



4905 Energy Way
Reno, Nevada 89502
(702) 322-6868
TWX 910-395-6073 SAGERNO

SAGE COMPUTER
CORPORATE BACKGROUNDER

April 1984

Contact: Buddy Frank
SAGE Computer
(702) 322-6868

Marion Kenefick
Burson-Marsteller
(408) 980-9250

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Introduction

When Motorola introduced the MC68000 microprocessor chip, an efficiently designed, extremely fast device ideally suited to high-level language development, the technology world awaited a machine to follow that would maximize its capabilities. Three years later, in 1981, IBM announced a personal computer. A small group of engineers in Reno, Nevada were surprised that this new computer was based on the Intel 8088 microprocessor -- a chip they felt had capabilities inferior to the Motorola device. They saw this as an opportunity to develop a microcomputer based on the Motorola chip -- and an opportunity to provide leading edge technology without immediate and serious competition. They also felt development of a 68000-based super microcomputer could stimulate a far-reaching grass roots movement in the 16-bit/32-bit world. To accomplish this goal, the group realized they would have to provide users with a high performance machine that could handle the next generation of sophisticated application software -- at an affordable cost.

The group formed SAGE Computer and achieved the necessary and superior price/performance ratio through implementation of a unique design approach. Instead of using dated minicomputer technology as favored by other manufacturers, the company took full advantage of the 68000's features by developing an efficient, fully-integrated, single-board super microcomputer.

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Today, the Sage II floppy-based computer and the Sage IV, which features a Winchester hard disk drive, increased memory and greater multi-user capabilities, are recognized as among the fastest 68000 machines available. They continue to be widely used by programmers and developers who write code for the microcomputer marketplace. In addition, SAGE Computer remains a leader in 68000 technology with one of the largest installed bases in the industry.

CORPORATE OVERVIEW

SAGE Computer was founded in 1981 to design and manufacture advanced low-cost, high-performance super microcomputer systems that enhance information processing capabilities. Based on the Motorola 16/32-bit 68000 microprocessor, Sage products provide a high-speed environment that offers a price/performance ratio superior to any machine currently available.

The company introduced the Sage II system in March 1982 and Sage IV seven months later. To accommodate a steady growth rate in production and sales, SAGE moved to a 50,000 square foot site in southeast Reno that today houses both corporate and manufacturing facilities. The company, which currently has 78 employees, projects a sales increase of over 200 percent annually over the next three years.

All Sage super microcomputers come standard with the powerful, portable p-System, an ideal development environment,

and are supported with quality software packages. As a result, hundreds of applications for vertical markets as well as general business usage have already been developed for the Sage systems by independent software vendors (ISVs). These applications are expected to increase significantly during the next several years.

THE MARKET

SAGE markets its super microcomputers to customers who require machines with high throughput and performance capabilities, and are therefore unlikely to purchase 8088-based IBM-compatible micros that use the MS-DOS operating system.

According to Future Computing, a nationally recognized industry research firm, the non-MS-DOS market represented 60 percent of the 2.4 million micros sold in 1983. By 1988, this segment will total 5.3 million systems, or 45 percent of 11.8 million units sold. This increase represents a 400 percent growth rate over the next five years.

Software developers currently comprise the largest end-user market for the Sage II and Sage IV super microcomputers. However, with the introduction of hard disk storage capacity and the release of new software products, the Sage II/IV systems have also become ideally suited to vertical business markets.

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In the future, SAGE plans to expand its target markets toward a variety of high volume markets, including value-added resellers (VARs), engineering-scientific users, educational institutions, government/military applications and OEMs. The company will support these efforts through development of vertical software packages and increased hardware capacity designed to meet the specific needs of each group.

MARKETING STRATEGY

SAGE Computer is establishing a leadership role in the high-end, high performance microcomputer arena through its 68000-based systems that allow users to explore the top end of the application spectrum. Simply stated, SAGE designs more into its computers so customers can get more out of them.

As part of its strategy to develop a grass roots 16-bit computer, SAGE implemented a two-phase marketing plan. First, the company established strong relationships with its primary customers--software developers--by providing the right type of system at the right cost.

As these customers developed a variety of applications, SAGE began implementation of the second phase by cultivating sales of its systems to vertical business markets. Packages have been developed for medical and dental professionals, the garment industry, accountants and lawyers, to name but a few. More than 250 known applications have been developed on Sage computers to date.

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Currently, SAGE is expanding its line of hardware products while fostering extensive development of new software packages. Areas of enhancement include introducing local area network (LAN) capabilities and increasing the availability of compatible operating systems and programming languages.

SAGE has also initiated several additional objectives to reinforce its overall strategy:

- 1) Secure high performance, multi-user application software that parallels Sage systems' capabilities and meets users' needs;
- 2) Increase support of OEMs and VARs to ensure long-term, high volume sales;
- 3) Increase Sage brand recognition via aggressive advertising, user communications and seminars;
- 4) Substantially increase the domestic dealer base.

To support this plan, SAGE established regional sales offices in Boston, Dallas, and Reno, Nevada. The company markets its products through domestic dealers, VARs and OEMs, and has international distributors and representatives in 35 countries. The foreign market currently accounts for 40 percent of SAGE's total annual sales.

SAGE ships approximately 250 systems per month. The installed base of SAGE computers recently surpassed 3000 units.

FINANCIAL

SAGE emphasizes aggressive cash management with added emphasis on profitability. As a result, the company has been

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profitable since its first month of operation -- something few companies can claim.

SAGE succeeded in delivering a high performance product with only \$900,000 in initial financing. In comparison, many companies with millions of dollars invested in development have yet to produce working systems.

SAGE is now seeking a new influx of investment capital to support the R&D and sales efforts needed to penetrate higher volume vertical markets. Continued emphasis will be placed on remaining profitable while increasing sales toward the \$2 million per month level.

PRODUCTS

SAGE II -- The multi-user Sage II 68000-based super microcomputer supports up to two terminals and a printer, and features 256 kilobytes (Kbytes) RAM, expandable to 512 Kbytes. Information can be stored on either one or two 5 1/4-inch, 640 Kbyte floppy disks. Sage II comes with a 65-Watt switched power supply.

SAGE IV -- The multi-user Sage IV 68000-based super microcomputer is a second generation machine that supports up to six terminals and a printer. The system provides 256 Kbytes RAM that can be expanded to one full megabyte (Mbyte). Disk storage consists of one standard 640 Kbyte floppy diskette and a choice of a 12, 18 or 40 Mbyte Winchester hard disk. Sage IV comes with a 90-Watt switched power supply.

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Both the Sage II and Sage IV microcomputers are available in system configurations that include 12-inch monochromatic terminals with tilt and swivel non-glare screens, offered in green or amber. Detachable keyboards feature a 96 ASCII character set. Business graphics and a graphics terminal are offered as options.

Standard systems come with the p-System operating system, Word/7 word processor, Teletalker communications software and a two volume set of documentation.

Sage computers provide virtual concurrency of multiple operating systems within a multi-user environment. Optional operating systems available for Sage microcomputers are CP/M-68K, Idris (a version of UNIX), Modula-2, PDOS, BOS, HyperFORTH Plus and Mirage. Additional languages supported include Pascal, 68000 Assembler, FORTRAN, BASIC, C, APL, LISP, FORTH and COBOL.

SAGE recently announced a number of new products for its systems, including a four-platter, eight-head 40 Mbyte hard disk drive for the Sage IV, an 18 Mbyte Digi-data tape cartridge backup unit and the entire line of best-selling financial software from State-of-the-Art. Packages available are: General Ledger, Budget and Financial Reporting, Accounts Receivable, Accounts Payable, Inventory Control, Sales Invoicing, Payroll and Professional Time and Billing.

In addition, SAGE offers a Software Directory that lists applications for the Sage II/IV systems. The book contains more than 250 listings of programs that range from a 68000 Native Code Generator to Payroll Processors.

MANAGEMENT

Rod Coleman, president and founder, was instrumental in the development of the initial Sage II system and circuit design. Prior to forming the company, he held several management positions at Lynch Communications, including senior software design engineer responsible for system and software design of the Data Processing Unit for the ATLAS operating system. Mr. Coleman attended the University of Nevada, Reno and College of the Redwoods, majoring in physics and engineering.

William Delaney, vice president of marketing, most recently served as senior vice president at Dancer Fitzgerald Sample, Inc., directing high technology accounts and new business activities. He previously was employed by Regis McKenna, Inc., where his responsibilities included management of multi-million dollar marketing programs for Apple Computer and Intel Corporation. Mr. Delaney holds a B.A. degree in communications from California State University at Fullerton.

D. Michael Deignan, vice president of international operations, develops and directs marketing programs, promotion, dealer selection and pricing for SAGE's international market. He formerly held the position of executive vice president at Searle Medical Products, a subsidiary of G.D. Searle, manufacturer of pharmaceutical and health care products. Mr. Deignan received a B.S. degree in Economics from Providence College in Rhode Island.

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Richard Kriss, vice president of finance and administration, is responsible for design and implementation of financial systems and administering corporate affairs at SAGE. Prior to joining the company, he served as president and co-founder of Pensa, Inc., a sporting goods company, and vice president of Osaga, Inc., a multi-million dollar athletic footwear manufacturer. Mr. Kriss holds a B.S. in finance and accounting from the University of Oregon.

Al Bennett, vice president of manufacturing, has an extensive background in all phases of manufacturing, including production management, scheduling, budget planning cost control and employee training. Before joining SAGE, he was vice president of marketing at Stardust Products Company. He previously served as manufacturing manager at Lynch Communications. Mr. Bennett attended Pennsylvania State University.

Paul Lima, vice president of research and development, oversees all aspects of product development from design through pilot production. He formerly served as director of engineering at IMS, where he supervised the design of Winchester data recovery circuits and microcomputers. He was also vice president and manager of manufacturing/engineering at Lynch communications. Mr. Lima holds a Master's degree in electrical engineering from M.I.T. and a B.S.E.E. from Stanford University. He has registered two patents and is an IEEE member.

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LOCATION

SAGE Computer is headquartered at 4905 Energy Way, Reno,
Nevada 89502. Telephone 702/322-6868.

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APRIL 16, 1984

CORPORATE NEWS

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* **SAGE DISTRIBUTOR CONFERENCE** : International Operations of SAGE*
Computer will be holding a one-day conference for Atlantic Region
distributors, Wednesday, June 13 in Brussels and another conference
for Pacific Region distributors in July (date and location to be
announced). The purpose of these conferences will be to discuss the
SAGE VI, new software being developed, and other very important
topics of which cannot be discussed at this time--a must for all
SAGE distributors/representatives. The conference will also offer
you an opportunity to share ideas with other distributors on what
has worked and what has not. You will receive further details soon.

SAGE COMPUTER CORPORATE BACKGROUNDER : This piece of literature was developed for a press conference SAGE recently held in Santa Clara, California and should help you with answers to those often-asked questions like "What is SAGE Computer?". It encompasses a corporate overview of SAGE, discusses our market and our marketing strategy, and gives you a brief background on the individuals managing SAGE Computer.

PHOTO : The photo enclosed was taken at SAGE FAIRE. Along with Mr. Deignan are pictured the founders of SAGE Computer--Bob Needham, Rod Coleman, and Bill Bonham. The others will have to move over for the next picture, though, as Rod was wed on April 14.

MARKETING NEWS

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NEW CATALOG : SAGE has developed a new 28-page catalog targeted at end-users which covers a multitude of topics concerning SAGE Computer, SAGE products and the people behind SAGE Computer. This 28-page catalog includes part numbers and U.S. retail prices and may, therefore, not be applicable to your local market. A copy of the catalog is enclosed. For International purposes, SAGE is developing an 8-page outgrowth of the catalog which includes a corporate overview, a discussion of our products in general, a product overview of each individual product and specifications for each product. Separations will be available for both the catalog and brochure. You will be receiving the 8-page brochure very shortly. Please forward your comments on separation needs and quantities as soon as possible.

SOFTWARE NEWS

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IDRIS : SAGE is now offering a new operating system-- RAKON'S IDRIS which is up to five times faster than the previous port. This port was also done using the SAGE BIOS allowing greater compatibility between software and hardware. RAKON has also provided SAGE with the sources to IDRIS making the product much easier for SAGE to support. RAKON'S IDRIS is Version 6 compatible with Version 7 Utilities with a System III and V upgrade due out as soon as the UNIX standards are set. Note: RAKON is also looking for other worldwide sub-distributors of IDRIS. More information to follow.

COBOL : COBOL should be running under IDRIS by the end of May. Austech of Australia has ported their COBOL to SAGE under the RAKON-IDRIS Operating System. This Level II COBOL is Data General and RM compatible. SAGE also plans to bring up RM COBOL under RM COS within the next ninety days. Product information to follow.

FORTRAN : The price of Absoft FORTRAN 77 is being lowered. Effective April 1, the retail cost is \$1,500.00 with wholesale at \$975.00. Note, however, that this does not include the optional update fee available directly from Absoft for \$200.00.

SAGE UNBUNDLING : Enclosed you will find file listings of the two diskettes that are included with the bundled version of our microcomputer. The two diskettes are titled "BUILD" and "BUSINESS".

PROGRAM DEVELOPMENT KIT : There has been some confusion as to what exactly is included in the Program Development Kit. This kit includes the PASCAL compiler and the 68000 Assembler. A file listing of the "PROGRAM DEVELOPMENT" diskette is enclosed. Documentation included with this kit includes the SAGE Technical, Assembler/SDT, and p-System Program Development manuals in addition to SOFTECH's Internal Architecture and Application Development manuals.

BIOS SIZE : The bios size in our latest p-System software release (Version IV.13) has changed. The new bios consumes 143 Kbytes of RAM. Therefore, it is not possible to run the new software on SAGE microcomputers with only 128K RAM.

IV.13 p-SYSTEM : The release of IV.13 p-System has solved many problems, but not without creating a few new ones:

1. 256K is required to run version IV.13 (Refers to BIOS change above)
2. p-System FORTRAN has some incompatibilities. A new disk is being sent to us. We will in turn update everyone who has purchased the FORTRAN/BASIC update.
3. CP/M is now able to run multi-user (without errors). However, three operating systems will still not run simultaneously. Please warn customers of this before they purchase multiple operating systems with this in mind.

ESSENTIAL PASCAL AIDS : There is an update available. Contact Micro Strategies, 359 Village Street, Millis, MA 2054 (617) 376-4526. The cost of the update is \$20.00.

PERIPHERAL NEWS
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QUME 211GX - GRAPHICS TERMINAL : SAGE has added this new graphic terminal to our peripheral offerings.

<u>Part No.</u>	<u>Description</u>	<u>Retail</u>	<u>Wholesale</u>
PH0019	QUME 211GX (Green)	1290.00	840.00
PH0025	QUME 211GX (Amber)	1310.00	850.00

QUME TERMINAL PRODUCT CHANGE : QUME will soon or may have already begun shipment of the QUME 102A terminal. There are no noticeable physical differences between the 102 and the 102A. It should, however, help correct the scrolling problems you may have noticed in Word/7 or the editor. Also the keyboard is improved. The following changes have been made:

<u>FEATURE/FUNCTION</u>	<u>QVT-102</u>	<u>QVT-102A</u>
Programmable Function Keys	None	8
AUX (Auxiliary) Port	Unidirectional	Bidirectional
To Enter Set-up Mode	Depress Setup Key	Depress Ctrl/Shift/Setup Keys
To Send a Break	Depress Break Key	Depress Shift/Break Keys
To Locally Re-enable the Keyboard after it has been Disabled	Depress Shift/Break or Setup-Setup Keys	Depress Shift/Break or Ctrl/Shift/Setup-Setup Keys
Status Line Display	May be Disabled by Command Code Only	Depress Ctrl/Shift/Setup-Zero Keys

The QVT 102A is downward compatible with the QVT 102. In approximately 60 days all QVT 102 (Amber and Green screens) will be the QVT 102A variety.

QUME LANGUAGE KITS : The following is a listing of the language kits for the QVT products which can be purchased separately for field upgrades:

- QVT 102 French Language Kit
- QVT 102 German Language Kit
- QVT 108 French Language Kit
- QVT 108 German Language Kit
- QVT 108 Spanish Language Kit
- QVT 103 French Language Kit
- QVT 103 Germany Language Kit
- QVT 103 Spanish Language Kit

Each kit includes keycaps, a translated manual, a keyboard layout and instruction guide. (The QVT-102 French Kit also includes ROM's). I will keep you updated as to any additions QUME makes to the foregoing list of Language Kits. Please let me know if you are interested in any of the above products.

FREEDOM TERMINALS : Freedom terminals from Liberty Electronics are no longer available from SAGE Computer. Please contact Liberty Electronics direct for this product.

DOCUMENTATION NEWS
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PURCHASE OF OPERATING SYSTEMS OTHER THAN p-SYSTEM : Many customers that have purchased either CP/M or Idris have had problems generating their systems. Much of the information needed to generate operating systems other than the p-System is found in the Technical manual. Hence, SAGE will be including the Technical manual with all standard shipments.

SAGE SERVICE MANUAL : Shipment of the SAGE Service Manual is being discontinued because of its obsolescence. SAGE is presently working on a modified version to be included with the diagnostic kit. Estimated time for new manual is May 15.