would have achieved an operating profit if this charge had not been made.

	ASSETS		
	1983	1982	1981
Communications Products	\$1,053	\$ 926	\$ 874
Semiconductor Products	1,143	1,009	922
Information Systems Products	470	424	359
Other products	304	276	277
Adjustments and eliminations	(16)	(19)	(21)
Industry totals	2,954	2,616	2,411
General corporate assets	238	181	177
Other, net	44	36	27
Consolidated totals	\$3,236	\$2,833	\$2,615

	FIXED ASSET EXPENDITURES			DEPRECIATION		
	1983	1982	1981	1983	1982	1981
Communications Products	\$ 119	\$ 110	\$ 88	\$ 57	\$ 48	\$ 42
Semiconductor Products	174	160	184	116	97	87
Information Systems Products	35	37	32	22	18	13

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

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

	NET SALES			OPERATING PROFIT		
	1983	1982	1981	1983	1982	1981
United States	\$4,104	\$3,572	\$3,381	\$290	\$254	\$314
Other nations	1,414	1,231	1,223	91	58	57
Adjustments and eliminations	(1,190)	(1,017)	(1,034)	(4)	(5)	(17)
Geographic totals	\$4,328	\$3,786	\$3,570	377	307	354
General corporate expenses				(47)	(47)	(57)
Interest expense, net				(24)	(48)	(35)
Other, net				3	—	(3)
Earnings before income taxes and extraordinary gain				\$309	\$212	\$259

	ASSETS		
	1983	1982	1981
United States	\$2,291	\$1,980	\$1,892
Other nations	724	688	615
Adjustments and eliminations	(61)	(52)	(96)
Geographic totals	2,954	2,616	2,411
General corporate assets	238	181	177
Other, net	44	36	27
Consolidated totals	\$3,236	\$2,833	\$2,615

Motorola operates predominantly in one industry, electronic equipment and components. Operations involve the design, manufacture and sale of a diversified line of electronic products, which includes, but is not limited to, two-way radio and communications systems; semiconductors, including integrated circuits and microprocessor units; data communication and distributive data processing equipment and systems; electronic equipment and industrial electronic products. For the three years of industry segments presented above, communications, semiconductor and information systems products represent the Company's significant industry segments. The Company operates manufacturing and distribution facilities outside the United States. No single country outside the United States accounts for more than 10% of consolidated sales and other revenues or total assets.

Operating profit was computed as total revenues less operating expenses. In computing operating profit, none of the following items have been included: general corporate expenses, net interest, income taxes and the extraordinary gain from the exchange of debt for stock in

1982. Identifiable assets are those assets of the Company that are identified to classes of similar products or operations in each geographical area, excluding internal receivables. Corporate assets are principally cash and marketable securities, the corporate administrative headquarters, and future income tax benefits. Intersegment sales are principally semiconductor components, which amounted to \$78 million for 1983, \$66 million for 1982, and \$58 million for 1981. Intersegment and intergeographic transfers are accounted for on an arm's length pricing basis and are consistent with rules and regulations of domestic and foreign taxing authorities.

Sales to United States federal government agencies aggregated \$543 million in 1983 and \$516 million for 1982. No other single customer (or group of customers under common control) accounted for 10% or more of the Company's sales.

The equity in the net assets of non-U.S. subsidiaries amounted to \$472 million at December 31, 1983 and \$384 million at December 31, 1982.

## Supplementary Information On The Effects Of Changing Prices

The Financial Accounting Standards Board (FASB) issued Statement of Financial Accounting Standards No. 33 (SFAS-33) requiring disclosure of selected information describing certain effects of changing prices on companies' financial statements. SFAS-33 prescribes presentation of certain information adjusted for the effects of specific price changes as adjusted for equivalent service potential of replacement assets (current cost method) and as adjusted for the effects of general inflation as measured by the United States Consumer Price Index for All Urban Consumers (CPI-U; constant dollar method). For the constant dollar method, the effects of inflation were determined by adjusting the historical cost of inventories, property, plant and equipment, cost of sales and depreciation expense to average 1983 dollars based on the CPI-U. With respect to the current cost method, inventories were estimated based on quantities on hand at year-end 1983 adjusted to reflect current replacement cost. Cost of sales, on a current cost basis, was estimated by adjusting the historical cost of sales to reflect a LIFO (last-in, first-out) inventory valuation. The current cost of property, plant and equipment was estimated by adjusting historical cost by externally generated industrial price indices relevant to the plant and equipment of Motorola. Depreciation expense, on a current cost basis, was computed assuming straight-line depreciation using the same indices used to develop the estimated current cost of property, plant and equipment.

Motorola, like other companies, has experienced increases in the cost of its production resources. However, the electronic components and equipment industry (e.g., semiconductors and semiconductor based equipment) has been able to accomplish significant productivity gains in its manufacturing processes, which have reduced the cost of products sold beyond the increase in the costs of production resources. Thereby, over time, selling prices generally decrease. Productivity gains in Motorola's other business have reduced the effects of increased production resource costs, resulting in price increases over time at rates significantly less than general inflation.

In consideration of the two methods required to be used to portray the effects of changing prices, the Company believes, with some reservations, the current cost method more appropriately represents the impact of inflation on the Company, as it at least considers equipment related productivity. This method ignores, however, both productivity gains available from engineering and labor as well as inflationary pressures in selling, general and administrative costs. The required constant dollar method of presentation for this information contradicts the experience of the Company, as it completely ignores the effects of productivity. Accordingly, management believes that the constant dollar information presented on the following page and in the five-year comparison afterwards, with the exception of the dividends declared per common share adjusted by the CPI-U, does not correctly describe the effects of changing prices on the operations of the Company and is therefore misleading.

## Statement Of Consolidated Earnings Adjusted For Changing Prices

Year ended December 31, 1983

(In millions of dollars)	Historical Cost	Constant Dollar (avg. 1983 \$'s)	Current Cost
Net sales	\$4,328	\$4,328	\$4,328
Manufacturing and other costs of sales	2,593	2,618	2,577
Selling, general and administrative expense	1,113	1,113	1,113
Depreciation of plant and equipment	289	297	263
Interest expense, net	24	24	24
Income taxes	65	65	65
Total costs and expenses	4,084	4,117	4,042
Net earnings before extraordinary gain	\$ 244	\$ 211	\$ 286
Gain from decline in purchasing power of net payables		\$ 7	\$ 7
Increase in specific prices (current cost method) of inventories and property, plant, and equipment held during the year*			\$ 122
Increase in general price level (constant dollar method)			\$ 60
Excess of current cost method over constant dollar method			\$ 62

\*At December 31, 1983, the estimated current cost of inventories was \$660 million and the estimated current cost of property, plant and equipment, net of accumulated depreciation was \$2,186 million.

The Company uses accelerated methods of depreciation in its historical cost financial statements in part to conservatively value earnings as a result of the increasing prices the Company will have to pay to replace these assets. The depreciation expense above for both constant dollar and current cost is based on calculations made using the straight-line method with asset lives grouped to approximate those used in historical cost presentation. Also, historical cost income tax expense has not been adjusted. Had depreciation expense under the current cost method been computed using accelerated methods, the depreciation charged would have approximated \$397 million for 1983.

Below is a five-year summary of selected information which has been denominated in dollars of average purchasing power for the year 1983.

Five-year Comparison of Certain Supplementary Financial Data Adjusted for the Effects of Changing Prices.

(In millions of dollars, except per share data)	Years Ended December 31				
	1983	1982	1981	1980	1979
Net sales	<b>\$4,328</b>	\$3,905	\$3,911	\$3,971	\$3,952
Historical cost information <i>adjusted by the constant dollar method</i> :					
Net earnings before extraordinary gain	<b>211</b>	133	119	125	150
Net earnings per common share	<b>5.40</b>	3.64	3.32	3.55	4.29
Net assets	<b>2,465</b>	2,293	2,022	1,919	1,861
Historical cost information <i>adjusted by the current cost method</i> :					
Net earnings before extraordinary gain	<b>286</b>	226	219	221	244
Net earnings per common share	<b>7.33</b>	6.19	6.12	6.29	7.02
Net assets	<b>2,690</b>	2,582	2,034	1,953	1,876
<b>Other Information:</b>					
Excess of current cost method over constant dollar method for inventory and property, plant and equipment, net	<b>62</b>	193	25	(131)	48
Gain from decline in purchasing power of net payables	<b>7</b>	12	19	28	14
Cash dividends declared per common share	<b>1.60</b>	1.65	1.75	1.75	1.72
Market price per common share	<b>136.25</b>	88.64	61.02	83.37	65.87
Average consumer price index	<b>298.4</b>	289.1	272.4	246.8	217.4

## Five Year Financial Summary

Motorola, Inc. and Consolidated Subsidiaries, years ended December 31

	1983	1982	1981	1980	1979
<b>Operating Results</b> (In millions of dollars)					
Net sales	\$ 4,328	\$ 3,786	\$ 3,570	\$ 3,284	\$ 2,879
Manufacturing and other costs of sales	2,593	2,269	2,086	1,896	1,672
Selling, general and administrative expense	1,113	1,013	985	877	756
Depreciation and amortization of plant and equipment	289	244	205	173	132
Interest expense, net	24	48	35	43	27
Special charge	—	—	—	13	10
Total costs and other expenses	4,019	3,574	3,311	3,002	2,597
Earnings before income taxes and extraordinary gain	309	212	259	282	282
Income taxes	65	42	77	90	111
Net earnings before extraordinary gain	244	170	182	192	171
Net earnings as a percent of sales	5.6%	4.5%	5.1%	5.8%	5.9%
Extraordinary gain	—	8	—	—	—
Net earnings	\$ 244	\$ 178	\$ 182	\$ 192	\$ 171
<b>Per Share Data</b>					
Earnings before extraordinary gain	\$ 6.26	\$ 4.64	\$ 5.10	\$ 5.45	\$ 4.91
Net earnings	6.26	4.87	5.10	5.45	4.91
Dividends declared	1.60	1.60	1.60	1.45	1.25
<b>Balance Sheet</b> (In millions of dollars)					
Total assets	\$ 3,236	\$ 2,833	\$ 2,615	\$ 2,292	\$ 2,069
Working capital	894	924	833	788	753
Long-term debt	262	369	427	383	334
Total debt	270	378	433	389	342
Stockholders' equity	\$ 1,948	\$ 1,700	\$ 1,409	\$ 1,256	\$ 1,099
<b>Other Data</b>					
Current ratio	2.07	2.57	2.32	2.45	2.37
Return on average invested capital	12.2%	9.1%	11.2%	12.9%	13.5%
Return on average stockholders' equity	13.5%	11.3%	13.7%	16.3%	16.6%
Year-end employment (approximate)	88,800	78,800	80,800	75,200	78,400
Average shares outstanding (in thousands)	39,046	36,506	35,714	35,117	34,835

## Quarterly Financial Data

Motorola, Inc. and Consolidated Subsidiaries

(In millions of dollars, except per share data)

The principal market for Motorola Common Stock is the New York Stock Exchange. The table below sets forth the high and low sales price per share for Motorola Common Stock as reported by the Consolidated Tape Association and the dividends declared and paid for the periods indicated.

	1983				1982			
	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.
Net sales	\$ 942	\$1,044	\$1,074	\$1,268	\$ 914	\$ 965	\$ 912	\$ 995
Gross profit before depreciation	372	422	420	521	379	392	334	412
Net earnings before extraordinary gain	32	51	66	95	35	45	35	55
Net earnings per share before extraordinary gain	.83	1.31	1.69	2.42	.96	1.26	.96	1.46
Dividends:								
Declared and Paid	.40	.40	.40	.40	.40	.40	.40	.40
Stock prices:								
High	116.75	139.75	150.00	149.13	58.38	65.38	81.25	93.50
Low	82.00	101.13	124.87	129.25	49.25	56.88	59.00	71.50

The number of holders of record of Motorola Common Stock on January 27, 1984 was 9,946.

## Management's Discussion And Analysis Of Financial Condition And Results Of Operations

**Operations:** The Company's principal operations are the Communications, Semiconductor and Information Systems Products segments. Note 10 to the consolidated financial statements indicates these segments' relative contributions to the Company's overall sales and operating profit for the past three years.

The Communications Products segment sales increased slightly from 1982. Operating profit declined for this segment, as significant spending on new technology continued in 1983.

After relatively minor sales growth in the prior two years, the Semiconductor Products segment sales growth was very significant in 1983. Demand for these products in the automotive, distribution, communications, and consumer markets was especially strong. Operating profits for this segment improved significantly, reversing the trend of declines over the past three years.

Sales for the Information Systems Products segment increased from last year, slightly. An operating loss was experienced by this segment in 1983. The loss includes an \$11 million charge for the discontinuation of a line of central processing equipment. The Information Systems Products segment would have achieved an operating profit if this charge had not been made.

In the case of the Company as a whole, a substantial improvement is seen in 1983 for sales and operating profit. General improvements in the world's economic condition helped to favorably impact these figures. Also, the Company's significant strategic investments in new products, technologies, quality and fixed assets, in prior years, assisted in developing market demand for the Company's products in 1983. As in the prior year, the Company was adversely affected by the impact of the generally strong U.S. dollar on foreign operations. But the Company's earnings before income taxes and extraordinary gain did improve substantially in 1983. The Company's net profit improved also, in 1983, but not as significantly. In 1983, the Company's effective tax rate increased slightly (See note 5). The lower effective tax rates in 1982 and 1983 have arisen principally from increased investment tax credits and research and development tax credits.

**Liquidity and Capital Resources:** As a result of the Company's significant improvement in net funds provided by operations and because of additional funds received from the issuance of common stock in 1983, the Company was able to reduce long-term debt by \$107 million, and to continue to fund new fixed asset expenditures of \$406 million, which exceeded the prior year expenditures by \$51 million. Note 3 to the consolidated financial statements details the changes in the Company's long-term debt and note 10 provides by segment the majority of the Company's fixed asset expenditures. The Company owns the majority of its manufacturing and productive resources with only a minimal amount of such resources under lease.

Motorola's return on average invested capital (stockholders' equity plus long- and short-term debt, net of marketable securities) was 12.2% compared with 9.1% in 1982. Current liabilities increased by \$248 million reflecting the substantial increase in the level of business activity in the fourth quarter, increased profitability and fixed asset expenditure increases at year-end. Current assets increased by \$218 million thus causing a decrease in year-end working capital of \$30 million. The current ratio also decreased to 2.07 at year-end 1983 from 2.57 in 1982. Asset management programs resulted in further decreases in accounts receivable weeks from 7.1 to 6.5 weeks in 1983. Inventories increased by only 3.3% in the year. The improved quality of the working assets of the Company and the reduced debt in 1983 both represent additional strengthening of the Company's financial position.

Management believes the Company continues to have sufficient capital resources to meet the needs of its customers.

## Directors

**ROBERT W. GALVIN**

**WILLIAM J. WEISZ**

**JOHN F. MITCHELL**

**JOHN J. ANTALEK**

*Retired; formerly Vice President, TRW Inc.*

**JOHN T. HICKEY**

**M. JOSEPH LAMBERT**

*Retired; formerly Senior Vice President and Chief Financial Officer, Kraft, Inc.*

**STEPHEN L. LEVY**

**HOMER L. MARRS**

*Retired; formerly Senior Vice President, Motorola, Inc.*

**ARTHUR C. NIELSEN, JR.**

*Chairman of the Board and Chief Executive Officer, A. C. Nielsen Company*

**CHARLOTTE T. REID**

*Business consultant; formerly Commissioner, Federal Communications Commission; and member, U.S. House of Representatives*

**WILLIAM G. SALATICH**

*Business consultant and trader, Chicago Mercantile Exchange; formerly Vice Chairman, Gillette Company*

**ELMER H. SCHULZ**

*Director Emeritus, IIT Research Institute*

**WALTER B. SCOTT**

*Retired; formerly Vice President, Motorola, Inc.*

**GARDINER L. TUCKER**

*Vice President for Science and Technology, International Paper Company*

**B. KENNETH WEST**

*Chairman of the Board and Chief Executive Officer, Harris Bankcorp, Inc.*

### DIRECTOR EMERITUS

**ELMER H. WAVERING**

*Formerly Vice Chairman and Chief Operating Officer, Motorola, Inc.*

## Elected Officers of Motorola, Inc.

### CORPORATE

**Robert W. Galvin**

*Chairman of the Board and Chief Executive Officer*

Age  
As of  
12/31/83  
Years of  
Service

61 43

**William J. Weisz**

*Vice Chairman of the Board and Chief Operating Officer*

56 35

**John F. Mitchell**

*President and Assistant Chief Operating Officer*

55 30

**\*Stephen L. Levy**

*Executive Vice President and General Manager, Japanese Operations*

62 19

**\*Levy Katzir**

*Senior Vice President and General Manager, New Enterprises*

51 27

### FINANCE

**\*John T. Hickey**

*Executive Vice President and Chief Financial Officer*

58 36

**\*Donald R. Jones**

*Senior Vice President, Assistant Chief Financial Officer and Treasurer*

53 33

**Kenneth J. Johnson**

*Corporate Vice President and Controller*

48 12

**\*H. Richard Klotz**

*Corporate Vice President and Director of Taxes*

57 8

**\*Victor R. Kopidlansky**

*Corporate Vice President and Assistant General Counsel*

52 18

**Richard H. Weise**

*Corporate Vice President, General Counsel and Secretary*

48 15

### STAFF

**\*John R. Welty**

*Executive Vice President and Chief Corporate Staff Officer*

61 26

**\*Jack Germain**

*Senior Vice President and Motorola Director of Quality*

57 33

**\*William G. Howard, Jr.**

*Senior Vice President and Motorola Director of Research and Development*

42 14

**\*Keith J. Bane**

*Corporate Vice President and Director of Motorola Corporate Strategy Office*

44 10

**\*Toni Dewey**

*Corporate Vice President and Motorola Director of Public Relations and Advertising*

55 7

**L. Curtis Foster**

*Corporate Vice President and Motorola Director of Engineering*

58 9

	Age	Years of Service		Age	Years of Service		Age	Years of Service
<b>R. James Harring</b> <i>Corporate Vice President and Motorola Director of Planning</i>	59	32	<b>George M. C. Fisher</b> <i>Corporate Vice President and General Manager, Paging and Portable Divisions</i>	43	7	<b>Weldon D. Douglas</b> <i>Corporate Vice President and General Manager, High Frequency and Optical Products Division</i>	46	23
<b>C. Travis Marshall</b> <i>Corporate Vice President and Motorola Director of Government Relations</i>	57	13	<b>Kenneth R. Hessler</b> <i>Corporate Vice President and General Manager, Commercial Markets Division</i>	50	26	<b>*Murray A. Goldman</b> <i>Corporate Vice President and General Manager, Microprocessor Division</i>	46	14
<b>Vincent J. Rauner</b> <i>Corporate Vice President for Patents, Trademarks and Licensing</i>	56	13	<b>Bradford K. Kroha</b> <i>Corporate Vice President and General Manager, European Division</i>	57	29	<b>David W. Hickie</b> <i>Corporate Vice President and Sector Director of Finance</i>	50	21
<b>PERSONNEL</b>			<b>Theodore Saltzberg</b> <i>Corporate Vice President and General Manager, Fixed Division</i>	56	28	<b>*Frederick T. Tucker</b> <i>Corporate Vice President and General Manager, Power Products Division</i>	43	18
<b>*Robert N. Swift</b> <i>Executive Vice President and Motorola Director of Personnel</i>	60	31	<b>Edward F. Staiano</b> <i>Corporate Vice President and General Manager, Systems Division</i>	47	10	<b>*Kenneth G. Wolf</b> <i>Corporate Vice President and General Manager, Linear and Military Products Division</i>	43	18
<b>James D. Burge</b> <i>Corporate Vice President and Motorola Director of Personnel, United States</i>	49	25	<b>Ira W. Walker</b> <i>Corporate Vice President and General Manager, Distribution Service Division</i>	60	28	<b>INFORMATION SYSTEMS GROUP</b>		
<b>James Donnelly</b> <i>Corporate Vice President and Motorola Director of Personnel, International</i>	44	14	<b>SEMICONDUCTOR PRODUCTS SECTOR</b>			<b>*Arthur Carr</b> <i>Executive Vice President and General Manager, Information Systems Group</i>	52	15
<b>*Joseph F. Miraglia</b> <i>Corporate Vice President and Motorola Director of Human Resources</i>	47	5	<b>*Gary L. Tooker</b> <i>Executive Vice President and General Manager, Semiconductor Products Sector</i>	44	21	<b>AUTOMOTIVE AND INDUSTRIAL ELECTRONICS GROUP</b>		
<b>COMMUNICATIONS SECTOR</b>			<b>*James R. Fiebiger</b> <i>Senior Vice President and Assistant General Manager, Semiconductor Products Sector</i>	42	6	<b>*Carl E. Lindholm</b> <i>Executive Vice President and General Manager, Automotive and Industrial Electronics Group</i>	54	16
<b>*Rhesa S. Farmer</b> <i>Executive Vice President and General Manager, Communications Sector</i>	57	26	<b>*Thomas D. George</b> <i>Senior Vice President and General Manager, Bipolar Integrated Circuits Group</i>	43	4	<b>*Gerhard Schulmeyer</b> <i>Corporate Vice President and Assistant General Manager, Automotive and Industrial Electronics Group</i>	45	3
<b>*John W. Battin</b> <i>Senior Vice President and General Manager, Portable/Paging/Systems/Components Group</i>	46	25	<b>*Gary M. Johnson</b> <i>Senior Vice President and General Manager MOS Integrated Circuits Group</i>	39	16	<b>*Philip D. Gunderson</b> <i>Corporate Vice President and General Manager, Automotive Electronics Division</i>	45	15
<b>*Arnold S. Brenner</b> <i>Senior Vice President and General Manager, Communications International Group</i>	46	24	<b>*James A. Norling</b> <i>Senior Vice President and General Manager, International Semiconductor Group</i>	41	18	<b>GOVERNMENT ELECTRONICS GROUP</b>		
<b>*Arthur P. Sundry</b> <i>Senior Vice President and General Manager, Communications Distribution Group</i>	55	26	<b>*Geno Ori</b> <i>Senior Vice President and General Manager, Discrete Semiconductor Group</i>	46	21	<b>*James R. Lincicome</b> <i>Executive Vice President and General Manager, Government Electronics Group</i>	58	33
<b>*Morton L. Topfer</b> <i>Senior Vice President and General Manager, Fixed and Mobile Group</i>	47	12	<b>*Charles E. Thompson</b> <i>Senior Vice President and Sector Director of World Marketing</i>	54	14	<b>*Edward H. Lange, Jr.</b> <i>Corporate Vice President and General Manager, Communications Division</i>	57	26
<b>David K. Bartram</b> <i>Corporate Vice President and General Manager, Government Markets Division</i>	47	23	<b>Andre Borrel</b> <i>Corporate Vice President and General Manager, European Semiconductor Division</i>	47	16	<b>*Robert N. Solem</b> <i>Corporate Vice President and Director of Group Staff</i>	54	25
<b>R. LaVance Carson</b> <i>Corporate Vice President and General Manager, Special Markets Division</i>	54	29						
<b>Gordon Comerford</b> <i>Corporate Vice President and Sector Director of Business Management</i>	47	9						

\* Assumed new position or advanced in rank since previous annual report.

*Major facilities in:*

**Australia**

Melbourne

**Canada**

Ontario

Rexdale; Willowdale

**France**

Angers; Toulouse

**Hong Kong**

Kowloon

**Israel**

Tel Aviv

**Japan**

Aizu Wakamatsu; Tokyo

**Korea**

Seoul

**Malaysia**

Kuala Lumpur; Penang;  
Seremban

**Mexico**

Guadalajara; Leon;  
Mexico City

**Philippines**

Manila

**South Africa**

Johannesburg

**Switzerland**

Geneva

**United Kingdom**

Basingstoke; East Kilbride;  
Stotfold

**United States**

**Alabama**

Huntsville

**Arizona**

Chandler; Mesa;  
Phoenix; Scottsdale;  
Tempe

**California**

Cupertino; Novato

**Florida**

Boynton Beach  
Fort Lauderdale

**Illinois**

Franklin Park; Schaumburg

**Iowa**

Mount Pleasant

**Massachusetts**

Canton; Mansfield

**Missouri**

Joplin

**New Mexico**

Albuquerque

**New York**

Arcade

**Texas**

Austin; Fort Worth;  
Seguin

**Puerto Rico**

Vega Alta; Vega Baja

**West Germany**

Munich; Taunusstein

**Communications Sector**

Communications control centers  
Component products  
Digital voice-protection systems  
Electronic command and control systems  
Emergency medical communications systems  
Microwave communications systems  
Mobile and portable data communications systems  
Mobile and portable FM two-way radio communications systems  
Mobile and portable radiotelephone systems  
Precision instruments  
Radio paging systems  
Signaling and remote control systems

**Semiconductor Products Sector**

Bipolar and MOS integrated circuits  
Bipolar and MOS VLSI Macrocell Arrays  
Bubble memories  
Custom MOS and bipolar circuits  
Digital logic circuits  
Fiber-optic devices  
Field-effect transistors  
Linear amplifier circuits  
Linear interface circuits  
Microcomputer board-level products  
Microcomputer development systems  
Microprocessors  
Microwave components  
MOS and bipolar memories  
Optoelectronics components  
Photovoltaic power systems  
Power and small signal transistors  
Pressure and temperature sensors  
Rectifiers  
RF modules  
RF power and small signal transistors  
Single-board computers  
Telecommunications components  
Thyristors  
Triggers  
Voltage regulator circuits  
Zener and tuning diodes

**Information Systems Group**

Circuit access and test systems  
Diagnostic and test equipment  
Distributed data processing equipment  
Electronic data switches  
Integral modems  
Intelligent network processors  
Intelligent terminal systems  
Low-, medium- and high-speed modems  
Multifunction computer systems  
Multiplexers  
Network control and management systems  
Software for data entry, word processing, office management  
Systems processors  
Technical control facilities  
Telephone line conditioning equalizers  
Telephone traffic accounting and control systems  
Video operator stations  
Voice digitizers

**Automotive and Industrial Electronics Group**

Alternator charging systems  
Automatic scoring systems for bowling  
Automotive and industrial digital instrumentation (Tachometers, speedometers, odometers, hourmeters)  
Automotive and industrial digital monitoring systems  
Automotive and industrial sensors  
Computer terminals  
CRT display modules (5" to 23")  
Digital appliance controls  
Electronic engine controls  
Electronic engine governors  
Electronic ignition systems  
Electronic regulators  
Engine management systems

**Government Electronics Group**

Advanced seeker systems  
Antenna and microwave systems  
Data security modules  
Drone command and control systems  
Electronic countermeasures systems  
Electronic positioning and tracking systems  
Fixed and satellite communications systems  
Fuze systems  
Intelligent display terminals and systems  
Military radios  
Missile and aircraft instrumentations  
Missile guidance systems  
Satellite survey and positioning systems  
Satellite terminals  
Secure communications  
Space communications systems  
Surveillance radar systems  
Tracking and command transponder systems  
Video processing systems and products





**MOTOROLA INC.**

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