

president of new technology; and Juan A. Rodriguez,
vice president of Optical Storage Operations.

The new company's first product was a high-
performance tape drive. Its first customer shipment,
to Gates Rubber Company in Denver, was in November 1970 --
and that unit is still in use by another customer.

CURRENT STATISTICS

Storage Technology facilities presently occupy over
three million square feet of building space with plants
in Louisville, Broomfield and Longmont, Colorado;
Melbourne and Palm Bay, Florida; Ponce and Mayaguez,
Puerto Rico; and Dublin, Ireland.

The combined divisions and subsidiaries maintain over
150 sales offices and more than 250 service locations
worldwide, and employ over 15,000 people.

FINANCIAL GROWTH

Over the past 11 years, the company's net income has
grown at an average rate of 28.7 percent. Revenues for

1982 reached \$1,079,235,000, an increase of 17 percent over 1981.

OTHER OPERATIONS

In addition to the divisions which design, manufacture and market data storage products and systems for the end-user and original equipment manufacturers (OEM) markets, the company owns and operates two other domestic subsidiaries: STC Ultimacc Systems supplies the rapidly growing small-business market with total computer systems that are compatible with IBM 370/43XX systems; and STC Systems designs and supplies independent systems to small-businesses.

A research and development limited partnership is currently developing a line of mainframe computers.

PRODUCT LINE

Storage Technology currently offers products and systems for both the large and intermediate system user as well as for OEM companies. Tape products include: the 3400 line, offering 800 to 1,600 bits per inch (bpi) at speeds up to 200 inches per second (ips); the 3600 series, offering 1,600 to 6,250 bpi at speeds up to 200 ips; the 4800 Accelerator which provides channel speed transfer for the 3600 devices; the 4500 series

with a self-contained controller, and performance of 6,250 bpi and 125 ips.

In August, 1983, the company introduced the 4670 tape subsystem: the computer industry's first compact, high performance, start/stop tape subsystem with a transport speed of 200 inches per second (ips) and an integrated controller. The product offers an optional data throughput rate of 3 megabytes per second -- the fastest channel rate currently available on standard business computers.

Storage Technology's new 4670 subsystem addresses the major concerns of the industry regarding tape usage: the 4670 reduces the cost of ownership; it offers added performance and throughput; and the 4670 allows greater system flexibility by increasing the distance that the subsystem can be placed from the CPU, and by offering options that can reduce the number of channels that are dedicated to tape.

Storage Technology's OEM division markets the 1900 line of start/stop tape drives with densities of up to 6250 bpi and speeds of 50 to 125 ips; the 2920 tape subsystem is a dual-density (1600/6250 bpi), 50 ips, start/stop product complete with tape transport, formatter/controller, power supply and resident microdiagnostics in a single

self-contained package 24.5 inches high that can be mounted either vertically or horizontally; and the 8775 disk drive which is a single-spindle subsystem with a 673 megabyte capacity.

The company's 8880 is an advanced technology disk controller that combines either two or four directors within a single cabinet; the 8890 Sybercache disk controller supports all Storage Technology disk drives and significantly improves the input/output response times for application data by pre-staging data to a large semiconductor cache memory and transferring that data at full channel speeds, thus allowing disk storage units to operate at the increased throughput speeds of new CPUs.

The disk product line includes the 8350, with a capacity of 317.5 megabytes per spindle, and an access time of 25 milliseconds. The 8650 high-density disk drive stores 635 megabytes per spindle and achieves average access speeds of 23 milliseconds. The high-performance 8360 offers the same storage capacity as the 8350 while reducing average access times to 18 milliseconds.

The company also manufactures 8380 disk drives employing thin-film technology. The 8380 drive has a

2.5 billion byte storage capacity and a data transfer rate of 3.0 megabytes per second.

Storage Technology's 7600 Optical Storage Subsystem stores 4 gigabytes of data on the surface of a single optical platter at a fraction of the cost per megabyte of other storage devices. The optical platters can be removed for archival storage, giving the Optical Storage Subsystem almost unlimited data storage capacity, enabling users to place new, huge data bases on line. The unit has a transfer rate up to 3.0 megabytes per second.

The 4305 Optimizer Storage Subsystems are high-performance, high-capacity, solid-state I/O units based on RAM technology. The Model 3 provides 11.25, 22.5 or 48 megabytes of semiconductor storage with a single controller. Featuring access speeds of 0.6 milliseconds, it has initial data transfer rates of 1.0, 1.5 and 3.0 megabytes per second.

The 4305-Model 6 provides up to 192 megabytes of semiconductor storage at 11.25-megabyte increments and either one or two control units. It features a data access speed of 0.3 milliseconds. The standard transfer rates for the Model 6 are 1.0 and 1.5 megabytes per second.

Optional performance specifications include 3.0 megabytes-per-second data rate in two-byte wide or data streaming modes and emulation of an IBM 3380 disk drive.

The Storage Technology line of printers includes four different series operating from speeds of 1,200 to 3,000 lines per minute. Plans are underway to include a 103 page-per-minute laser printer in the line of products.

Both STC Ultimacc and STC Systems build complete small business computing systems for a number of specific types of businesses. Ultimacc, which is IBM software compatible, and STC Systems, an independent, supply hardware, software, training and support functions.

REMOTE DIAGNOSTICS

Storage Technology's latest products are equipped with their own diagnostic microcode housed on a floppy diskette. This provides for complete user-initiated diagnostics and fault isolation at each unit to the device level by specialists at the Storage Technology Remote Diagnostic Center in Louisville, Colorado. Since these diagnostics are "in-line" tools, the remainder of the subsystems will continue to be available for data processing while fault isolation

occurs transparently to other activity on the subsystem. The diagnosis is accomplished using standard telephone lines.

MARKETING

Storage Technology was founded to offer customers data storage devices that would offer superior reliability and performance advantages at a cost savings. That philosophy has remained consistent throughout years of rapid growth and applies to all of the company's products.

Performance-oriented engineering design and high standards have produced devices that have given computer systems owners totally new options. The company brought its 8650 double-density disk to the marketplace before anyone else had announced a similar product. The use of solid-state cache memory to bring both tape and disk throughput up to system-level speed is another advance based on customer needs.

From marketing to the domestic, large CPU end-user, Storage Technology expanded to supply the OEM market which currently accounts for about 20 percent of the company's revenues. Expansion into the intermediate CPU market occurred in January 1980, with the 4500 series of tape drives.

Geographically, through subsidiaries in Canada, the United Kingdom, Belgium, France, the Netherlands, Germany, Italy, Switzerland, Japan, and Australia, as well as distributors in Europe, Africa, South America and Asia, and manufacturing facilities in Puerto Rico and Ireland, Storage Technology has become a worldwide marketer.

From the beginning the company's management knew that solid growth and rapid expansion could not be accomplished without a superior Field Engineering force. Extensive training insures the high-performance service customers require. In-house education is accelerating as both systems engineers and field engineers prepare to support a total Storage Technology hardware system with the expected introduction of the company's central processing units. The field engineering force now numbers about 3,000 personnel, and the U.S. Remote Diagnostics Center assures customers of even greater total system availability.

TECHNOLOGY

Innovative engineering enabled the company to bring to market the industry's first 635 megabyte disk spindle and the industry's first Optical Storage Subsystem in 1983 for large system users. Advanced technology in the 4305 Optimizer makes it the highest performance I/O storage device available.

The acquisition of Microtechnology Corporation in 1978, allowed Storage Technology to progress rapidly in development and use of thin-film and LSI design and manufacturing.

Because producers of LSI circuits prefer to make large quantities of the same chip design, and because turnaround time for redesigning a new chip is long, Storage Technology acquired the capacity to design and manufacture bipolar and CMOS microcircuit chips in order to retain its position of leadership in the computer industry. The Microtechnology Division, in its own facility at the company's Louisville headquarters, has both CMOS and bipolar technologies on-line, and provides a total in-house capability from design, through processing, to final test, both for the company's use as well as for sale to other companies.

Manufacture of head-disk assemblies (HDA) is a process requiring near sterile conditions. Storage Technology's clean room facilities for the assembly of HDAs are among the largest in the world and have pioneered techniques that are now industry standards. Company engineers designed and developed specialized equipment for testing the quality of the parts that go into the HDA, and those devices are now used by vendors to insure that only quality parts are shipped to Storage Technology.

The company's announced intention to enter the mainframe computer marketplace required integrated planning in a variety of areas. Systems architecture and software design capabilities are in place. Semiconductor design and production expertise are being combined with new electronic packaging abilities. New concepts in storage and total-system integration are being added to the company's technological capabilities.

RESEARCH AND DEVELOPMENT

During 1981, the company sponsored the formation of two research and development limited partnerships. The limited partnerships collectively obtained commitments for \$90,000,000 in limited partner contributions to design, develop, manufacture and market a series of software-compatible high performance computers using advanced VLSI (Very Large Scale Integrated) circuits and a high performance storage unit using optical recording technology to record and read data from removable media.

In 1982, Storage Technology spent \$110 million on R&D, of which \$33 million came from the company-sponsored limited partnerships.

MANUFACTURING

Tape drives, disk drives, optical storage devices, control units and printed circuit cards are manufactured and assembled in the Louisville, Longmont or Broomfield facilities. Printers are manufactured in Florida and in Ireland. Printed circuit cards, controllers and solid-state disk units are produced in Puerto Rico. Tape units for the European market are manufactured in Ireland.

The company manufactures a large percentage of the printed circuit cards, microcircuitry and other critical components used in final products. The company also manufactures thin-film heads. STC Media Technology Corporation in San Jose, California, does advanced research, development and manufacturing of rotating media.

CORPORATE INFORMATION

Storage Technology's corporate headquarters are located in Louisville, Colorado, U.S.A. The company's stock is traded on the New York Stock Exchange, and its ticker symbol is "STK."

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