



## SAGE Supports Modula-2

by Windsor Brown  
Volition Systems

More and more programmers are starting to talk about *Modula-2*, but for many of us it's still a foreign language.

*Modula-2* is a direct descendant of Pascal, sharing the same parentage in Swiss programmer Niklaus Wirth. It emerged experimentally in 1975 and was first implemented on a PDP-11 in 1979. While the subject is often debated, many proponents claim that Wirth has finally fixed all the bugs in Pascal. Perhaps more accurately, Wirth's objective with Pascal was to create a learning language for students, while *Modula-2* represents a true working language for professionals based on the similar concepts of structured modularity.

There are two types of customers for *Modula-2* today. First there are those wishing to learn the language and get some first-hand experience. And secondly, there are the professional/commercial programmers and developers who are using Modula to capitalize on the language's unique attributes.

At the moment, any adventure in *Modula-2* on the SAGE must be done via the package from Volition Systems; there's no alternative available. But that's not so bad, considering that this implementation does a good job at satisfying the needs of both types of users. Additionally, independent reviews have generally praised the package in comparison against other compilers available on different systems.

The product is packed with material for those desiring to learn the language. There are ample tutorial programs, examples, sample programs, etc. Yet it contains the utilities and facilities for the professional developer exploring Modula's advanced features of interrupt handling, concurrency, structured systems development and integration. The Volition implementation of *Modula-2* provides 32-bit integer operations, a decimals package including "picture" style formatting, strings, I/O redirection, and exception handling. The beginnings for cross-operating system portability are even provided. System features like Batch files, performance monitors,

"The Sage IV may well be the best 68000-chip computer on the market"

John-  
Have you seen this?  
let's discuss ASAP!

Bill

In January, Byte Magazine referred to the SAGE IV microcomputer as being ... a good candidate for the best available microcomputer, based on the 68000 chip. We happen to agree and so do the thousands of SAGE users worldwide.

Let us tell you more about it. Contact us at:  
**702-322-6868**  
or write us at 4905 Energy Way,  
Reno, Nevada 89502.

**SAGE**  
COMPUTER

Byte is a registered trademark of Byte Publications, Inc.

This ad ran in numerous computer magazines including Dr. Dobbs Journal, Microsystems, Systems & Software, Computer Retailing, Micro Market World and Computer Retail News.

## Good Press for SAGE

SAGE Computers continue to receive impressive attention from the press. In January, *BYTE* columnist J.E. Jerry Pournelle had so many good things to say about the SAGE IV that we took out an ad in other magazines to spread the word.

Pournelle has struck again in the current *BYTE* (May 1984) with another, much longer column that concludes with, "I've long thought Sage had the best 68000 based computers on the market. Now I'm certain of it." The respected science fiction writer and columnist made his observations following his attendance at the February SAGE Faire event in Reno. If you haven't seen the article yet, it's worth reading.

SAGE was also given high marks by *UNIQUE*, a UNIX newsletter. Editor David Fiedler generally praised the system and its companion operating system Idris. His biggest complaint was the SAGE's slow speed in running Logos Engineering porting of Whitesmith's Idris. A new porting from Rakon announced last month runs up to five times faster and should solve that one.

"Software for the SAGE II" was the title of a two-page article in the March edition of *Computer Dealer* which featured the Timberline Spreadsheet, SPI's Logicalc and Logiquest, and Sprinter-2 from Scenic.

Coming soon: hardware reviews of the SAGE IV in *Microsystems* and *BYTE*. We haven't seen drafts of the later two yet, but are expecting even more positive comments.

## More on Modula-2

If you haven't heard much about Modula-2, you're not alone. There simply hasn't been a lot written on the subject yet. Since books are slow to catch up to new topics, magazines and periodicals remain one of the best sources of Modula-2 information. *The Journal of Pascal and Ada* recently changed its title to *The Journal of Pascal, Ada & Modula-2* and is now the leading source of news. Subscriptions are available by writing to them at P.O. Box 384, Orem, UT 84057.

There are a few books on the subject, but not many. *Programming in Modula-2* by Niklaus Wirth was the first work published and deserves attention. *Software Engineering with Modula-2 and Ada* was just recently released by Richard Wiener and Richard Sincovec of the University of Colorado. Wiener is the associate editor of the *Journal* mentioned above and knows his way around a SAGE microcomputer. Together with associate Gary Ford, he also has a textbook, *Modula-2: A Software Development Approach*, under preparation for release early in 1985.

As far as we know, the only other book is the manual provided with Volition's Modula-2 system (see cover story). It is an excellent background source and may be purchased separately from Volition Systems.

## New Idris Released

A new version of *Idris*, the UNIX-like operating system from Whitesmiths Ltd., is now available on SAGE IV microcomputers. *Idris* is a multi-user, multi-tasking OS that is fully compatible with UNIX Version 6 and shares many features of Version 7.

A porting of *Idris* from Logos Information Systems in New Jersey has been available on SAGEs for over a year, but now there is a vastly improved alternative. Beginning last month, SAGE Computer signed a joint agreement with Rakon Computers of Sydney, Australia to market and support a new implementation.

*Idris* users will notice several improvements in this new package now available directly from SAGE. Compile rates are twice as fast, and many of the utilities run up to 5 times quicker. Along with the speed, there's also greater reliability; the SAGE version produces fewer crashes.

A big plus to those installing this version of *Idris* is that it's more flexible, allowing easy reconfiguration of the hard disk. It is a simple procedure to vary the partition sizes, thus allowing *Idris* to be installed alongside an existing operating system. That was impossible with the Logos product.

Additionally, SAGE now has direct access to the driver source code and will be able to offer better support to users working with *Idris*.

The new package is available with Whitesmiths' C or Pascal compilers and will accommodate the new FORTRAN from Absoft. Best of all, prices have actually been reduced almost 10% for this improved product. *Idris* is available immediately from SAGE or your authorized SAGE dealer.

# A SAGE From IBM

IBM built the first SAGE! That's hard to believe, but it's true. The "Semi-Automatic Ground Environment" (SAGE) was this country's first air defense system to use computers, and it was "Big Blue" who got the contract. These first SAGEs went operational on July 1, 1958 complete with 55,000 vacuum tubes, 135,000 transistors, 7000 plugable units and 12 storage drums. There are six still in use, but they are all scheduled to be retired this year. If you'd like to buy one, be sure and reference the correct model: AN/FSQ-7.

## Modula-2 (continued)

and a UNIX-like shell are also provided for the serious developer's use.

Volition's *Modula-2* comes with a hefty "Modula-2 User's Manual", 3 diskettes, and a copy of Niklaus Wirth's "Programming in Modula-2". One of the main jobs of the documentation is to get the user "on the air" in a hurry. It includes an installation guide as well as a walk-through for first-time users. When this is combined with a tutorial section for Pascal programmers, the stage has been set for the fulfillment of Volition's, as yet irrefuted, statement that Pascal programmers can be programming in *Modula-2* in a matter of hours and proficient within a week. The documentation contains a complete description of the module library and language system, of course, and even includes advice on using the system effectively.

Since most SAGE owners already know the p-System, there is little time lost in learning a "new" operating system. In fact, inspection of the diskette directory listings shows many familiar file names starting with "SYSTEM", although these often have advanced features — more powerful wildcards are provided by the filer, and of course SYSTEM.EDITOR is the Advanced System Editor (ASE). You'll also see something brand new — SYSTEM.SHELL, which is a UNIX-like command shell interpreter.

The "p-Shell", invoked by the S)hell on the COMMAND: line, is actually one of the most useful utilities, since it provides a UNIX-like development environment supporting pipes, wildcards and I/O redirection, all for the more commonly used UNIX commands. Actually a set of utilities, p-Shell provides a way of invoking UNIX operations like 'cat', 'grep', 'ls', 'sort', 'wc', etc. The different operations are all coded as separate modules in *Modula-2*. The source for p-Shell has been donated to the USUS library but will also be available directly from Volition Systems.

The operating system built into the package is an enhanced version of the early, public domain I.3 UCSD p-System and has capabilities even beyond those of Version II. It runs on an upgraded version II.1 p-code base which was selected for a variety of reasons, not the least of which was performance. (Some users even admit to using ASE under the Modula System, rather than version IV, because it gives them 10% to 20% better performance.)

There's obviously much to learn and work with here, but the bottom line is that if you're looking to explore the state of the art in modular program design, *Modula-2* on the SAGE is an excellent choice.



Richard Wiener and Richard Sincovec of Western Software Development demonstrated their STATPACK program at SAGE Faire '84.

## Review

# Statpack

An innovative statistical analysis package is one of the first applications written in Modula-2 to appear. The system is known as *STATPACK* and comes from Western Software Development in Colorado.

According to its developers, this package supports the comprehensive and efficient statistical analysis of large data sets that previously required the use of mini or large mainframe computers. Data sets with over 100,000 data points (floating point numbers) may be analyzed with *STATPACK* on a SAGE. This is possible by use of an efficient (virtual memory) paging technique to RAM, hard or floppy disks.

The user is given tremendous flexibility in entering and transforming input data. Mathematical transformations may be entered directly from the keyboard. New columns of data may be dynamically created as combinations and transformations of existing columns.

*STATPACK* supports comprehensive descriptive statistical analysis including histograms and goodness-of-fit tests, regression analysis with ANOVA tables and automated backward reductions to remove statistically insignificant data variables, and principal factor analysis.

Any p-System editor may be used to edit, modify or capture all or parts of the data output from *STATPACK* for use in documentation, technical reports, etc.

Programmers at Western Software report that *STATPACK* outperformed all the packages referenced in a November 1983 *BYTE* article on "Statistical Programs for Microcomputers." Like most programs on the SAGE, this one is also fast. It finishes a complete backward reduction regression analysis on a data set containing 1200 data points in less than 60 seconds.

*STATPACK* is available on the SAGE II or SAGE IV. For more information, please contact Western Software Development, P.O. Box 953, Woodland Park, CO 80863, (303) 593-9456.



by Buddy Frank

Who needs Jane Fonda? Just when you thought SAGE micros were only for serious tasks like high speed compiles and experimental coding, here comes a program that makes our favorite little box into the fastest calorie counter since Richard Simmons.

With the help of *Nutri-Calc* from PCD Systems your SAGE becomes an expert on everything from the phosphorous contained in an egg to the fiber content of Shredded Wheat.

You may even find out some things you never really wanted to know. For example, I was thrilled to learn that I burn only 87 calories an hour while sitting in front of a keyboard and a terminal. In eight hours that's equal to just one Burger King Whopper with cheese, not counting the fries. Alarmed by that horrifying revelation, I wasn't surprised when *Nutri-Calc* determined that I'm currently 20 pounds overweight. Not only is this program informative, it can be downright rude!

There is a bright side. After proving that everything you really enjoy is fattening, *Nutri-Calc* will at least design a customized weight loss program tailored to your age, sex, height and activity levels. After you select the length of time you'd like to spend to shed your winter coat, *Nutri-Calc* prints out a week-by-week calorie guide to achieving your new body.

But this is really more than just a computerized "Weight Watchers" meeting. *Nutri-Calc* is actually a serious product being put to use by dieticians and nutritionists from Walter Reed Hospital to elementary-school health classes.

The program arrives with a detailed listing of 730 foods and allows you to add another 200 of your own. Each item is broken down into 21 categories including calories, protein, fat, carbohydrates, fiber, minerals, vitamins, etc. This list can also be customized. If you're not interested in oleic levels, for example, you can substitute caffeine or cholesterol.

# Nutri-Calc



Early versions of *Nutri-Calc* required the user to look up foods in an accompanying manual from the USDA, but now this information is within the program itself and can be found with a quick search function. Foods are divided into 15 categories from dairy products to legumes. There's even a grouping for fast foods and brand name drinks. The personal entries section allows the inclusion of personal individual items or favorite recipes.

The "CALORIE" program contains the weight loss schedules, but "NUTRI-CALC" is the module with the bulk of this information. It allows you to select foods consumed during a one to seven day period. Then *Nutri-Calc* will chart the values of these foods, broken into ingredients, and plot them as a percentage of the government's RDA (Recommended Daily Allowances). There's even a graphic bar chart to help visualize your diet.

In summary, *Nutri-Calc* on the SAGE is an excellent easy-to-use program for both serious dieticians and casual calorie counters. It's only shortcomings are in what it doesn't do. This package would be an excellent mate to a similar physical exercise program. This would give a more accurate individual profile than *Nutri-Calc's* current breakdown of activity into: Vigorous Work, Walking, Sitting, Standing and Sleeping. A spokesman at PCD Systems confided that they're already at work on adding this feature.

The other flaw in this otherwise helpful program is that it has no method of charting your progress over an extended period of time. This seems to be a rather glaring oversight, but resourceful users should be able to direct the output from *Nutri-Calc* into one of the popular databases.

For more information on *Nutri-Calc*, contact PCD Systems, P.O. Box 277, Penn Yan, NY, 14527, (315) 536-7428.

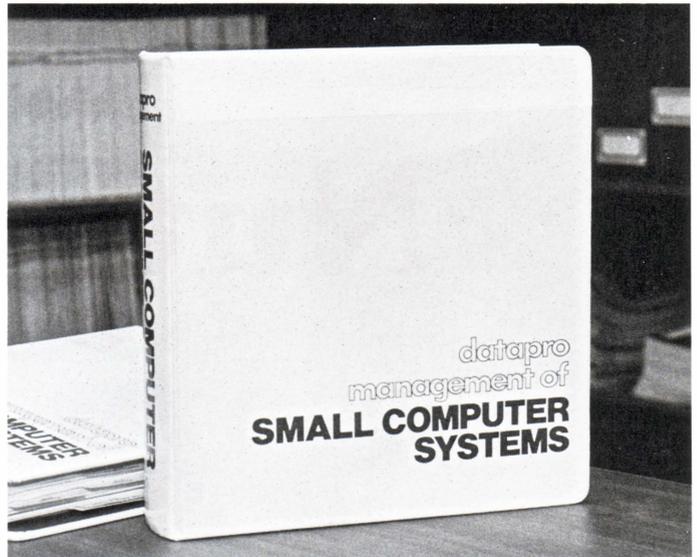
# Datapro

Most of us make it a point to assemble as much information as possible about current computer-related topics. Our best efforts are usually rewarded with a pile of consumer-related magazines in the darkest corner of a closet or a stack of product spec sheets in the bottom drawer of a seldom-used file cabinet. Welcome to the paperless society. . .

Imagine, if you can, finding all the current information, how-to, take-a-look-at-this, gee-whiz-if-I-only-knew-that-when-I-purchased-our-company's-system, or what-computer-professionals/users-really-need-to-know-but-were-afraid-to-ask STUFF, all in one place. Not a compilation of ads and opinions, but well researched and documented articles, indexed for quick reference. The past, present and future of data processing and small computer system technology at your fingertips. All that and more is DATAPRO MANAGEMENT OF SMALL COMPUTER SYSTEMS, a two-volume, three-ring-binder set of reference articles, updated monthly.

A typical article starts with a general heading, the title, and a "This report will have special relevance for you if:" listing, followed by a number of possible reasons why you might (or should) read the story. A handy "descriptor" line comes wedged between heading and text to help describe article content and aid in cross referencing. Graphics and charts further clarify the text.

Multiple sub-heading and block outlines of important



*All you need to know about micros for only \$400*

facts speed your understanding of the content. Little is left to your imagination and, if you need more information, simply phone, telex, or mail your problem or question to the DATAPRO Inquiry Service and, before you can say "relational database", you'll have their answer.

Quite simply, there's no better, more-complete or up-to-date reference guide on micros anywhere, BUT there is a catch. That is not a typo above where we mentioned price. This great source may never reach those who need to use it most because it cost \$400 initially and \$355 to renew annually. If you can afford it — GREAT! If not, try to talk your local librarian into buying it for you.

## USUS Holds Conference in Oakland

The p-System User's Group, USUS, held another successful conference last month in Oakland, California. As usual, the introductory lectures (on Pascal and the p-System) and the availability of the software library were the most popular events. Since copies of the USUS library are always in demand, there was some talk of making these available directly from SAGE as a convenience to members. It's now being considered, and we'll keep you posted on the decision here in the News.

SofTech, the parent company of the p-System, was represented by several staffers, including new president Ben Goodwin. Goodwin won quick support from the USUS members by promising better relations with the group and renewed efforts to improve the performance of the operating system itself. He also leaked word that several end-user applications will soon be announced for

their *Liaison* networking system.

Of interest to SAGE owners was the formation of a Communications Task Force to examine the subjects of networking, mainframe communications, remote diagnostics, modems and mail services on SAGE micros. Dan Merklings of Bountiful, Utah (801) 298-8518 will be the coordinator of the new group.

USUS is one of the more active users groups and is an excellent source of material and information about developments in the p-System world. They hold two annual conferences and try to spread them throughout the U.S. Other benefits include a newsletter, discounts on services, free programs, and an electronic mail service. Membership is \$25/year and may be sent to USUS Secretary, P.O. Box 1148, La Jolla, CA 92038.

## New Products From SofTech

Yes! The p-System will soon be on Apple's Macintosh. According to SofTech Microsystems, the product will be ready for shipment during the third quarter of 1984. Now if you want a really fast machine to write code for MACs . . . .

SofTech also announced that this month they will be releasing XenoFile for PC-DOS, which will provide access to PC-DOS files and directories from p-System applica-

tions. It will also transfer files between PC-DOS disks and p-System disks with optional conversion of text files.

Later in the summer, they will follow with an MS-DOS hosted p-System. This will allow use of UCSD Pascal and the rest of the p-System development environment to market applications to the MS-DOS world. The MS-DOS hosted p-System will require a minimum of 128K RAM.

# SAGE in Canada

If Chuck Emery and Kathy Hjørleifson have anything to say about it, SAGE will soon be the third language spoken in Eastern Canada.

As the principals of TDI Computer Systems Limited, the two have established a strong distributorship in the area. Last month they completed a move into new facilities in Toronto where they will serve dealers from Manitoba to the Maritimes.

They say SAGE systems are being well-received across the border, but admit to some unique marketing problems. "The Canadian businessman is simply more conservative," according to Kathy, "and that means the selling cycle is extended. We are just now closing the deals on systems to customers who began looking six months ago."

Additionally, TDI has found that a key to their success is strong technical support, utilizing staff expertise. In fact, TDI has made software consulting an important part of their distributorship, offering a number of custom utilities to their clients.

The market mix in Canada is similar to that in the lower States, with TDI finding manufacturing, process control, graphics and education generating the most interest.

As with many of SAGE's international distributorships, TDI's ability to add local value in terms of French-speaking support and custom software has been a big plus in closing sales. However, establishing more dealerships and doing less direct retail is an eventual goal.

One important element in their support to dealers is trade shows. At the end of last month, they exhibited at a large educational show in Ontario and have made



*TDI's Kathy Hjørleifson displayed SAGE equipment at the Canadian Computer Show in Toronto.*

appearances at several others, including SAGE Faire and the huge Canadian Computer Show held last November in Toronto.

In Eastern Canada, just as in England, France, Germany, Saudi Arabia, New Zealand, Malaysia, South Africa and two dozen other countries, SAGE is attracting a lot of attention.

## New Dealers

The number of authorized SAGE dealers throughout the country continues to grow. Welcome aboard.

PROVENTURE SERVICES 2905 Borden Circle El Campo, TX 77437 (409) 543-9147	BIZCOMP, INC. 4550 N. Bailey Avenue Amherst, NY 14226 (716) 834-3111
---	---

HOUSTON PROCESSORS, INC. 4905 Sovereign Drive Houston, TX 77036 (713) 776-2285	MYRIAD COMPUTER SERVICES RD #1, Box 1 Crockett Neck Road Kittery Point, MA 03905 (207) 439-5192
--	--

VANGUARD TECHNOLOGIES 7501 Mockingbird St. Suite 306 Victoria, TX 77501 (512) 575-5545	SOFTWARE AND SUPERMICROS 366 N. Broadway Suite 328 Jericho, NY 11753
---	--

## Input

### Dear SAGE News:

I was a bit disappointed to see the "Help Stop IBM" note in the current (April) SAGE News. Shame on you! It should be beneath the dignity of a self-confident and maturing enterprise such as SAGE to accord any recognition to such childishness. IBM got where it is by being a good outfit for its customers to deal with.

**Norm Peterson**  
Santa Monica, CA

### Dear SAGE:

Thanks for all of the help I've received so far. You guys have more patience than I deserve getting. If I were the Junta Chief of this nation I would give you all promotions and medals (but not raises, sorry). It really is nice to buy a product from a company that gives total after-the-sale service.

**Joseph Earley**  
Belmont, CA

---

# Questions and Answers

---

## Will the updated BIOS run on all SAGEs?

It will run on most, but not all. The first release of our BIOS (Basic Input/Output System), together with the p-System files, occupied just under 128K of RAM. In August of last year, the system was enhanced and the code pool enlarged to accommodate more sophisticated applications. Since the summer of 1983, SAGE's have been sold with a minimum of 256K, so there's no problem. However, early machines were available with 128K. If that's your case, you will not be able to use the new release without modifying the BIOS and even that would leave you with a very limited code pool. Stick with your old BIOS.

## Is there a multi-user database package available for the SAGE?

Yes. Almost all databases may be run on single-user systems under the SAGE multi-user, but these do not allow more than one person to access a single record or file without trouble. There ARE two packages that will, with more to follow. *PD Base* from I.O.T.C. is a true multi-user DBMS with record locking at the file level. If two users go after the same information, one will be locked out with no damage to the record. The *Application Development System* from Flexware also provides customers with a method of designing a custom multi-user database that interfaces with their full line of financial packages. Additionally, we are talking with four other suppliers who are currently working on new multi-user packages for the SAGE. Some should be ready soon, but we'll defer to them to announce the release dates and availabilities.



Maria Davis



Peggy Lakey

## People

If you've had a problem with your software, and haven't talked with **Peggy Lakey**, you've missed a good bet. Peggy is SAGE's Customer Support Engineer for applications. She joined us in July of last year shortly after graduating from the University of Nevada, Reno in math and computer sciences. Aside from unraveling spreadsheets and explaining the mysteries of Modula-2, she says she enjoys the experience of talking with so many "different personalities". Two of Peggy's passions outside the software world are piano and Scrabble.

**Maria Davis'** background includes writing textbooks for seventh grade school students. Many may feel that over-qualifies her, none-the-less she's been a great choice to oversee the writing of our documentation. As SAGE's Technical Publications manager, Maria is constantly busy working to improve our existing manuals, while also planning new material. She worked long hours to finish the new documentation released in March, but still found some time for her favorite recreations: classical guitar, jogging and working on our new laser printer.

Subscriptions are \$12 for one year. All correspondence should be addressed to **SAGE News**, 4905 Energy Way, Reno, NV 89502.  
Editor: Buddy Frank.

Vol. II/No. 5

May 1984

# SAGE NEWS

COMPUTER

**Southern Division**  
14755 Preston Road  
Suite 600  
Dallas, TX 75240  
(214) 392-7070

**Eastern Division**  
15 New England Executive Park  
Suite 120  
Burlington, MA 01803  
(617) 229-6868

**Reno Corporate Headquarters**  
4905 Energy Way  
Reno, NV 89502  
(702) 322-6868

SAGE™ is a trademark of SAGE Computer Technology.  
Copyright © 1984 SAGE Computer Technology.  
All rights reserved worldwide.

**BULK RATE  
U.S. POSTAGE  
PAID  
PERMIT #165  
RENO, NEVADA**

PLEASE RUSH TO:

EU