# Concurrent CP/M™ makes computers faster, friendlier

### *True multitasking operating system available now*

"Concurrency mirrors the way people work," said Gordon Eubanks Jr., vice president, Commercial Systems Division. "You may be working on a spreadsheet program, for instance, and your boss will ask you why Jack Smith is calling him. You can call up information on Jack Smith from your personal information file, get your boss the answer, and with a push of a button get back to your spreadsheet and be right where you left off. It's like a push button phone; you can put someone on hold and take another priority call — except that with Concurrent CP/M the work keeps going while you're away from it.

"Concurrent CP/M allows the microcomputer user to function as if he had more than one computer," Eubanks continued. "There are a number of good metaphors to explain what it can do. There's the television analogy, for instance: you can be watching Channel 3, but at the same time a show is going on on Channel 2. It's there, even if you aren't watching it. And any time you do want to watch Channel 2 or 4 or whatever, you just twist your dial.

"Or, if you're a football fan, think of it as a quarterback who has the freedom to call an audible at the line of scrimmage. He changes what he wants to do according to the situation he sees in front of him — just what Concurrent CP/M users can do with the push of a button when they want to do something different from what they happen to be doing."

**Working in the real world**

The impetus to develop a concurrent operating system comes, then, from the need to provide an environment that more closely matches the real world, in which human beings pay attention to multiple stimuli, can manage more than one task at a time or move easily between a number of tasks, can interrupt themselves and others without too much lost energy or confusion. "This is definitely the future for operating systems," Eubanks said.

But concurrency is also technology driven. "Concurrency is simply the most appropriate operating system architecture for 8086-based systems; it makes the best use of the memory that's available," he added.

**Setting virtual windows**

"With memory available using the 8086, you can maintain a number of programs in memory, each with its own virtual window areas that can be output to a screen via the video map," Eubanks explained.

"Of course it's more complex than that," he went on, "which is why there have been some misconceptions about our Concurrent CP/M that I'd like to clear up. First, this is a true multitasking operating system. It runs in real time. It provides interprocess communications — and a process can generate daughter processes which can in turn generate other daughter processes. By the use of queues, each of which can be given a name, processes can communicate with each other, passing messages and synchronizing operations — that is, one process can control the execution of another process. Finally, all the DRI languages will support Concurrent CP/M."

**The virtue of availability**

The concurrent-tasking operating system developed by Digital Research — Concurrent CP/M-86™ — is not only the right operating system for today's microcomputer world, according to Eubanks, but it also has another virtue that places it ahead of some of its competitive products: it is available now.

**See Concurrent CP/M, page 4**

Juggling assignments? Concurrent CP/M enables computers to work as hard as users do by performing more than one job at a time.

## New IBM hard disk computer can use Concurrent CP/M-86

Users of the new IBM PC XT, the enhanced hard disk-based version of the IBM PC, now can take advantage of the features of Digital Research's Concurrent CP/M-86 and CP/M-86 operating systems.

"The IBM PC XT will be a very popular microcomputer," said Kevin Wandryk, product marketing manager for operating systems, "and Digital Reserach is ready to support users now with operating systems that are optimized to take advantage of the hard disk features of the XT."

Of special interest to PC XT users is the availability of Concurrent CP/M, the industry's only operating system designed to allow

**See IBM, page 4**

## DRI languages to support PC DOS, other systems

Software portability has always been a concern at Digital Research, and with a recent announcement that concern was strongly underscored.

According to Carmen Governale, marketing manager for the languages group at DRI, "We support the IBM PC using CP/M-86, Concurrent CP/M™ and now PC DOS — with our languages and programming tools. The operating systems group has done an excellent job over the years in moving our CP/M® family of operating systems across chips — from the 8086 to M68000 with more to follow — but now we're thinking in terms of other operating systems as well with our languages to provide complete portability."

Governale stressed that software authors, for instance, who choose to write application programs using Digital Research languages can run those applications under CP/M® operating systems and also under PC DOS now, and other operating systems in the future.

"Our announcement of language support of PC DOS is just the first step," Governale said. "Support for other operating environments will follow shortly. Very simply, we believe that applications software should be able to run across processors and operating systems, and that languages are the key to that kind of portability."

Gary Kildall, DRI founder and chief executive officer, pointed out that "we've already outlined a strategy for portability across our own family of operating systems using C as a common development language. Now we are committed to supporting other operating systems with our languages."

Digital Research is a market-driven company, Kildall added, and has recently reorganized to reflect that reality. "Our Commercial Systems Division was formed to focus

**See languages, page 4**

## INSIDE DIGITAL RESEARCH

President John Rowley announces agreements ..... 5

## "Media Quotes"

Digital Research continues to make news in the industry and the general press. Following are excerpts from a few of the articles which have appeared recently.

"The software announcements included the announcement of a new version of CP/M on all versions of the Sage. CP/M-68K[T.M.] is the first implementation of this operating system on an MC68000 system, and it seems likely that Digital Research will come out with other versions for other 68000-based systems, widening the scope for software considerably."

**WHICH Computer?
April 1983**

"CP/M enables very different microcomputers to exchange disks . . . it provides a large base of apparently identical computers for software writers, encouraging the production of many widely varied programs, thus convincing more people to install CP/M and the circle continues."

**inCider
May 1983**

" . . . the availability of standard device drivers as part of CP/M should stimulate the markets for both CP/M and the graphics devices. Previously, applications authors had to write their own device driver for each peripheral."

**Computer Systems News
February 28, 1983**

"As a consequence (DRI) has expanded its product base into high-level languages, OEM application-development tools and has developed a graphic kernel, in cooperation with Graphics Software Systems, that is one of the most advanced in the industry. It has also rewritten CP/M for the Z8000 and 68000 in C and is reportedly working on a 16000 version. For the future, it is known to be working on a user interface that sources say will surpass in performance that of Apple's Lisa™ and VisiCorp's VisiOn, and has the only true multitasking operating systems for the IBM PC – Concurrent CP/M."

**Electronic Engineering Times
April 11, 1983**

### Toll-free service begins operation

Digital Research's new national toll-free number began providing free information to end users early in June. The number is 800-227-1617, extension 400.

Information for those who call will include names and locations of stores that carry DRI products in the caller's geographical area plus free literature describing DRI products and services. Callers who have technical questions will be given the phone number of the DRI department that can best answer their questions.

According to Steven Kingsley, retail marketing specialist, the new service will provide end users with fast, accurate and free information.

# Documentation changing to help users

"Many people buy a software product on the basis of the documentation," commented Bob Morrisette, documentation development manager for languages. "This is especially true at the retail level, where more of our products are going to be sold. They'll page through a manual and if they don't like it or find it confusing, they won't buy the software itself." And, added Allen Beebe, director of the Languages Strategic Business Center, software reviewers in microcomputer periodicals are paying more attention to documentation and their comments also influence the user's buying decision, positively or negatively.

Digital Research is determined to provide its customers with top quality documentation. To Tim McCormick, development services manager, operating systems group, 'top quality' means a number of things: "The documentation has to be easy to use, understandable, well-structured and ready on time."

**Writers within product groups**

According to McCormick, "We have greatly improved the interface between the programmer and the documentation writer. Our policy is to place the writers within the product groups, close to the software engineers, but separate in the sense that they aren't the same person — nobody in today's software business can afford to have the programmer also be the documentation writer, as was often the rule in the past."

A more formal system for documentation management is now in place at DRI. Development of products and documentation proceed hand in hand. Review of documentation is also more formalized, with standards now being set by an informal committee of writers within DRI. "We need to make sure that the documentation is pitched to the right audience," McCormick said, "depending on the product itself, by assuring that the content fits the audience without too much detail or too little."

Morrisette commented: "We are moving toward a less dense, less technical style for our documentation. That's true not just in terms of the writing itself, but in other ways



Documentation design and content is directed by managers Bob Morrisette, languages (left), and Tim McCormick, operating systems.

as well. Documentation formats are changing, too; the way the manuals look and feel make them easier to use. And we're even beginning to pay attention to the writing that appears on the screen when you're using our software. On-screen instructions and error messages are friendlier and easier to understand."

"We are aiming toward a new style of documentation," Governale said. "That means not only are we concerned with the accuracy and understandability of the writing itself, but with the physical design, the formatting, of our publications."

Digital Research's documentation is now designed in two parts. Each product is accompanied by two publications: a reference manual, which completely describes the product and its features and capabilities, and a programmers guide, which is designed to help the programmer actually use the product. Since DRI has begun to introduce products for the first-time user, such as DR Logo™ and Personal BASIC™. With these products the programmers guides have been replaced with user guides or tutorials, written even more informally in a "how to" style.

Physical formatting also has changed considerably. Manuals and guides are now issued in loose-leaf ring binders so that updates and changes can be made more easily. The documents are smaller and easier to handle,

two colors are used to highlight examples and user inputs, more illustrations are used, better indexes and glossaries are included, documentation is typeset rather than produced on a Diablo-style printer, many more examples have been included, and the old "mil spec" style of numbering paragraphs — 5.1.1 — is beginning to disappear.

"We have asked for advice from industrial psychologists and advertising professionals," McCormick revealed, "regarding style and physical formatting. Ellen Haley, our publications manager, with her staff, has done a tremendous job in getting our publications to look better and serve our customers' needs more effectively."

**Future of DRI documentation**

"Though we've made great strides, there are still things we can do to make our documentation better," said McCormick. "We will continue to look for good writers, people with experience. This isn't really a place to learn, because you've got to hit the ground running. We'll continue to work developing standards. We're starting in-house seminars for our writers, concentrating especially on structure and organization. Planning is the key to a good piece of documentation, and it's easier to write good prose than it is to organize a publication well."

# Distributors link DRI to retail outlets

Microcomputer software users now can find Digital Research products available widely in retail computer outlets, thanks to a seven-month effort by DRI to build a full scale North American distribution network serving computer software dealers. Two recent additions bring the total number to 12.

According to Rick Magnuson, retail marketing manager, "Our successful attempt to provide comprehensive distributor coverage has one goal: to make sure that our customers can find our products in their local area stores. With a strong distributor network we can provide dealers with fast product delivery and timely technical support."

The strong distribution network also will assist in the introduction of the CP/M Library™ merchandising campaign. This effort includes providing display cases and merchandising aids to be used in dealers' stores. "We will ask the distributors to help us sign up dealers to participate in these programs and all future promotional activites,"

explained Magnuson.

The present network includes the following authorized distributors:



Dealers may order CP/M Library displays from DRI distributors.

Software Distributors, Softsel, Softsource, Lifeboat Assoc., Software Distribution Services, Citation Software, Hamilton Micro Systems, Loonam Computer Products, Micro Distributors Inc., Micro Network Corporation, Lone Star Micro Inc., and Data Research Associates Inc. The Kurka Corporation, Boston, specializes in software products for the IBM Displaywriter.

Each distributor has been required to attend an intensive technical support training program and is prepared to assist dealers with all technically related questions, Magnuson added.

The distributors and dealers also are supported by DRI retail sales representatives Van Crandall (Northern California), Sally Sawyer (the Chicago area), Mike McCarthy (Boston), Dean Miller (New York), and Deanne Pierce (Dallas). The representatives provide on-site training and technical assistance to dealers. Dealers are encouraged to contact their local representatives at Digital Research field offices to schedule a visit.

# DR Graph turns data into charts and graphs

Digital Research's DR Graph, the company's first application program, is an interactive program for the creation of presentation-quality graphs and charts. The new graphics product will run on both 8-bit and 16-bit CP/M operating systems that include the GSX graphic extensions. According to Susan Miller, product line marketing manager for graphics, DR Graph is now available to IBM PC end user customers through dealers and hardware OEMs.

"Whether you're a novice or an expert computer user, the menu format of DR Graph makes it easy to create bar, line, scatter and stick graphs, as well as pie and text-only charts," Miller explained. "You don't need to use complex commands. Instead, you simply select options from the screen menus until your graph is just the way you want it."

A number of OEMs have already signed up for DR Graph, Miller said. Among the major OEMs offering DR Graph to their customers are DEC, Dynabyte, NCR, NEC, Toshiba, TeleVideo, Sperry Corporation, Visual Technology, RRR and CPT, with other contracts now in negotiation.

Data on which the graphs are based — sales figures, dates, amounts and so forth — can be entered from the keyboard or from a spreadsheet file. This data can then be presented graphically by choosing labels, titles, legends, colors, fonts, borders, highlighting and other graphic elements that customize each chart.

"Once the graph is created," Miller added, "you can see it on the screen, store it in a file, or use a printer or plotter to copy it to paper or to a transparency."

Basic features of DR Graph can be summarized as follows: it is menu driven, helps create many types of graphs, gives users control of design elements, allows multiple graphs on a page, accesses data from spreadsheet files, allows annotation, and lets you save, update and recall your graphs. "I think its best feature is that you pop your disk in and run it," said Miller.

**Susan Miller, a DRI product line manager, talks about DRI's first application program.**

## Personal BASIC environment
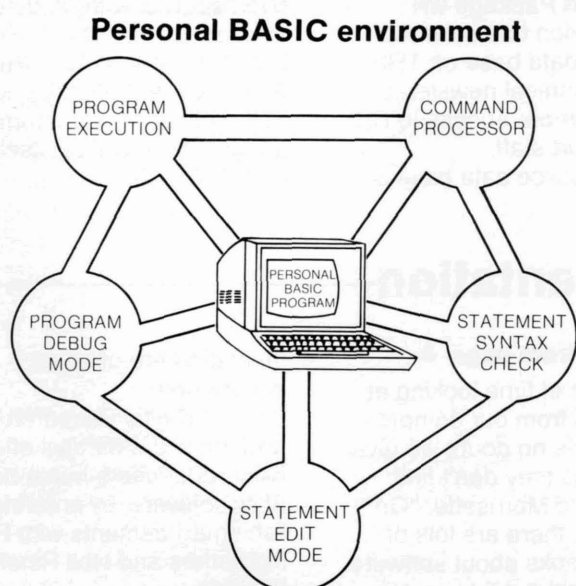
## New Personal BASIC™ interpreter designed to appeal to beginners

"This advanced BASIC interpreter is one of DRI's first products to be aimed directly at the beginner, student, hobbyist and home computer user," said Norm Alcott, BASIC product marketing manager. "We believe it is the finest BASIC interpreter on the market today, and is being offered at low retail cost and at substantial discount to volume OEM buyers."

The new interpreter, called Personal BASIC, provides a "friendly interactive environment that makes it ideal for the first-time computer user," Alcott added.

The new Personal BASIC interpreter supports Digital Research's family of 16-bit operating systems, including CP/M-86, Concurrent CP/M-86 and MP/M-86™. Personal BASIC features "compacted code" that is interpreted at run time; the interpreter also checks syntax when statements are entered and compacted, allowing for immediate feedback to speed development.

"Personal BASIC commands match the syntax of CP/M commands," Alcott said, "and it will run source code of popular BASIC interpreters with little or no modification, including MBASIC and IBM PC BASIC."

Advanced program development aids are featured in Personal BASIC, Alcott added, including an editor for creating and modifying source code; debugging aids such as statement number tracing, variable tracing and breakpoints with single step operations; and informative error messages and error trapping.

"We're also extremely proud of the documentation for Personal BASIC. We are setting standards with this professional documentation. It is aimed particularly at persons who are learning, but it also includes an A-to-Z reference manual for the knowledgeable user."

# Authors use compiler to write for CP/M, UNIX

With DRI's new C compiler, professional programmers have a tool for writing applications compatible with both CP/M and UNIX operating systems.

"Our Digital Research C™, written by Mike Lehman, author of Pascal MT+™, is a portable systems implementation and applications oriented language," said Ed Rifkin, product marketing manager. "It was designed for use with 8086 and 8088 based machines, and is compatible with Bell Labs' UNIX Version 7. Mike Lehman has given us a complete implementation of C, including single and double precision floating point with 8087 co-processor support."

### Advanced programming language

C is an advanced programming language designed for coding versatility and fast execution. It retains a minimum of constraints making it ideal for systems level programming and performance critical applications. C contains no machine or operating system dependencies, such as input/output facilities and all high level operations can be accomplished through standard function calls.

"To summarize," Rifkin said, "the C compiler features multiple memory model and chaining support, extensive compiler command line option switches, programming and debugging tools, a UNIX compatible library, single and double precision arithmetic, and compatibility with DRI programming tools and graphics."

### Targeted to professionals

Digital Research is targeting the C compiler toward the professional programmer market. "This is a complete development system for the professional software writer," Rifkin added. The C compiler has a number of features important to the professional programmer, including enchanced diagnostics and sophisticated debugging capabilities, according to Rifkin. The entire package contains the C compiler itself, a run time library, and a set of utilities including RASM-86™, LIB-86™ and LINK-86™.

The C compiler is fully documented, in DRI's new documentation format, and includes a Programming Guide as well as **The C Programming Guide** by Kernighan and Ritchie, the language's original authors.

According to Rifkin, the C compiler is presently available in five formats including 5 1/4" disk format for the IBM PC. "But due to updates in DRI's enhanced CP/M-86 — which are not available in IBM's proprietary version of CP/M-86 — C won't run under the IBM version. Since our CP/M-86 version for the IBM PC not only has advanced features, including the GSX™ graphic extensions, but also costs only $60, we think that isn't a serious limitation."

The price for the new C compiler, including documentation, is $600. For more information, write or call DRI Customer Service, P.O. Box 579, Pacific Grove, CA 93950; (408) 649-5500.

# DRI trade show schedule released

Digital Research continues to attend trade shows around the country and abroad, exhibiting and demonstrating latest company products and developments.

Currently on DRI's trade show calendar are the following events.

**ComputerLand—** Booth, Aug. 7-8, San Francisco, Calif.

**CP/M '83 East™—** Booths, Sept. 29-Oct. 1, Boston, Mass.

**Japan Data Show—** Oct. 18-21, Tokyo, Japan

**COMDEX/Fall—** Booth, Nov. 28-Dec. 2, Las Vegas, Nev.

CP/M '83 East, patterned after the successful CP/M '83 San Francisco show last January, will be presented by Digital Research at Hynes Auditorium in Boston, Sept. 29 through Oct. 1. Exhibitors from around the world are expected and a full conference program is scheduled. (See article and advertisement in this issue).

Representatives from companies interested in exhibiting at CP/M '83 East may contact Northeast Expositions at (617) 739-2000 or write 824 Boylston St., Chestnut Hill, MA 02167.

# Compiler supports graphics

"Application authors and application users will now have an easier time taking advantage of the power of graphics," said Norm Alcott, DRI's BASIC product marketing manager. "We are offering the first BASIC compilers with device independent graphics, something that's never been done before in the microcomputer world.

"Both the 8-bit CB80 and the 16-bit CB86 versions of our CBASIC Compiler™ will support powerful graphic extensions when using any CP/M operating system or IBM's PC DOS — with GSX-86™ for that matter."

GSX is a set of graphics extensions to DRI's operating system product family. The CBASIC Compiler graphics extensions are additional statements and functions, taken directly from GSX, recognized as reserved words by the compiler and implemented in the run time library when needed by the application program.

The graphic statements and functions added to the CBASIC Compilers fall into five functional groups: Output, Format, Viewing Area, Input and Control. These functions help programmers manage such tasks as print graphics, set character height, set viewing area boundaries, accept graphic input and perform many other tasks in addition.

"Together, these extensions provide powerful device-independent graphics. Program output can be directed to any graphics peripheral without recompiling the program," Alcott said.

# New information utility available by subscription

"All of our customers, end users, ISVs, our dealers, anyone who wants to know more about our products, our company and the world of microcomputing in general, now have an exciting new way to gain access to reliable, up-to-date information," said Marion Brown, DRI technical support center manager.



**Marion Brown talks about new information service.**

"We have signed an agreement with Source Telecomputing Corporation to establish a microcomputer information data base on THE SOURCE^sm," Brown explained. The new service, called Microcomputer Information on THE SOURCE, or Microsource for short, will be updated weekly and will include product descriptions, technical information about DRI products, marketing information, price and ordering information, microcomputer hardware information, "What's New" at DRI, a dealer list, ISV application information, user group lists, reference materials, recommended reading, quotes from the experts in microcomputing, upcoming trade shows or seminars, and other information about DRI, its products, and news about the world of microcomputing in general.

"The people at Source Telecomputing consider us to be the premier microcomputer software company and expect us to set the standard for the entire industry with

our data base," Brown said. THE SOURCE presently has some 35,000 subscribers and is expected to grow to 100,000 by the end of 1983.

In order to access DRI's Microsource data base, a person must purchase a subscription to THE SOURCE, which costs $100 at the retail level. DRI will also act as a distributor for Source Telecomputing Corporation, and will provide a

## THE SOURCE^sm
### AMERICA'S INFORMATION UTILITY

free subscription to THE SOURCE for software authors who purchase DRI's Independent Software Vendor Support Package for $250. The ISV Support Package will include, in addition to a subscription to the DRI data base on THE SOURCE, a technical newsletter and toll-free number access to DRI technical support staff.

"The Microsource data base is

key to our technical support plan," Brown stressed. "We plan to make Microsource the first place people look when they need information about microcomputers. Dealers especially will like the service because it helps them sell products and provide a higher level of technical support themselves."

Microcomputer Information on THE SOURCE is one of the technical support programs presently being put in place at DRI. Elements of the technical support program are being readied for OEMs as well. Further details on DRI's technical support program will be published in upcoming issues of Digital Research newsletters.

For further information on technical support programs, including Microsource, write to the Technical Support Center, Digital Research Inc., 160 Central Ave., Pacific Grove, CA 93950; telephone 408/646-6214. For information about THE SOURCE itself, call 800/336-3366.
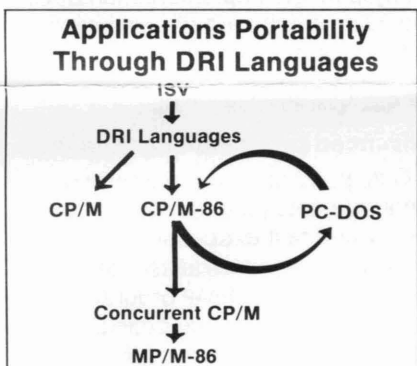
## languages

on OEM markets, and we expect to organize other market-focused divisions as well. We are already providing Concurrent CP/M and DR Logo for the IBM PC, and have made it easier to bridge from CP/M-86 to UNIX with our C compiler. So it's a natural step to support other operating systems, given our corporate history."

Governale agreed, saying that DRI has not just been an operating system company. "We are the leaders in the operating system world," he said, "but we also have the best set of languages, programming tools and graphic software products of anybody in the industry. We intend to define new markets and continue to deliver innovative, high performance, reliable products. That's where our future lies."

The DRI language products that

will run under PC DOS include the CBASIC Compiler (CB86)™, PL/I™, Pascal/MT+™, Digital Research C and Level II COBOL™, and two programming tools Access Manager™ and Display Manager™ as well as utilities such as RASM-86, LINK-86, LIB-86 and SID-86. These products are available this summer. Availability of other products from Digital Research will be announced soon.

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**Applications Portability Through DRI Languages**

ISV
↓
DRI Languages
↓
CP/M   CP/M-86   PC-DOS
↓
Concurrent CP/M
↓
MP/M-86

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## documentation

"I spend a lot of time looking at documentation from our competitors, and there is no doubt we give our users things they don't find elsewhere," said Morrisette. "On the other hand, there are lots of 'popularized' books about software out there — on our products as well as others' — that do a good job.

Overall, we're moving toward more usefulness in an easier-to-understand style. But it's a gradual process, and we'll always be concerned with doing a better job."

**A documentation philosophy**

"Digital Research's product isn't just software," Governale summed up. "It's also the documentation that describes the product and assists people in using it most effectively. Our philosophy is that both the software and the docu-

mentation are of equal importance."

Digital Research is also undertaking a parallel effort to help its product users make better use of its software, by entering into publishing agreements with Reston Publishers and Holt Rinehart and Winston.

The two publishers will begin publication of mass market trade books that will describe DRI products and help microcomputer users learn to use them. Scheduled now are volumes devoted to CP/M-86 Plus, Concurrent CP/M, and languages products.

Upcoming issues of **DRI News,** and other Digital Research newsletters, will continue the documentation story, with detailed looks at some new manuals, and an in-depth story on the artists, editors, proofreaders and typesetters in the publications group.

## IBM

single user computers to perform more than one task at a time. "With Concurrent CP/M, users no longer have to open and close programs or open files every time they need to do something different with their computer," Wandryk said.

Concurrent CP/M-86 is compatible with CP/M-86, providing users with full access to the power of 16-bit machines such as the PC XT. "An operating system that uses Concurrent CP/M will permit programs to be integrated with each other in addition to supporting communications," said Gordon E. Eubanks Jr., vice president of DRI's Commercial

Systems Division. "For example, an accounting system would accept order entries which would then be reflected in accounts receivable and in inventory records."

Both operating systems support partitioning of the hard disk as well as booting directly from the hard disk. Both operating systems also include GSX, the extension to CP/M that allows the use of graphics hardware devices.

Distribution of the new versions of Concurrent CP/M-86 and CP/M-86 will be handled by DRI's network of authorized CP/M Library distributors. Packaging is

identical to earlier versions for the IBM PC. "For Concurrent CP/M-86, we recently initiated a retail promotion with Software Distributors; it's called the Integrated Solution Pack™ program," Wandryk said. "We've bundled Concurrent CP/M with applications to help users save over a thousand dollars on the cost of purchasing the programs individually."

The bundled packages include a PC Accounting Pack™, PC CBASIC Pack™, and PC Pascal/MT+ Pack™. PC Executive Pack™, PC Administrative Pack™ and PC Productivity Pack™ will be introduced

in the near future, according to Wandryk.

"PC Packs with Concurrent CP/M make the IBM PC XT a very powerful productivity work station," he added.

Finally, Wandryk pointed out, "Although we've signed up a large number of OEMs for our Concurrent CP/M product, the XT versions are the first — but by no means the last — to support hard disk-based systems. More manufacturers will be including small Winchester disk drives as an integral part of their systems. We are ready to support such systems."

## Concurrent CP/M

"More and more hardware manufacturers are signing contracts with us for the use of Concurrent CP/M," said Marketing Manager Kevin Wandryk, "including such major OEMs as Fujitsu, Texas Instruments, Vector Graphics, DEC, NCR, Eagle Computers and many others. We are pleased with the strong response we've had to Concurrent CP/M. We're convinced it will be our most popular operating system." In addition, ISVs using Concurrent CP/M now have a good

opportunity to begin the development of integrated application programs. "Integrated applications are also a part of the future of software; actually, it's a future that's already arrived," Eubanks continued. "We are supplying technical notes to ISVs on how to best utilize Concurrent CP/M and we're planning a series of regional seminars for ISVs this summer."

Rob LaTulipe, ISV marketing coordinator, discussed the planned seminars. "Concurrent CP/M itself will take up a large part of each of

the upcoming seminars," he said, "with attention paid as well to the use of our language and graphic products in the Concurrent CP/M environment."

The ISV regional seminars will begin July 11 and 12 in Monterey, Calif., and continue July 25 and 26, concurrently in Boston and Chicago, and conclude with July 27 and 28 sessions in Dallas. Special attention will be given to helping ISVs use Concurrent CP/M to develop applications for hard-disk based systems.

"Our development of Concurrent CP/M is based on the technology we worked out in the development of MP/M™," Eubanks said. "We've got at least 10 man-years of development work invested in Concurrent CP/M. I see it as one of our strongest products, especially for the professional work station marketplace."

Digital Research's Concurrent CP/M fulfills two criteria for a successful product, said Eubanks: it is desired and needed in the marketplace, and it is available now.

# Agreements make DRI products more available

Recent contracts between Digital Research Inc. and several major Original Equipment Manufacturers (OEMs) will make CP/M based products readily available to an increased number of users. Results of the agreements are summarized below.

• • •

Hewlett-Packard Company's new Series 200 personal computer will be the first of its computers based on the 68000 microprocessor with CP/M-68K.

Introduced in January, CP/M-68K (a 16-bit version of CP/M) provides a bridge for transporting applications software between UNIX and CP/M systems. CP/M-68K will take full advantage of the Motorola 68000, which is a 16- and 32-bit high performance microprocessor used in all Series 200 computers.

CP/M-68K will be available through H-P's dealers and local sales offices. List price is $350 and includes a C compiler and run time library that are compatible with UNIX Version 7.

• • •

Digital Research Inc. standardization proposals for the 5¼" diskette format and portable graphics software are being supported by the Professional Microsystems Division of Fujitsu, Ltd.

Standardization promotes the universal interchange of microcomputer software, simplifies software distribution and use for software and hardware vendors, and reduces confusion for microcomputer users.

"We strongly believe that establishing a common software interchange method will benefit the entire industry," said Richard E. Kors, the division's vice president.

Fujitsu demonstrated the DRI format for the first time on its Micro 16s™ Personal Business Computer at COMDEX Spring '83.

• • •

Fujitsu, Ltd., now offers a wide range of DRI products for use on its microcomputers.

Fujitsu's new Micro 16s™ Personal Business Computers and the FM-11 business computer (sold only in Japan) will have access to the vast library of applications programs written for the CP/M operating system.

CP/M-86 is standard with the Micro 16s. DRI software available as options include CP/M Plus, Concurrent CP/M, MP/M II, MP/M 86, CP/NET® and graphics software GSX 80™, 86 and 68000.

• • •

New software sets for accounting and programming will offer IBM PC users a price discount and increased efficiency.

Software Distributors, Culver City, Calif., the largest distributor of CP/M software, will combine selected IBM PC and IBM PC XT application software with Digital Research Inc. Concurrent CP/M-86 operating system.

The benefit for users will be a powerful productivity work station. "A manager, for instance, can initiate a word processor, a spread sheet, a date book and a communications package simultaneously. Once initiated, each is instantly accessible on an interrupt-driven basis throughout the work day. There is no need to unload or reload programs and data files each time the manager requires access to another function," said Chris Daly, vice president of marketing for Software Distributors.

• • •

Digital Research Inc. programming languages in disk formats are available now for the Digital Equipment Corporation Rainbow 100 and Texas Instruments' Professional Computer.

DRI languages available through the CP/M Library are Pascal/MT+, PL/I, Level II COBOL, CBASIC and the CBASIC Compiler. Also included in the new formats are several utilities, such as the Speed Programming Package (SPP) for use with Pascal/MT+. All of these products execute under the CP/M-86 operating system and Concurrent.

• • •

An interactive, graphics-oriented system by VisiCorp is being supported by Digital Research Inc. as a standard operating environment for CP/M systems.

VisiCorp's VisiON displays applications in windows and uses a device called a mouse which makes it easy to learn and use.

"VisiON and VisiON applications represent the leading edge in productivity software for personal computers," said Terry Opendyk, VisiCorp's president. "Digital Research's support of VisiON will help bring these software tools to a broader spectrum of personal computer users."

**Digital Research President, John Rowley, oversees company's expansion as more DRI products are included with new computers by Hewlett-Packard, Fujitsu and other major companies.**

• • •

It is less than half the size and weight of other portable computers but Universal Data Incorporated's (UDI) new portable computer will be able to run thousands of CP/M application programs because it will use the CP/M operating system.

First introduced in May at the National Computer Conference, the UDI-500™ portable computer weighs 12 pounds, has dual disk drives, standard text editing spreadsheet, basic software packages and CP/M. It sells for less than $4,000.

Eight-bit microcomputers will continue to be widely used, especially in portable computers, according to John Rowley, Digital Research president. "Many companies have introduced 8-bit portable computers with CP/M because of the wealth of existing CP/M software applications," Rowley said.

## SUPPORT CENTER FORUM

**Q: When linking a large Pascal MT+86 program, I noticed that several symbols were loaded at the same address. At runtime, the program failed to run. It appears that earlier portions of the program had been over-written by later portions.**

**A:** The current implementation of Pascal MT+86 is based on the "compact memory model" structure. This means that you are limited to 64K each for your code segment, data segment, and stack segment. (The extra segment used for dynamic variable heap in Pascal/MT+, has been specially constructed to allow up to 1MB of addressable memory). At present, there is no recommended means to get around these limitations. Overlaying allows larger programs, but applications which cannot use overlaying would not constitute best use of the product. DRI is working on this, and is considering possible enhancements for a future release.

**Q: I have a program that worked fine in PL/I-80 and compiles fine in PL/I-86, but when I try to link it I get an error message: OBJECT ERROR (3).**

**A:** This error is caused by a problem in the PL/I-86 compiler when an attempt is made to initialize a fixed binary (7) variable by using the init option in a declaration (e.g., dcl x fixed bin (7) init (100 ). The problem can be eliminated by declaring the variable fixed bin (15), or by dropping the init option and initializing the variable with an assignment statement.

**Q: When I boot CP/M-86 v1.1 for the IBM PC on my machine, the 25th, or "status," line appears as an unreadable blur. How may I correct this?**

**A:** If your black and white CRT is interfaced through the IBM color-graphics card, it may not be able to properly display the color characters output by CP/M-86. A solution is to write a short program which changes the console mode by sending an "ESC a 2" sequence to the screen (see p. 311 in the CP/M-86 documentation). You may desire to have this program execute automatically on boot by use of SETUP.CMD. Request CP/M-86 v1.1 Ap. Note 01 by mail from DRI Technical Support for a listing of such a program.

## DRI schedules seminars

Seminars for people involved in the development of software applications, operating systems or graphics will be sponsored by Digital Research Inc.

Two day seminars in July will concentrate on marketing and technical issues for Independent Software Vendors. There will also be an evening program featuring an Original Equipment Manufacturer who will introduce a new 16-bit microcomputer.

July seminars for ISVs will cover Concurrent CP/M-86, the new Digital Research C Compiler for CP/M-86, and the new 16-bit version of the Access Manager and Display Manager programmer productivity tools. Concurrent CP/M-86 sessions will also feature recommendations on utilizing Version 2.0 in a hard-disk environment.

The first July ISV seminar will be presented in Monterey, Calif. at the Doubletree Inn on Monday, July 11 (Concurrent CP/M-86, Digital Research C and the evening OEM program with Fujitsu) and Tuesday, July 12 (Access Manager and Display Manager).

The Boston seminar will be held at the Logan Hilton Monday, July 25 (Concurrent, C and evening OEM program with Digital Equipment Corp.) and Tuesday, July 26 (Access and Display Managers),

The Arlington Park Hilton will be the site of the Chicago seminar

Monday, July 25 (Access Manager, Display Manager and evening OEM program with NCR) and Tuesday, July 26 (Concurrent, C).

The Dallas session convenes at the Marriott HOTEL DFW Wednesday, July 27 (Concurrent, C and the evening OEM program with Texas Instruments and Xerox) and Thursday, July 28 (Access Manager and Display Manager).

A five-day seminar July 18-22 at the Hilton Inn, Monterey will provide an opportunity for manufacturers to work on graphics hardware implementation. After an opening lecture/discussion, DRI engineers who specialize in graphics implementation will help the manufacturer's reps develop custom device drivers for their equipment.

September seminars also are scheduled in Monterey and Boston. An operating system seminar covering CP/M Plus, Concurrent CP/M-86, CP/M-68K, CP/NET and MP/M-86 will be offered in Monterey, Sept. 7-9.

Seminars and workshops will be presented in Boston as part of the Digital Research Inc. sponsored exposition and conference, CP/M '83 East.

DRI seminar registration and information is coordinated by Peggy Anderson, P.O. Box 579, Pacific Grove, CA 93950; (408)646-6012.

# National, international CP/M users groups listed

**ALASKA**
Dennis Harris
Juneau CP/M Users Group
361 Distin #107
Juneau, Alaska 99801

**CALIFORNIA**
North Orange Computer Club
P.O. Box 3616
Orange, CA 92665

SMUG (Sacramento Micro-
Computers Users Group
Dave Minton
P.O. Box 161513
Sacramento, CA 95816

CBASIC USERS GROUP
Joe Butler
3208 Magic Woods Circle
Sacramento, CA 95827
(916) 366-7840

"The Los Angeles Computer
Society"
Sy Lieberman
P.O. Box 6545
Burbank, CA 91510-6545

PICONET
P.O. Box 391566
Mountain View, CA 94039-1566

**COLORADO**
Denver Amateur Computer Society
Al Lundquist
P.O. Box 633
Broomfield, CO 80020-0633

**CONNECTICUT**
Connecticut CP/M Users Group
110 Day Hill Road
Windsor, CT 06095

**DISTRICT OF COLUMBIA**
Washington D.C. CP/M Users
Group
7315 Wisconsin Avenue
Bethesda, MD 20814
(301) 986-1234 (Public)

**FLORIDA**
Broward County CP/M Users Group
c/o Russell Black
4850 North State Road 7
Suite B
Fort Lauderdale, FL 33319

Orlando CP/M Users Group
c/o Will Norris
1719 Windwillow Road
Orlando, FL 32809
(305) 859-9213

CP/M Users Group
c/o Charlie Hoffman
4106 Barcelona Street
Tampa, FL 33629

**ILLINOIS**
Pascal/MT+ Users Group
(MT/PUG)
P.O. Box 192
Westmont, IL 60559
(312) 986-1550

**C.A.C.H.E.**
Chicago Area Computer Hobbyist
Exchange
Box "C" 176
323 S. Franklin #804
Chicago, IL 60606
ATTN: Chuck Weingart

**MASSACHUSETTS**
Boston Computer Society
Jonathan Rotenberg
Three Center Plaza
Boston, MA 02108

**MINNESOTA**
CP/MUG OF MINNESOTA
P.O. Box 737
Hopkins, MN 55343
c/o John Thomas
(612) 784-5205

**NEW JERSEY**
AGG-NJ (Amateur Computer
Group)
Sol Libes
1776 Raritan Road
Scotch Plains, NJ 07076

SIG/M (Special Interest Group)
P.O. Box 97
Iselin, NJ 08830

**NEW YORK**
CP/MUG (CP/M Users Group)
Marcia Coltun
1651 Third Avenue
New York, NY 10028

Digiac
175 Engineers Road
Smithtown, NY 11787

ROCHESTER CP/M USERS
GROUP
c/o James Sterlace
3 Parkland Drive
Fairport, NY 14450

**OHIO**
CP/M SIG
Cincinnati Computer Club
c/o Ric Allan
788 Converse Drive
Cincinnati, OH 45218

**OREGON**
CP/M Users Group Northwest
1346 N.E. 28th Street
Portland, OR 97232

**RHODE ISLAND**
Rhode Island Computer Hobbyists
Emilio Iannuccillo
P.O. Box 599
Bristol, RI 02809

**TEXAS**
CBASIC USERS GROUP
Caddy McCall
9200 Breeze Point Cove
Austin, TX 78759

**WASHINGTON**
Seattle Area CP/M Users Group
c/o Northwest Computer Society
P.O. Box 4193
Seattle, WA 98104

Boeing Employees Computer Club
P.O. Box 3999
MS 2A-59
Seattle, WA 98124

The Northwest Osborne Users Club
c/o Donald B. Slaughter
P.O. Box 85749
Seattle, WA 98105

**WISCONSIN**
CP/M Users
ATT: M. von Schneidermesser
Dept. of Ag Economics
427 Lorch Street, B3
University of Wisconsin
Madison, WI 53715

**INTERNATIONAL**
CP/Club c/o MSA
ATTN: Kobayashi or Nishijima
6th AY Bld 3-2-2
Kita 107 JAPAN

CP/M Users Group (UK)
Mr. David Powes-Lybbe
11 Sun Street
Finsbury Square
London, EC2M 2QD

CP/M Ireland
Gardner House
Ballsbridge
Dublin 4, IRELAND

Lloyd Ainey
OS-TOC
280 Simcoe Street, Ste. 1107
Toronto, Ontario
CANADA M5T 1Y5

# New managers join DRI from other computer firms

**Masahiro Morimoto,
Pacific Region Sales Director**

Establishing the marketing, sales and service organization for Digital Research Japan will be the responsibility of **Masahiro Morimoto**, Pacific region sales director.

Morimoto will develop and manage strategic planning throughout the region, including DRI Japan.

"We are making a substantial investment and commitment to Japan to enhance DRI's effective support to OEMs and distributor organizations. DRI Japan will not act as a subsidiary company of DRI U.S.; rather it will have a charter to operate on its own, including possible distribution of Japanese-made software products on a worldwide basis," Morimoto said.

Morimoto, educated both in Japan and the U.S., has worked in international marketing and sales for Diablo Systems, Xerox and Durango. He will be stationed in field headquarters in Palo Alto.

**Dana Firth,
Graphics Products Marketing
Manager**

Ensuring that Digital Research's graphics products reach the customers is the main concern of **Dana Firth**, Graphics products marketing manager.

"My group's responsibilities include the current set of announced products as well as a new product in development," said Firth. "Our major attention right now is getting graphics products shipped."

Firth has worked for Computer Sciences Corp., NASA, and most recently was a senior sales representative for DEC, where she sold mainframes, VAXs and almost everything in the DEC line.

She has a B.S. in mathematics from the University of Washington, an MSEE from Stanford University and is working on an MBA.
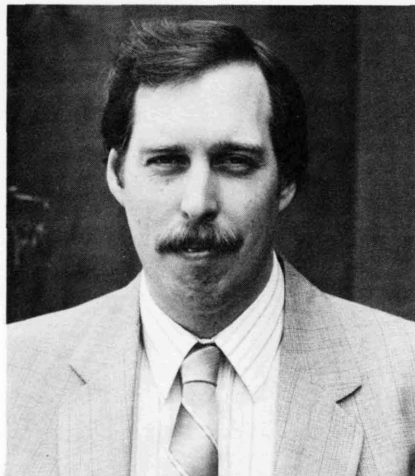
**Donald Heiskell,
Graphics Engineering Manager**

Enhancing DRI's graphics products, developing new ones and ensuring that numerous projects are done right and on time are all in a day's work for **Donald Heiskell**, Graphics engineering manager.

"We'll be working on enhancing GSX and the other graphics products, and I'll be heavily involved in new product development as well," Heiskell said.

Heiskell is an experienced graphics development manager who comes to DRI from TeleVideo. He has also worked as project leader at Olivetti and as a graphics engineer at Texas Instruments. He is a University of Missouri graduate with a B.S. in electrical engineering.

**Alan Hewer** is a new project manager in Operating Systems at DRI. His responsibility is to develop new versions of the operating system software products that will provide additional growth opportunities in the computer marketplace.

Hewer was originally brought to America from his native England to work as a senior software analyst for Boeing. "That was during the days of the 'brain drain,'" he recalled.

From Boeing, he moved to Hewlett-Packard in the San Francisco Bay area, where he became
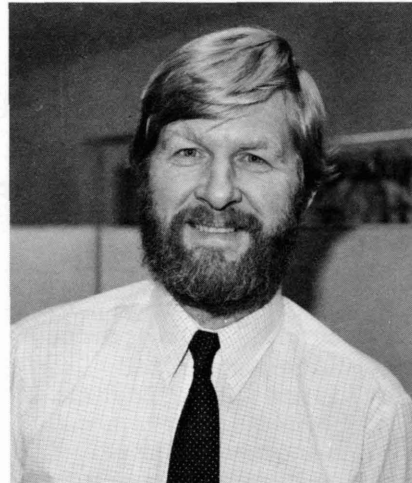
**Alan Hewer,
Operating Systems Project
Manager**

one of the principal designers of the HP-3000 computer system and MPE operating system. The past several years have been directed in H-P technical and managerial positions to evolve that product line into the current successful family of products that are available today.

Alan was educated at Christs College, Cambridge University, with a Master of Arts in Mathematics, minoring in atomic and nuclear physics.
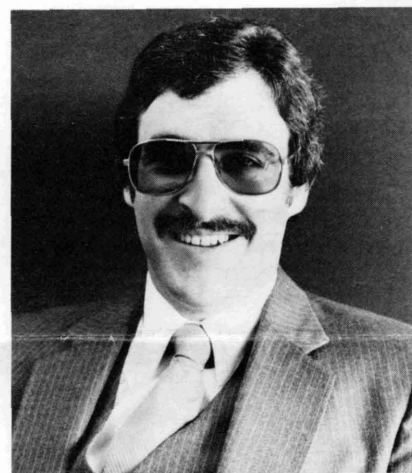
**Pete DiCorti,
Controller**

Accounting, financial analysis and planning, and data processing are the responsibility of Controller **Pete DiCorti**.

Pete has 10 years of experience in financial and accounting-related positions.

In addition to his other responsibilities, DiCorti also will work on a computerized information system to help management make business decisions on a real-time basis.

Most recently he was vice president of finance and administration at Bertolli, USA, Inc. Previously he was with Cooperheat, Inc., Measurex Corp., and Laventhal and Horwath.

DiCorti is a CPA and has a B.S. in accounting from Santa Clara University.
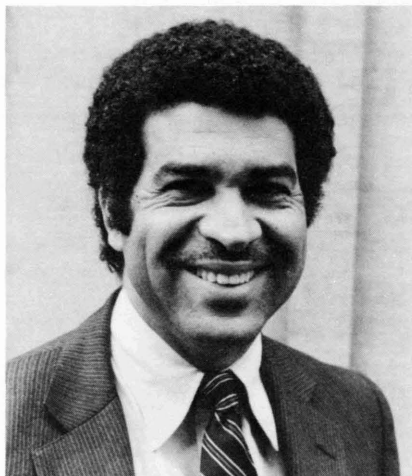
**Andrew Newton,
General Counsel**

DRI's rapid growth has resulted in the appointment of **Andrew Newton** as the company's first general counsel. His responsibilities are varied: contracts with other companies to use DRI's products, property leases, establishing corporations in other countries and much more.

"This position is interesting and challenging," Newton said. "I'm working with great people and this is an exciting niche in an industry in which I've been for the last 12 years."

As the top inside counsel at Amdahl Corporation, Newton served as general counsel to Amdahl's Telecommunications Division. His prior assignments have included Director, U.S. Operations Counsel at Amdahl, federal region, national office and western region counsel positions at Honeywell and general counsel to Burnett International Development Corporation.

He has an A.B. from Dartmouth College and a J.D. from Columbia University School of Law.
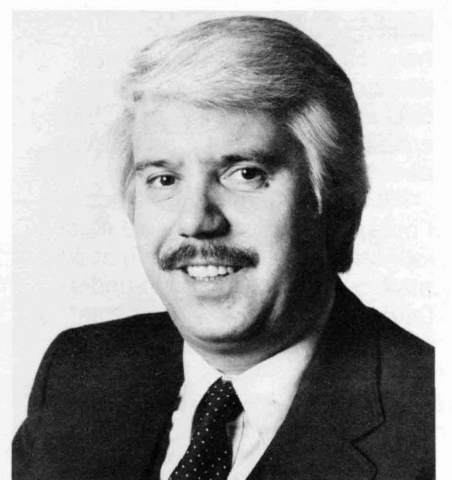
**Dieter Kadach,
Director of Central European
Operations**

Customers who have different needs and speak different languages are part of the challenge facing **Dieter Kadach** in his new position as director of Central European operations.

Stationed in DRI's new office in Munich, Kadach will be responsible for sales, market support, technical service and local language translations for customers in Germany, Austria, Switzerland and Holland.

For the past two years Kadach was director of Central European Operations for Zilog and prior to that he was responsible for German operations for Data Recording. He started his career in the computer industry with Varian Data Machines and worked at Honeywell for five years.

Work experience in engineering, marketing and sales will all be put to use by **Masaho Okabe**, the new president of Digital Research Japan, who will oversee the company's Japan operations and the Asian operations in the near future.

Okabe, who joined DRI from Mitsui and Co., one of the world's largest corporations, has extensive experience working with international and multinational corporations. As general manager for Information Electronics System Division, Okabe established and managed a Japan-U.S. joint venture company for developing and supporting software applications on large-scale computer systems sold to Third World countries.

"I am very pleased to learn that the top management of DRI has clear visibility into a long-term objective and a multinational image, which is a key to our business operations in Japan. Japan undoubtedly will become a major supplier in the microcomputer industry on a worldwide basis in the very near future," Okabe said.

# New directory lists software

If you're looking for software based on CP/M products for use on your 8- or 16-bit computer you'll find there are thousands of software packages available. To make it easy to find just what you're looking for, Digital Research Inc. is publishing the 1983 edition of the CP/M compatible software directory, called the "CP/M Software Finder."

Priced at $14.95, the third edition of this annual directory is being distributed by Que Corporation, a publisher and distributor of computer-related books. The "Finder" may be purchased directly from Que as well as from computer outlets and bookstores nationwide, such as B. Dalton and Stacey's. The 1982 edition is available now from all these sources.

Software packages listed in both editions of the directory are available from Independent Software Vendors who have designed applications that are compatible with CP/M operating systems. In addition to a comprehensive listing of nearly 2,000 software packages, the new directory also includes a number of articles to help users.

The soft-bound directory includes precise descriptions of all applications as well as the addresses and telephone numbers of all the listed companies. For easy reference, the software packages are indexed by both applications (such as manufacturing, word processing, etc.) and company names.

For information on quantity orders of either directory, contact Que Corporation at (317) 842-7162.

## A multinational company:
# New DRI offices open in Far East, Germany

Japan is still an ocean away from California but Digital Research is closer than ever to its customers in the Far East with the opening of Digital Research Japan.

The opening of the new Tokyo office enhaces DRI's position as a multinational company that provides sales and technical services to customers around the world. "Our goal is to complement the efforts of our international distributors," said DRI President John Rowley, "and to provide the strongest pre- and post-sales techical support to our international customers, regardless of their locations."

The Tokyo office will handle large volume sales and provide engineering and technical support to the company's Japanese OEMs, including Fujitsu, Sony, NEC, Sharp, Hitachi and others. Digital Research also will begin an educational services program and CP/M seminars for Japanese application developers.

"If we are to expand the success of our products in Japan, we must work closely with OEMs and application suppliers in order to understand their unique environments and to solve technical problems such as Kanji support," said Stephen Maysonave, DRI vice president of world sales and trade.

Responsible for strategic planning for the Far East is Masahiro Morimoto, director of Pacific operations who is stationed in Palo Alto. Before joining DRI, Morimoto held international sales positions with Durango, Xerox and Diablo Systems.

Reporting to Morimoto as president of Digital Research Japan is Masaho Okabe who was previously the deputy general man-

ager for Information Electronic Systems Division of Mitsui and Company.

A print advertising campaign will introduce DR Japan to the Far East business community and will present the company as the developer and supplier of standardized microcomputer software products.

On the other side of the world, a new sales and technical assistance office in Munich, Germany is now providing more convenient service to DRI customers in Austria, Switzerland and Holland as well as Germany.

"There has been a tremendous response from the German market as a result of Digital Research's activities in Europe," said Paul Bailey, director of European Operations. "There is a particular interest in the portability of our products and graphics. We are continuing our plans for Europeanization of our products. This includes translating our manuals and graphics features into other languages such as French and German."

Planned for release this month are the first German and French translations of CP/M Plus and CP/M-86 to be followed by Concurrent CP/M-86 and DR Graph.

Director of the new Munich office is Dieter Kadach, a former director of Zilog's Central European operations, who will manage a staff of sales and technical personnel, and is responsible for sales, market support, technical service and translations.

Munich was the site for the first DRI sponsored ISV seminar to be offered on the continent. Following the pattern of the April seminar in London, which drew more than 500 ISVs, the Munich meeting addressed issues facing develop-

**Digital Research's new Director of Central European Operations Deiter Kadach (right) meets with Director of European Operations Paul Bailey (left) and Director of Northern European Operations Frank Iveson.**

ers, producers, software vendors, hardware manufacturers and users of standard communication software. The sessions also provided a closer look at some of DRI's new products.

The second in a planned series of European seminars, the Munich seminar brought together internationally recognized software

authors from Great Britain, USA and Germany who presented papers on issues such as software portability between systems, machine independent graphics and data management and raising venture capital.

European headquarters are in Newbury, England. A Southern European office will open soon.

# CP/M '83 East will draw microcomputer industry leaders

Imagine meeting the people who are creating the latest innovations in the computer industry. Imagine seeing the newest products by more than 400 of the leading computer companies. This imaginary place will become a reality Sept. 29-Oct. 1 when CP/M '83 East opens in Boston's Hynes Auditorium.

A combination exposition and conference, CP/M '83 East will leave nothing to the imagination. The hands-on exhibits will provide practical introductions to new products. The conferences will bring together industry leaders in graphics, marketing, finance and more.

Sponsored by the originator of CP/M, Digital Research Inc., the show is expected to be an exciting

sequel to CP/M '83 San Francisco, which attracted more than 50,000 people and was the largest first year computer show ever held. CP/M '83 East will assemble one of the largest groups of CP/M based hardware and software ever assembled.

**Many exhibitors expected**

In addition to including many of the companies that participated in San Francisco, CP/M '83 East is expected to draw more than 100 other companies from the East Coast, the Midwest, Canada and the rest of the world. Among companies exhibiting will be DEC, NCR, Fujitsu, Chang Labs, Vector, Tandy, Xerox and MicroPro.

Visitors to the exposition also will be able to attend any of the series

of educational workshops, panel discussions, seminars and user group meetings.

The conference program will feature nearly 100 seminars, workshops and panel discussion. ISVs, distributors, dealers and manufacturers may attend industry workshops daily from 9 to 11 a.m. Topics will include "Venture Capital and the Microcomputer Industry," "Retail Marketing of Microcomputer Software" and "Trends in Microcomputer Graphics."

Open to all attendees from 2 to 4 p.m. daily are panel discussions of topics such as "Next Generation Software," "Educational Software" and "Microcomputer Industry Trends".

Gary Kildall, founder and chief executive officer of Digital

Research, will conduct "Introduction to Logo," one of a series of daily seminars scheduled between 11 a.m. and 6 p.m. Other seminars will include "Public Domain Software," "The Bridge From UNIX to CP/M," "Introduction to Accounting Applications" and "CP/M Cards."

For information on attending write Northeast Expositions, 822 Boylston St., Chestnut Hill, MA 02167 or call 800-841-7000 or 617-739-2000 (Boston).

DRI will also present a special series of seminars and workshops in conjunction with CP/M '83 East. To register or for more information, contact DRI Seminar Coordinator Peggy Anderson, P.O. Box 579, Pacific Grove, CA 93950; 408-646-6012.