

## **IBM HIGHLIGHTS, 1990 -1995**

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## **1990**

### **Business Performance**

IBM revenue increases by 10.1 percent from 1989, reaching \$69.01 billion, and earnings grow by 62 percent to \$6.02 billion. There are 373,816 employees and 789,046 stockholders at year end.

IBM launches a comprehensive quality improvement program under the overall framework of “market-driven quality.”

### **Organization**

IBM says it will form a wholly-owned subsidiary consolidating IBM’s typewriter, keyboard, intermediate and personal printers and supplies business in the United States, including manufacturing facilities. The company says it is working to create an alliance under which Clayton & Dubilier, Inc., would become the majority owner of the new subsidiary, and that IBM is studying a plan to include the remainder of its worldwide Information Products business in the alliance. The new U.S. company includes IBM’s Information Products business, largely from IBM facilities in Lexington, Ky., and Boulder, Colo.

IBM announces a series of worldwide organizational realignments, including the move from Somers, N.Y., to London, England, of the Communication Systems line of business headquarters.

IBM Germany consolidates its marketing and service activities in the German Democratic Republic in a new subsidiary corporation, IBM Germany System and Service — East, with headquarters in Dresden.

IBM operations in the Asia Pacific area are restructured to focus on solution delivery and the headquarters staff is consolidated. In addition, IBM Australia and IBM New Zealand are consolidated into one organization serving both countries.

### **Products & Services**

IBM makes its most comprehensive product announcement in 25 years by introducing the System/390 family consisting of 18 Enterprise System/9000 processors ranging from midrange computers for office environments to the most powerful computers IBM has ever offered. Featuring enhanced function and capability to manage information systems, the System/390 provides increased processing power, better network management, improved communication among multivendor systems and the Enterprise System/9000 processors. In many cases, customers currently using IBM Enterprise System/3090 systems can easily upgrade their systems to System/390 processors.

IBM also rolls out three new models of the Enterprise System/9370, which can run System/370 software while being managed by a central host computer or operate as standalone systems.

IBM announces in February the RISC System/6000, a family of nine workstations that are among the fastest and most powerful in the industry. The RISC System/6000 uses Reduced Instruction Set Computer technology, an innovative computer design pioneered by IBM that simplifies

processing steps to speed the execution of commands, and a new version of Advanced Interactive Executive, IBM's implementation of the UNIX operating system.

IBM broadens its AS/400 product line in August, unveiling two low-cost processors that are designed for small businesses and departments of larger companies. Also added is a low-end processor to the Application System/Entry series. The entire AS/400 family is enhanced with hundreds of hardware and software products, including operating system improvements, new data storage products, expanded memory, better systems availability and numerous advanced applications.

Six Personal System/2 (PS/2) computers designed to manage networks of desktop personal computers are introduced in March. They feature improved memory and storage capacity and IBM's advanced 3.5-inch disk storage device. A new portable PS/2 model and a new laser printer also are announced. Three months later, IBM announces the Personal System/1 (PS/1) that is easy enough for the novice to use, yet powerful enough to do office work at home, at prices ranging from \$999 to \$1,999 in the United States. IBM introduces the PS/2 Model 25 286, which is designed to meet the special needs of schools.

Other 1990 announcements include: several networking products to make it easier for customers to use their midrange, desktop and System/390 computers to communicate with non-IBM computers; CIM Advantage, to provide customers with more than 50 computer-integrated manufacturing products and applications developed by IBM and its business partners; the ImagePlus High Performance Transaction Processing System, to convert checks into high-quality electronic images for quick and economical transmission, storage and retrieval on workstation screens or printing as monthly statements; and CallPath Services Architecture, to provide a framework for companies to link their computers with their business telephone systems and to functionally integrate their voice and data communications applications.

### **Alliances**

IBM joins five other technology leaders in investing in ETEC, Inc., which will manufacture and sell tools and other equipment used in semiconductor manufacturing. IBM and Siemens AG reveal plans to develop jointly 64-million-bit memory chips. IBM says it plans to make substantial equipment purchases from, and provide financial backing for future product development to, SVG Lithography Systems, Inc., which was formed in May from a partnership of Perkin-Elmer Corporation and the Silicon Valley Group, Inc. In addition, SEMATECH, a U.S. industry-government consortium to which IBM belongs, enters a joint development program with the new company.

Motorola, Inc. and IBM form ARDIS, a joint venture to offer the first commercial service in the United States for communicating with computers via radio waves. IBM and Metaphor Computer Systems, Inc., form Patriot Partners to create a new suite of application system software. IBM and Check Consultants, Inc. announce an agreement to form Check Solutions Company to develop and market check and check image application software and services. Diebold, Incorporated, and IBM form a joint venture named InterBold to provide automated teller machines and financial self-service systems worldwide.

After two years of successful testing in selected U.S. cities, PRODIGY — an information and home shopping service for PC users — becomes available throughout the United States in September. The service is offered by a partnership between IBM and Sears, Roebuck and Co.

IBM acquires a minority equity interest in Hogan Systems, Inc.; IBM Canada Ltd. and Businessland Canada form PC ServicePartners, Inc., to service personal computers; and IBM China/Hong Kong invests in Commercial Software Services Ltd., a provider of software and services for banking, insurance, finance, manufacturing and other industries.

IBM announces a partnership agreement with The Association of Tennis Professionals (ATP), in which IBM is the title sponsor of the ATP Tour and will provide information processing systems to collect and manage a broad range of statistical information about the players and the tournaments.

In two real estate alliances, IBM and Prentiss Properties announce their intent to form a partnership to own jointly and develop an office facility to be built adjacent to IBM's Austin plant; and IBM and C.J. Segerstrom & Sons form a joint venture partnership for the development and ownership of an office building in Costa Mesa, Calif.

### **Science & Technology**

The Institute of Electrical and Electronics Engineers, Inc., awards its 1990 Corporate Innovation Recognition to IBM for the development of the Multilayer Ceramic Thermal Conduction Module for high performance computers.

A new memory chip capable of storing 16 million bits of information — about 1,600 double-spaced typed pages of text — is fabricated at IBM's semiconductor facility in Essex Junction, Vt. No larger than a pencil eraser, the new chip can locate and "read" all 16 million bits of stored data in 1/25th of a second.

IBM scientists discover how to move and position individual atoms on a metal surface, using a scanning tunneling microscope. The technique is demonstrated in April at IBM's Almaden Research Center in San Jose, Calif., where scientists created the world's first structure: the letters "I-B-M" — assembled one atom at a time.

Other IBM researchers fabricate transistors that operate at frequencies of up to 75 billion cycles a second, nearly double the current world record. IBM scientists also devise a technique for producing blue laser light that could significantly increase the capacity of optical data storage devices.

### **Facilities**

U.S. President George Bush presents the Malcolm Baldrige National Quality Award to IBM's Rochester, Minn., facility.

IBM celebrates the tenth anniversary of its Management Development Center (MDC) in Armonk, N.Y. The MDC is one of six IBM centers around the world teaching new and experienced

managers. It serves approximately 5,000 students each year through programs such as the New Manager School, Middle Manager School and Advanced Management School. (Since the MDC's dedication in 1980, some 50,000 IBM managers have passed through its doors on their journey to becoming leaders. IBM opened its first education facility in Endicott, N.Y., in 1933.)

### **Corporate Citizenship**

IBM contributes in 1990 more than \$148 million in cash, equipment and employee expertise in support of educational, social and cultural programs benefiting people around the world. IBM donates more than \$22 million to 107 U.S. colleges and universities in all 50 states, Puerto Rico and the District of Columbia to help improve the training of teachers in K-12 education through the more effective use of technology. In Canada the company contributes \$2.1 million in cash, equipment and services to support a project to encourage and motivate increased mathematics and science literacy among K-12 students. IBM says that it will supply more than 13,000 personal computers to the Soviet Union, for use primarily in secondary schools. IBM and the Walt Disney Company are jointly sponsoring the first annual American Teachers Awards to honor outstanding educators for their efforts to achieve excellence in the U.S. school system.

IBM participates in job training centers in Argentina and the United Kingdom. In the United States, IBM sponsors 95 such centers, which have graduated more than 40,000 people since the initiative was undertaken in 1968. IBM announces plans to establish IBM Computer Competence and Development Centers at universities in Czechoslovakia, Hungary, Poland and other Central and Eastern European countries.

IBM joins 14 other leading U.S. corporations in April to establish a worldwide program designed to achieve environmental, health and safety goals by continuously improving environmental management practices and performance. IBM has invested more than \$1 billion since 1973 to provide environmental protection for the communities in which IBM facilities are located. IBM has put a plan in place to eliminate the use of ozone-depleting chlorofluorocarbons (CFC) in products and processes by 1993. IBM U.S. manufacturing sites in 1990 reduce CFC emissions 47 percent from 1989 levels, for a cumulative reduction of 76 percent since the company's CFC-elimination program began in 1987. Worldwide in 1990 IBM reduces its CFC emissions 43 percent from 1989 levels, for a total reduction of 63 percent since 1987.

IBM France has donated computer equipment and software to seven national parks over the last five years, and IBM Germany has provided a computer network to monitor water quality data on the 600-mile Elbe River. IBM Australia and the Zoological Parks Board of New South Wales establish the IBM Conservation Award to recognize significant achievements in conserving the natural environment.

The U.S. Department of Labor honors IBM for employee programs that address family-related needs and help to increase the quality of the U.S. work force.

IBM and the National Urban League announce the formation of Drugs Destroy Dreams, a youth drug intervention program in eight U.S. cities. IBM will donate \$1.4 million over three years to the program.

IBM announces that it would make \$4.5 million in computer systems available to federally funded disabilities support centers being established throughout the United States. IBM Brazil helps to establish courses that train visually impaired persons to become computer programmers. IBM Mexico signs an agreement with the government to assist the estimated two million Mexicans with hearing and speech problems. IBM Japan employees and their families assist local organizations for the blind to translate books and periodicals into Braille using computers and software developed by a blind IBM Japan employee.

IBM says that it will contribute \$6 million to the IBM South Africa Projects Fund over the next two years, extending IBM's commitment to the Fund until 1992.

Of the 3,500 new employees hired in the United States, about 31.3 percent are women and 26.8 percent are minorities. Women hold 20.8 percent of the company's management positions, while minorities hold 13 percent. Women hold 13 percent of the senior management positions while minorities hold almost 10 percent. The company also purchases more than \$195 million in products and services from over 950 minority-owned firms, over \$95 million from more than 1,050 firms owned primarily by women, and over \$14 million from 59 companies employing primarily handicapped workers.

## 1991

### **Business Performance**

IBM revenue falls to \$64.79 billion, a 6.1 percent decline from 1990, and earnings drop to a negative \$2.82 billion, a 146 percent reduction from the prior year. Special charges totalling \$3.4 billion are recorded in the fourth quarter, including \$2.2 billion associated with employee separations and relocations. IBM has 344,396 employees and 772,047 stockholders at year end.

### **Organization**

The corporation announces changes that will begin to redefine IBM as an organization of increasingly independent businesses and companies. Among those changes are:

- Formation of the Storage Products line of business to focus on providing leading-edge products for IBM computer systems and original equipment manufacturers. The new organization, which was created from the Storage Systems Products Division, a part of the Enterprise Systems line of business, will be headquartered in San Jose, Calif.

- Restructuring of the IBM Systems Services Division as the Integrated Systems Solutions Corporation (ISSC), a wholly-owned subsidiary to provide a broad range of outsourcing services to customers. In a related move, IBM Canada, Westbridge Computer Corporation and STM Systems Corporation form a new systems management services company, Information Systems Management Corporation.

- Formation of the IBM Federal Sector Services Corporation, effective January 1, 1992, as a wholly-owned subsidiary to respond to U.S. federal government customers' demand for systems

integration services. Headquartered in Bethesda, Md., the new company will be drawn from organizations within the IBM Federal Sector Division.

— Creation of Employment Solutions Corporation, to begin operating January 1, 1992 as a wholly-owned IBM subsidiary to provide selected employment and recruiting services to IBM and other companies.

— A plan to make the Pennant Systems Company a wholly-owned subsidiary to develop and manufacture IBM's worldwide printers and printing solutions, including advanced function printers, software and advanced printing services. And,

— The Personal Systems line of business forms the Entry Systems Technology organization to develop and acquire best-of-breed technologies and subsystems for IBM personal computers and workstations.

Following the sale of IBM's typewriter, keyboard, personal printer and supplies business to Clayton & Dubilier, Inc., a new company — Lexmark International, Inc. — is formed in March to develop, manufacture and sell information products worldwide. IBM will have a 10 percent equity interest in the new company and will market many of its products.

IBM forms a new organization in the IBM World Trade Europe/Middle East/Africa Corporation to be responsible for the overall personal systems business and performance. IBM Europe creates IBM Nordic, a new operating unit with headquarters in Stockholm, to be responsible for the IBM business in Denmark, Finland, Iceland, Norway and Sweden as of August 1, 1991. A wholly-owned subsidiary, IBM USSR Ltd., is established in Moscow to take advantage of business opportunities in the Soviet Union. (Since 1990 IBM has sold more than 13,000 personal computers to the Soviet Union for use primarily in secondary schools.) IBM CSFR, a wholly-owned subsidiary, is formed to pursue marketing and service opportunities in Czechoslovakia.

### **Products & Services**

IBM unveils seven new Enterprise System/9000 processors and operating system software — Advanced Interactive Executive/Enterprise System Architecture (AIX/ESA) — for the System/390 family. AIX/ESA is a further step in IBM's implementation of open-systems computing across its product line and is based on UNIX and the Open Software Foundation's OSF/1 standards. The company begins shipping in volume and on schedule two top-of-the-line ES/9000 models that were announced in September 1990. IBM Japan says it will supply Enterprise System/9000 processors and operating system software to Mitsubishi Electric Corp. for remarketing. The agreement marks the first time IBM has sold large processors as an original equipment manufacturer for resale.

The RISC System/6000 family is broadened with new high and low-end models, and enhanced with new software, memory and disk storage that enables customers to run applications faster and boost overall workstation performance.

The AS/400 line is renewed from top to bottom with 11 processors. A new \$12,000 AS/400 entry-level model and a new version of the AS/400's operating system are introduced.

IBM marks the IBM Personal Computer's 10th anniversary with enhancements to the successor Personal System/2 line. The company also announces three lower-cost models of industrial PS/2 computers and the IBM 9075 PCradio. This battery-powered personal computer lets mobile workers, such as service technicians, get information, order parts and update customer records without leaving their job sites via radio, cellular or telephone communications. The company strengthens the midrange of the PS/2 line with enhanced, expandable new models and options. A laptop computer — the IBM Personal System/2 L40 SX — is introduced to give customers computing capabilities on the road or in the air. The 7.7 pound unit features a full-sized keyboard, 10-inch display screen and high-capacity disk drive. IBM ships two personal computer models — the Personal System/2 Model 90 XP 486 SX and PS/2 Model 95 XP 486 SX — using Intel's new i486 SX microprocessor. The company signs a major order for Personal System/2 computers, together with other hardware, and software, from the Romanian Ministry of Education and Science. IBM Japan announces the Personal System/55note, a 5.5-pound notebook-size computer providing a Japanese and English-language capability.

Six new models of the IBM 3490 Magnetic Tape Subsystem, providing up to twice the storage capacity and 70 percent faster performance than current models, are rolled out, and IBM announces a 3.5-inch rewriteable optical drive capable of storing up to 40,000 pages of text or 10,000 graphic images on a single optical disk.

Other 1991 announcements include: new networking products to help tie together different types of computer systems, from PCs to large processors, so that data, applications, printers, processing power and services can be shared; IBM Japan makes a 3.5-inch rewriteable magneto-optical disk storage product available for Japanese workstation users; an Information Warehouse framework, a set of software products from IBM and business partners for accessing data no matter where it resides in an enterprise; and the POWER Visualization System for scientists and other technical professionals, to help users create images to locate natural resources, perform complex engineering tasks and design pharmaceuticals.

IBM's Integrated Systems Solutions Corp. announces agreements with a number of U.S. firms, including Supermarkets General Corp., Commerce Bancshares and First American National Bank of Nashville. IBM wins a systems integration contract making the company the prime contractor for the EH101 Merlin antisubmarine helicopters for the U.K. Royal Navy. Poland's Bank Slaski selects IBM to fully automate its 42 branches. Euro Disney S.C.A. signs an agreement making IBM France the office supplier of information technology for the Euro Disney Resort.

### **Alliances**

IBM forms a number of new, strategic business alliances around the world. IBM and Siemens AG agree to manufacture 16-million-bit memory chips at IBM's Corbeil-Essonnes, France, facility. The agreement calls for a joint multimillion-dollar investment to expand the semiconductor production facility.

Apple Computer Inc. and IBM announce in October a series of agreements which include Motorola Inc. as a technology partner. The agreements include: products to link Apple Macintosh personal computers into IBM networks; new Reduced Instruction Set Computer microprocessors for personal computers and low-cost workstations; a new open-systems environment in which both IBM AIX and Macintosh software programs can run on RISC-based systems from both companies; a joint venture to create and license multimedia technologies for a wide range of companies and industries; and an independent, jointly-owned company to develop object-oriented software, a building block for developing applications.

IBM signs a letter of intent to form an IBM alliance company — General Business Machines Corporation — which will assume direct responsibility for IBM's business and marketing operations in Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua and Panama.

To broaden its office offerings, IBM forms an alliance with Lotus Development Corp. to market Lotus software under license. The company extends its networking products licensing agreement with Novell Inc. and agrees to work with Borland International Inc. on software development tools. IBM also announces alliances with Easel and Micro Focus to develop and jointly market AD/Cycle software development tools, and licenses Hewlett-Packard computer-aided software and engineering tools and technology for use on the IBM RISC System/6000 family. The company says that Wang Laboratories Inc. will market IBM's Personal System/2 and RISC System/6000 products under the Wang logo and the Application System/400 line under the IBM logo through a new business relationship.

IBM and Hoechst Celanese Corporation announce a series of agreements under which Hoechst AG and Hoechst Celanese will manufacture certain photoresist systems developed by IBM and sell them under the Hoechst label — the first time IBM photoresists will be offered for general sale to the semiconductor industry. Photoresists are a light-sensitive chemical used to coat the surface of silicon wafers. IBM and Motorola, Inc. sign a licensing agreement covering integrated chip mounting technologies. Motorola will use IBM's patented "C4" (flip chip) and Direct Chip Attach (DCA) processes to package microchip products. Also announced are agreements with Novell Inc., under which IBM will license and market the company's networking products, and with AT&T, under which the two companies plan to develop software to assist customers in managing networks provided by IBM and AT&T.

IBM and Coopers & Lybrand form Meritus Consulting Services, a company that offers consulting services to businesses in the consumer package goods, pharmaceutical, aerospace, automotive and other industries.

TELECASH Kommunikations-Service GmbH is created through a joint venture between IBM Germany and Deutsche Bundespost TELEKOM to market a checkless, cashless electronic banking system to German businesses. International Application Solutions Pte. Ltd. is formed as a joint venture with Hong Leong Corporation in Singapore to source, distribute and support leading-edge software for Southeast Asian customers.

IBM acquires an equity position in Intera Tydac Technologies Inc., a marketer of geographic information system products, and a minority equity interest in Industrial Computing Designs Corporation. IBM Japan acquires the remaining interest in Computer Systems Leasing, Ltd., a financing company that leases IBM equipment to third-party users.

### **Science & Technology**

U.S. President George Bush presents a 1991 National Medal of Technology to IBM scientist John Cocke, who invented Reduced Instruction Set Computer technology. IBM Fellow Leo Esaki receives the IEEE Medal of Honor, the organization's highest award, for pioneering research into the structure and properties of semiconductor materials.

IBM scientists at the Thomas J. Watson Research Center develop an experimental computer chip — dubbed “Lightning” — that can move, in just one second, up to 8 billion bits of information — roughly the amount of information needed to fill a half-million computer screens. Meanwhile, scientists at IBM's Zurich Research Laboratory develop a way to build up to 20,000 lasers — each only a fraction of an inch long — on a semiconductor wafer.

### **Facilities**

IBM Networking Systems, the former Communication Systems line of business, moves its headquarters from Somers, N.Y., to the United Kingdom to capitalize on Europe's expanding networking opportunities.

### **Corporate Citizenship**

IBM's worldwide manufacturing sites in 1991 reduce chlorofluorocarbon (CFC) emissions 53 percent from 1990 levels, for a cumulative reduction of 83 percent since IBM's CFC-elimination program began in 1987. IBM's year-to-year energy consumption from 1990 to 1991 remains virtually flat for the first time in a decade, saving more than \$32 million in electricity costs in 1991.

IBM receives the 1991 Business of the Year Award from the American Society on Aging for community-sensitive programs designed for older people and their families.

IBM creates the IBM School Development Initiative to lead the company's participation in the design of new primary and secondary schools, as part of the U.S. Department of Education's America 2000 education strategy. IBM Mexico is one of five Mexican companies selected for the “Distincion Mexico” award for its exceptional performance for promoting the development of education in Mexico. IBM signs an agreement with the Polish Ministry of National Education and 14 Polish universities to create an IBM computer network linking the schools.

IBM agrees to donate computer equipment and related technical services worth about \$1 million for use in Poland and Hungary through the U.S. Labor Department's Support for Eastern Europe Democracies program.

The company launches a multi-million dollar program to provide funding, equipment, technical support and partnerships to help universities implement total quality management (TQM)

concepts in teaching, research and operations. IBM Colombia and its 332 employees are awarded the 1990 Colombia National Quality Award in the services industry category.

IBM announces its 100th job training center for people who want to learn office skills but cannot afford commercial courses.

IBM Korea establishes the Software Development Institute in Seoul to support Korea's effort to become a leading software producer by 2000.

## **1992**

### **Business Performance**

IBM revenue declines to \$64.52 billion, 0.3 percent lower than in 1991, and earnings drop to a negative \$4.96 billion, a fall of 73 percent from the prior year. The company records restructuring charges of \$11.6 billion before taxes to streamline and reduce resources used in the business. There are 301,542 employees and 764,630 stockholders at year end.

IBM announces plans in December to reduce its worldwide workforce by about 25,000 employees in 1993 while further reducing its global manufacturing capacity.

### **Organization**

The IBM Personal Computer Company is formed in September as a separate operating unit to focus exclusively on delivering leadership PC products. Within weeks of its formation, the new unit introduces more than 80 new products, many conceived, manufactured and shipped in fewer than six months, including 21 new IBM Personal System/1 models for home and small-business markets, and 20 powerful IBM Personal System/2 computers.

IBM announces the formation of a new education company —Skill Dynamics — to be responsible for providing comprehensive education offerings and services to U.S. corporations and institutions and to IBM internal organizations. It also creates Workforce Solutions as a new organization to provide human resource support services to IBM locations as well as other companies in the United States. EduQuest, the IBM Educational Systems Company, is launched to provide technology solutions for U.S. elementary and secondary education.

IBM's storage products business is named ADSTAR. The Advanced Workstations Division changes its name to the Advanced Workstations and Systems Division.

The IBM Consulting Group is launched by the Application Solutions line of business with 1,500 consultants worldwide to provide management and information technology-related consulting services to companies and organizations in 30 countries.

IBM North America is established in May, and is comprised of IBM United States and IBM Canada Ltd.

IBM United States announces the formation of the IBM Federal Systems Company — formerly the IBM Federal Sector Division — to provide custom systems integration, aerospace solutions, commercial product offerings and services to federal civilian and defense agencies.

ISM Information Systems Management Corporation (ISM), Canada's largest facilities management enterprise, announces that it has completed the purchase of certain assets of Securities Industry Services from IBM Canada. IBM Canada takes a controlling interest in ISM. Norstan, Inc.'s wholly-owned subsidiary, Norstan Canada, Inc., completes the acquisition of IBM Canada's business which markets and services ROLM telecommunications systems throughout Canada.

In Europe, IBM Germany restructures its business into four distinct subsidiaries: development, manufacturing, education and marketing and services; and announces that the parent company, IBM Deutschland GmbH, will become a holding company starting January 1, 1993. IBM Italy segments its organization to 12 major businesses, covering five industry sectors, four product businesses and three services businesses. A new, wholly-owned subsidiary — Individual Computer Products International Ltd. — is created to market and distribute low-cost industry-standard personal computers in Europe. IBM U.K. forms IBM Information Solutions Ltd. as a wholly-owned subsidiary to offer outsourcing services. IBM Iceland announces the formation of NYHERJI, a new company to market computer and office systems in Iceland.

IBM Latin America restructures its business to focus on three main customer sets.

IBM Japan forms two independent, wholly-owned subsidiaries: one to serve small- and medium-sized customers and the other to provide service offerings. IBM Japan also forms a Customer Financing Division and establishes an Open Systems Center to support customers operating in a wide range of communication environments.

IBM and WCSS, Inc. announce that IBM had acquired sole ownership of WCSS, a developer of integrated software used to manage retail and wholesale distribution functions.

Siemens AG of Germany acquires IBM's 50 percent interest in ROLM Company, making Siemens the sole owner of the telecommunications marketing and services venture.

The mainframe operations of CADAM, Inc., an IBM subsidiary, are transferred to Dassault Systèmes of America, in which IBM has a minority equity interest. IBM will market both Dassault Systèmes and CADAM products worldwide.

### **Products & Services**

IBM introduces two entry-level Enterprise System/9000 processors and ships five new Enterprise System/9000 water-cooled processors — Models 520, 640, 660, 740 and 860 — one-to-four months ahead of schedule.

In the biggest RISC System/6000 announcement since the original product launch, IBM expands the performance and flexibility of its family of advanced workstations and servers with the

introduction of five new POWERstation/POWERserver models — the 220, 340, 350, 520H and 560 — and a host of new software offerings, including AIX Version 3.2. The company rolls out in April a new high-end, rack-mounted RISC System/6000 server — the POWERserver 970 — that delivers double the expansion capability and nearly twice the disk storage capacity of IBM's existing high-end server model. In addition, IBM introduces a powerful new family of RISC-based System/88 continuously-available computers, doubling the system's power and significantly improving price/performance.

IBM completely refreshes the Application System/400 product line in February with an enhanced operating system and 13 powerful new E model processors that boost system performance by up to 70 percent and offer the industry's first use of 16-million-bit memory chips. IBM introduces in September a new, four-way AS/400 Model E95, giving customers 20 percent more throughput than with the current high-end, three-way Model E90 and twice the processing power of the AS/400 of less than eight months ago. IBM ships its 200,000th AS/400 computer ( a 9406 Model E35 to be installed at the main brewery and headquarters of Heineken Netherlands), in December while 300,000 of its predecessor systems — the System/36 and System/38 — remain in service. (Since 1988, the reliability of the AS/400 family has improved more than 20-fold and the quality of its operating system has improved six-fold and price/performance has shown gains of 30 percent a year.)

IBM begins shipping in January the industry's fastest 386SX microprocessor as an upgrade to its Personal System/2 Model 57SX. The next month, the company introduces Personal System/2 Models 56 SLC and 57 SLC as the industry's fastest 386SX personal computers. IBM announces in March: PS/2 Model 35 SX-4B1 and Model 35 SX-4B2 for low cost entry to 386SX technology, PS/2 8511 and 8512 Color Displays, and IBM's first color laptop computer, the Personal System/2 Model CL57SX. The next month, IBM unveils the high-availability PS/2 Model 95 XP 486 50 megahertz server, which runs three times as fast as current Model 90 and 95 systems; the Model 95 XP 486DX-2 LAN server and the Model 90 XP 486DX-2 desktop workstation. Also in April, IBM enters the pen-based computing arena with IBM ThinkPad, a hand-held, tablet-style computer that recognizes handwriting. The IBM Personal System/2 Server 295 is introduced in June, along with a powerful new 486SLC2 microprocessor, enabling customers to nearly quadruple the performance of midrange PS/2 Models 56 and 57 with an easy upgrade. A month later, the PS/note N45 SL, a lightweight portable computer, joins the IBM product lineup.

AMBRA Computer Corporation, a wholly-owned IBM subsidiary, announces in August its first product line of 16 high-performance, industry-standard personal computers, servers and workstations. IBM introduces in September a new family of Personal System/1 computers grouped into three lines — Essential, Expert and Consultant — with six models per line, and a new PS/note notebook computer. In all, 21 new systems are introduced. That same month, a new family of PS/2s is announced, topped by the PS/2 77 486 DX2, which utilizes the industry's fastest processor, Intel's clock-doubling 66/33 Megahertz 486-DX2. The company rolls out in October three new notebook computers — ThinkPad models 700, 700C, 700T and 300 — designed for users who need to generate high-quality presentations and perform standard

business computer applications on a compact, portable system. In addition, IBM launches the Personal System/ValuePoint brand of desktop systems.

In software, IBM announces new releases of its Multiple Virtual Storage/Enterprise Systems Architecture, Virtual Machine/Enterprise Systems Architecture and Virtual System Extended/Enterprise Systems Architecture operating systems; Advanced Interactive Executive/Enterprise Systems Architecture (AIX/ESA) to provide native UNIX capability on the System/390 family of ESA-capable processors; new cluster software to enable customers to tie together two RISC System/6000 systems for maximum system availability; the availability of a new release of Operating System/2 and first shipments of OS/2 Version 2.0. with graphical icons and the ability to run several applications at once; two computer-aided software engineering products designed to help customers using Hewlett-Packard, Sun Microsystems or IBM workstations increase the quality and productivity of their software development; computer-integrated manufacturing software that allows manufacturers to manage, monitor and change products from engineering concept to finished offerings; 25 new, prepackaged Plug'N'Go solutions for the Application System/400 line; and Screen Reader/2 to allow blind and visually-impaired people to use popular graphics-based personal computer software not previously accessible.

In storage products, IBM introduces one of the first 3.5-inch disk drives on the market to offer up to 1.2 billion bytes of storage — enough capacity to store more than a half million pages of typewritten information; the first 2-gigabyte 3.5-inch disk drive and the first 4-gigabyte 5.25-inch disk drive for the original equipment manufacturers market; new capabilities for the IBM 3990 Model 3 Storage Control and three new models of the IBM 9343 Storage Controller; and a new 9337 Disk Array Subsystem using a variation of RAID-5 storage and InfoWindow II displays. ADSTAR ships more than 250,000 1-gigabyte 3.5-inch hard drives in 1992.

In networking and telecommunications, IBM introduces a broad suite of networking products to enable PS/2s, workstations and other devices to be connected so that information can travel at 100 megabits per second; a blue print for reducing much of the complexity and cost of installing and managing computer networks and the software to make it possible; new networking products, including IBM 6611 Network Processor and IBM AIX NetView/6000; an intention to license Advanced Peer-to-Peer Networking network node support for use by other manufacturers; a new version of CallPath/400 that allows companies to link their AS/400 computers to telephone systems from six different makers; CallPath CallCoordinator CICS/MVS, a call management application; and new releases of software products — LAN Resource Extension and Services/VM and LAN Resource Extension and Services/MVS — to allow Enterprise System/9000 mainframes to become a transparent resource for Novell NetWare LAN servers.

Other product announcements in 1992 include: a family of displays that run on all major PC platforms; the IBM 4696 Point-of-Sale Scanner Scale; IBM AIX Cashier Security and Productivity Assistant/6000, to collect and analyze data from IBM 4680 POS terminals to alert store managers to performance problems involving individual cashiers; the Model 3 Printer for IBM point-of-sale terminals offering up to 60 percent faster printing; the Ultimedia Touch

Activity Center, a self-contained, totally-integrated, tailorable interactive multimedia kiosks; and high-function, low-cost IBM Data Collection Terminal 7526 Models 100 and 200.

IBM technology and people are on the scene at the Olympic Games in Barcelona during the summer. A communications network and more than 4,000 IBM Personal System/2 computers are installed to provide instant information in four languages to athletes, judges, spectators and journalists attending the games. IBM becomes the official computer of the National Basketball Association.

The State of California awards IBM's Integrated Systems Services Corporation (ISSC) subsidiary an \$80 million contract in February to develop, implement and maintain California's child welfare system. Included in the plans are 4,500 Personal System/2 computers and a network that will link nearly 10,000 county social workers and staffs. Two California health-care providers award ISSC in June its first outsourcing agreement in the health-care industry. Marriott selects IBM systems integration services, as well as RISC System/6000 servers, for a new hotel management system to be used in more than 230 hotels worldwide. ISSC and United Technologies Corp. announce a long-term agreement under which ISSC will assume data center management for three UTC business units.

Canada's Consumer and Corporate Affairs Department awards IBM Canada a \$49 million systems integration contract to automate its patent office. IBM installs the first network of automated teller machines to operate online in Hungary. IBM CSFR announces the availability of the IBM Managed Network Service to customers in Czechoslovakia. IBM's first systems integration in the Czech Republic is awarded by the Ministry of Finance for the implementation of a system for tax administration and collection. Japan's Sanwa Bank selects IBM Japan to develop a global banking network to link banking operations in 27 countries.

### **Alliances**

IBM, through its Integrated Systems Solutions Corporation, and Sears, Roebuck and Co. reach an agreement to form ADVANTIS, a joint venture that will be the premier voice and data networking services company in the United States.

IBM, Siemens AG and Toshiba Corporation announce an alliance that will develop a 256-million-bit dynamic random access memory chip and its manufacturing process. The submicron technology will be the basis of future generations of highly-dense chips. In addition, IBM collaborates with Toshiba to develop and market advanced solid-state data storage devices using flash memory chips that can retain stored information even when the computer's power is turned off.

Hewlett-Packard Company and IBM form a strategic alliance to develop and manufacture a family of fiber-optic components for high-speed communication between computer systems. that will be marketed to computer manufacturers.

IBM and Marcam Corporation announce an agreement in principle to form an alliance to develop, market and support applications for manufacturing companies. (The two companies announce formation of the alliance on March 1, 1993.)

IBM and Grubb & Ellis Company say they will form a business venture to provide property management and corporate facilities management, engineering, maintenance and other related building management services to IBM and third parties. IBM also acquires a minority equity position in Norrell Corporation, and will use a Norrell subsidiary to provide general business support services.

Groupe Bull of France and IBM announce a far-reaching open-systems technology and associated manufacturing relationship covering RISC technology, personal computer development, interoperability, manufacturing and equity.

In other alliance activity, IBM announces: an agreement with Intel to develop a new implementation of IBM's advanced graphics technology: Extended Graphics Array, for PC manufacturers and vendors involved with graphics development; an agreement with Ancor Communications Inc. to develop high-speed optical networking technology for linking clusters of workstations; a long-term development alliance with Parallax Computer, Inc., to provide IBM customers with a continuous flow of leading-edge client/server technology; a joint development agreement with Irvibe Sensors Corporation to commercialize its innovative chip-stacking or cubing technology; an expanded technology agreement with Lotus Development Corp. to include Lotus software products in IBM office system offerings for LANs; and the acquisition of an equity position in Red Shark Technology Corporation, a developer of software for multimedia applications, and in Sapiens International. In addition, IBM says its manufacturing and marketing alliance with Chipcom produced IBM's first multiprotocol "hub" to connect different types of computer networks; and that it and National Semiconductor will share their Token-Ring and Ethernet technologies.

IBM's Pennant Systems Company, Hitachi, Inc., and Hitachi Koki Co., Ltd., announce an agreement covering a broad range of cooperative printer development activities. Through a new joint venture, IBM and Tata Industries will develop software and manufacture and market high-end Personal System/2 models in India.

ISM Information Systems Management Corporation and IBM Canada Ltd. announce an alliance to combine the education and training courses offered by both organizations across Canada. IBM and Rogers Cablesystems, Canada's largest cable company, test high-speed networking technologies for delivering interactive multimedia services to desktop computers. IBM begins a cooperative effort with nine major cellular carriers, including McCaw Cellular Communications Inc. and GTE Mobilnet, to advance the technology for transmitting data over cellular communication systems.

**Science & Technology**

U.S. President George Bush awards the National Medal of Technology to N. Joseph Woodland, a former IBM employee, who pioneered the bar code and then helped to commercialize bar coding technology. Woodland is the seventh person affiliated with IBM to receive the award.

IBM researchers demonstrate the world's smallest transistors. Measuring just 1/75,000th of a cross section of human hair, the experimental transistors could spur the development of memory chips capable of storing 4 billion bits of information or more.

Scientists at the Munich group of the IBM Zurich Research Laboratory say they believe they have made the first observation of the escape of a virus from a living cell.

The Research Division creates the world's most-used multimedia kiosk system for Seville's World Exposition, a prototype for the "technopolis" or electronic city of the future.

**Facilities**

IBM establishes the Highly Parallel Supercomputing Systems Laboratory in Kingston, N.Y., to design, develop and deliver a series of parallel supercomputing systems using RISC System/6000 technology.

IBM and Solectron Corp. complete the transfer by IBM to Solectron of a plant building in Charlotte, N.C. and a plant site in Bordeaux, France.

**Corporate Citizenship**

U.S. President George Bush honors IBM and 20 other recipients of the 1992 President's Annual Points of Light Awards as part of the celebration of National Volunteer Week.

In the wake of Hurricane Andrew in August, IBM provides more than \$10 million in computers and other resources to IBM employees, businesses and communities in Florida and Louisiana. IBM also provides emergency relief in the aftermath of Hurricane Iniki in Hawaii and Typhoon Omar in Guam. Responding to the inner-city needs of Los Angeles after its civil disturbances, IBM expands support for the "Rebuild L.A." program and community organizations.

**1993****Business Performance**

IBM revenue declines to \$62.71 billion, 2.8 percent lower than in 1992, and earnings drop to a negative \$8.1 billion, a fall of 63.1 percent from the prior year. The company records restructuring charges of \$8.9 billion before taxes to streamline and reduce resources used in the business. There are 256,207 employees and 741,047 stockholders at year end.

**Organization**

John F. Akers retires and Louis V. Gerstner, Jr., becomes IBM's chairman and chief executive officer on April 1.

IBM forms the IBM Software Manufacturing Company as a dedicated organization to provide a full range of fulfillment services to software developers, and Fireworks Partners, to foster development of multimedia services for businesses and consumers. IBM also establishes a new, dedicated Personal Software Products business in Europe.

IBM and Catapult, Inc. announce that IBM has acquired sole ownership of Catapult, a provider of training in personal computer end-user software.

The Technology Products line of business changes its name to IBM Microelectronics. A number of products and services for IBM's worldwide industrial customers are transferred from the Application Solutions Division to its wholly-owned ALTIUM subsidiary. A services group called Environmental Health and Safety Technology Services is formed in August.

IBM says that it is exploring the possibility of selling all or part of its Federal Systems Company.

### **Products & Services**

IBM announces 18 new models of Enterprise System/9000 processors, including the Model 982, the world's most powerful single-image, general purpose commercial processor. The Model 982 provides 60 to 70 percent more processing power than the largest model IBM has been shipping. The company also announces enhancements, such as the ESCON Multiple Image Facility, to the Enterprise System/9000 520-based models.

IBM introduces the Scalable POWERparallel System, the first in a family of microprocessor-based supercomputers using RISC System/6000 technology. IBM announces in February nine new systems and enhanced features for the RISC System/6000 family, including a new entry-level 2D color graphics system, a new series of specialized desktop graphics workstations, and a new high-performance, high-capacity Network File System server. Seven new systems are added to the RISC System/6000 line in May, including the most powerful entry desktop models to date. Four months later, IBM makes the most significant RS/6000 announcement since the original launch of the RISC System/6000 product line in February 1990, introducing major enhancements to that family of workstations and processors, including four new desktop workstation and server models based on the PowerPC 601 microprocessor and three new high-end models that use IBM's own multi-chip microprocessor, the POWER2, the highest performance microprocessor in the industry. At the same time, the company announces the general availability of its scalable POWERparallel system.

A new F model Application System/400 is unveiled that is up to 60 percent more powerful and offers price/performance improvements averaging 26 percent. Later in the year, three new high-performance AS/400 Server Series models are introduced — the 9402 Server Series Model 100 and 9404 Server Series Models 135 and 140.

Among the 1993 personal systems product announcements are: the ThinkPad 750 series for mobile computing; a suite of PS/2 Server 85s and 95s; the PS/2 Server 95 560, a high-performance, Pentium processor-based server; the PS/2 Server 195; a new family of

Personal System/1 computers; expansion of the Personal Systems/ValuePoint launch with new models that deliver faster graphics, true color capability, greater disk capacity and processor upgradeability; the ValuePoint P60/D; the two newest members of the IBM Speech Recognition Family, VoiceType Control for Windows and VoiceType 2; demonstration of an energy-efficient and recyclable personal computer — the Personal System/2 E — developed under the Energy Star Computer Program of the U.S. Environmental Protection Agency; and the Current OfficeVision/Multiple Storage Workgroup Program to provide PC users with an intuitive graphical user interface to mainframe server-based office functions. In addition, the IBM Personal Company celebrates its first birthday and announces that it is growing two-and-a-half times faster than the PC industry as a whole.

ADSTAR announces and begins delivering a host of new products, ranging from lower cost storage options to new subsystems capable of storing three times the amount of data as previous models. These product introductions include: new disk and tape storage systems for use with the AS/400 as well as the general availability of storage management software for a broad range of computing platforms; five additions to its line of disk drives and storage subsystems for the original equipment manufacturer marketplace; new 200 Series models of the 9337 Disk Array Subsystem and 3494 Tape Library Dataserver Model L10; a broad selection of disk, tape and optical storage products for users of RISC System/6000 POWERservers and POWERstations; and introduction of the industry's first high-capacity drives for the portable computing market using new magneto-resistive head technology. In addition, ADSTAR announces that it has increased the throughput of the 3990/3390 Storage Subsystem up to 100 percent in selected environments, tripled the capacity of the 3390 Direct Access Devices by adding a new member to the storage hierarchy, and doubled the capacity of specific models of the 3995 Optical Library Dataserver.

In networking and telecommunications, IBM unveils a new entry-level model to its line of 6611 multiprotocol bridge/routers; SystemView Information Warehouse DataHub, a new family of software products that works on personal computing workstations, midrange computers and large host computers; the first demonstration of Distributed Computing Environment technology on an Enterprise System/9000, underscoring the mainframe's ability to interoperate with disparate computing platforms from multiple vendors; 20 new LAN products for Ethernet, Token Ring and FDDI; IBM WindSurfer Communications Adapter that can turn a personal computer into a complete telecommunications center; enhancements to the 3172 Interconnect Controller Model 3 and its software; three new models of the 3174 Networking Server; three new LAN adapters, including the industry's fastest Token-Ring adapter; and the most comprehensive plan in the industry to exploit asynchronous transfer mode, a new high-speed networking technology.

IBM's software announcements in 1993 include: new releases of its MVS/ESA, VM/ESA and VSE/ESA operating systems; a new release of AIX/6000 and other software enhancements for the RISC/6000 family; new AS/400 software providing transparent access for popular PC, Apple Macintosh and UNIX workstations; expansion of the Decision Support products with new and enhanced software from both IBM and its business partners; DATABASE2 Version 3; DATABASE 2 AIX/6000, a client/server relational database system; an agreement with the Hewlett-Packard Company to make IBM's DATABASE 2 technology available on the HP 9000

platform; the availability of DATABASE 2 for OS/2; Customer Information Control System (CICS) OS/2 Version 2; PenDOS and DOS 6.1; and a new software product called Advanced Function Printing Workbench that enables users of its enterprise printing architecture to view printed documents on the screen of a personal computer.

One year after the introduction of OS/2 2.0, IBM has shipped more than two million copies, brought out more than 1,200 32-bit OS/2-specific applications and garnered 12 international awards from computer trade publications. IBM later announces OS/2 2.1, an improved version of the company's desktop operating system, and, following its availability date in June 1993, OS/2 2.1 shipments exceed 3 million copies, more than all other versions of OS/2 combined. In November, IBM rolls out OS/2 for Windows1, to bring 32-bit computing power and reliability to the Windows 3.1 environment.

Other 1993 product launches include: IBM 8235 Traveler for use by employees needing remote access to their corporate networks; IBM 3995 Optical Library Dataserver Model 133; and a family of feature-rich displays — 14V, 14P, 15V and 15P color monitors — run on all major PC platforms.

The IBM 3890 Document Processor, a workhorse of bank and other payment processing systems, celebrates its 20th birthday. More than 1,900 of the devices have been purchased by banks in 22 countries.

Twenty years after introducing its first store system for retailers, IBM announces a new generation of point-of-sale hardware and software: the IBM 4690 Store System.

IBM announces pricing and availability for the PowerPC 601 microprocessor, the first of four planned PowerPC chips designed for use in high-performance, low-cost personal computers jointly developed by IBM, Apple and Motorola.

IBM technology — incorporating an AS/400, PS/2s, PS/1s and Ultimedia technology — is playing an integral role in the new Hockey Hall of Fame in Toronto.

Under a \$650 million contract, IBM's Integrated Systems Solutions Corporation (ISSC) will provide Equifax Inc. with data center management and other services for 10 years. Southern Pacific Lines signs a 10-year, \$415 million technology agreement with ISSC to provide the railroad with a new program for handling its information technology function and a new organization to manage the process. ISSC wins a major multiyear contract with Jack Eckerd Corporation. The IBM Consulting Group is awarded major contracts in Brazil with Philips and CHESF.

IBM's Networking Systems Division and Digital Equipment Corporation announce an agreement that features Digital's licensing of IBM's NetView/6000 product.

### **Alliances**

IBM and Eastman Kodak Company announce that subsidiaries of the two companies have formed Technology Service Solutions as a jointly-owned dedicated service business to provide maintenance service for IBM workstation, personal computer and point-of-sale products.

IBM forms Digital Domain, a visual effects and digital video production studio in a joint venture with three Hollywood moviemakers. In forming a multimedia strategic partnership to provide digital entertainment products and services, Blockbuster Entertainment Corp. and IBM's Fireworks Partners unit announce a wide-ranging agreement that includes Fireworks Partners' investment in NewLeaf Entertainment Corporation, a Blockbuster subsidiary, and the creation of a new company, Fairfield Technology Associates.

IBM completes the formation of an alliance with Marcam Corporation to develop, market and support for manufacturing companies.

Metropolitan Life Insurance Company and Skill Dynamics, an IBM company, form an alliance in which Skill Dynamics will administer technology-related education services for MetLife offices in the United States.

Motorola and IBM say they have completed first production of the second PowerPC microprocessor, the PowerPC 603.

IBM makes an additional equity investment in GeoVision Systems, Inc., and acquires an equity position in Object Design, Inc. The company also announces that CGI Informatique has become a subsidiary of IBM France.

### **Science & Technology**

IBM ranks first in the number of patents awarded in 1993 by the U.S Government, marking the first time since 1985 that a U.S. company has headed the list. IBM's 1,087 U.S. patents are more than any other company in the world.

The company announces in November that the IBM ThinkPad 750 will fly aboard the Space Shuttle *Endeavor* during the mission to refurbish the Hubble Space Telescope. The ThinkPad 750C's main task during the mission — the first space flight of a modern notebook computer — will be to run a NASA test program which will determine if radiation inherent in the space environment causes memory anomalies in the 750C or generates other unexpected problems.

An IBM scientist at the Almaden Research Center demonstrates that a laboratory blue-laser optical recording system can read and write data at a world-record density of 2.5 billion bits (gigabits) per square inch on a removable magneto-optic disk — a density five times higher than that in 1993's most sophisticated rewritable optical disk drives, which use infrared lasers.

IBM announces scientific results that may allow a 30-fold increase in the amount of data stored in a given area of magnetic disk surface within the next decade.

**Facilities**

IBM announces its intention to transfer ownership of its Brooklyn, N.Y., facility to a new owner.

**Corporate Citizenship**

IBM says in October that it has completely eliminated the use of chlorofluorocarbons from its manufacturing processes worldwide.

**1994****Business Performance**

IBM revenue increases to \$64.05 billion, a gain of two percent over 1993, and earnings reach \$3.02 billion, for the first profitable year since 1990. There are 219,839 employees and 713,060 stockholders at year-end.

IBM groups its business and technology strategies into six strategic imperatives: “exploiting our technology; increasing share of the client/server computing market; establishing leadership in the emerging network-centric computing world; realigning the way we deliver value to customers; rapidly expanding our position in key emerging geographic markets; and leveraging our size and scale to achieve cost and market advantages.”

IBM Chairman of the Board Louis V. Gerstner, Jr., tells employees in August they need to make three commitments: a commitment to win in the marketplace, a commitment to change, and a commitment to each other.

IBM’s adopts new principles: “(1) the marketplace is the driving force behind everything we do; (2) at our core, we are a technology company with an overriding commitment to quality; (3) our primary measures of success are customer satisfaction and shareholder value; (4) we operate as an entrepreneurial organization with a minimum of bureaucracy and a never-ending focus on productivity; (5) we never lose sight of our strategic vision; (6) we think and act with a sense of urgency; (7) outstanding, dedicated people make it all happen, particularly when they work together as a team; and (8) we are sensitive to the needs of all employees and to the communities in which we operate.”

**Organization**

The company forms the IBM Global Network as a business unit which will develop and operate the world’s largest high-speed voice and data network dedicated to network-centric computing. It will be made up of Advantis, the IBM Information Network organizations worldwide, and wholly-owned subsidiaries around the world. The IBM Global Network already serves two million users at some 25,000 businesses and government agencies in more than 100 countries.

Fifteen industry solution units are created to offer integrated, industry-specific solutions on a global basis.

IBM opens six subsidiaries in Eastern Europe — Poland, the Czech Republic, Slovenia, Slovakia, Bulgaria and Russia and Northern Asia; and reestablishes IBM South Africa.

The IBM Federal Systems Company is sold to Loral Corporation, effective January 1, 1994.

### **Products & Services**

IBM announces in April the System/390 Parallel Sysplex Offering, encompassing the Coupling Facility, the S/390 Parallel Transaction Server, high-speed coupling links and software enhancements. Also announced at that time are the S/390 Parallel Query Server, a specialized database server to the existing ES/9000 complex, the ES/9000 Model 9X2, and five new ES/9000 air-cooled processors. Six models of the System/390 Parallel Enterprise Server, along with new versions or releases of IBM mainframe operating systems, are rolled out in September.

IBM Belgium/Luxemburg announces the implementation of 16-megabit DRAM memory chip technology in an IBM ES/9000 processor at the Universite de Liege, the first 16M-bit memory chip installation in a large high performance processor in the world.

IBM adds seven new servers — including the Model C10 PowerPC server, and four new client workstations — to the RISC System/6000 line. The company later introduces three new PowerPC symmetric multiprocessor servers — RS/6000 Models G30, J30 and R30 — and the RS/6000 Model 40P workstation. IBM unveils its second PowerPC-based system, the RISC System/6000 N40 notebook workstation, the most powerful system of its class in the world. The Cornell Theory Center receives the world's fastest, most powerful general purpose computer: a massively parallel IBM Scalable POWERparallel Systems SP2, capable of performing 136 billion calculations per second. CERN, the European Laboratory for Particle Physics, takes delivery of the most powerful IBM supercomputer ever ordered in Europe: a 64-node, AIX-based IBM Scalable POWERparallel Systems SP2.

A new generation of AS/400 computers called the AS/400 Advanced Series is introduced in May, including the AS/400 Advanced System, AS/400 Advanced Server and the AS/400 Advanced Portable. The AS/400 Advanced 36 — a replacement option for the IBM System/36 using a powerful, new 64-bit RISC processor based on PowerPC architecture — debuts, as does the Portable One Model P02, a fully functional portable AS/400. IBM ships its 250,000th Application System/400, a model F80, to The Coca-Cola Company in Belgium.

A number of personal systems products are brought to market in 1994, including: the IBM PC Server, a low-cost industry-compatible server for local area networks; PS/2 Server 95 566 and Server 95 Array 566 Pentium systems; Options by IBM, a broad line of industry standard peripherals and accessories for the commercial market; the IBM Personal Computer PC 300 and 700 Series; new ThinkPad mobile computers, including the ThinkPad 755 Series, ThinkPad 360 Series and the ThinkPad 730T Tablet; the ThinkPad 510C; the IBM Aptiva Personal Computer; the Performance Series by IBM ValuePoint; and four new Personal System/1 computers.

The IBM RAMAC Array Family, a major advance in information storage technology, is announced in June, and consists of the RAMAC Array Direct Access Storage Device (DASD) and

the RAMAC Array Subsystem. Both products offer up to 90.8 gigabytes of information storage. Shipments of the RAMAC Array DASD begin in September. RAMAC represents one of IBM's most successful storage product launches ever, with almost 2,000 systems shipped to customers in its first three months of availability.

Other 1994 storage products announcements include: new models of disk, tape and optical storage products for AS/400 and RISC System/6000 platforms; IBM 7137 Disk Array Subsystem, which implements IBM's RAID 5 data redundancy technology; 7331 8mm Tape Library Model 205; 7332 4mm DDS-2 Tape Autoloader Model 005; IBM 7204 External Disk Drive Models 112, 317 and 325; IBM 7203 2.2 GB External Portable Disk Drive Module; IBM 9427 8mm Tape Cartridge Library; IBM 7208 External 8mm Tape Drive Model 222; IBM 7134 High Density SCSI Disk Subsystem; IBM 7204 External Disk Drive Model 315 that can be attached to RISC System/6000 workstations and servers; two new models of the IBM 3514 High Availability Disk Array for RISC System/6000; and three new models of the IBM 9337 Disk Array Subsystem. To date, more than 42,000 IBM 9337 systems with RAID 5 capability have been shipped to customers since it was introduced in 1992. In addition, IBM ships its 4-millionth disk drive incorporating advanced magneto-resistive (MR) head technology. (The company first shipped MR head components in 1991.)

IBM's software unit introduces a number of offerings during 1994, including: AIX Version 4.1; PC DOS 6.3; additions — such as COBOL Productivity Suite MVS/ESA and IBM PL/1 for OS/2 Version 1.1 — to the family of application development tools; Parallel Visual Explorer, innovative “data mining” software that graphically analyzes massive databases by dozens of variables; IBM 3D Interaction Accelerator, a software product that enables engineers and designers to take real-time walk-through tours of highly complex 3D virtual reality models; an extension of VisualAge — IBM's advanced, client/server programming environment — to access AS/400 business computing systems; a broad array of database tools, middleware and utilities to help customers manage distributed, multi-vendor database environments; a suite of integrated database systems management tools for UNIX and OS/2-based workstations; Visual Document Library and ImagePlus Visual Information software products for document management; and the VoiceType family of speech recognition products and VoiceType Dictation, capable of recognizing 32,000 words at a rate of approximately 70-to-100 words per minute, with 97 percent accuracy. More than 800,000 copies OS/2 Warp are sold worldwide in its first month in the marketplace.

IBM demonstrates in November a pilot model of the IBM Media Streamer, a system that stores and delivers huge volumes of video and other multimedia information.

Other products announced during the year include: IBM 4694 Model 004 Point-Of-Sale (POS) terminal; StorePlace, a new suite of offerings to provide retailers with new levels of flexibility and functionality for their POS and in-store information systems based on industry-standard open operating systems and object-oriented technology; IBM 4772 Universal Financial Printer; a set of product offerings that will enable customers to adopt the Asynchronous Transfer Mode protocol as a full network solution that works well with what they are using currently; and a family of one-megabit static random access memory chips that are among the industry's fastest.

IBM is featured as an exhibitor in the newest addition to Walt Disney World's Epcot 94.

### **Alliances**

IBM and Motorola complete development and fabrication of the PowerPC 620 microprocessor, the first 64-bit implementation of the PowerPC architecture. Apple Computer, Inc. and IBM demonstrate a system running a PowerPC 601 microprocessor at 120 MHz. (IBM ships its one millionth PowerPC 601 microprocessor in July.) IBM announces that Toshiba Corporation will incorporate PowerPC microprocessor technology into selected products. IBM Taiwan and

Motorola Electronics Taiwan, Ltd., say they are opening a PowerPC technical center in Taipei, Taiwan.

IBM, Siemens AG and Toshiba Corp. announce plans to design and develop a second generation 64Mb memory chip. IBM and Cirrus Logic, Inc., sign a joint venture agreement to manufacture semiconductor wafers for each company using IBM's submicron wafer processing technology at IBM's manufacturing facility in East Fishkill, N.Y. IBM and Philips Electronics N.V. sign a letter of intent to form a joint venture to manufacture semiconductor wafers at IBM's facility in Boeblingen Hulb, near Stuttgart, Germany. IBM and MEMC Electronic Materials Inc. form SiBond, L.L.C., a new limited-liability company to develop and manufacture silicon-on-insulator wafers.

Hitachi Ltd. and IBM enter into technology and licensing relationships concerning CMOS-based mainframes and RISC parallel systems based on the POWER/PowerPC architecture.

Atle Forvaltnings AB and IBM Sweden announce an agreement for Atle to buy a 65 percent share in the Jarfalla Industry Competence Center, a wholly-owned subsidiary of IBM Sweden

Ji Tong Communication Company Ltd. and IBM China Company Ltd. say they will establish the Jilong Information Network Research and Development (Beijing) Company, a joint venture company in support of China's efforts to build a nationwide information infrastructure. IBM China and the China Great-Wall Computer Group form a joint venture company — International Information Products (Shenzhen) Company — to manufacture, distribute and service personal computer products. In addition, a memorandum of understanding covering a wide range of technology projects and commitments is signed by IBM and China's Ministry of Electronics Industry.

### **Science & Technology**

IBM is first in the number of U.S. patents issued for the second year in a row, and the company's 1,298 patents are the most ever issued to any company in any year.

Researchers from the Thomas J. Watson Research Center show how their new rapid Prototyping System can create three-dimensional models in a matter of hours, without the aid of a technician. Other Yorktown researchers develop CYTUF, a new circuit board material for use in existing and emerging high performance computer, aerospace and automotive applications.

Scientists at IBM's Almaden Research Center demonstrate new multilevel optical disks that are capable of huge gains in optical-disk data storage capabilities. A new formatting technique developed at Almaden permits IBM to pack 28 percent more data into its latest line of magnetic hard-disk drives for use in laptop computers.

IBM announces the completed development and fabrication of the PowerPC 604 microprocessor, the most powerful high-volume microprocessor in the industry. IBM technicians develop the fastest "lossless" data compression chip available, capable of processing up to 40 megabytes per second.

### **Facilities**

IBM announces that it will establish the China Research Laboratory in Beijing, China. The facility is expected to be fully operational by mid-1995.

A personal computer plant is opened in South Africa.

### **Corporate Citizenship**

IBM launches Reinventing Education, a program calling on local U.S. school districts to participate with IBM in a restructuring of primary and secondary schools.

## **1995**

### **Business Performance**

IBM revenue reaches \$71.94 billion, a gain of 12 percent over 1994, and net earnings of \$4.17 billion are 38 percent higher than the year before. There are 225,347 employees and 668,931 stockholders at year end.

### **Organization**

IBM creates in January an integrated IBM Software Group (SWG), to include the Software Solutions, Personal Software Products and Networking Software divisions; and it forms the Server Group, to include the AS/400, RS/6000 and Systems Technology and Architecture divisions, as well as the businesses that had been part of the Large Scale Computing Division (LSCD). Two new divisions replace LSCD: System/390 Division and the Power Parallel Division. (The IBM RISC System/6000 Division and POWER Parallel Division are combined later.) A worldwide sales and distribution organization is created, and the name, and much of the formal structure associated with the term "World Trade," is eliminated. Also in January, IBM unifies its services business into IBM Global Services, a single, global team to deliver seamless, integrated solutions to customers worldwide. At year end, the Internet Division is formed within SWG to define and implement all of IBM's software-based Internet and network computing initiatives.

IBM acquires in July all of the outstanding shares of the Lotus Development Corporation and the assets of GE Capital Systems Support Services, which supplies multivendor computer maintenance services. IBM also acquires Footprint Software Inc., a Canadian-based software company specializing in financial applications for banks around the world. The company

announces an agreement to acquire Early, Cloud & Company, a software development and consulting services company.

### **Products & Services**

IBM unveils 12 new models of the System/390 Parallel Enterprise Server in June. The largest of the new servers, which all use complementary metal oxide silicon (CMOS) based processors, will provide customers up to 2.7 times the processing power of the largest CMOS-based IBM server in the marketplace. IBM ships more mainframe computing power in 1995 than in any year before.

IBM rolls out in February the RISC System/6000 Model 3CT and Model 39H; IBM Xstation 160, the first IBM product to incorporate a PowerPC 603 microprocessor; and a new, RS/6000-based processor for the IBM SP2 offering higher “number crunching” performance than its current counterpart. The RS/6000 Model 591 desktide and Model R21 rack-mounted systems, which can be configured with as much as 2 gigabytes of memory, are announced in July. The following month, IBM introduces a faster high-end processor for the RS/6000 Scalable POWERparallel Systems (SP), and in October, the RS/6000 Model E20. An IBM Scalable POWERparallel System is used to provide access to the Wimbledon Home Page on the Internet.

The AS/400 Advanced Portable, a low-cost, compact version of AS/400, is announced.

A full range of PC Servers, ranging from the versatile PC Server 320 models to the IBM PC Server 720, the high-performance symmetric multiprocessing superserver, debuts. Introduced later in the year are the PC Server 310 line, PC Server 520 line, and new models of the PC Server 320 line. In addition, IBM announces the PC Server S/390, to enable application developers to write and test mainframe applications right on their PCs.

In other personal systems announcements, IBM rolls out the ThinkPad 701C, a machine smaller than a sheet of typing paper with a full-sized typing surface; new IBM Personal Computer 300 models; and the ThinkPad 755CV and 755CX. The company adds the Intel 133 MHz Pentium processor to its line of IBM Personal Computer 700 desktop systems

IBM’s storage products announcements during the year include: IBM 7331 8mm Tape Library Model 205; additions to the Travelstar and Deskstar families of disk drives; the RAMAC 2 Array DASD and the RAMAC 2 Array Subsystem, a new generation of RAID 5 disk storage for IBM System/390 users; the 7135 RAIDiant Array Model 210, the 7131 MultiStorage Tower Model 105 and the 7210 External CD-ROM Drive Model 010; IBM 3590 High Performance Tape Subsystem, featuring the new Magstar tape drive; and IBM 7133 Serial Storage Architecture Disk Subsystem, the industry’s first storage subsystem to implement Serial Storage Architecture. More than 2,000 RAMAC Array Family information systems are delivered by mid-January, only three and a half months after the new RAID 5 products became available — the most successful product introduction for high-end disk storage. IBM in June makes the 4,500th shipment of its RAMAC Array Family of storage products for mainframe computers.

Among IBM's 1995 software introductions are: Version 5 Release 2.2 of MVS/ESA, making it easier to port UNIX applications to mainframe servers; Version 3 Release 1 of OS/400; AIX 4.1; the first CICS transaction processing software clients that will allow PC users to connect to any computer server that runs CICS software, new software to allow customers to more simply manage CICS systems in the UNIX environment, a new Internet offering to give users the capability to access their CICS applications from anywhere on the Internet, and new UNIX versions of existing CICS, DCE and Encina software; VisualAge for COBOL for OS/2, COBOL Set for AIX, and COBOL for MVS; Version 4 Release 1.4 of CATIA, the industry's leading computer-aided design software; Parallel Visual Explorer, data analysis software for researchers in a wide range of science and business disciplines; PC DOS 7; SystemView Series, the next generation systems management software; the IBM Digital Library, an initiative to help owners of information content such as films, music, text, art and rare manuscripts, make them available on networks around the world; an integrated suite of antivirus products and services, including software that protects personal computer users by detecting and removing more than 6,000 strains of computer viruses; Printing Systems Manager, the first UNIX-based software tool which implements industry standards to manage print in a distributed environment; WebExplorer, a graphically-based software application that allows users to navigate easily through the Internet's World Wide Web; new releases of NetFinity and DB2 Multisystem for OS/400, which distributes database queries over 128 processors on 32 networked AS/400 systems; and OS/2 Warp P3.0, the first simplified Chinese 32-bit operating system, and OS/2 Warp with WIN-OS2.

IBM also announces that the total number of OS/2 Warp licenses reaches six million in 1995 and that overall OS/2 purchases top 12 million. The company also reports that in industry-standard benchmark testing, IBM DATABASE 2 for AIX set the fastest performance announced to date for a relational database running on a uniprocessor system. IBM states its intent in October to replace the MVS/ESA operating system and 30 other related software products with a single, integrated open server system — OS/390.

In a landmark speech at COMDEX '95 in Las Vegas, IBM Chairman Louis V. Gerstner, Jr., outlines IBM's vision of network-centric computing before an audience of 7,000 people.

IBM continues to add to its network computing hardware, software and services, including: a worldwide network offering supporting Lotus Notes, enabling businesses to implement Notes applications on the IBM Global Network; the launch of the 1995 U.S. Open home page on the Internet, bringing information about the Grand Slam tennis tournament to fans throughout the world; selection by the Greater Dayton Area Hospital Association to build its Integrated Health Information Network Project that will link all of the Association's member hospitals along with physicians and insurers; HealthVillage, accessible from the IBM Healthcare Solutions Home Page on the Internet, to deliver new levels of health information, service and education; NetWorkStation Management, a set of global services to help customers manage the complexity and cost of multivendor, client/server computing environments; launch of its latest Digital Library customer initiative at Lutherhalle Wittenberg, with the announcement of a unique project to digitally capture the museum's rare books and works of art, and make them more accessible; IBM 3746 Nways Controller Model 950 and enhancements to the IBM 3746 Nways Controller Model 900; 2217 Nways Multiprotocol Concentrator, Advanced Communication

Function/Network Control Program Version 7 Release 3, Nways Multiprotocol Routing Network Services Version 1 Release 2, and two new models of the 2210 Nways Multiprotocol Router; NetFinity 2.01, a part of the SystemView family, enhanced to support Desktop Management Interface and Novell's NetWare Management Services standards; NetFinity 3.0 PC systems and asset management software for PC networks; and four new 2210 router models and accompanying software.

Among IBM's other 1995 hardware introductions are: the IBM 7586 Industrial Computer, powered with the PowerPC 601 microprocessor, followed later by five new models of the IBM 7585 and 7586 Industrial Computer family and the IBM 7573 Industrial Graphics Display; the IBM 3900-0W3 printer, IBM 3112 and 3116 desktop laser printers, 3170 full color digital printer, IBM 4247 multi-form printer, and IBM 3160 advanced function printer; and IBM 7524 Data Collection Terminal Model 050 and Model 100, and IBM 7524 RF Terminal Model 051 and Model 052. IBM sells its one millionth Point-of-Sale system, the 4695 color touchscreen.

Mercedes-Benz awards IBM a 12-year contract for the design, integration and management of the information technology infrastructure for its first U.S. passenger vehicle manufacturing plant in Alabama; IBM receives a \$2 million grant to develop a system that will provide wider public access to NASA earth and space science data over the Internet; DreamWorks SKG and IBM agree to develop the asset management component of the DreamWorks Digital Studio; and, at the request of the European Commission, IBM provides computers, software and services for journalists covering the Group of Seven conference in Brussels on the information society.

IBM announces that it will provide customers with a comprehensive set of services, tools and support for their Year 2000 transitions. It also says that IBM will serve as the worldwide information technology sponsor for the Olympic games through 2000. The company reports the general availability of IBM Microkernel, Release 1.0, and the Microkernel Development Environment, which allows corporations to leverage their hardware and software investments through its scalability, portability and modularity.

The total value of IBM's worldwide managed operations contracts reaches the \$30 billion mark as new business signings of more than \$3 billion are recorded worldwide during the first half of the year.

### **Alliances**

Apple Computer, Inc., IBM and Taligent, Inc. announce that Taligent — which was formed in 1992 by Apple and IBM — will become an object technology development center and a wholly-owned subsidiary of IBM.

IBM, Siemens, Toshiba and Motorola disclose plans for a four-way alliance to develop future generations of highly advanced semiconductor chips, including a 1-gigabit dynamic access memory device. Toshiba and IBM also say they plan to establish a U.S. joint venture for manufacturing dynamic random access memory chips, beginning with 64 Megabit DRAMs. A single 64Mb DRAM can store the equivalent of more than 6,000 pages of typewritten text.

Chipcom Corporation and IBM announce in February a multi-year expansion to their existing strategic development and marketing alliance, originally signed in September 1992. IBM announces in July a development, manufacturing and marketing agreement between the Networking Hardware Division and the 3Com Corp. in the field of enterprise networking. This agreement preserves the alliance that IBM has had with Chipcom Corp., which 3Com plans to acquire.

IBM and Risk Management Technologies form a joint venture to develop and market the world's first massively parallel processing asset liability and data warehouse solution. Holiday Inn Worldwide and IBM say they will work together to refine and fully integrate the worldwide hotel chain's client/server central reservation and property management system. Ameritech and IBM form a technology services alliance in the desktop outsourcing marketplace.

STET, the Italian holding company which owns Telecom Italia, and IBM announce a preliminary agreement to become global partners on a wide range of advanced business and consumer services via worldwide communication networks. IBM and Philips Electronics N.V. of the Netherlands, agree to form a new joint venture company to operate IBM's facility in Boeblingen Hulb, near Stuttgart, Germany.

### **Science & Technology**

IBM is awarded the most U.S. patents for the third straight year, receiving a record 1,383 patents from the U.S. Patent and Trademark Office — 27 percent more than any other company in 1995. The company more than doubles its hiring of people with Ph.D.s in electrical engineering and computer science — and hires a full 10 percent of the total number of such Ph.D.s entering the workforce.

U.S. President Bill Clinton presents the National Medal of Technology, the highest U.S. award for technical innovation, to Praveen Chaudhari, Jerome J. Cuomo (retired) and Richard J. Gambino, three Thomas J. Watson Research Center scientists for their discovery of the special magnetic materials that made possible today's \$2 billion rewritable-optical-disk data storage industry. Don Eigler, the IBM scientist who was the first to position an individual atom, wins the 1995 Dannie Heineman Prize awarded by the Goettingen Academy of Sciences and Humanities. Stephen J. Boies and John D. Gould (retired) of the Thomas J. Watson Research Center receive the 1995 Jack A. Kraft Award from the Human Factors and Ergonomics Society for extending the field of human-computer interaction to new areas, such as lasers, integrated circuit inspection and usability engineering.

IBM scientists complete a two-year calculation — the largest single numerical calculation in the history of computing — to pin down the properties of an elusive elementary particle called a "glueball." The calculation was carried out on GF11, a massively parallel computer at the Thomas J. Watson Research Center.

IBM unveils in December an early version of the Deep Blue parallel computing system in a tune-up for the February 1996 showdown with World Chess Champion Garry Kasparov.

Scientists at the Thomas J. Watson Research Center create a new optical microscope capable of seeing objects 500 times smaller than previously possible with conventional optical microscopes. The microscope provides an unprecedented 1 nanometer resolution, which is about five times larger than an individual atom.

IBM demonstrates another new world record in magnetic data storage density — 3 billion bits of data per square inch, the equivalent of a stack of paper taller than a five-story building. IBM Research unveils MuxMaster, the first commercial prototype of a new fiber optic technology enabling users to send up to 20 simultaneous data streams.

### **Facilities**

IBM Research Division establishes the Austin (Texas) Research Laboratory as its third U.S. location. The lab is to focus on advanced circuit design and new design techniques and tools for very high performance processors.

IBM announces plans to invest \$1.4 billion at existing IBM chip-making facilities in Essonnes, France, and Burlington, Vt., and its intention to manufacture disk drives for personal computers in Szekesfehervar, Hungary. Production is scheduled to begin in the fourth quarter of 1995 and is projected to exceed a million units in 1996. The drives are intended primarily for the European market.

### **Corporate Citizenship**

Over the past 10 years, IBM has been the largest corporate contributor of cash, equipment and people — more than \$1.2 billion — to non-profit organizations and educational institutions across the United States and around the world. IBM helps people in 153 countries to use information technology to help other people.

One of IBM's top priorities is education. The company established in the U.S. a \$25 million "Reinventing Education" grant program in 1994, and through 1995, IBM has awarded 10 grants across the country. The IBM Environmental Research Program awards grants totaling \$16 million to support research at 14 major universities and research institutions around the world. In 1995 IBM doubles its dependent care fund to \$50 million to support child and elder care programs.