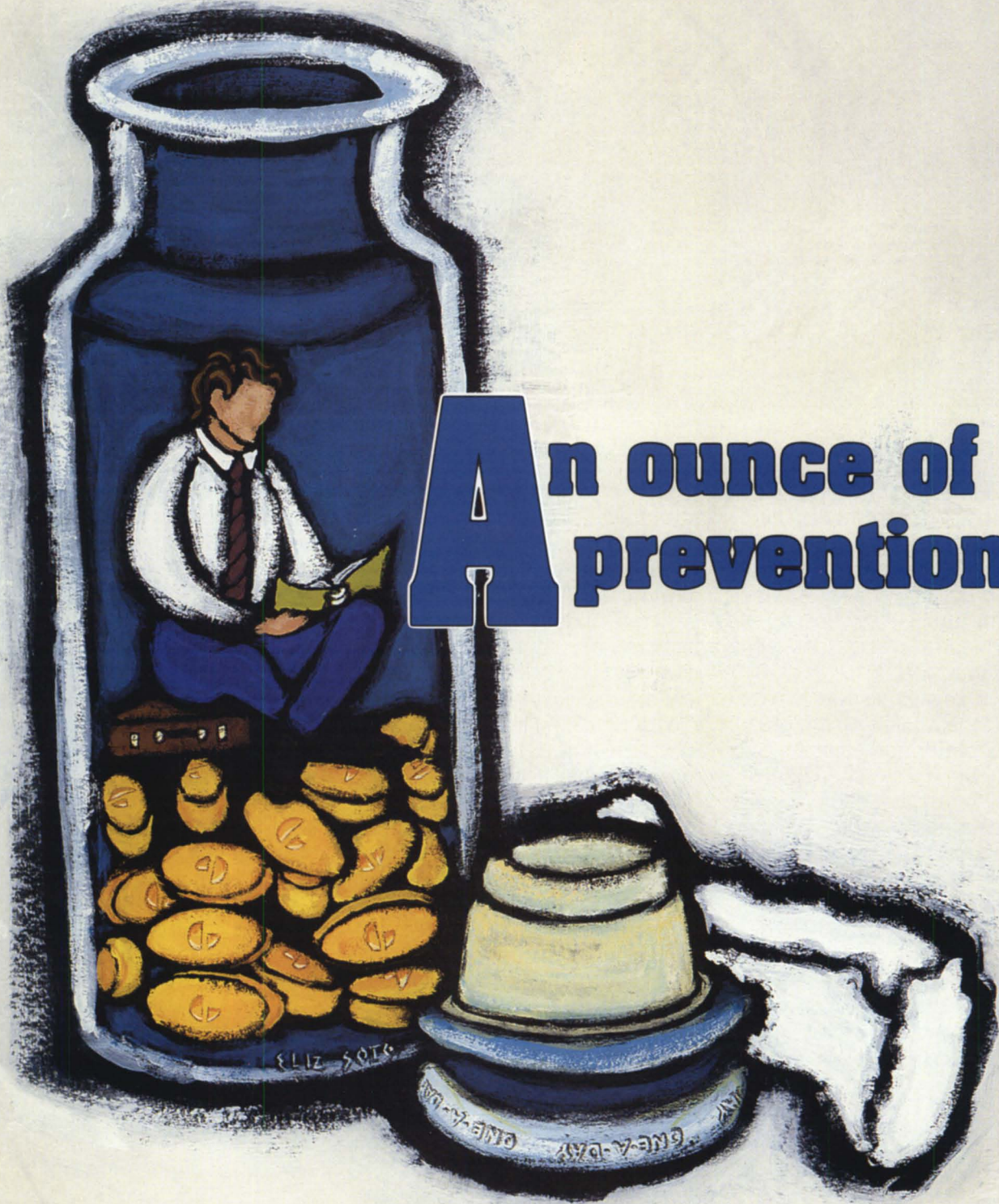


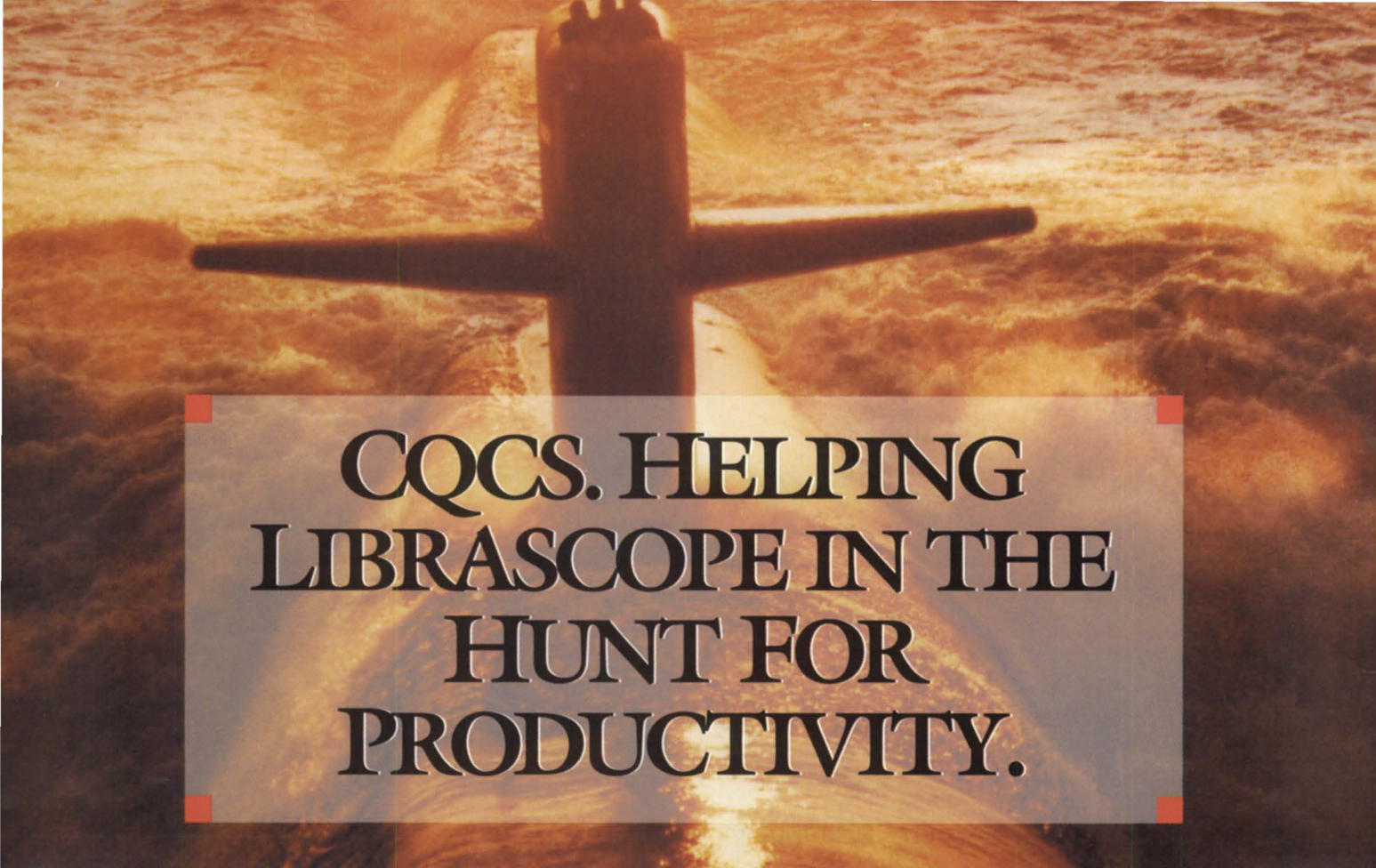
April 1991

FOCUS

The Magazine of the North American Data General Users Group



An ounce of prevention



CQCS. HELPING LIBRASCOPE IN THE HUNT FOR PRODUCTIVITY.

LIBRASCOPE, INC. designs weapons control display systems and workstations installed in attack class submarines for the U.S. and Royal Australian Navies.

See the movie, *"The Hunt for Red October,"* and you'll see Librascope devices in action.

When Librascope needed to upgrade their quality assurance systems, senior staff engineer Gary Rever began the search for a full-featured fourth generation language. His criteria? Fast rewrites of primary applications; machine efficiency; a seamless retrofit of older systems; and a powerful query structure.

And as a critical naval defense contractor, Librascope had to maintain responsiveness. "We needed something we could plug in and use right away," Gary recalls.

His choice: CQCS.

Gary's first project was a pivotal instrumentation testing application. "The original, written in C, took 8 months to write," Gary reports. "We rewrote it with CQCS in 4 weeks."

Bernie Abrams, Librascope's MIS manager of computer operations, put CQCS to work rewriting their entire financial processing system. "With CQCS, we expect to complete it in eighteen months," he says. "That's half the time it would have taken in COBOL."

In the area of report writing, the selection of CQCS paid off handsomely. "It's remarkably quick and easy to generate ad hoc reports," Bernie notes. "CQCS compiles very rapidly as compared with COBOL."

And learning the CQCS report writer was no problem at all, adds Gary Rever. "You can just sit down and use it right away."

As for machine efficiency, Gary describes CQCS as "excellent. There's no other word for it."

Librascope simply plugged CQCS into their existing hardware and software environment. So can you.

You can be writing even the most sophisticated applications 10 to 40 times faster than COBOL. And complete source code compatibility means your applications will run on DG MVs, AViiONs, DEC, PCs, PC networks, and various UNIX platforms.

In the U.S., call 1-800-451-1544 today. Let CQCS turn all of your data into useful information.

And bring you to new depths in your own hunt for productivity.

Cyberscience
C O R P O R A T I O N

Productivity with Performance

For the U.S., call 303-745-3900. For Australia, call 02-413-4666. For the U.K., call 0992-441111.
Photo: USS City of Corpus Christi, Courtesy of General Dynamics, Electric Boat Division and the US Navy. Our thanks to Librascope, Inc. for their assistance. Copyright 1991, Cyberscience Corporation, 10065 E. Harvard Avenue, Suite 800, Denver, Colorado 80231-5946. All rights reserved.
AViiON and MV are trademarks of the Data General Corporation. DEC is a trademark of Digital Equipment Corp.

Circle 11 on reader service card.

SEVEN SERIOUS REASONS
FOR MAKING BL ASSOCIATES YOUR HARDWARE SOURCE.

1. FREE SOFTWARE SUPPORT HOTLINE
617-878-9891

2. FREE HARDWARE SUPPORT HOTLINE
617-878-8101

3. HARDWARE ALTERNATIVES
(ZETACO, DATARAM,
MEGATAPE, SCIP, ...)

4. PRICING —
COMPETITIVE

5. DELIVERY —
MOST ITEMS ARE
IN STOCK

6. RELIABILITY —
ALL ITEMS TESTED
IN-HOUSE AND
FULLY WARRANTEED

7. FLEXIBILITY —
TRADE-INS, LEASING OPTIONS

7½. SIX NATIVE NEW ENGLAND
LOBSTERS SHIPPED WITH
EVERY ORDER OVER \$1,000.00

WHEN IT COMES TO DG AND COMPATIBLE HARDWARE, BL ASSOCIATES HAS A BETTER PLAN. WE BELIEVE OUR RESPONSIBILITY TO CUSTOMERS DOESN'T END WITH THE SALE, SO WE'VE INSTALLED FREE SOFTWARE AND HARDWARE SUPPORT HOT LINES. OUR PEOPLE ARE HERE TO ANSWER YOUR QUESTIONS CONCERNING DG HARDWARE, OPERATIONS SYSTEMS, APPLICATIONS, ETC. THE SUPPORT WE PROVIDE DOESN'T START WITH A DOLLAR SIGN. IT'S OUR RESPONSIBILITY, OUR COST OF DOING BUSINESS.

WHEN YOU'RE IN THE MARKET FOR DG OR COMPATIBLE HARDWARE GIVE BL ASSOCIATES A CALL. YOU'LL GET THE FULL PACKAGE, THE PEOPLE BEHIND IT, AND AN AFFORDABLE PRICE.



A S S O C I A T E S

D.G. HARDWARE AND ALTERNATIVES • WITH THE STRUCTURE TO SUPPORT THEM



145 WEBSTER STREET, SUITE A, HANOVER, MA 02339
TEL. (617) 982-9664 • FAX (617) 871-4456 • FLORIDA OFFICE 813-576-8100
PC COMPATIBLES • DG COMPATIBLE DIAGNOSTICS AVAILABLE



Circle 4 on reader service card.

EDITOR'S NOTE

Charting new territory
by Robin Perry

4

NADGUG NEWS

Joint task force seeks STR resolution
by Dennis Doyle

6

HUMOR

PM anytime

Preventive maintenance for your valuable computer is as easy as rolling off a log or, as they say, having a SPASM

18

BULLETIN BOARD

Bits and bytes from the bulletin board

20

SYSTEM MANAGER'S LOG

Balancing your checkpoint

BJ delves into the pesky problem of avoiding data loss in your Infos data bases. Here are some answers and suggestions about checkpointing using differential or standard modes

by Brian Johnson

24

CLI32

Time for a new programming language?

A macro illustrates that the new CLI32 is indeed a powerful language

by Al Hill

30

PC TO MV

Emulation and access with Popterm

Popterm is a useful tool for bringing PCs into a DG environment. Here are some insights into its installation and features

by Michael E. Marotta

33



SERVICE AND MAINTENANCE

Redefining systems engineering

The Data General Systems Engineering organization was expanded this year to include both customer support services and professional services available through the new Professional Services Group. This article examines Data General's rationale for realigning Systems Engineering and customer reactions to these changes

by Paula Jacobs

8

Preventive maintenance basics

A straightforward guide to what you should be doing to see that your equipment gets the equivalent of an automobile oil change now, and not an engine overhaul later

by Alan Rees

14

UNIX

The X-Factor

Using an Avioni workstation loaded with a C compiler, the author outlines a demonstration application and examines a number of powerful features available for graphical user interface (GUI) program development. Part 1 of 2

by Pete Szaban

35

SOFTWARE LIBRARY

A complete listing of the NADGUG software library

40

PRODUCTS AND SERVICES

The latest products for DG systems

42

ON-LINE HELP

Who to call for information about NADGUG and Focus

50

IN GENERAL

News and notes from the DG community

52

RIG/SIG GIGS

NADGUG and user group events

52

Cover illustration by Eliz. Soto.

FOCUS, the Magazine of the North American Data General Users Group (ISSN 0883-8194) is the official monthly publication of the North American Data General Users Group (NADGUG) in cooperation with Turnkey Publishing, Inc. NADGUG offices are located at Livingston Building, Suite 250, 3420 Executive Center Dr., Austin, TX 78731, phone 512/345-5316.

FOCUS, the Magazine of the North American Data General Users Group, is distributed to members of the North American Data General Users Group. Membership fees are \$60, of which \$48 is allocated to a subscription for FOCUS, the Magazine of the North American Data General Users Group. A one-year subscription (12 issues) to FOCUS, the Magazine of the North American Data General Users Group, costs \$48. For all memberships and subscriptions outside North America, add \$50 to defray costs of mailing. For information on NADGUG membership, call 1-800/877-4787. Address all other correspondence to FOCUS, the Magazine of the North American Data General Users Group, c/o Turnkey Publishing, Inc., Livingston Building, Suite 250, 3420 Executive Center Dr., Austin, TX 78731.

Application to mail at Second Class Postage Rates is Pending at Austin, Texas and additional mailing offices. POSTMASTER: Send address changes to: FOCUS, the Magazine of the North American Data General Users Group, Subscription Department, c/o Turnkey Publishing, Inc., Livingston Building, Suite 250, 3420 Executive Center Dr., Austin, TX 78731.

The cost of single copies is \$4. Requests to replace missing issues free of charge are

honored only up to six months after date of issue. Send request to FOCUS, the Magazine of the North American Data General Users Group, c/o Turnkey Publishing.

NADGUG is an independent association of computer users; it is not affiliated with Data General Corporation, nor does it represent the policies or opinions of Data General Corporation. The views expressed herein are the opinions of the authors, and do not necessarily represent the policies or opinions of NADGUG or of Turnkey Publishing, Inc.

Advertisements in FOCUS, the Magazine of the North American Data General Users Group do not constitute an endorsement of the advertised products by NADGUG or Turnkey Publishing, Inc.

Copyright © 1991 by the North American Data General Users Group. All rights reserved. Reproduction or transmission of contents in whole or in part is prohibited without written permission of the Publisher. The Publisher assumes no responsibility for the care and return of unsolicited materials. Return postage must accompany all material if it is to be returned. In no event shall receipt of unsolicited material subject this magazine to any claim for holding fees or similar charges. Volume 7, Issue 4.

NORTH AMERICAN
DATA GENERAL
USERS GROUP



To find the most powerful word processor for Data General, take this simple screen test.

Introducing WordPerfect® 5.0 for Data General AOS/VS.

Want to get into pictures? WordPerfect 5.0 makes it easy to combine graphic images with text in WordPerfect documents.

Center your graphic box between text columns and watch the text wrap around it. Move your graphic over to a corner. Make it big. Make it small. Put a shaded border around it. Write a caption under it in small italic print.

The *preview* feature shows you how your graphics will look before you print your document.

And it doesn't matter whether you're on graphic terminals or character terminals. WordPerfect 5.0 utilizes whatever character sets are available to represent graphics on nongraphics terminals.

Of course being a true star takes more than just looks. That's why WordPerfect 5.0 gives you more tools than ever to create stellar documents.

With WordPerfect 5.0, your AOS/VS system and your PCs can work together in supporting roles. You can write documents on your PC using WordPerfect 5.1 and then edit them on your AOS/VS system using WordPerfect 5.0.

With the *Fonts* feature, and the appropriate printer (WordPerfect supports over 600 of them), you can combine up to 250 fonts on a given page. You can also make your characters just about any size you want—from fine to extra large.

Kerning helps you reduce space between specific letter pairs, eliminating unnecessary white space.

Style definitions make it quick and easy to change formatting throughout a document.

WordPerfect 5.0 also lets you customize individual keyboards to make the function keys correspond to the keys used by other programs.

With WordPerfect 5.0, it's easier than ever to be a hit in the Data General AOS/VS world. Just call (801)222-4100 for a major feature presentation.

WordPerfect
CORPORATION

1555 North Technology Way, Orem, Utah 84057
Tel: (801) 222-4100 FAX: (801) 222-4177

WordPerfect is a registered trademark of WordPerfect Corporation. All other brand and product names are trademarks or registered trademarks of their respective companies. ©1991 WordPerfect Corporation.



Charting new territory

In the vernacular of the computer industry, Data General has a new look-and-feel.

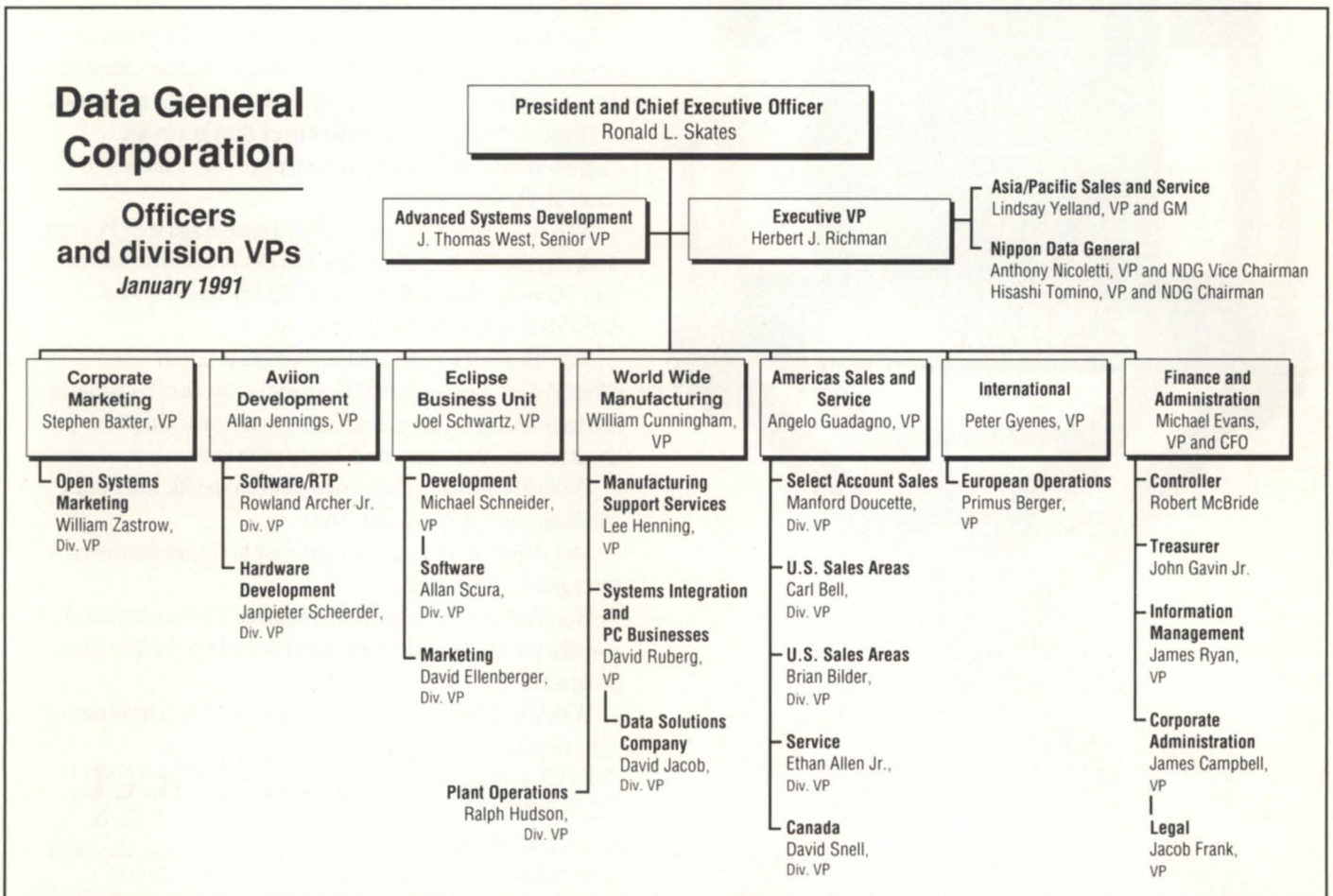
It has been over a year since a Data General organizational chart was made available to *Focus* magazine. During the dark days of 1990, when many people at all levels were asked to leave the company, by a number of different means, organizational information of this type was not available. Now we can see the reporting structure of the team that was formed to implement DG's dual product strategy of the 90s. With a profitable quarter under its belt, DG has stabilized to the point where its executives are no longer nervous about releasing an organizational chart. That's part of the new look-and-feel that I mentioned above.

Not apparent on the chart is the over-

haul of Data General's Systems Engineering Division. One of the most visible and painful cutbacks of 1990—from the users' perspective—was the layoff of a substantial number of systems engineers. Users had the perception that Data General's service division was cut beyond repair. We've devoted substantial space in this issue of *Focus* to explain how the new Systems Engineering Division works, and what are some of its services. In doing so, we are not endorsing the use of Data General service over any third-party service provider. The merits of using third-party service over DG service, and vice versa, have been debated *ad nauseam*. However, since the SE layoffs of last fall, there has been a great amount of concern about the continuity and quality of DG service. We are attempting to provide the latest in-

formation so that you may make informed decisions when choosing a service provider.

Here's one last comment on look-and-feel. Data General has an appalling number of outstanding Software Trouble Reports (STRs)—over 3,500, at last count. For the first time, Data General asked NADGUG to become directly involved in resolving an issue of critical importance to users. As you read this, a committee made up of NADGUG members and DG management is working together to prioritize the STRs, and to develop a system to quickly respond to and resolve STRs. Data General has always made good hardware. Now, it looks and feels like Data General is trying to become a provider of good customer service, too. I believe it must do both to survive in the 90s. Δ



INTEGRATING YOUR DG MINI

**Linking your mini to your PCs
isn't all that difficult.**

**And building a micro-mini LAN
may be simpler than you think.**

If you have a Data General minicomputer and a growing number of PCs, integration can make your life easier. But how far do you go? And how much do you spend?

Whether you're just getting started or have already installed a PC network, Rational Data Systems can help sort out the answers. We've been working on this problem since 1984 - long enough to become the acknowledged industry expert. We helped integrate Texaco, WordPerfect and a few hundred others.

There's a natural progression from isolated workstations to full-scale integration. As you grow, further integration helps keep your costs down.

Stage one: programs for around \$100

The first step is to stop buying terminals. A program like PopTerm/410 turns a PC into a terminal at a keystroke for as little as \$65 per desktop. It works over a direct connection, modem or LAN, and it's the most painless first step to integration. Other RDS offerings have more bells and whistles. They offer a simple upgrade path when your needs get more complex.

Stage two: file and print services

When your workload outgrows your mini, there's no reason to buy a larger one. You stave off the purchase by turning the one you have into a departmental processor, which manages the workload and offloads some processing to your PCs.

PC/Remote provides this next step. For an additional \$400 or so per workstation, the PC can now use MS-DOS programs to process the mini's data and the mini can back up whatever your PC does - all over inexpensive async connections.



Stage three: the integrated LAN

Again, you're feeling the squeeze. It's time for the LAN, and probably time to supplement your mini with a high-end 80386 or 80486-based Novell NetWare file server. Our PC/VS is the high-performance package that pulls it all together. If your mini has the capacity, PC/VS can do it all, but if you've already got a Novell LAN, it's that much easier. PC/VS and NetWare make terrific partners.

Stage four: distributed processing

A completely integrated PC workstation can thread its way happily through everything you've got, including a vast array of DG, DOS and UNIX software. Now it's time for truly distributed applications. For CEO users, PC/Mail is already here. And later this year, we'll deliver the AOS/VS version of Portable NetWare. Even Data General looks to RDS for integration solutions.

There's a bible on the subject.

We wrote it. It's called *Report on PC Integration*, and the 1991 edition is just out. Read its 116 pages, and you'll really understand the opportunities and priorities involved in getting the most

return from your DG mini. Most of the press

run is already spoken for, but there are a few copies left. Get right back to us, and we'll send you one.

The book can help. So can the people at Rational Data Systems, with software and with counsel. Like the software, the counsel is the best in the business.

Call us toll free, or invest in a stamp and send us the coupon. Either way, you'll be taking an easy first step on a profitable path.

1-800-743-3054



Send me the book free. It may be more than I ever wanted to know, but I'm ready to dig in.

Call me. I'd like to discuss our situation.

NAME _____

COMPANY _____

ADDRESS _____

CITY/STATE/ZIP _____

(_____) _____
PHONE



Rational Data Systems

1050 Northgate Drive, San Rafael CA 94903

Joint task force seeks STR resolution

by Dennis Doyle
Special to Focus

**NORTH AMERICAN
DATA GENERAL
USERS GROUP**

A joint task force meeting held December 21, 1990 in Atlanta, Georgia, began the process of resolving Data General's large backlog of Software Trouble Reports (STRs). The task force consisted of NADGUG and Data General representatives, and was a direct result of DG corporate's invitation to NADGUG to become an active advisor on critical DG issues. Perhaps this will be the first of a number of joint ventures that will help NADGUG and the user community shape current and future policy issues.

The Data General group was headed by Ron Edlin, director of Systems Engineering, and seven other senior DG managers from Atlanta, Westboro, and RTP. NADGUG was represented by Ed Lindberg, chair of AOS/VS special interest group; Vicki Jackson of the U.S. Forest Service, a major user of CEO; and myself.

The current number of STRs has gone past the 3,500 mark. Based on this knowledge, the task force identified two clear issues for resolution. The backlog must be cleaned up, and the process for handling STRs must be changed to provide timely problem resolution that will prevent the volume of STRs from growing to such a significant level again.

Eleven points were identified in a letter to Angelo Guadagno, vice president of North American Sales, on January 14, 1991. Seven of them dealt with the STR process, and four with the reduction of the back-

log. The cover letter accompanying the risk analysis items stressed the need for resources to be dedicated to both the backlog clean up, and to the implementation of a new STR handling policy. Some of the issues addressed were:

- automatic escalation of STRs
- adopting a new priority scheme for incoming STRs
- timely issuance of acknowledgement letters noting priority assignment of STR
- allowing multiple customers to be assigned to the same STR
- review of all existing STRs and informing customers which ones will be addressed and which will not
- an appeal process for STRs that will not be handled.

In a future *Focus* article, we will bring you up to date regarding the reaction, on an issue-by-issue basis, of Data General management and the correct departmental agencies assigned to quickly respond to this serious problem. In particular, NADGUG will work hard to help DG arrive at a fair, workable backlog resolution. Please let board members know how you would address this issue. Call or write us personally or at NADGUG offices. Please register your views. Δ

Dennis Doyle is the vice president of NADGUG. He may be reached at Dennis Doyle and Associates, 8355 S.W. Sexton Mtn. Ct., Beaverton, OR 97005; 503/641-8772.

FOCUS

The Magazine of the North American
Data General Users Group

NADGUG LEADERSHIP

President
Frank Perry

Vice President
Dennis Doyle

Treasurer/Conference Committee
Jan Grossman

Recording Secretary
Tim Boyer

Audit Committee
Calvin Durden

Membership Committee
Chris Thorpe

Planning Committee
Lee Jones

Publications Committee
Maggie Morris

RIG/SIG Committee
Bart Bates

Executive Director
Greg Farman, Ph.D.

FOCUS MAGAZINE

Editor

Robin Perry

Assistant Editor

Doug Johnson

Contributing Editors

Tim Boyer, Michael Dupras,
Brian Johnson, Doug Kaye,
Charlene Kirian, Jim Siegman

Contributors

Dennis Doyle, Al Hill, Paula Jacobs,
Michael E. Marotta, Alan Rees,
José Rivera, Pete Szaban

Account Executive
Michelle Sentenne

Art Director

Pat McMurray

Production Artist

Casey Hunter

Office Manager

Paula Minton

Executive Assistant

Jennifer Foye

Coordinator, Member Services

Greg D. Goss

Administrative Assistant

Karen J. Liszewski

Inquery Offers Fast, Flexible Reporting for INFOS and ICOBOL

Inquery, the report writer from DMS Systems, allows end users as well as programmers to query and report on INFOS and ICOBOL files.

Inquery includes a file description analyzer which automatically converts

COBOL or PL/1 FDs to Inquery data dictionary format.

It also includes default forms for an easy-to-use query-by-example interface that allows selection of records by exact or partial matches or with operators

such as greater-than or less-than-or-equal-to, on any number of fields. These queries can involve up to 128 separate files.

Inquery allows sorting on up to 32 fields, and subtotaling on up to 64 fields or combinations of fields. Percentages and running totals can be calculated against subtotals or grand totals. Reports can include filtering on subtotal calculations.

The report creation interface is WYSIWYG, making it easy to place fields exactly where desired and to modify reports created earlier. Reports may include fields from multiple files and calculations based on these fields.

Inquery is a subset of the DMS Systems database management software package GENISYS. It does not allow application development of files other than overdefined INFOS or ICOBOL files, but upgrades to full development licenses of GENISYS are reasonably priced.

Growing Firm Uses GENISYS To Accommodate Expansion

Like many successful small companies, Productive Sales Promotions found themselves outgrowing their custom-written COBOL applications.

The original COBOL program worked, says Darlene Ovesney of PSP, but "we needed to adapt it to each new project. That constant tinkering made the COBOL program awkward and slow, and the more changes we made, the harder each change became."

PSP replaced their old COBOL programs with GENISYS, a database package easy enough for their staff to use without hiring programmers, yet sophisticated and flexible enough to accommodate their rapidly changing needs.

Ovesney took three days of GENISYS training. She produced her first application in two weeks, and completed 26 more in the next six months. The implementation flexibility of GENISYS allows her to work on two or three applications at once, getting the critical parts of each one done as needed.

GENISYS

OFFICE INFORMATION SYSTEM

**Our customers built these applications in days,
not months!**

Sales Tracking	Mailing Lists
Real Estate Transactions	Litigation Support
Political Contributions	Project Management
Survey of Felon Sentencing	Telemarketing
Customer Calls	Bacteriology Register
Inventory Management	Asset Management
Legislative Tracking	Employee Census
Maintenance Schedules	Field Service Dispatching
Library Catalogue	Document Tracking

These are a few of the applications created by marketing specialists, accountants, paralegals, clerical staff, personnel officers, research assistants, office managers and other non-technical computer users. With GENISYS you can develop comprehensive, customized solutions — stand-alone or integrated with WordPerfect Office or CEO. And you can have GENISYS for as little as \$4,900 on any CPU!

Try GENISYS Today!
1-800-284-8333

Available from: Mini COMPUTER SYSTEMS PTY LTD (Australia) 03 528 2711;
Total Data Solutions Ltd. (England) 095 222 2277; ADB Gruppen (Sweden) 040 38 08 00

DMS Systems, Inc.

ADVANCED SOFTWARE SOLUTIONS

1111 Brickyard Road, Salt Lake City, Utah 84106
(801) 484-3333 FAX (801) 484-3367

Redefining systems engineering

by Paula Jacobs • Special to Focus

"As we began to redefine systems engineering strategies for the 1990s, we realized the need to address a different set of challenges than those of the past decade," explains Ron Edlin, director, Systems Engineering, Data General Corporation. "Just as the company formed Aviion and Eclipse business units to focus the business, we felt it necessary to realign Systems Engineering in order to offer our customers both a more efficient organization and more specialized services."

Systems Engineering continues to provide customers with both pre- and post-sales technical support. The total organization has been expanded, however, while delivery methods have become more focused. The intent is to provide more contemporary delivery of services.

The Systems Engineering organization in place today has two major components: an area systems engineering group and the Professional Services Group. The area systems engineering group comprises five geographical territories within the United States. Each territory is dedicated to supporting new business and certain existing accounts. Data General has also focused the number of area systems engineers and select account systems engineers responsible for certain large accounts.

To focus the delivery of value-added services, there is a new Professional Services Group (PSG) available to customers throughout the United States. Four groups make up the PSG: solution services, consulting services, technical services, and performance services (SEPAC). Headquarters are in Irvine, California, and Atlanta, Georgia, with locations in Dallas, Chicago, Washington, D.C., and Saddlebrook, New Jersey.

For additional customer requirements, systems engineers may also refer customers to other Data General organizations: educational services for training, to the Data Solutions Company for true systems integration projects, and to the Customer Support Center for defect-related support.

According to Edlin, "This new organization lets us manage our business more efficiently. [It] has significantly reduced layers of management, is closer to resource requirements, and gives us improved access to Eclipse and Aviion development staffs. The net effect is that we can now respond more quickly than ever before to a wide variety of customer needs, including requirements that we couldn't even consider in the past."

Focus on efficiency

Systems engineers are now organized by technical specialty. While generalists serve as primary product consultants, they refer more complex issues to the appropriate technical specialists, i.e., Unix, communications, data bases, etc. Because Data General offers a broad range of products, this policy ensures that technical specialists have in-depth training in a particular area. And as communications and other technical configurations become more sophisticated, customers require the expertise of network specialists, rather than system generalists. Therefore, customers have access to the most appropriate technical resource, regardless of geographical limitations.

For the USDA Forest Service in Missoula, Montana, Data General's specialized DAA/communications capabilities provided the assistance required to install and run its Aviion systems. "We have a complex system that includes a client/server, workstations, and several X Terminals," says Jim Reid, director of management systems for the Forest Service's Northern Region. "Communications and interoperability with our MV family system was a technical challenge. However, Data General provided us excellent Systems Engineering support from the West Coast, and helped us get our equipment up and running. Our systems engineer is quite knowledgeable, with an in-depth understanding of communications and distributed systems. He continues to be quite responsive to our questions."

Another way the new organization of

SYNOPSIS

The Data General Systems Engineering organization was expanded this year to include both customer support services and professional services available through the new Professional Services Group. This article examines Data General's rationale for realigning Systems Engineering and customer reactions to these changes.

fers greater efficiency is by differentiating actual service from the on-site availability of resources. Previously, Data General made systems engineers available on-site at customer locations in case of problems. Customers calling for consulting assistance often found that 75-80 percent of the systems engineers were unavailable because they had been deployed already. Today, Data General has made a clear distinction between defect-related issues and longer-term consulting and related support. Like other service providers, Data General may choose in some cases to sub-contract for a particular requirement.

NADGUG support

The NADGUG Executive Board was concerned initially with the future levels of support and availability of Systems Engineering resources, according to Dennis Doyle, NADGUG vice president. A substantial number of Data General computer users had become quite comfortable with the technical support available at the local level. No matter how trivial or complex the problem, they were able to rely on their local system engineer.

Today, however, Doyle is positive about the mechanisms in place for customer service and support. "When we expressed our concerns at Conference '90 in October, Ron Edlin met with the NADGUG Executive Board," he explains. "He was extremely straightforward and explained both the business and customer support reasons for the changes. In response to NADGUG concerns about the STR process, Ron also set up a series of meetings with representatives of NADGUG, the Customer Support Center, and Data General Development Groups in Westboro and RTP (see related article page 6). NADGUG is pleased that the process is open and that Data General values our suggestions. As representatives of the DG user community, NADGUG is committed to continue to work with Data General."

Doyle emphasizes, however, that for the system to be efficient, users must know how to use Data General resources appropriately. Customers needing defect-related support, for example, should call Data General's Customer Support Center (CSC) in Atlanta at 1/800-DGHELPS. The CSC provides Support Plus service for software and "how-to assistance." As Doyle explains, "Data General has a number of mechanisms, including phone support, in

place. Just because support is not coming from the local level, customers need not assume that it doesn't exist."

Customer perspectives

Interviews with Data General customers indicate that Systems Engineering continues to maintain high-level customer support. While some customers had initial reservations about the new setup,

support mechanisms are working efficiently. In addition, the integration of the professional services group with Systems Engineering has helped to streamline service delivery.

System manager Vicki Gardner of the New York Power Authority's J.A. Fitzpatrick Nuclear Plant was skeptical at first about the new structure. She had been accustomed to support from her lo-

The most popular DG Color Graphics Terminal Emulator for IBM Micros now includes
NETWORK SUPPORT!

EMU/470's newest release, Version 3.1,



Files; Foreign Keyboards and Character

provides significant capabilities and enhancements, to include: Network support, complete emulation for all DG terminals; support for all graphic adaptors, including compressed mode to 135 columns on VGA, EGA, MCGA, CGA, and Hercules cards; both text and binary file transfers plus XMODEM, YMODEM, and Kermit protocols.

Support including Code Page 850; Graphics on IBM Proprinters and HP Laserjets; 70+ Macro Keys, Auto Dial & Logoff; Unlimited Configuration Files; and complete Mouse Compatibility.

Rhintek offers a comprehensive line of products spanning the entire Dasher Terminal Line, priced from \$95 to \$249. We offer volume discounts and unlimited free technical support.

Plus numerous Bonus Features:
Built-in System Diagnostics;
Command Language and Script



Rhintek, Inc.
DG Terminal Emulators since 1983.

P.O. Box 220 Columbia, Maryland 21045
VISA and MC Accepted 301-730-2575

Circle 38 on reader service card.

cal systems engineer and needed to resolve issues regarding SNA and a new Eclipse MV/30000 installation. However, she was able to work through the Customer Support Center and Technical Services within PSG for resolution.

"At the time the new organization was formed," she recalls, "we were in the process of installing an SNA connection, and were having difficulty getting our print-

ers to work correctly. When we spoke with the Technical Services manager in Atlanta, he sent a systems engineer from Albany to help us on-site. As it turned out, we had encountered a rather intricate problem, which required a thorough understanding of SNA and 3270. In just a day, Systems Engineering resolved our problem and got our system up and running correctly. Soon afterward, when we

did a data center relocation and upgraded to an MV/30000 from an MV/20000 and MV/10000, the same systems engineer was able to help us accomplish this all in a two-day weekend. The Customer Support Center also helped answer some questions about the installation of AOS/VS II Revision 2.02."

Dave Coffman, director of data processing for Consultant and Administrative, Inc., of Columbus, Ohio, also expressed concerns about support when he heard about the new organization six months ago. At the time, he had just decided to upgrade to an Eclipse MV/40000 Model 2, after Performance Services had conducted a SEPAC analysis indicating that the company's MV/20000 Model 1 was out of CPU, memory, and disk space. Systems Engineering responded by sending a systems engineer on-site to help plan out the installation and implementation so Coffman could move over to the MV/40000.

Systems Engineering also allayed Coffman's concerns about upgrading from AOS/VS to AOS/VSII. "Due to the efforts of Systems Engineering and Field Engineering," he says, "the conversion was flawless and we were amazed by the fast response time and performance, which is critical to our business as a third-party medical claims processor. The system runs exactly as well as it is supposed to. Our next step is to run another SEPAC analysis to determine the machine's capacity and see how we have grown."

Solutions Services' capabilities in providing software application design and development addressed the needs of Finnegan Corporation, a California-based laboratory instrument manufacturer with a large installed base of Data General Desktops. Solutions Services ported Finnegan's entire suite of application software—including custom software—to MV/1000s.

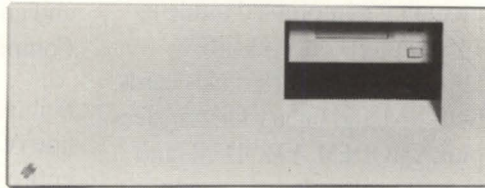
According to Ray Christopher, information management specialist at Finnegan, "My satisfaction level with Solutions Services has been extremely high, in terms of the caliber of the work, the planning, and assessment. This was an extremely difficult project, as we asked Data General to work on our proprietary operating system which we designed 20 years ago. However, the Data General development team was able to learn very quickly, rewrote about one-third of our

Data Plus delivers RESULTS!

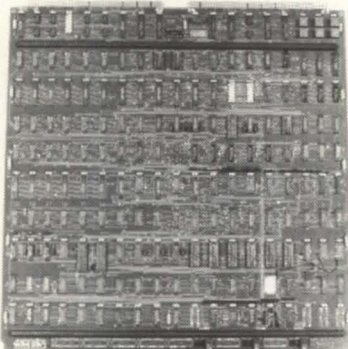
**5600/AS
8mm DTS SUBSYSTEM**



**5300 SERIES
4mm DAT SUBSYSTEM**



**2031 TRIPLE
PRINTER CONTROLLER**



DataPlus

nobody does it better

2750 Oregon Court M3 • Torrance, CA 90503

(213) 618-2090 FAX (213) 618-8714

Circle 17 on reader service card.

operating system, and produced very high quality work."

The close working relationship between PSG's Solutions Services and Consulting Services has enabled Edwards Air Force Base to take advantage of a complementary set of talents. Both groups have been working on the second phase of the Test Instrumentation Management System

(TIMS), a software package Data General designed to process and interpret the results of various flight tests performed on aircraft at Edwards. Consulting Services has provided operation support in systems software and hardware, including applications training, hardware configuration, testing, and evaluation. Solutions Services has been performing the software design, coding, and analysis on this state-of-the-

art aircraft test system.

"The entire DG team has been outstanding, both in terms of their consistently excellent work and the way they work together," says Reggie Cyrus, Edwards AFB systems analyst.

"They have always gone the extra mile to make sure that the program works successfully. While we have been working with Data General for a number of years,

Guide to Systems Engineering services

Area and select accounts systems engineering: Sales support for geographical and selected accounts.

Professional Services Group:

Solutions services: Business solutions with expertise in the latest technology for AOS/VS, Unix, and client/server applications. Typical offerings range from custom device drivers to application design and development.

Consulting services: Post-sale technical support including implementations and product/technology application assistance.

Technical services: Pre-sales technical services for Aviiion, MV family, and DAA/communications, including product disclosures, product consulting expertise, configuration validation, minor benchmark and tuning, and demonstration laboratories.

Performance services (SEPAC): Capacity measurements and capacity recommendations to help customers get the most out of system performance.

For information on these services, contact your local Data General Sales office. The Professional Services Group can be reached at 404/448-6072 (Norcross) or 714/250-6040 (Irvine). △

FROM THE COMPANY THAT WROTE THE BOOK ON MANUFACTURING SOFTWARE

The JAI Software Library™

Designed by manufacturing people and written in manufacturing words—the JAI Software Library is in a class by itself.

Built on a modular basis, the Library allows you to mix and match as you choose to get a fully integrated system that's just right for you. And for people who want to customize, there's plenty of room for that too.

You can expect immediate results like improved customer delivery, lower investment, greater visibility of operations, and improved financial controls. All conveniently provided by a company with over 18 years of hands-on experience.

To learn more about our vast selection of Library programs, give us a call today.

JAI: Our Experience Speaks Volumes



JACOBSEN & ASSOCIATES, INC.

10229 Lower Azusa Road, Temple City, California 91780
(818) 575-7504 • (818) 283-5347 • FAX (818) 575-7550

Circle 30 on reader service card.

the availability of Data General services was important as we did not have the internal resources to support all the many operational aspects of TIMS."

Future service commitments

DG's Edlin plans to continue working with the NADGUG Executive Board on customer support issues. He says also that he hopes Data General customers will

continue the positive dialogue at both the local and national levels. "I strongly believe that Data General offers our customers the right suite of products, services, and support," he stresses. "We also recognize that many of our customers have very specific requirements, which the Professional Services Group can address. However, in order to meet these needs, it is imperative that Data General customers

communicate with us openly and on an ongoing basis."

How to use the Customer Support Center

by Paula Jacobs • Special to Focus

The Customer Support Center (CSC), a 24-hour service from Data General, provides customer assistance for defect-related hardware and software issues. A toll-free telephone number—1/800-DGHELPS—gives end-users and VARs (value-added resellers) access to CSC services. The CSC offers a choice of service plans, including contract and per incident.

To determine how the CSC operates from a customer perspective, *Focus* magazine interviewed Pat Jones, Customer Service Manager of Source Data, a DG VAR for 14 years. Based in Charlotte, North Carolina, Source Data provides solutions for banks throughout the United States. Source Data has its own VAR help desk that works with DG's Customer Support Center.

FOCUS: Please describe your support organization.

SD: As a VAR, we provide solutions for the recovery departments of small to large banks throughout the United States. Naturally, timely service and support are critical to our customers. We have our own in-house help desk which our customers call for resolution of hardware issues and software application problems.

FOCUS: How does DG's Customer Support Center come into this picture?

SD: Ninety-eight percent of the time, Source Data's help desk can answer our customer's questions and address their specific problems. However, there are situations which require resolution from Data General, such as issues relating to the structure of the operating system. That's when we call the CSC.

FOCUS: Can you be more specific in terms of how you use the CSC, since you have your own help desk to support your customers?

**FLYING POINT
SOFTWARE**
33 Flying Point Road
Southampton, NY 11968



"Top Ten Utility"
Randy Berndt, DG Review

Work faster, smarter, cheaper with @Con/PC instead of a terminal. @Con/PC offers all the features of D210-D411 terminals, plus flexibility that no real terminal could ever hope to match:

- Access DG host via gateway from PCs on Novell®, 3Com®, IBM® Token Ring, LANtastic™ and other NetBios networks
- Fast error-free file transfer with included host software
- Access DOS without terminating on-line session
- Display 132-columns on many EGA and VGA monitors
- Macro language automates processing
- On-screen underlining on EGA and VGA monitors
- Multiple on-line sessions under DESQview™
- Memory resident mode
- OS/2® Presentation Manager-compatible version now available

**@Con/PC terminal emulation
everything you wish you could do with a terminal**

Limited Time Offer

Upgrade from your old DG terminal emulator to **@Con/PC Plus for \$99** (normally \$149)
(Call for details) **516•283•4994**

Circle 26 on reader service card.

SD: Probably the best way is to give you an example of when we worked with the CSC for problem resolution. Recently, we installed an MV/9500 upgrade with a new memory board at one of our customer sites. Within 24 hours, the system began to generate some strange messages. We immediately got the users off the system and ran audits. We knew that our data was safe because we had tape backups. Although we knew we could recover, we needed to solve the problem immediately because our Infos data base was being updated incorrectly. Therefore, we immediately escalated our call to the Infos product specialist "heavyweight" at the CSC and explained the symptoms to him. He was able to pinpoint that we had a bad memory chip. The CSC flew a field engineer to our customer site. He came and replaced the memory board.

FOCUS: What is the actual process you use to call the CSC?

SD: It's really quite simple, but here are some basic steps that you must take to get the service you need.

First, you must give your contract number to DG's customer service representative who answers the telephone. In our case, we have two contract numbers (hardware and software) since we have both hardware and software maintenance agreements with DG.

Second, you must identify yourself with your customer name and number.

Third, identify the product you are calling about.

Generally, because of our unique support organization, I can tell the CSC when the problem needs to be escalated to the appropriate expert at CSC. All this takes place over the phone.

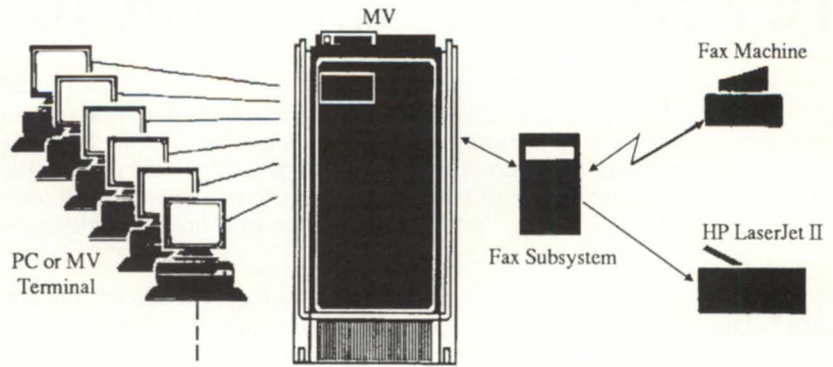
FOCUS: What advice do you have for DG customers who use the CSC?

SD: I would like to emphasize that you work closely with the CSC to obtain closure. Also, if you are not satisfied with the response, ask the CSC to escalate the call. In fact, DG encourages this. In sum, just follow the steps until you get closure. Δ

Paula Jacobs is a marketing consultant based in Framingham, Massachusetts.

DG FAX Server!

CAI's RUSH



Let your Data General MV system serve the FAX needs of your entire computing community. With CAI's RUSH, a single Fax subsystem can send and receive faxes for all your terminal and PC users, includ-

ing access control, scheduled calling and chargeback auditing. WordPerfect and CEO integration, ASCII text support. Tremendous cost savings with Fax management.

Call today to learn more!



Concept Automation, Inc. 1319 Moran Road Sterling, VA 22170
703/450-6000 703/430-6185 (fax)

Circle 10 on reader service card.

SYSGEN DATA Ltd. MARKETING

DataGeneral COMPUTERS & PERIPHERALS WORLDWIDE

MV 20000 CPU	\$48,500	IAC 8-2	\$950
MV 15000 Floating Pt.	2,850	TCB-8 and 16	200
MV 2000 4MB, Flyp	2,500	MCP 1 w/TCB	1,200
MV 20000 Model 2 Upgrade	14,750	DG 6590 2GB Tape	8,500
MV 15000 MOD 8	16,000	DG 70MB Drive (2000 Format)	700
MV 4000 2MB	750	DG 160 MB Disk	1,500
MV 4000 CPU 0 MB	500	4327 B300	1,200
6239 S/S 592MB	5,500	4364 B600	1,950
4307H Tape Drive	3,500	BP 2000.....6,500 6026	500
6299 Tape Drive S/S	6,500	32 MV Memory (MV 20000 Style)	17,000
6300 Tape Drive S/S	6,500	6236 S/S....1,250 D210	150
WIOC (MV 10000)	1,500	D460.....235 D410	195
LAN BOARD (15000 Style)	2,750	D411.....250 D211	175
LAN BOARD (2000 Style)	750	D214.....175 D215	225
MV 4 & 10 Memory 2MB	450	D216 New....365 D400	75
MV 4 & 10 Memory 4MB	1,500	MV 15000 MOD 8	Call
MV 4 & 10 Memory 8MB	3,150	DG 16MB Mem..6,500 Dataram 16MB Mem.3,500	
IAC 16 (RS 232)	1,850	8MB Memory MV 20000 Style	3,250
IAC 16 (RS 422)	1,200	DG 6321 Printer w/ Sheet Feeder	350

SYSGEN SPECIAL

DG 6321 Printer	\$350	MV 2000 4MB	\$2,500
MV 20000 CPU Only	48,500	MV 20000 MOD II Board	14,750



BUY • SELL • TRADE • LEASE

PRICING SUBJECT TO CHANGE WITHOUT NOTICE
ALL EQUIPMENT SOLD IS WARRANTED FOR 30 DAYS

Authorized
WordPerfect

12 ELKLAND ROAD, MELVILLE, NY 11747 (516)491-1100 fax: (516)491-1559

Circle 41 on reader service card.

Preventive maintenance basics

SYNOPSIS

Certainly you want to prolong your computer system's working life and keep it running trouble free. So don't let the simple things slip past you. Here's a straightforward guide to what you should be doing to see that your equipment gets the equivalent of an automobile oil change now, and not a engine overhaul later.

by Alan Rees
Special to Focus

Many people equate preventive maintenance with automobile upkeep rather than computers. Just as a car needs regular servicing to keep running smoothly, a computer system requires similar attention. The benefits of incorporating a preventive maintenance plan into your company's procedures are substantial. Preventive maintenance will not only prolong your computer system's life span, it will decrease both the cost required to maintain the system and reduce the cost of scheduled downtime. Here are some simple suggestions to maximize your system's potential and help keep it functioning effectively.

Clean environment

A clean and orderly environment is usually indicative of a well-maintained and orderly computer system. An organized computer facility will decrease the likelihood of accidents that could ad-

versely affect proper system operation. Therefore, it is important that a computer room be of adequate size to house the systems, free of debris, and free of excessive residual dust that can interfere with effective equipment functioning.

Labeling of equipment and cables

In the event of a system malfunction, you can avoid confusion by labeling equipment, components, and terminal cables. Equipment that has been labeled and numbered not only eliminates uncertainty, but it also makes it easier to describe a problem to a technician, which will facilitate the accurate diagnosis of a problem. This can ultimately make the difference between a downtime of a few minutes versus a few hours.

Keeping terminal cable diagrams is also helpful. In many cases when a terminal cable becomes dislodged, it can be difficult and time-consuming to identify the proper hook-up. If the cables have been mapped out, however, it is a simple procedure to reconnect the cables. Each cable

should be labeled with a tie wrap signifying the cable's corresponding port.

Maintaining environmental controls

Maintaining the ambient temperature in the computer room is critical to proper system operation. The ideal temperature for a computer room is 68 degrees Fahrenheit. During a change of seasons, it is particularly important to monitor the temperature in the computer room. In winter, when the temperature is generally cooler, it is also important to monitor and control humidity and static electricity. In normal operation, the temperature inside a computer is 15-20 degrees higher than room temperature. A temperature rise of as little as eight degrees can cause excessive stress on internal components. Although a fluctuation may not cause an immediate system malfunction, it will drastically decrease the life span of the components. As a result, the system may fail while performing a critical function or while under a heavy load.

It is also recommended that thermostat

ACTIVITY	INITIAL	AS NEEDED	DAILY	WEEKLY	MONTHLY
Keep organized and dust free			✓		
Label cables and components	✓				
Keep copies of cable diagrams	✓				
Maintain 68 degree room temperature			✓		
Vacuum out printer and components					✓
Change print ribbons		✓			
Clean tape drive				✓	
Check filters					✓
Check draw from fans					✓
Gently tap keyboards clean		✓			

controls be housed within a plexiglass lockbox. Access to these controls should be given only to a designated operations person. To further ensure temperature maintenance, a company may purchase an electronic indicator that records daily temperatures in addition to sounding an alarm when temperatures reach an undesirable level.

Monitor electro-mechanical devices

Preventive maintenance is helpful when applied to all aspects of a system, but one area of particular importance concerns electro-mechanical devices. These parts, which are essentially the "moving" parts of the system, have the highest failure rate and require special attention.

Printers and print mechanisms. A number of steps can be taken to avoid printer malfunctions. These procedures, which can be performed oftentimes with assistance/direction from your maintenance service staff, will not only keep your printer functioning, but will increase print quality. Cleaning the printer with a portable hand-held vacuum will help to eliminate any foreign particles such as dust, paper, or excess toner. Even with heavy usage, a monthly cleaning is usually sufficient. Paper and ribbon paths are constantly being used; these components need to be cleaned and monitored as well. You can avoid excess dust accumulation and improve print quality by vacuuming these components once a month. Some of the essential components of the printer are the print band, print head, or print drum. These parts enable the image to be formed on the page and should be cleaned monthly by your maintenance service staff. With proper guidance and instructions from the manufacturer, supplier, or your maintenance vendor, customers can clean these components on their own. If your printer uses a print band, keeping a clean spare will allow your maintenance service staff to replace the component quickly, without experiencing prolonged downtime.

Changing ribbons. While re-inking ribbons is a viable alternative to purchasing new ones, in some cases it presents more problems than solutions. If the re-inking procedure is not done properly, the ribbon may jam the printer and can result in damaged components and unsatisfactory printouts. Changing a ribbon or installing a properly re-inked ribbon will not prolong a printer's life, but will assure consis-

tent print quality. The procedure is simple and can usually be performed without the assistance of technical personnel. When changing a ribbon, you should verify that the mechanism is operating properly and that the area is free of foreign particles.

Tape drives. Other key electro-mechanical devices that can be cleaned and monitored by the customer are the tape drives. Depending upon usage, this component

requires cleaning approximately once a week. Ask your maintenance vendor to demonstrate the procedure; it is relatively simple, requiring only a cotton swab and cleaning fluid. After each backup, the read-write-head and the tape path should be cleaned and checked for debris.

Fans and filters. Other electro-mechanical components that should be monitored are the fans. If the fan is visible, there is a

IF you are currently developing **INFOS** based applications, and never use the dreaded **INQUIRE**, do not use **SORT/MERGE**, hardly ever use **PRESENT**, ... then you must be using **THE_ULTIMATE** !

IF NOT, to find out why all major international oil corporations, banks, software houses, government offices, hospitals, the largest employers in the United States, in England and in Australia, and the company that makes your computers, are using the **Ultimate** development tool for **INFOS** environments – to find out why, call *now* for a free evaluation tape :

North America

DataLynx Inc.

6659 Convoy Court, San Diego, CA 92111 (USA)

Tel: (619) 560-8112 Fax: (619) 457-2145

Otherwise, for details of your local dealer, contact :

Le Software Man Ltd.

PO Box 545, London N7 8DF (England)

Tel: +44-71-354-8414 Fax: +44-71-226-2015

le software man LTD.
Systems consultants

Circle 16 on reader service card.

simple procedure to test proper operation. It involves placing a piece of paper against the fan; if the paper stays affixed to the mechanism, then the fan is operating effectively. Some older and larger cabinets and disk drives have filters that need to be cleaned or replaced quarterly by the maintenance technician. It is essential that the machine's operating environment is clean. Dirt particles in the air will inhibit

the fan's operation.

Terminals. Just as excessive dirt and debris can harm the system's internal parts, it can be just as harmful to the exterior components. In most cases, keyboards are the most heavily used part of your system and are exposed to a substantial amount of foreign particles, such as dirt, liquids, and food. As a result, debris can become lodged underneath the key caps, which

can cause the keys to malfunction. Turn the keyboard upside down periodically and tap it gently. This can dislodge certain objects and prevent them from causing damage. You may also want to consider purchasing clear plastic covers to protect the keyboard from dust and liquids.

Error logs

Preventive maintenance is beneficial and will save time and money lost to downtime and emergency repairs. Keeping accurate records about errors and failures will accelerate the process of pinpointing a malfunction. Computer failures and errors will eventually follow a pattern. By documenting these failures, this pattern can usually be identified. A small company can keep a logbook and at the end of each day, a designated person should be responsible for entering all errors and failures. Larger, more sophisticated companies that perform daily system backups record failures directly onto the system, as well as keep a logbook for redundancy purposes.

Maintenance vendor partnership

Even if you elect not to place your equipment under an on-site maintenance agreement, it is a good practice to consult with a maintenance vendor or manufacturer regarding the cleaning methods and maintenance procedures for your equipment. Set up a cleaning and maintenance schedule with the provider. This will identify clearly which components can be easily serviced by internal personnel, and which components require a maintenance technician's expertise.

While preventive maintenance is not a guarantee against system failure, it greatly reduces the likelihood of large-scale problems. A computer system, like an automobile or other significant capital expenditure, requires regular attention to keep it in top shape. The steps outlined in this article are basic, but their importance, along with assistance from a professional maintenance provider, should not be overlooked. △

Alan Rees founded NPA West, formerly NPA Systems of California, Inc., in 1985. NPA West, Fairfield, California, is a provider of third-party maintenance, disaster recovery, and sales/service of new and previously owned equipment with special expertise in the Data General marketplace.

YOU NEED DATA GENERAL AND DEC EQUIPMENT. YOU NEED IT NOW. YOU NEED IT PRICED RIGHT. AND IT HAS TO MEET YOUR SPECIFICATIONS.

DATA GENERAL

CPU'S

MV 20000 Mod 1 & 2 ... CALL
MV 15000 CALL
MV 10000 w/AOS/VS \$14,900
MV 10000 \$7,000
MV 7800 XP w/4 MB .. \$9,900
MV 7800 w/4 MB \$5,500
MV 4000 \$1,900
MV 2500 \$17,500
MV 2000 \$2,900
S/280 \$2,900
S/140 \$2,200
Nova 4X \$1,600
Desktop Systems & Peripherals CALL

DISK & TAPE

MV 2000 Disks and Tapes CALL
6239 592 MB S/S \$5,900
6236 354 MB S/S \$2,675
6161 147 MB S/S \$1,500
6160 73 MB S/S \$1,200
6299 6250 BPI Tape ... \$9,500
6125 Tape S/S \$795
6026 Tape S/S \$1,750

MEMORY

MV15 & MV20 32 MB \$16,500
MV15 & MV20 16 MB .. \$8,500
MV15 & MV20 8 MB ... \$3,900
MV4 & MV10 8 MB \$2,500
MV4 & MV10 4 MB \$1,600
MV4 & MV10 2 MB \$650
Memory For All Other DG Processors IN STOCK

CRT's & PRINTERS

BP 1500 Printer \$8,900
4374 Printer \$5,000

CRT's & PRINTERS Continued

B1000 Printer \$3,900
B600 Printer \$2,200
B300 Printer \$1,450
D461 CRT \$475
D460 CRT \$325
D411 CRT \$395
D410 CRT \$275
D462 CRT CALL
D216 CRT CALL

COMMUNICATIONS

IAC/16 \$2,400
IAC/8 \$875
ATI/16 \$400
AMI/8 \$200
LAN Controller \$3,500
LAC-12 \$1,500

DEC

CPU'S

MicroVAX II, III CALL
KA630 w/ck \$2,500
11/785 XAAE \$9,995
11/780 XAAE \$1,995
11/750 XAAE \$995
11/730 XAAE \$500
11/44-DA \$1,695
BA23-A \$595
Rainbow PC IOOA \$295
KDJIBB \$3,250
KDJIBC \$2,000

DISK & TAPE

RLV12 \$495
RA60-CA \$2,500
RA81-AA \$2,995
TK70 w/contr., new ... \$5,800
TK50/TQK50 \$2,495
RA82 \$9,500
TSU05-AA \$3,995

DISK & TAPE Continued

TSV05-AA \$3,995
CDC 9715-160 \$1,500
Cipher 880 \$950
TU80-AA \$950
RM05 \$500
RX02 \$295
UDA50-A \$450
Kennedy 9600 \$3,295
KDB50-A \$5,500
Fujitsu 2351A \$2,000
Emulex SC03/BX \$295
XT2190 (MAXTOR) \$1,395

MEMORY & COMM

Deuna-AA \$500
DELQA \$2,200
DELUA-M \$3,800
DHQII-M \$1,275
DZQII-M \$350
MS750-CA \$100
MS650-AA \$1,400
MS630-CA \$2,250
MKII-CE \$300
Dequna w/cab kit \$500
Emulex CS02 \$575

CRT's & PRINTERS

B600 \$1,995
B1000 \$3,995
LA50-RA \$295
LAI00RA \$425
LA120DA \$795
LA210-AA \$795
LQP02 w/SF \$400
LK201-AA \$100
LP25 \$995
LP26 \$1,995
VT100-A \$100
VT102 \$125
VT220A/B/C \$300
VT320A/B/C (new) \$415
VT240A \$750

LARGE SELECTION OF EARLY-MODEL EQUIPMENT

"THE SOLUTION"

SECURITY COMPUTER SALES, INC.

MINNESOTA
PHONE: (612) 227-5683
FAX: (612) 223-5524
622 ROSSMOR BUILDING
500 N. ROBERT STREET
ST. PAUL, MN 55101

ARIZONA
PHONE: (602) 861-0165
FAX: (602) 861-0313
11426 N. CAVE CREEK RD.
SUITE E
PHOENIX, AZ 85020



Circle 40 on reader service card.



Not that you care, but we've moved.

Rave Computer, the country's largest Data General Second Source Supplier, has been bursting at the seams with inventory and people. Just to keep up with our growth, we've moved to a new location.

So, who cares?

Do you care if our new warehouse is twice the size of our old location, so we'll have everything you need, in stock, ready for faster delivery? Or that we have even more knowledgeable sales people to make sure your needs are met?

And you probably don't care that Rave's technical staff is bigger and better than ever, so every piece of equipment you buy is fully tested and ready to run.

Of course, *we know* you don't care that we continue to give you the most competitive second source prices in the industry — and the best warranty.

Like heck you don't care.

Give us a call. Once you've had a taste of our selection and service, you might just be as excited about our new facility as we are.

Rave Computer Association, Inc.
36960 Metro Court, Sterling Heights, MI 48312
(313) 939-8230 Fax: (313) 939-7431

Rhode Island
(401) 785-3090 Fax: (401) 785-3095

New York
(516) 929-5000 Fax: (516) 929-5007



**Data General — Buy, Sell, Trade
Sun Microsystems Also Available!**



Circle 37 on reader service card.

PM anytime

SYNOPSIS

Preventive maintenance for your valuable computer is as easy as rolling off a log or, as they say, having a SPASM. Read on.

by Dr. Josef von Bach
Special to Focus

With improvements in system reliability and increasing end-user demand for uptime, preventive maintenance has come of age as service providers examine ways of modernizing PM techniques.

When developments currently underway come to the market, the field engineer with the mini-vacuum, Windex bottle, Q-tips, and diagnostic tapes will be a thing of the past. Gone will be the inconvenience of bringing the system down for PMs, the scheduling of customer personnel at 3 a.m. on a Sunday, and all other annoyances related to this necessary function.

Great strides in PM automation are underway in Europe, where Meitaghausen A.G. has developed the only self-performing PM system that can be purchased as an option with most major computer manufacturer's hardware. Translated loosely from German, the system is called Self Preventive Activated System of Maintenance, or SPASM.

SPASMs may take place at the end user's convenience, without the need of a field engineer and can be activated automatically or remotely by the hardware manufacturer. SPASMs are virtually trouble-free and allow the user to save thousands of dollars in environmental control equipment. Computer systems utilizing SPASM technology are "physically cleansed" as well as diagnostically tested, without ever bringing the system or users down.

Take for example the SPASM system for the MV series. It consists of a hermetically-sealed acrylic cabinet in which the user keeps an MV machine. A hinged front door provides access to the control



panel. In the back are ventilation ducts, room for cabling, and inflow and outflow valves . . . but more on this later.

At PM time, the customer has the option of allowing the manufacturer to activate the PM at a predetermined time and date, via modem; or it may be done at the customer's convenience. All the operator needs to do is close the hinged door and move the security level on the door to the "locked" position. This seals the MV inside the chamber while keeping the environmental control system active and all users fully operational and on-line.

The user may now proceed to activate the SPASM with the control timer on the front panel of the SPASM system. At this point, a solution of hexa-penta-ethylphenolyn will begin flowing from

the inflow valves in the back of the SPASM system. This is a solution similar to the one used for cleaning printed circuit boards, much like a dry-cleaning solvent.

Once the chamber fills with solution, the agitators in the bottom of the SPASM unit ensure every corner of your MV—from fans to filter to boards—is immaculately PM'd. For systems that have not been PM'd in a while, a "scrubber" option is available.

With the SPASM system now in "dump" mode, the cleaning solvent with all impurities exits via the outflow valve. At the same time, data from the resident diagnostic feature is transmitted to the master console and, if desired, to the hardware manufacturer's remote support center. To ensure a like-new condition for your MV, a heat/dry option exists, although for older systems, this is not recommended. Should you be distressed about embarrassing water spots on your MV, an additive is available to relieve you of that problem.

Indeed, incredible technological advances have been made in PM technology, and more are underway. As this goes to print, the SPASM "Turbo" model is in development and many other companies such as Virpül A.G. and Kenmörr G.m.b.H. are entering this extremely profitable market. End users in the 1990s will have a tremendous selection to choose from. Δ

Dr. Josef von Bach, Ph.D., is the chief scientist at Meitaghausen A.G., a German firm; specializing in computer consulting, aerospace engineering, and mule-skinning. He is currently on special assignment with NPA West, Fairfield, California, where he assists José Rivera, executive vice president, in new product development.

DATA INVESTORS CORPORATION

COMMUNICATIONS

4370 IAC-16 RS-232	\$1,775
4368 IAC-8 RS-232 .....	.700
4370-A IAC-16 RS-422 .....	.850
4368-A IAC-8 RS-422 .....	.800
4380 ISC-2 .....	.400
4560 LAC-12	1,100
4561 LSC MV/2,000 .....	.600
4342 ATI-16 .....	.200
4543-B MCP-1	1,900
4463ZT USAM-4 DESKTOP .....	.250
4532 ILC W/ACCESSORIES	3,100

SYSTEMS & PROCESSORS

8956 MV/15000 MOD-10 16MB	\$23,500
8952 MV/15000 MOD-8 8MB	16,500
MV/15000 MOD-20 CPU BOARD	19,900
8888 MV/7800XP 4MB	7,200
MV/7800XP 4MB CPU BOARD	5,500
MV/7800 4MB CPU BOARD	1,900
8790 MV/8000 MOD-2 8MB	2,200
8936 MV/2000 5MB, 160 DISK, LAC-12, TAPE	4,900
8760 MV/4000 2MB	1,600
8770 S/280 2MB W/BMC	3,900
8678N S/140 256KB	1,100
8395N NOVA 4X 256KB 16 SLOT .....	.850
DESKTOP MOD-10 256KB 15MB DISK .....	.500
DESKTOP MOD-20 512KB 15MB DISK .....	.900

22 E. Lafayette Street
Hackensack, NJ 07601
(201) 343-8875
FAX# (201) 489-5633

DISK DRIVES & MAG. TAPE

6239 592MB ARGUS S/S	\$4,800
6236 354M ARGUS S/S	2,000
6581 500MB RAMS DISK	CALL
6161 147MB WINCHESTER S/S	1,150
6122 277MB DISK S/S	1,000
6554 662MB FOR CSS	4,000
6491 322MB FOR CSS	3,000
6495 322MB TDP S/S	10,000
6329 120MB MV/2000 .....	.800
6363 160MB MV/2000	1,500
6100 25MB WINCHESTER W1.28	1,000
6300/6299 1600/6250 MAG TAPE S/S	6,500
6026 DUAL MAG TAPE S/S BROWN .....	.900
6123 MICRO STREAMER BROWN	1,200
6270 DESKTOP CARTRIDGE TAPE .....	.475
6125 STREAMER MAG TAPE S/S .....	.600

MEMORIES

8990-D 16MB MV/20000/15000	\$7,900
8990-C 8MB MV/20000/15000	\$3,200
8871 8MB MV/4000/10000	2,900
8870 4MB MV/4000/10000	1,500
8765 2MB MVV/4000/10000 .....	.400
8940 10MB MV/7800XP	4,800
8708 2MB MV/8000 .....	.300
8754 512KB S/140 .....	.450
8687 256KB S/140 .....	.300
8387 256KB NOVA/4 .....	.300
8656 256KB ECLIPSE .....	.275
DESKTOP MOD-10 512KB .....	.300
DESKTOP MOD-20 512KB .....	.300

TERMINALS & PRINTERS

D-216, D-412, D-462, D-470C	CALL
D-214, D-215, D-411, D-461, D-220C	CALL
D-210, D-211, D-410, D-460	CALL
4596-D 600 LPM LB BAND S/S	\$4,500
4595-D 300 LPM LB BAND S/S	2,800
4364 600 LPM BAND S/S	1,800
4327 300 LPM BAND S/S	1,000
6215 180 CPS SERIAL	1,000
4434 160 CPS PRINTER .....	.500
6262 DESKTOP COLOR CRT S/S .....	.600
4221 DESKTOP PRINTER CONTROLLER .....	.350
005-8096 D.C. PRINTER CONTROLLER .....	.300

Data Investors is a worldwide specialist in Data General Equipment. We have been for 14 years buying and selling pre-owned Data General Equipment. All equipment is shipped from our own facilities, thoroughly tested and guaranteed eligible for Data General Maintenance.

Bits and bytes from the bulletin board

Using ISC/2 on 56 KB leased line

From: Etienne Handman

Help! We have a 56 KB leased line connected to an ISC/2 in an MV. We are running AOS/VS GSMGR rev 7.60. The line, modems, and cables have all been tested. The problem persists on three different ISC/2s.

Symptom: NAKs being sent on good blocks received. AOS/VS reports BCC errors. Data scope on line shows blocks being NAKed are correct and match byte-for-byte with retransmitted blocks which are ACK0ed or ACK1ed. ?SRCV will abort if more than 7 BCC errors (even false ones) are received on a given block. Anyone have an ISC/2 connected to a 56 KB or faster line running BSC protocol?

From: Stan Gula

Sounds to me like a clocking problem. Is it the modem or the ISC generating the clock signals? It's probably best to have all clocking come from your modem (or in this case a DSU/CSU?).

From: Etienne Handman

I agree that it looks like a clocking problem. The DSU is providing the clock. (ISC/2 internal clock won't go that fast anyway). I have an HP data scope attached to the line and it has no problem reading the activity on the line. The DSU documentation states that the receive data clock it generates should trigger a sample of the receive data line on the trailing edge. Is this consistent with the way the ISC works?

Automating data transfers

From: Bill Grzanich

How can I determine if RJE is through transmitting from within my program? I would guess that it involves using the IPC facility, but I'm not quite sure how to go about it. I need to automate the transfer of data between my MV/10000 and an AS/400, and our only communications link is RJE80. I have VS/Basic and Fortran 77 at my disposal. Any help at all would be greatly appreciated.

From: Stan Gula

It's been a long time since I wrote F77, but try this. I think you can open a file "exclusive" in F77. If so, and RJE80 (or any other program, for that matter) has the file open, you will get an error stating that you can't get an exclusive open. When your open works, you can be assured the transfer has completed. If you're into system calls, you can probably save some overhead by using the ?fstat call directly. There is a byte in the fstat packet that counts the number of processes that have the file open. When the "open count" goes to zero, you can assume RJE80 is done. If you have to do this in a macro, you can use F/PACK on the file. One of the words displayed (maybe 21?) is the open count.

8 mm tape drive problems

From: Richard Kouzes

I have an 8 mm tape drive which I bought for more than just backup. We want to copy from 9-track to the 8 mm, but the big problem is speed. I have a tape utility routine we run all the time with 9-track tapes, which is very fast and works well, but on the 8 mm drive it is incredibly slow and oftentimes out or just stops working. I have installed the patches to VS given by Megatape. My tape utility uses ?RDB/WRB. We are able, after trial and error, to use DISPLAY to copy tapes, but it takes hours on our MV/10. Meanwhile, if I run DBRDUMP/LOAD, it reads a tape in a couple of minutes. Anyone know any secrets?

From: Tim Boyer

The thing that kills 8 mm tape drives is tape repositioning. The Megatape unit comes with 512 K buffer, but you may need more. How about doing a tape-to-disk with the 9-track, and then a disk-to-tape with the 8 mm?

From: Kevin Danzig

You might try tapecopy (it's on BJ's bbs) and see if it handles the 8 mm any better in either tape-to-tape or tape-to-disk, disk-to-tape.

Pass-thru print



From: Richard Timmons

Does anyone know of a way to send pass-thru commands (i.e., to send print from a file to a printer, which is directly connected to the terminal or host PC?). What I wish to accomplish is this: inside a menu macro, users have the option of executing certain menu items, which create files to be printed. They usually exit the menu and then type in "pass filename", which executes a Fortran program we have to pass-thru files to the printer connected to the terminal. The only problem is that once the file is printed, the pass command RE occurs on the screen. I am not a very experienced DG person as of yet, but am sure trying. I would think that someone out there has a quick and easy way to accomplish the same thing, but without RE occurrence of the commands previously invoked. Can anyone shed some light on this problem?

From John O'Keefe

Download the file PASSTHRU.CLI in the Download section of this BBS. It's a macro to use to run pass-thru print from CLI. Note that you will get a repeat of part of the last CLI command because of a "bug" in the D200/D400 hardware, where it outputs a <ctrl-f> when switching back from pass-thru mode. CLI interprets this as the "repeat last word" command.

Screen handling



From: Ephraim Nussbaum

When I moved from an RDOS system to Avion, I was shocked to find that the NL and CR keys no longer worked identically. (In a USING type screen, the NL returns the existing data, but a CR fills it with nulls). I reported this as a bug, but was told that it was a documented and intended feature and (I think) also present on AOS. I can't see any value to this, and it almost caused me a major headache. I plan to file an RFE to ask that it be removed, and I wonder what other users think.

From: Bob Butler

I know how irritating it can be to find that keys don't behave the way they used to, but what you describe is correct under AOS and VS. If you try it for a

while, you may find that it is a nice feature to have the CR key essentially perform ERASE-EOL/NL. Once you get used to it, it can come in very handy. I am sure that DG would refuse an RFE on the subject because there are too many people who depend on it.

From: Joey Transou

You are probably correct about [DG]

refusing to implement this. Thus, each operating system platform supports this feature providing you compatibility on AOS, AOS/VS, DG/UX, and MS-DOS.

From: Ephraim Nussbaum

Well, that's why I asked. However, I strongly disagree. Because:
1) It may be a nice feature if you're careful, but it is too easy for a data entry

Now with ARCTape & ARCmerge

ARC[®]

COMPRESS and Library Files

PROVEN, RELIABLE, FAST COMPRESSION

Retains all DG File information, including File Type, UDA's ACL's, etc.!

Fully Compatible with ARC 6.xx on PC!

Includes a commercial license for PC version 6.02

"ARC works beautiful.

It is user friendly and totally compatible . . . DG to PC and PC to DG"

— Bill Smith, AMI

With ARCTape, Archive to Magnetic Tape • Use ARCmerge to Merge Archive Libraries.

ARC is Officially Approved by the Creators of ARC for the PC!

THE package includes: 1 year software subscription and hotline support!

- Already has a large existing base of users • VAST reductions in disk space •
- Automatic upgrades • Can be used for configuration management, and on-line libraries •
- Tremendous saving in file transmission and employee's time • Passes Superuser •
- Redirect Output to File or Printer • Supports Input from File List • Print Directly for Library

Just Look at the Results!

Name	Length	Stowage	SF	Size now	Date	Time	CRC
093_0002	50191	Crunched	66%	17099	16-Sept-88	2:01 p	01C9
BILLING.LOG	532000	Crunched	94%	36087	31-May-89	11:41 p	3E91
EMPLOYMENT.AGR aka EMPLOYME_00	5793	Crunched	45%	3221	15-Jan-89	3:55 p	1D1C
TOTAL	3	587984	91%	56407			

Only \$995 For Single CPU Systems

And The Perfect Complement . . .

TurboTran[™]

XModem/YModem Protocol

" . . . TurboTran has the simplest method of transferring file I've seen."

— Focus Magazine

and now even better with . . .

The Smart Connection

Complete PC Integration with SmarTerm[®], and Perfect Integration with SmarTerm[®] and CEO[®]

For \$495 Look at What You Get . . .

- Efficient, Fully Supported DG/PC Integration • Software Subscription • Hot Line Support •
- CEO Integration • PC Support Utilities • AOS or AOS/VS • Low, Low CPU Impact •
- Runs at Baud Rates Up To 38.4 KB • and More! •

Call, Write, or FAX for ARC or TurboTran on a 30 Day Evaluation

Corporate Licenses Available

Data Bank Associates, Inc.

20010 Century Blvd., Suite 104
Germantown, Maryland 20874
Telephone (301) 540-5562
or FAX (301) 540-8105

ARC is a registered trademark of System Enhancement Associates. SmarTerm is a registered trademark of Persoft Corp. CEO is a registered trademark of Data General Corp.

Circle 13 on reader service card.

clerk to make a mistake. One just did, with almost disastrous results. By chance we found a way around the problem.

2) It fills the field with nulls, not spaces! If this is what you really want, the nulls will turn into spaces the next time you go through the field with a NL. ICobol should (and used to) prevent nonprintable characters in screen fields,

since they cannot be handled properly the next time you access the field with a screen.

AOS/VS II rev 2.00

From: Thom Carlin

We're experiencing 14045 panics at boot time on an MV/10000 running AOS/VS II rev 2.00 with the patches off the 2.00 release tape. Does anyone have

the patches or know if 2.01 fixes this?

From: Bob Butler

We've been running AOS/VS II rev 2.01 on our MV/10000 for a while now. I don't think we ever ran straight 2.00. I went right from 1.21 to 2.01, and the only problems I had were that I needed to put in one of the optional patches because the microcode was out of date. I never got a 14045 with either 1.21 or 2.01, but all I can verify is that 2.01 does run on an MV/10000.

New & improved EXEC

From: Bob Butler

In case anybody is interested, we've just installed AOS/VS II 2.02 and decided to try the new/improved EXEC again (we've been running the 1.21 EXEC under VS 2.01 because of the large number of bugs). It looks so far like most of the problems have been cleared up. It is still much slower responding to mounts and handling batch commands, but is basically working. One minor problem: if a job is waiting in batch with /OPERATOR it will wait forever. Issuing CX OPERATOR ON won't start the job. If you then do CX UNHOLD <seq#> or use the CX MODIFY to do anything with the job, it will start.

From: Thomas Carey

We've gone through the same scenario as you, running an older EXEC under 2.01 AOS/VS II and just upped to full 2.02. A number of problems were solved, but we're not out of woods yet. Anyone running HAMLET needs to be aware that process name changed to XHAM_SLNO (undocumented change) when brought up now. Also control/i and control/m not fully fixed—still get flaky errors with that command. SNA subsystem is also flaky—RJE fails from time to time. CLI32 also still fails with error traceback. This is definitely not the greatest thing when PID 2 is running CLI32! System abort is only way out as CON0 is locked up at that point.

Modem settings

From: Richard Weiss

We have many Multitech MT-224EH modems attached to our MV/15000 Mod 8 computer, on IAC-8s and IAC-16s. I am looking for people also using this type of modem, to get information

Only The Best For Your DG System

The disk subsystem that sets the standards

**FOR YOUR
MV COMPUTER**
Argus 623X Emulation
SKS-HP Plug and Play Series



- Up to 1200MB (formatted)
- Only 3.5" vertical rack space
- 5.25" SCSI-interfaced drives, which offer longevity, high reliability, large capacity and a small footprint
- 10.7 msec average seek time (40% faster than DG's 6239 Argus)
- 4.0MB/sec transfer rate

**FOR YOUR ECLIPSE &
NOVA COMPUTERS**
Zebra Emulation
SKZ-XX Plug and Play Series

- Up to 620MB
- 5.25" SCSI-interfaced drives
- Only 3.5" vertical rack space
- 18 msec average seek time
- 1.25MB/sec data transfer rate

ZETA Authorized Stocking Distributor

For Back-up:

The Helical-scan Cartridge Tape Subsystem

2 Gigabytes on a small 8mm cartridge



- High reliability
- Compact Media
- Uses host resident tape drivers and back-up utilities

Dataproducts Printers



**LB Series
Band Printers**
(DG Models 4595, 96/
4598, 99)

4 models: 300, 600,
100, 1500LPM

Dataproducts Authorized Stocking Distributor

LZR Series Laser Printers

(DG Models
6474-6479)



LZR 1230 — 12ppm
LZR 1260 — 12ppm PostScript
LZR 2630 — 26ppm PostScript

Also: complete line of accessories & supplies

Your First Choice for DG solutions

Call

(800) 627-2007

Fax (818) 707-1627

interscience
COMPUTER CORPORATION
5171 CLARETON DRIVE, AGOURA HILLS, CALIFORNIA 91301

Circle 29 on reader service card.

on correct switch settings and line settings.

From: Jerrold Rappard

We use Multitech MT-224AHs (non-error correcting) on our MV/20000s for dial-in. I believe they can only be connected to IAC-8s in order to retain modem control. Otherwise, in case of a disconnect, the line might not terminate and someone else dialing in on that con might go right into someone else's files. Of the eight DIP switches on the bottom of the multi-techs, three and four are down, all others up. Line characteristics of the con are: ON/ST?EBO/ULC/MOD/WRP/OFC/IFC.

Timeout errors



From: Gail Heineman

I'm having trouble with a Model 6590 8 GB cartridge tape drive. I'm using an MV/9500 with AOS/VS 7.67. I can use DUMP_II and LOAD_II with it just fine, as well as COPY to and from it relatively small files. But when I try to

COPY a large file (say, 180 MB), I get a Timeout Error, Device 064 Unit 1, retries 00, Statuses: (varies). The device giving the error varies, too. It is not always the drive I'm copying from. A DG technician is working on it, but has replaced most everything reasonable, and tested everything else. Anybody else have this trouble?

From: Tim Boyer

I know Megatape had some patches to VS for a timeout problem—the Exabyte engine takes an incredibly long time to get going, and this was causing problems. I haven't noticed any problems since about 7.62. Tell your hardware guy to check with the software guys.

From: Gail Heineman

Thanks for your reply. I told my "hardware guy" (at DG) and he is suspicious that we did not install the patches to AOS/VS 7.67 correctly. I think we did (especially since I watched a guy who knows what he is doing

install the patches), but even so, the problem was back at 7.62. The patches should have been incorporated into the operating system before 7.67, right?

From: Tim Boyer

Theoretically, all of the patches on 7.62 should have been in source in 7.67. I don't know if the 8 mm tape patches are official, or one of a number of optional patches that may or may not have been incorporated into source.

From: Gail Heineman

I'm afraid we're just living with the problem, using the tape for dumps and loads, but nothing else. If you hear any more anytime, I'd appreciate your sharing the information. △

Do you have an answer, comment, or question? Call the NADGUG/RDS electronic bulletin board, available to all NADGUG members. The phone number is 415/499-7628. There are no fees for use other than the telephone charges.



COMPUTER WHOLESALEERS, INC.

DATA GENERAL SPECIALS!

MV15000 MOD 10\$22,900
 MV2500 W/8MB, 322MB H/D ..\$15,900
 MV1400 4MB W/160MB Cart.....\$3,900
 MV2000 8MB New Style Mem ...\$2,900
 MV7800 10MB Mem (DATARAM)\$2,900
 8990-D 16MB MV20/MV15 Mem \$7,900
 6346 D411 CRT W/KB\$225
 6341 MV2000 TAPE\$2,100

PARTIAL EQUIPMENT LIST
 CALL FOR QUOTES ON ALL DG HARDWARE
 CALL FOR DEPOT MAINTENANCE QUOTES

COMPATIBLES
 DATA RAM
 FUJITSU
 ZETACO

CALL US!
800-229-BUYS (2897)

404-455-4542
 FAX 404-457-5841
 3246 MARJAN DRIVE
 DORAVILLE, GA 30340

Circle 9 on reader service card.

You wouldn't drive a car without a dashboard... so why run AOS/VS without :PERFMGR?

Includes a logging facility with report generator, real-time monitoring screen, file and directory structure analysis utilities and a tutorial on AOS/VS system performance analysis.

Join the hundreds of other System Managers who no longer run out of gas unexpectedly.

AOS/VS :PERFMGR \$750
AOS/VS II :PERFMGR \$750
10 DAY TRIAL COPY **FREE!**

:SYSMGR

Software for System Managers
 A Division of B.J. Inc.
 109 Minna Street, Suite 215
 San Francisco, CA 94105
 Dial-up BBS (1200 baud): (415) 391-6531
 (415) 550-1454 FAX (415) 550-1072

Circle 43 on reader service card.

ARE YOUR POWER SUPPLIES HOLDING YOUR SYSTEM DOWN?

Every time your CRT goes down because of a BAD POWER SUPPLY you are losing precious time & money!!

think about it?
 then
 think

UNIVERSAL REPLACEMENT POWER SUPPLY
\$125.00 each
 or
\$99.00 - qty 10

Neatly fits the D210/D211 D214/D215
 D410/D460 D411/D461 DG CRT Terminals
 Comes with instructions, cables, ready to install.

Digital Computer Service
 624 Krona Dr., #195
 Plano, TX 75074
214-422-1864, Fax:214-423-3792
 A depot repair company
 est. 1981

Circle 20 on reader service card.



Balancing your checkpoint

SYNOPSIS

BJ delves into the pesky problem of avoiding data loss in your Infos data bases. Here are some answers and suggestions about checkpointing using differential or standard modes.

:CUTTING CORNERS

What a hell of a month.

First, war breaks out in the Middle East. For any of you not aware of it, I spent almost three years in the Middle East when I worked for DG. Since the war broke out, the channel selector on my TV has been locked on CNN. It's really spooky to see a lot of places that I recognize from my time there, especially the entrance to the Intercontinental Hotel in Riyadh, Saudi Arabia. Having spent one Christmas Eve in the rooftop bar of a Beirut hotel watching at midnight as the Syrian gunners in the hills behind the city fired tracer shells over downtown and into the Mediterranean Sea, I can attest to the sense of unreality that sets in. Not knowing what the current state of the conflict will be on the day this gets published, I'll forego telling any stories about my time in Jordan and Kuwait. I never did get into Iraq, but not for lack of trying. Back in 1977 I applied for a visa at the Iraqi embassy in Athens, Greece, and I was denied with a stern warning not to bother trying again. The trip was to attend a trade show in Baghdad sponsored by the U.S. Trade Commission.

Second, DG's stock doubled after they shocked Wall Street by announcing that they actually made a profit for the most recent quarter. Since then, the stock has actually held on at the new value, and even risen a little bit more (this was written on February 3). Looking at the price during the preceding month, it's also clear that all the leaks were plugged and no insiders jumped the gun. Very impressive.

:REALITY_INTRUDES

Back to the mundane world of computers.

Last month I spent a little time rehashing some Infos issues for the benefit of a client, and it occurred to me that I hadn't talked about Infos in a while. In fact, when I went back over my previous columns about Infos I found that the last Infos design column I wrote (November '86) was based on a report I prepared for the DG distributor in Amman, Jordan. The Middle East connection again.

Anyway, this month I'm going to describe a good way to handle the pesky problem of checkpointing Infos data bases.

:DIFFERENTIAL_MODE?

Of the three possible means of ensuring against data loss, STANDARD mode, DIFFERENTIAL mode, and COMLOGging, plain differential mode is the clear winner in terms of popularity.

That doesn't mean that there isn't a place for the other two methods. For example, I just counted the number of Infos data bases on the system I'm using and I came up with the following score:

Mode	DBs
Standard:	43
Differential:	106
COMLOG:	0

We use standard mode for small data bases (up to about 10 MB) that can be rebuilt easily from other data or reloaded from the previous night's backup and have any updates re-applied.

We use differential mode for big data bases that are opened and closed frequently, and that would be a pain in the neck to restore from a backup and then bring up to date.

We don't use COMLOG on any data bases because we don't have any data bases that are open all day long, and all transactions against the data bases are available in flat files so they can be reapplied easily to the backup. A description of how to use COMLOG is beyond the scope of this month's column, so I'm going to omit it from the discussion. Note, however, that use of COMLOG requires that the logged data bases have differential enabled, so the discussion of checkpoint strategies also applies to COMLOGged data bases.

Ensuring transaction integrity is also beyond the scope of this column, so it too will be skipped. Just bear in mind that when I say the data base is "logically consistent," that just means Infos can make sense of it, not that complex multi-step transactions have either been fully applied, or not applied at all.

:STANDARD_MODE

Standard mode has the advantage of having the highest performance compared to the other two schemes. That's about its only advantage.

In the event of a system failure, modified data base and index pages in memory are lost, even if ESD succeeds, and the data bases and/or indices may or may not be logically consistent. The only way to find out is to run IVERIFY on it to verify its integrity. In fact, Infos won't let you open the data base until you run IVERIFY successfully. If IVERIFY fails, then you either have to go back to the most recent backup, or you have to manually repair the damage. Manual repairs require an intimate knowledge of Infos file structure internals (best gained from "Infos Internals," model 1867, \$195, in the *DG TIPS* catalog), or access to someone who does. There are several companies around that will help you do repairs for a fee. I got out of that business a long time ago, so call me only if you need a referral.

When a system failure occurs in our shop, all standard mode data bases are reloaded from the backup and reprocessed to bring them up to date.

:DIFFERENTIAL_MODE

Using differential mode eliminates the need to run IVERIFY at the expense of some extra disk space and extra cache activity. Depending on what you're doing, the extra overhead involved can range from barely noticeable to terrible.

Logical consistency of the indices and data base are guaranteed by the simple mechanism of keeping all modified pages in separate volumes, referred to as differential volumes, until a checkpoint occurs. A checkpoint can occur implicitly, such as when the last user closes the data base, or it can be explicitly forced by running the CHECKPOINT utility.

Clearly, the data base and indices are logically consistent at the time the last user closes the data base (barring bugs in Infos itself). CHECKPOINT guarantees logical consistency by requesting that the Infos global server hold off further requests as soon as all outstanding requests are satisfied. When this occurs, CHECKPOINT then transcribes the differential volumes to the main volumes. When it's finished, it notifies the Infos global server that processing against the data base can proceed.

If the system fails while the data base is open, you have to run IRECOVER with the /RESTART and /DELETE option switches. If a checkpoint was being performed at the time of the failure, then the checkpoint is restarted (it's an inherently rerunnable procedure; think about it). If a checkpoint wasn't being performed, the only option available is /DELETE, which causes the contents of the differential volumes to be discarded and the data base and indices are effectively returned to the state they were in at the point of the previous checkpoint—logically consistent, but missing any updates made since the checkpoint.

:HOW_OFTEN?

Checkpoint frequency is a tradeoff situation involving quite a few factors.

A higher frequency has many advantages: the checkpoint itself takes less time, users are locked out for a shorter time, fewer transactions need to be re-applied after a crash, less disk space is consumed by the differential volumes, and fewer differential file index blocks are fighting to stay in the system cache and forcing other, perhaps more worthy, blocks out.

But there are also some powerful disadvantages to a high checkpoint frequency: the overhead of the checkpointing itself can become a significant fraction of the system load, and often the checkpoint is a waste of time because few updates have been made since the last checkpoint.

:SOLUTIONS

The most common solution to the problem of checkpointing data bases periodically involves setting up a batch job that does the checkpoint and then resubmits itself to be run again after a fixed time delay.

There are at least two problems with this approach. First, the overhead of the batch logon/logoff cycle often exceeds the cost of the checkpoint itself. Second, many of the checkpoints find little work to do if the data base update count was low during the time interval.

BUSINESS BASIC UNDER MS-DOS?

WHO'S KIDDING WHO!

No one. . . If you're using *Personal Computer Business BASIC* by MarcAlan Software

PCBB is an easy to use product which allows you to convert your existing double and triple precision D.G. Business BASIC applications and data over into a single or multi-user MS-DOS or PC-DOS environment. Binary compatibility allows data and index files to be moved and utilized without modification.

PCBB features include on-line help, debugger, an editor which offers the look and feel of an interpretive environment and Compiler Driver which expedites the process of compiling source code without the creation of batch files. Special features such as support for extended or expanded memory, 128 user channels, allowing labels to be utilized instead of line numbers and a Block Common area that can range in size from 512 bytes to 10K in size are standard. Utilities to maintain Data General compatible screen files, param, logical database and index file structures are also included.

Purchase of **PCBB** includes a royalty-free right to reproduce and distribute executable files.

Write, call or fax now for more information

MAS[®]

MarcAlan Software, Inc.

22096 North Pet Lane
Lincolnshire, Illinois 60069-4113

Voice: 1-800-728-7387

Fax : 1-708-634-9460

PCBB is a registered trademark of MarcAlan Software, Inc. All other product names and logos are trademarks or registered trademarks of their respective owners.
© MarcAlan Software, Inc. 1990

Figure 1: CHKPTR.COB

CHKPTR.COB
Record format: D-S

IDENTIFICATION DIVISION.
PROGRAM-ID. CHECKPONTER.
AUTHOR. BJ.
ENVIRONMENT DIVISION.
DATA DIVISION.

WORKING-STORAGE SECTION.

```

77 AC0 PIC S9(9) COMP.
77 AC1 PIC S9(9) COMP.
77 AC2 PIC S9(9) COMP.
77 CMD-LINEPIC X(256).
77 COB-FSTAT PIC 9(4) COMP VALUE 63.
77 COB-WDELAY PIC 9(4) COMP VALUE 179.
01 CURR-TIME.
05 HOUR PIC 99.
05 MINS PIC 99.
05 SECS PIC 99.
05 HUNS PIC 99.
77 DATABASES PIC 9(4) COMP.
01 DB-INFO OCCURS 10 TIMES.
05 PATHNAME PIC X(256).
05 BASE-SIZE PIC 9(9) COMP.
05 CURR-SIZE PIC 9(9) COMP.
    
```

```

05 MIN-GROWTH-PCT PIC 9(4) COMP.
05 CHKPT-INTERVAL PIC 9(4) COMP.
05 MINS-REMAINING PIC 9(4) COMP.
01 DISP-TIME.
05 HOUR PIC 99.
05 FILLER PIC X VALUE *:.
05 MINS PIC 99.
05 FILLER PIC X VALUE *:.
05 SECS PIC 99.
01 FSTAT-PKT.
05 FILLER PIC X(46).
05 BLOCKS PIC 9(9) COMP.
77 I PIC 9(4) COMP.
77 IER PIC S9(9) COMP.
77 PCT PIC 9(4) COMP.
77 REASON PIC X(32).
    
```

PROCEDURE DIVISION.

* LIST EACH DATABASE TO BE CHECKPOINTED HERE.

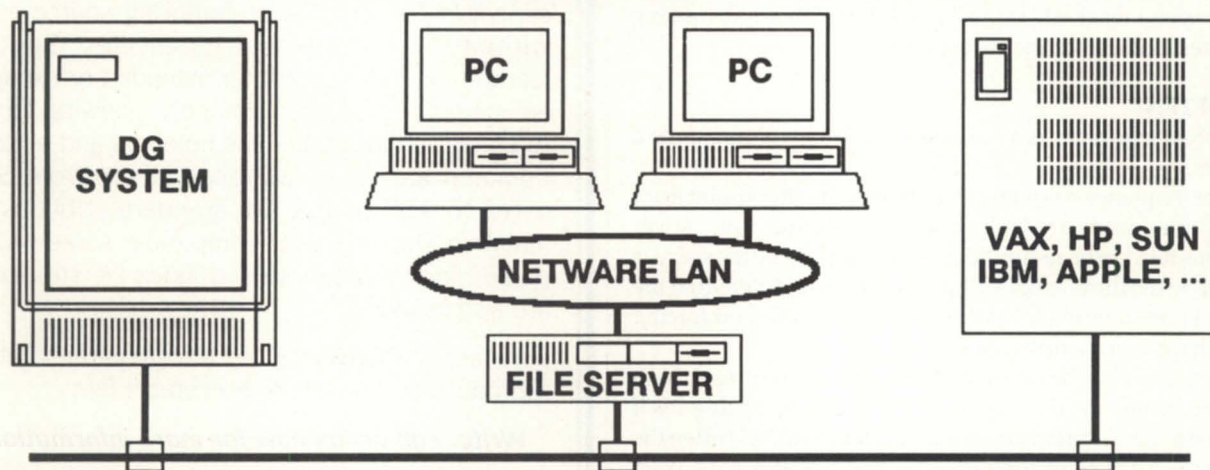
SETUP SECTION.

```

MOVE 1 TO I, DATABASES.
MOVE ":DATABASES:ORDER_ENTRY.DB" TO PATHNAME(1).
MOVE 15 TO CHKPT INTERVAL(I), MINS REMAINING(I).
MOVE 10 TO MIN-GROWTH-PCT(I).
PERFORM INIT-DB-INFO.
    
```

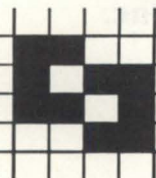
ADD 1 TO I, DATABASES.

INDUSTRY STANDARD NETWORKING



- * FOR ALL DG SYSTEMS
- * AOS/VS II, AOS/VS, AOS, RDOS
- * FTP FILE TRANSFER
- * LPR REMOTE PRINTING

- * TCP/IP ETHERNET NETWORKS
- * IBM-PC & NETWARE INTEGRATION
- * TELNET VIRTUAL TERMINAL
- * SMTP ELECTRONIC MAIL



Clafin & Clayton, Inc.

203 Southwest Cutoff

Northboro, MA 01532

FAX (508) 393-8788

Telephone (508) 393-7979

Circle 5 on reader service card.

```
MOVE ".DATABASES:GENERAL_LEDGER.DB" TO
  PATHNAME(2).
MOVE 30 TO CHKPT INTERVAL(I), MINS REMAINING(I).
MOVE 25 TO MIN-GROWTH-PCT(I).
PERFORM INIT-DB-INFO.
```

MAIN-LOOP.

```
PERFORM WAIT-A-MINUTE.
PERFORM CHECK-DATABASE
  VARYING I FROM 1 BY 1 UNTIL I > DATABASES.
GO TO MAIN-LOOP.
```

INIT-DB-INFO.

```
INSPECT PATHNAME(I) REPLACING ALL SPACE BY LOW-
VALUE. PERFORM GET-CPD-SPACE, MOVE BLOCKS TO BASE-SIZE(I).
```

CHECK-DATABASE.

```
SUBTRACT 1 FROM MINS-REMAINING(I).
MOVE SPACES TO REASON.
IF MINS-REMAINING(I) = ZERO THEN
  MOVE "time" TO REASON
  MOVE CHKPT-INTERVAL(I) TO MINS-REMAINING(I)
ELSE
  PERFORM GET-CPD-SPACE, MOVE BLOCKS TO
  CURR-SIZE(I) COMPUTE PCT ROUNDED =
  ( (CURR-SIZE(I) * 100) / BASE-SIZE(I) )100 IF
  PCT > MIN-GROWTH-PCT(I) THEN MOVE "activity" TO
```

```
REASON. IF REASON NOT = SPACES THEN PERFORM DO-
CHECKPOINT.
```

DO-CHECKPOINT.

```
PERFORM GET-CPD-SPACE, MOVE BLOCKS TO BASE-SIZE(I).
STRING "CHECKPOINT" DELIMITED BY SIZE,
  PATHNAME(I) DELIMITED BY LOW-VALUE,
  "; BYE" DELIMITED BY SIZE INTO CMD-LINE.
CALL "CLI" USING CMD-LINE.
MOVE CHKPT-INTERVAL(I) TO MINS-REMAINING(I).
```

GET-CPD-SPACE.

```
CALL "?CBBADDR" USING PATHNAME(I), AC0.
MOVE ZERO TO AC1.
CALL "?CBADDR" USING FSTAT-PKT, AC2.
CALL "?CBSYS" USING COB-FSTAT, AC0, AC1, AC2, IER.
IF IER NOT = ZERO THEN
  DISPLAY "?FSTAT ERROR: ",IER
  STOP RUN.
```

WAIT-A-MINUTE.

```
MOVE 60000 TO AC0.
MOVE ZERO TO AC1, AC2.
CALL "?CBSYS" USING COB-WDELAY, AC0, AC1, AC2, IER.
IF IER NOT = ZERO THEN
  DISPLAY "?WDELAY ERROR: ",IER
  STOP RUN.
```



TEXTBASE™

The Next Generation of RDBMS

TextBase is a new technologically advanced management system designed to specifically manage free-form text in a relational database management system.

- High Speed Text Search
- Proximity Searching
- Subset Searching
- Analysis Tools
- WordPerfect Interface
- Review Forms
- Report Features
- Menu Driven

TextBase Imaging Corp.

901 Dover Drive, Suite 242, Newport Beach, CA 92660
(714) 722-9648 FAX: (714) 722-6927



TextBase runs on the DG MV series of computers.

TextBase is a trademark of TBI. WordPerfect is the registered trademark of the WordPerfect Corporation

Circle 45 on reader service card.

STOP

And let us
quote on your next DG
equipment purchase or sale.

Guaranteed Lowest Prices.

- Quality Equipment
- Guaranteed Maintenance
- 30 Day Warranty
- Buy—Sell—Rent

EQUIPMENT RESOURCES

A Division of Dyna-Med, Inc.

(813) 867-3210

Fax # (813) 864-1670

403 1st Avenue South, Tierra Verde, FL 33715

Circle 23 on reader service card.

How to Protect Your Computer



And Make It Last Longer

FREE money-saving literature is offered by the world's largest manufacturer of single-phase uninterruptible power systems. Learn how to get complete protection from power line problems with advanced, on-line UPS ranging in size from 500 VA through 18 KVA.

Best Power Technology, Inc.

P.O. Box 280, Necedah, WI 54646

Toll-Free 800-356-5794, ext. 2439

(U.S.A. & Canada)
(608) 565-7200, ext. 2439

Circle 3 on reader service card.

de • pend • a • ble

Def. 1. Capable of being depended upon; trustworthy.

Mc • In • ty • re's

- Def. 1. Provider of complete systems for Data General as well as compatible parts and equipment. 2. Low prices. 3. Immediate delivery. 4. Customer satisfaction. 5. 60-Day unbeatable warranty. 6. See dependable.



Mini-Computer
Sales Group Inc.

2660 Auburn Rd., Suite 700
Auburn Hills, MI 48236

(800) 783-5550 Fax: (313) 853-0013

Circle 32 on reader service card.

SYSTEM MANAGER'S LOG

Figure 2: CHKPTR.CLI

```
PUSH ; PROMPT POP
DIRECTORY :UDD:OP
CREATE/2=IGNORE/DATASENSITIVE/TYPE=TXT CHKPTR.OUT
PROCESS/DEFAULT/INPUT=@NULL/OUTPUT=CHKPTR.OUT CHKPTR
PAUSE 3.000
POP
```

Ideally, what's needed is a way to perform cyclical checkpoints with as little overhead as possible, and based on a combination of time and the number of updates which have occurred.

The batch logon/logoff overhead can be avoided by PROCing up a console-less CLI from PID 2 with its command line telling it to execute a cyclical macro that does the checkpoint(s) and then delays for a fixed time. This solution has two problems. The checkpoint(s) get performed at fixed times regardless of the number of modified pages in the differential volumes, and eventually the CLI will blow up due to the recursion of the macro (even CLI32 has a finite address space for storing copies of the macro each time it recurses).

Clearly, what's needed is a little program that maintains a list of data bases to be checkpointed and two pieces of information about each one—the maximum time between checkpoints, and the maximum percent of updates that are allowed to occur before a checkpoint is done.

Figure 1 (pages 26-27) shows the Cobol source code for just such a program, CHKPTR.COB. To customize the program, you fill in the DB INFO array and then PROC it up from PID 2 as part of your UP macro. Figure 2 shows the CLI macro to do this, CHKPTR.CLI.

The source code for CHKPTR is available on the :SYSMGR BBS as item AOSVS16:INFOS:CHKPTR.

:WHEN_NOT_TO

If you're like us and you run major batch jobs overnight just after doing the system backup, then you should seriously consider turning differential mode off during the batch runs. This avoids the overhead of differential mode, which can be considerable during batch runs if the majority of data base records are being updated, at the expense of having to reload from the backup and rerun the batch jobs should a system failure occur overnight. In our case, the chance of having to go back to the backup is about 1/365. That's the average number of power failures we get between 9 p.m. and 8 a.m. in the course of a year. Δ

BJ is the president of B.J. Inc., a San Francisco based consultancy specializing in system auditing, system management, and performance analysis. :SYSMGR is a division of B.J. Inc. BJ can be reached at 109 Minna St., Suite 215, San Francisco, CA 94105, 415/550-1444 (voice) or 415/550-1072 (fax). The :SYSMGR bulletin board number is 415/391-6531 (300/1200/2400 with optional MNP class 5, CHAR/605X/CHARLEN=8/PARITY=NONE/AUTOBAUD) or 415/550-1454 (voice).

Wild Hare Announces "No-No's For The Nineties"

- ✓ No vendor dependency.
- ✓ No lost sales.
- ✓ No lost software investment.
- ✓ No hassle.
- ✓ No limits.

How? Using *Choice!*[™] our COBOL run-time system which runs on just about every hardware platform and operating system you can think of. Like DOS, OS/2, UNIX, XENIX, AIX, VAX/VMS, AOS/VS, PC Networks, Macintosh, AViiON and more. And it's packed with advanced new features like windows and menus, and a security feature that'll protect your profits.

There's more! *Axis*, our COBOL compiler, was designed to revolve around your specific needs. It delivers the most performance, power and flexibility right now, today. With features like windows, menus, input time-outs, environment variables, screen attribute, color support, and much more. It'll run circles around your current compiler.

So call today.

And find out how we make compatibility, portability, and profitability...

No Sweat.

Wild Hare Computer Systems, Inc.
P.O. Box 3581 Boulder, CO 80307-3581 U.S.A.
TEL: (303) 442-0324 FAX: (303) 440-7916



wild hare
COMPUTER SYSTEMS INC.

Figure 2: CLOCK1.CLI

```
write/nonewline &
[!string/name=cup_c16_108]&
[!string/name=%1%]&
[!string/name=%2%]&
[!string/name=colon]&
[!string/name=%4%]&
[!string/name=%5%]&
[!string/name=colon]&
[!string/name=%7%]&
[!string/name=%8%]&
[!string/name=cup_c00_100]
[!string/name=delay]
%0% [!explode [!time]]
```

My only cautions are these:

- 1) Pay particular attention to the usage of commas.
- 2) The macro is in two parts, for execution considerations. The initialization part can be named whatever you like. The second part must have the same name with number "1" appended to it. I decided on the

names CLOCK.CLI and CLOCK1.CLI.

3) The macro supports the following switches:

/DELAY=n to delay between refreshes, in PAUSE format

/BLINK to make the colons blink

/BCD To display in binary rather than digital

4) The default display is digital, approximately 1 second between refreshes and solid colons. The refresh is approximately 1 second because each time the CLOCK1.CLI macro is invoked, it is read in from disk. Your CPU and disk configuration will affect the refresh rate.

5) The clock may be started by entering, for example:

) CLOCK

or

) CLOCK/BCD/BLINK/DELAY=5

at the CLI prompt. The standard ACL and

SEARCHLIST rules apply and are dependent upon your installation's needs. The macro is interrupted with the standard interrupt.

The binary display is actually binary coded decimal (BCD). The digital clock required only the data definition for the BCD digits to produce the binary display.

If you keyboard the clock macros, all digits (decimal and binary) are the same except for the actual literal portion. Simply enter one and duplicate it 20 times. Then edit the literal portion. Again, pay attention to the commas!

If you have an ANSI terminal, it should be an easy task to change the initial terminal control data to support the ANSI terminal. I have chosen string names that are closely related to ANSI terminal controls.

Enjoy the macro, but be aware of its impact on other users of small or heavily used systems. Δ

Al Hill is president of Hill Computer Consultants, Inc., a Washington, DC-based consulting firm. He may be reached at 703/471-4104.

WatchDog!

Give yourself the weekend off.

WatchDog! is on the job.

WatchDog!: Automatically sends alerts about errors accumulating on your system... Anticipates system downtime... Lets you schedule proactive system maintenance.

WatchDog!: Installs itself... Notifies anyone you select to receive alerts... Has easy-to-use menus... Allows you to modify thresholds.

Rest easy knowing WatchDog! is guarding your shop.

For All VS & VSII Systems

NSTS, Inc.
4485 Hwy 29
Lilburn, GA 30247
404 923-1383 Fax 404 923-3998

Circle 34 on reader service card.

IT'S NOT JUST FOR COBOL ANYMORE!

SCREEN DEMON supports AOS/VS 32-bit languages such as PL/1, C, B32 and others.

SCREEN DEMON may be added to most existing AOS/VS 32-bit programs, including SED, CLI32, and CEO.

- Faster screen display
- View the screen and enter data on a remote terminal
- Powerful window functions

C-thru provides Screen Demon compatible features for ICObOL and MicroFocus COBOL on AViON systems.

Threshold, Inc.

(205) 821-0075

Fax (205) 821-0122

DEMON

SCREEN

Circle 46 on reader service card.

INDOCOMP

L-BUS SOLUTIONS

Indocomp boards for your MV/1400, MV/2000, MV/2500, or DS/7500 computers

- VME bus adapter
- DRV-11 interface
- Voice processing
- SCSI controller
- Industrial I/O
- Co-processor boards

Custom boards available for your application.

INDOCOMP SYSTEMS, INC.

P.O. Box 157
Drayton Plains, MI 48020
Phone: (313) 666-9715
Fax: (313) 666-1001

Circle 27 on reader service card.

Emulation and access with Popterm

SYNOPSIS

Popterm is a useful tool for bringing PCs into a DG environment. Here are some insights into its installation and features.

by Michael E. Marotta
Special to Focus

Doug Kaye, president of Rational Data Systems, says that Popterm is intended to do one thing and it does that one thing well. It lets your PC run like a D410.

Popterm is designed to serve the PC user in a DG environment. Typically, you might use Wordperfect on your PC and move documents to and from your MV. As a TSR (terminate-but-stay-resident) program, it is available on your choice of

hot keys. Popterm takes up less than 64K. Therefore, it fits within a single MS-DOS partition. It can be loaded into that neverland above 640K and below 1 MB. Popterm allows some dial-up ability, as well.

Hop on pop

The documentation is clearly written and easy to understand. The installation procedure is simple.

Popterm comes as a self-unarchiving file. If you do a DIR on the original diskette, you see two programs—INSTALL.BAT and Popterm.EXE. When you key in the name of the executable program and press enter, 20 programs unfold themselves. You can do this before or after installation. This fact does not appear in the documentation.

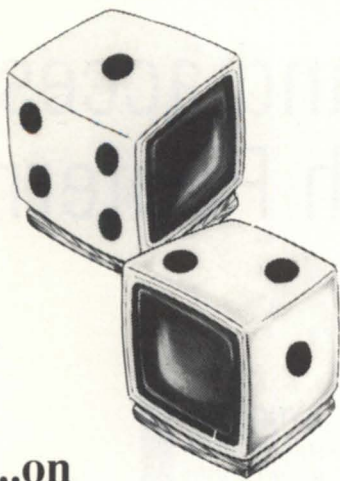
Some preparation is necessary before you run Popterm. First, you must create an ASCII file that defines your "session." This *must* be an ASCII file. A Wordperfect file, liberally sprinkled with formatting codes, will not work. The session file defines the screen colors, baud rate, etc. Figure 1 shows a typical session file.

Before invoking Popterm, you select a "driver." A driver is a small COM file. There are five drivers, one for asynchronous dial-up, and four different LAN situations covering both Novell and 3Com. (Rational Data Systems is very committed to local area networks.) After you run the driver program, you can call Popterm.

Figure 1. Typical Session file for Popterm

```
BAUDRATE = 9600
BG = BLUE
CHARLEN = 7
COMPORT = 1
CONNECT = YES
CURSOR = BLOCK
DATABITS = 8
DISPLAYMAP = C:\Popterm\DISPLAY.MAP
HELPPFILE = C:\Popterm\Popterm.HLP
KEYMAP = C:\Popterm\KEYBOARD.MAP
HOTKEY = 13
LOGFILE = C:\Popterm\Popterm.LOG
PACING = 0
PARITY = NONE
PRINTER = LPT1
SBG = RED
SFG = GREEN
STOPBITS = 1
```

Why gamble...



...on someone offering disaster recovery as a sideline?

With DG/hot site from
Data Assurance, you get:

- Dedicated DG computers
- Dedicated Communications
- Dedicated Recovery Experts

Over 150 DG users, spanning
the U.S. and Canada, don't
gamble with their information
based assets - or their choice
for a hot site. They use the
dedicated people, experienced
in actual recoveries and hun-
dreds of tests, and dedicated
disaster recovery resources of

Data Assurance Corporation

Denver • New York • Philadelphia

(800) 654-1689

12503 E. Uclid Dr., Ste 250, Englewood, CO 80111
(303) 792-5544 • FAX (303) 792-0218

Data General has qualified DAC as a provider of
DG/hot site, based on criteria established by DG.
DAC is an independent company offering its
disaster recovery services to users of

 **Data General**
equipment.

PC to MV

If you key in Popterm, the program runs and when you quit it is gone. If you key in Popterm/R, the program is loaded as a TSR utility that can be entered into and exited from by pressing a hot key. The default hot key is ALT-Equals, but there are 82 alternatives, including ALT-NumLock and ALT-LeftShift. To help you manage all of your TSR beasts, Popterm comes with a toolkit of very handy programs from Turbopower Software.

Once Popterm is loaded and you face the blank screen, you must select the appropriate session script. While most users will need only one such file, there is no limit to the number you can have. This makes life easy for those power users whose PCs are connected to two or more MV machines, or two or more LANs connected to one or more MVs.

You might also create different sessions for different situations. You could define screen combinations, like yellow on red for Power Mornings, and white on green for Pleasant Afternoons.

The session, help, and other commands, all work off ALT-key combinations. ALT-C selects the session; ALT-? is help. ALT-L begins logging and ALT-F flushes the log.

Logging in particular is very handy if you can't read at 9600 baud. (Your session file defines the name of the log file, so you can have several, if you want.) Everything that comes across your screen while using Popterm can be stored to a text file for editing. This is great for e-mail and also for debugging and other troubleshooting.

Popterm's data files include keyboard mappings for CEO. This is another example of how Popterm reflects an overall dedication to the MV environment that is typical of the vendor community. MV computers will continue to run into the 22nd century. It is clear, however, that Unix and Aviiion are the wave of the 21st century.

In this sense, Popterm is one cog in a complex mechanism. If you have a PC LAN and if that LAN is connected to an MV machine, you need a small, slick terminal emulator. If you have other needs, RDS has other tools. Those tools make it possible to dial into an MV, or to bring your MV in touch with a Novell LAN, or even to bring international electronic mail to your MV machine.

Rational Data Systems' full line of products and their places in the global infor-

mation network are described in a handy book from RDS.

Rational numbers

Rational Data Systems provides its audience with an annual *Report on PC Integration*. According to this report, RDS was founded in 1978. Dedicated to Data General, its product line includes a Pascal compiler, a full screen editor, and several PC LAN and PC-to-MV connectivity tools.

The *Report* is very readable and very fair. It is as conversational and objective an appraisal as I have ever seen from a vendor. It is factual, accurate, and timely. It fills a gap.

For a manager whose time is limited, an overall appraisal of the state of token ring and ethernet and Novell and TCP/IP, is a time-saver. New people coming to positions of responsibility need to come up to speed fast. The *RDS Report on PC Integration* helps this process.

In several places in the report, RDS acknowledges the power of the PC environment. For instance, "... users received the benefits in the form of whole new applications . . . higher quality products . . . and lower prices." RDS has thrown its support behind the PC LAN with its multi-gigabyte, multi-MIP power. The *Report* brags about another RDS product, PC/VS: "One advantage to PC/VS is that it runs under MS-DOS 2.0 or later. Other LAN products require MS-DOS 3.10 or later."

Moreover, RDS has already positioned itself (if only ideologically) for the 21st century. Aviiion workstations are not mere terminals. They are full-blown computers, each with more power than the Eclipse from 10 years ago. This has undeniable effects.

Rational Data Systems has devoted some space in its report (and also some programming effort, of course) to meet the needs of electronic mail users. Naming conventions are not covered. However, the rudiments of getting and sending Internet mail from CEO are covered.

Like Popterm, the *Report* does one thing and does it well. It provides an overview of PC-to-MV connectivity as seen from 1991. You can't ask for more than that. Δ

Michael E. Marotta is a technical writer with a decade of experience on Data General and other equipment. He works in manufacturing and business environments.

The X-factor

SYNOPSIS

X-Windows is complex, but among its advantages are portability and network transparency, and it affords great versatility. Using an AviiON workstation loaded with a C compiler, the author examines a number of powerful features available for graphical user interface (GUI) program development. Part one of two.

by Pete Szaban • Special to Focus

X-Windows is a public domain software package whose purpose is to provide a network-based graphical user interface (GUI) that can be supported across several workstation vendors' platforms. It was developed originally at the Massachusetts Institute of Technology in association with Digital Equipment Corporation, Sun Microsystems, and several others under project Athena. X-Windows is now supervised by the X Consortium.

X-Windows provides a degree of device independence. Until the system's advent, software developers had to rewrite or significantly modify the graphics portions of their products for each supported platform. In the ideal situation, a new platform can be supported by moving the source program—usually written in C—to another computer and then recompiling.

X-Windows also allows for network transparency. A workstation operator may invoke an X-Windows program from any computer in the network. The operator can specify the name of the device on the network where the program is to appear

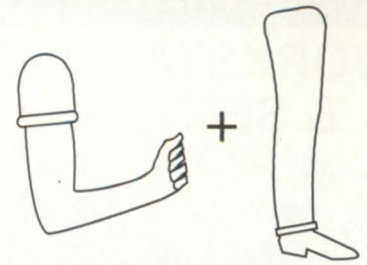
to execute. X-Windows makes it appear as though a program is executing on one computer in the network, while it may actually be running on another. This other computer might be better suited to the task at hand.

X-Windows makes a program appear to be running at a given workstation in the network by redirecting user input, as well as graphics output. The keyboard, pointer device (mouse, joystick, trackball, etc.), and workstation video monitor are referred to collectively under X-Windows as a display. To redirect the display from default values, a display name consisting of three components must be specified: the display host name, server identifier, and screen identifier.

The display name is simply the name of the host on the network that is to be used for input and output. When logged into the workstation, this name is displayed in response to the shell command `"/bin/hostname"`.

Like many Unix utilities, X-Windows has a server program that sits ready in the background. These server programs provide services for client programs (client

Why pay this



for memory?

With SCIP memory, you don't have to.

We design and manufacture value priced memory that will boost your system to full power.

A full line,even for the newest and most popular DG processors, like the.....

MV5500

MV9500

MV15000

thru

MV20000

AViiON's

Bottom line....

- ✓ a fraction of the cost
- ✓ 100% compatible
- ✓ lifetime warranty
- ✓ 24 hour exchange
- ✓ trial evaluation

...give us a call

(213) 282-8700

FAX 213/839-4464

SCIP

441 S. Beverly Dr. #2
Beverly Hills, CA 90212

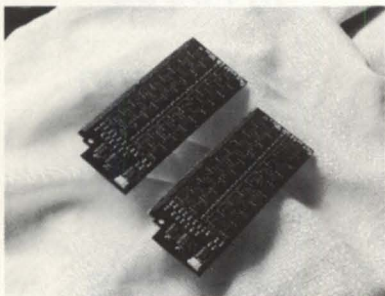
DATA GENERAL AViION

WORKSTATIONS & SERVERS



- Powerful Systems with Advanced Technology
- High Performance/Low Cost
- Advanced Implementation of UNIX (DG/UX)
- Open Networking
- Superior Graphics
- Expandable Main Memory for Added Performance

AViION MEMORY



LOW COST AViION MEMORY by DIGITAL DATA SYSTEMS

- 4MB & 16MB add-in Modules
- Full Compatability
- State-of-the-Art Technology
- High Reliability
- Lifetime Warranty
- 24 Hour Replacement



1-800-762-7811
305-792-3290

1551 N.W. 65th Avenue
Fort Lauderdale, FL 33313

Data General
VALUE-ADDED RESELLER

UNIX

programs include X-Windows application programs). Because Unix is multitasking, it is possible for several X-Windows servers to exist simultaneously. The first one is identified by the name "0", the second is identified as "1", and so on. In most cases, there will be only one X-Windows server program referred to as "0".

A given workstation may have monochrome or color output devices of varying resolution (resolution refers to the number of addressable pixels on the video monitor). Each output device and video mode is referred to under X-Windows as a screen. The specification of a screen implies the selection of a video mode. Screens are specified by a single-digit identifier.

Putting the host name, server identifier, and screen identifier in the form "hostname:serverid.screenid" specifies a device explicitly. The display name "hotel:1.0" refers to screen "0" as controlled by server "1" on the networked host named "hotel". When an application (a client program) is instructed to use the display "hotel:0.0", it will pass its I/O requests to the first X-Windows server program on the host named "hotel". This server program, in conjunction with a special client called the window manager program, can create one or more areas on screen "0" that will be modified under the direction of the application program. These areas are called windows.

Window manager

Window manager programs usually employ rectangular windows with Cartesian (x,y) two-dimensional integer coordinates. The origin is located in the upper-left corner. The x-axis proceeds horizontally to the right across the top of the window. The y-axis proceeds vertically down the window's left side.

The window manager is a special client that makes requests to the X-Windows server. On the AviiON, X-Windows is set up initially so that the ISO motif window manager starts up. Data General also supplies the more widely available but less friendly uwm (universal window manager). A window manager controls the way windows appear on the screen. Window operations such as scaling, overlapping, and moving are controlled by the window manager.

Requests made to the server by window manager and application programs can't

always be fulfilled. A client request for a specific color may not be met by a server that is controlling a monochrome screen, for example. The X-Windows term "hints" is used to imply a suggestion. A client passes hints describing what it would like. The X-Windows server does the best it can to fulfill those requests.

Whenever the application (client) program interacts with a human user, it will pass requests over the network to the X-Windows server. One X-Windows server runs on each display. This server modifies the screens, or reads from the keyboard/pointer hardware as requested by the application program.

The application programmer does not need to get involved with the details of passing data over the network to the X-Windows server. These details are handled by routines in the Xlib library. The Xlib library is linked in after the application program is compiled. The application programmer only needs to learn how to call the Xlib library routines. Because there are a multitude of Xlib routines, and these routines tend to be quite primitive and complex, several "toolkits" have become available to make programming easier under X-Windows. These toolkits are merely libraries that make calls into Xlib to perform common functions. The problem with using toolkits is that the particular toolkit you rely upon may not be available on all platforms.

X applications (like most programs that run under GUIs) are event-driven. The program spends most of its time waiting for something to happen (an event). When it occurs, the application program does something, then loops back to await the next event. Typically, an event might be a timeout, a key press, a pointer movement, or a mouse button press. Event-driven programs usually reduce to the following sequence of steps:

- 1) do some initialization
- 2) await an input event
- 3) process the input event
- 4) go back to step 2

Data packets called properties pass between a client program, and the server using the X-Windows protocol. Some requests are one-way only, while others travel round-trip. A line draw request, for example, may be sent to a server from an X-Windows client program. In this case,



We support key issues.

From facility management to recovery site service.

The sale of new and used hardware.

The sale of licensed software packages.

Repairs, upgrades.

And field-service maintenance.

NPA Systems understands your

Data General & PC needs—around the clock.

Give us a call toll-free at 1-800-USE-NPA 4.

After all, supporting your system is key.

FULL
INTEGRATION
OF LOCAL & REMOTE
NETWORKS

◇ ON SITE SERVICE ◇

NPA
SYSTEMS INC.

*Enter The Computer World
That's Commanded By Service.*

761 Coates Avenue, Holbrook, NY 11741
1-800-USE-NPA4 • 1-800-873-6724
(516) 467-2500 • FAX: 516-467-5609

Figure 1: Generating a Hilbert curve, Part 1

```

#include <X11/Xlib.h>
#include <X11/Xutil.h>
#include <X11/Xos.h>
#include <stdio.h>
#define WINDOW_NAME "Xhilbert"
#define ICON_NAME "Xhilbert"
#define BORDER_WIDTH 4
#define INPUT_EVENTS (KeyPressMask | ExposureMask |
StructureNotifyMask)
#define min( x_, y_ ) ( ( x_ < ( y_ ) ) ? ( x_ ) : ( y_ ) )
/* Xhilbert—Recursively generate a Hilbert curve */
/* These globals relate to the X system */
Display *displayptr; /* Display being used */
int screen; /* Screen to create window on */
GC gc; /* Graphics context */
Window window;
int window_width, /* For window scaling */
window_height;
/* These globals relate to the Hilbert curve */
int turn; /* For Hilbert direction */
int dx, /* For Hilbert positioning */
dy;
int order = 5; /* Levels of Hilbert recursion */
/* These globals relate to move/draw */
int xold, yold; /* Last known pen position */
#define redraw( x_, y_ ) draw( (int) ( x_ + xold ), (int) ( y_ + yold ) )
/* draw—Make a visible vector from last pen
position to X,Y. INPUTS: x, y - Cartesian coordinates of location to draw
vector to *. OUTPUTS: none */
void draw( x, y )
int x, y;
{
int y1,
y2;
/* Move origin to lower left window corner */
y1 = window_height - y - 1;
y2 = window_height - yold - 1;
/* Do the draw */
XDrawLine( displayptr, window, gc, xold, y1, x, y2 );
/* Save current pen position */
xold = x;
yold = y;
} /* End of draw */
/* move—Set up new pen starting position. Inputs:
x, y - Cartesian coordinates of location to move pen to *. Outputs: none */
void move( x, y )
int x, y;
{
/* Save X & Y position */
xold = x;
yold = y;
} /* End of move */
/*hilbert—Draw the Hilbert curve. Inputs: order -
Order of the curve. Outputs: none */
void hilbert( ord )
int ord;
{
int temp; /* Decrement level of recursion */
ord--; /* First leg of Hilbert curve */
/* Compute new pen position */
temp = dy;
dy = turn * dx;
turn = -turn;
dx = turn * temp;
/* If not done, do next recursion */
if( ord )
hilbert( ord );
redraw( dx, dy ); /* Second leg of Hilbert curve */
/* Compute new pen position */
temp = dy;
dy = turn * dx;
turn = -turn;
dx = turn * temp;
/* If not done, do next recursion */
if( ord )
hilbert( ord );
redraw( dx, dy ); /* Third leg of Hilbert curve */
/* If not done, do next recursion */
if( ord )
hilbert( ord );
/* Compute new pen position */
temp = dx;
dx = turn * dy;
turn = -turn;
dy = turn * temp;
redraw( dx, dy ); /* Last leg of Hilbert curve */
/* If not done, do next recursion */
if( ord )
hilbert( ord );
/* Compute next pen position */
temp = dx;
dx = turn * dy;
turn = -turn;
dy = turn * temp;
} /* End of Hilbert */
/* refresh — Redraw the window */
void refresh( )
{
/* Clear the window */
XClearArea( displayptr, window, 0, 0, window_width, window_height, False );
/* Start at lower left window corner */
move( 0, 0 );
/* Set up to draw the Hilbert curve */
turn = -1;
dx = 0.0;
dy = (int) min( window_height, window_width ) / ( 1 << order );
/* Recursively draw the Hilbert curve */
hilbert( order );
} /* End of refresh */

```


there is no need for the server to reply; the server simply draws the line. The request for a keystroke might exemplify a round-trip request. The client asks the server for a keystroke. After the keystroke occurs, the server returns information describing the key press event.

In order to improve performance, individual data packets are not immediately transmitted over the network between client and server. The packets are buffered, which reduces overhead by sending a few large packets over the network instead of sending many small packets. When a round-trip request is made to a server, a buffer flush must be forced. X-Windows programs using fewer round-trip requests generally will appear to run more quickly and consume fewer resources because these programs will most likely pass fewer network packets.

Several considerations must be made when designing an X-Windows application program. Some displays may be color, while others may be monochrome or greytone. Aside from this, different displays vary widely in size (resolution) and aspect ratio. Circles on one display may look like ellipses on another, for example, and like insect footprints on still another.

Design and application

The Xhilibert program, as presented in the accompanying C program listing, is designed to be a simple X-Windows application program that displays a two-dimensional Hilbert curve. Xhilibert.c is compatible with X11 release 3. A Hilbert curve is a recursively generated, space-filling curve. Hilbert curves have been used as one benchmark for evaluating graphics performance. When executed, Xhilibert opens a window that covers one-quarter of the default screen on the default display. In this window, a Hilbert curve of the specified order is drawn. After drawing the Hilbert curve, the program awaits a key press. Xhilibert exits when it sees the key press.

An examination of the first lines of program listing shows that several header files are included. X-Windows client programs usually start by including three

header files: Xlib.h, Xutil.h, and Xos.h. These header files define structures used by the Xlib library routines, and supply several useful definitions and macros.

There are several C functions in the source file. The functions "move" and "draw" are called by "hilibert" to create the Hilbert curve, and to translate the window origin to the lower-left corner. A function named "refresh" invokes hilibert

whenever the window needs to be redrawn. The refresh function is called initially to draw the Hilbert curve, but might also be invoked, for example, when the Xhilibert window becomes exposed because another overlapping window is removed. Δ

Next month: Completing the Hilbert curve.

Why Join NADGUG?

Reason #2

All the News

You need to know! NADGUG'S official magazine, *Focus*, is packed with all the news that really matters to Data General users. The columnists in *Focus* specialize in everything from system management to people management. Each issue also spotlights a special topic like performance monitoring, documentation and training, and small business.

**NORTH AMERICAN
DATA GENERAL
USERS
GROUP**

Regular features in *Focus* include news from NADGUG and its affiliates, updates on the NADGUG software library, and new product reviews. *Focus* is the best way to keep abreast of the latest news from the Data General community.

Find the tips, techniques, and ideas that can make you more productive. Get the news now! Join NADGUG today. •

1-800-USR-GRUP
512/345-5316 (outside U.S.)

Pete Szaban is technical programmer at Western New England College in Springfield, Massachusetts. He may be reached at 413/782-1239.

A complete listing of the NADGUG software library

ACK • Updated version 1.70. Terminal emulator/file transfer program for both AOS/VS and AOS machines. 365 blocks.

Big Brother • Automatic log-off program written in Fortran 77. Donated by the U.S. Forest Service. 169 blocks.

B.J.'s BBS contributions • About 20 items, including various programs, documentation, and macros. Some of the more interesting items include the :SYSMGR benchmark suite, a continuous incremental backup, a clean-up file maintenance program, a program to find strings in files, and a type-backward program. 6,761 blocks.

CRTEEDIT • The old RDOS screen editor ported over to VS. 49 blocks.

DBCHECK • Checks the open status of an

Infos file and examines the checkpointing status of a file. 187 blocks.

DUMpload • A Macintosh program to dump and load AOS/VS-compatible dumps on a Macintosh. 137 blocks.

ERP • A process-termination program developed by NASA and modified by Manville. In Fortran 77. 454 blocks.

FILEMGR • With this new version, you can move, copy, delete, view, and perform several other options faster. This is distributed as shareware. If you try it and continue to use it, you are requested to pay a registration fee. From Kim Geiger. 654 blocks.

Focus • *Focus* magazine articles. 1774 blocks.

FTNCVT • A Fortran 5 to Fortran 77 translator. 232 blocks.

Games • A collection from various places. Enjoy. 19,216 blocks.

IMSLUTIL • A collection of CLI macros, Cobol routines, and assembly routines callable from Cobol. By IMSL of Houston. 4,893 blocks.

JAG_UTIL • JAG_UTIL by John Grant consists of several programs: Filecount, User-space, Scan, Glossary, Laminate, and Qhelp. 4,325 blocks.

Kermit • A file-transfer protocol developed at Columbia University. 9,697 blocks.

Logout • Another auto log-out system. 178 blocks.

Look • Used to view text files, Look allows you to move forward and backward in a file. Donated by Data General. 202 blocks.



Computer
Engineering
International

2231 Star Court
P.O. Box 81755
Rochester, MI 48308
MI Phone: 313-853-0770
FAX: 313-853-0775

Providing intelligent solutions
and personalized service
around the globe.

Call

800-462-2344

New & Refurbished DG Hardware
Compatible Peripherals
Depot Repair Service

DATARAM
AUTHORIZED DISTRIBUTOR

WORLD WISE



WORLD WIDE

Circle 7 on reader service card.

Macros • A collection of macros from various sources. 441 blocks.

MENUDIR • An initial user menu that can chain to other applications and features a password-control system. From the Fed SIG. 486 blocks.

Misc Kerm • An expanded version of AOS Kerm, this now includes other versions of Kermit including DG/One Kermit. 6,709 blocks.

MS-DOS • A VS program that lets you read and write MS-DOS diskettes on an MV system with a 5.25-inch floppy disk drive. 984 blocks.

Notify and Prior • Two contributions from Concept Automation. Notify tells you when a process has terminated. Prior lists the priorities of processes. 162 blocks.

RDOS Kermit • Now available. You must request the Kermit tape (rather than the library tape) to get RDOS Kermit.

Softrans • A file-transfer protocol written in Fortran 77 used to communicate with proprietary PC communications packages. 462 blocks.

Spell • Checks the spelling of a word or spell-checks documents. Submitted by Richard Kouzes. 5,108 blocks.

TEX • Version 2.26a is now available. TEX (Terminal Emulator with Xmodem) is a terminal-emulation program written by David Down. He has revised the TEX software to include a command language. TEX is distributed as shareware. At the end of 30 days, either remove it from your system or send the author a \$45 fee. 463 blocks.

VT100KER • VT100 emulator from John Grant. 1,043 blocks.

Xfer • A tape-conversion utility. 607 blocks. Δ

All NADGUG members interested in receiving the NADGUG software collection should send a 1,200-foot tape to:

Randy Berndt, Building 4, Suite 321,
5300 North Braeswood,
Houston, Texas 77096

MV/2000 and MV/1400 users should send one formatted, error-free tape cartridge. Software contributions should be sent to the same address. Be sure to include your membership number. Allow 4-6 weeks for delivery.

Thanks to Brian Johnson and WFFCA, the library is now able to provide 1,200 ft. copies to AOS/VS rev 6 users. Thanks to Kevin Danzig for duplicating MV/2000 tapes. For information regarding non-standard library distribution, call 1-800/877-4787.

Please include a self-addressed envelope with sufficient return postage. In compliance with postal regulations, do not date the postage. Either disable the date printing completely, or set the date to "--" or zeros. Tapes cannot be returned UPS collect.

Solve the case of locked files fast.

With FILE_MONITOR™
The File System Spy and Disk Balancer

"EAGLE'S FILE_MONITOR makes our customers think we're heroes. . . ."

FILE_MONITOR saves time and trouble clearing system bottlenecks created by exclusively opened files. Now we can instantly tell customers *who* has *what* open. We can also track accesses by file and save time balancing system load."

Pat Jones
Source Data, Inc.

"FILE_MONITOR is the key to unlock files, directories, and disks. . . ."

We're networked around the world, around the clock. FILE_MONITOR lets us know who to contact to release locks so we can get in fast for system switching and maintenance."

Steven Elliott
Chicago Research and Trading

Call 800-477-5432 today.

Solve all your access information and disk balancing problems economically with FILE_MONITOR.
It's elementary!



169 East Cloud / P.O. Box 16
Salina, Kansas 67402-0016
Phone (913) 823-7257
FAX (913) 823-6185

FILE_MONITOR is a trademark of EAGLE SOFTWARE, INC.
©1991B EAGLE Software, Inc. 045

Circle 24 on reader service card.

Open Systems Office for Aviion

Unix business applications available with OSO/pc.DAA

Westboro—Data General announced Open Systems Office/pc.DAA, a workgroup productivity platform in an open environment that unites multifunction Aviion servers and PCs across Netware LANs (local area networks). OSO/pc.DAA provides sophisticated electronic mail, file and print services, and application integration.

An MS-DOS software package based on Microsoft Windows 3.0 and Hewlett-Packard's Newwave 3.0 iconic graphical user interface (GUI), OSO/pc.DAA uses Netware for Aviion systems and MHS mail, providing for sharing of networked resources such as printers and fax facilities, and for workgroup activities including electronic mail. Through terminal emulation or client/server computing, OSO/pc.DAA allows users to access a range of Unix business applications available on Aviion servers. Information can be downloaded to PCs and integrated into a user's personal productivity tools.

PereLine 3.0 IBM PC Terminal Emulation

for D210-D410 Terminals



ONLY!
\$49⁹⁵

Try it!

30 Day Money Back Guarantee

Features:

- ★ Display 132 Columns
- ★ Connect Directly or via Modem
- ★ Full Screen Editor
- ★ File Transfer in Background
- ★ Also Includes
DEC, IBM & Compuserve

1(800) 359-6612

(9:00am to 5:00pm PST)

PereLine Data Systems, Inc.
750 Camden Ave 2nd Floor
Campbell, Calif. 95008

Circle 35 on reader service card.



WFFCA World's Fastest File Compressor & Archiver.

WFFCA compresses files and archives them faster and with less impact on other users than any other similar utility available on DG systems. Dramatically reduce disk storage used by infrequently accessed files maintained for historical purposes. A typical SYSLOG file compresses better than 7 to 1.

WFFCA has the ability to handle archives in the popular PC ARC™ format significantly reducing file transfer time.

Initial AOS/VS and AOS/VS II License: \$499
10 Day Trial Copy: FREE!

ARC™ is a registered trademark of Systems Enhancement Associates

A Division of B.J. Inc.

SYSMGR

Software for System Managers

109 Minna St., Suite 215
San Francisco, CA 94105
(415) 550-1454 FAX (415) 550-1072

Circle 42 on reader service card.

SERVICE

Data General Terminal Repair

- D100, D200, D210
- D211, D214, D215
- D216, D450, D461
- D462, D410, D400
- D411, 6053, D412

\$95 Flat Rate
most repairs



COMPUTER
MAINTENANCE
CORPORATION

609 North 4th Street
Stillwater, MN 55082
(612) 439-0279

Circle 8 on reader service card.

DG offers OSO/pc.DAA as part of its implementation of the Distributed Applications Architecture (DAA) strategy. OSO/pc.DAA can stand alone or be integrated with server-based business and office computing applications.

OSO/pc.DAA's industry standard architecture provides for integration of vertical applications and value-added services. Data General and its third-party software providers will add a set of groupware products including: electronic mail gateways, imaging, workflow automation, fax, and executive information system and data base access.

OSO/pc.DAA will be sold in quantities of one or in packages with or without MS-Windows 3.0. Without MS-Windows 3.0, pricing ranges from \$420 for a single user to \$20,800 for up to 64 users. With MS-Windows 3.0, pricing ranges from \$550 for one user to \$28,800 for up to 64 users.

Data General Corporation, 3400 Computer Drive, Westboro, MA 01580; 508/898-4057.

Circle 52 on reader service card.

Faster searches, more 8 mm storage, unattended backups, encryption options

Newport News, VA—Faster file searches and more storage capability are now available in an 8 mm tape backup system from the Contemporary Cybernetics Group. The CY-8200-SX stores more than 10 GB on a single tape at up to 60 MB per minute. It can search one full gigabyte of data in just 17 seconds.

Advanced helical scan recording technology results in user time savings. High-capacity, unattended backups means no more tape swapping, the ability to do backups overnight, and reduced expense for media, storage, and shipping.

The company also announces the availability of the CY-8500, an 8 mm tape drive capable of storing up to 25 GB on a single tape with transfer rates of up to 90 MB per

minute, completely unattended. The CY-8500 offers compatibility with a wide range of computer systems.

Both the CY-8200-SX and the CY-8500 are turnkey subsystems that come housed in an external tabletop enclosure with power supply, 2-line, 40-column LCD, software, and complete documentation. A variety of cable lengths and rack mounting options allow for configuration flexibility.

Both systems support a data encryption option providing controlled access to data through the use of card keys, and a data compression option allowing five times the storage capacity on the same 8 mm tape. Contemporary Cybernetics also offers a 12-month warranty with support from its in-house engineering and technical support groups.

Contemporary Cybernetics Group, Inc., Rock Landing Corporate Center, 11846 Rock Landing, Newport News, VA 23606; 804/873-0900.

Circle 51 on reader service card

Data General • Buy • Sell • Trade

Processors:

MV40000 32MB	SAVE S
MV20000 Model 1 16MB	SAVE S
MV20000 Model 2 16MB	SAVE S
MV20000 Model 1 to Model 2 upgrade	SAVE S
MV15000 Model 20 8MB	\$25,000
MV15000 Model 8 to Model 20 upgrade	SAVE S
MV15000 Model 10 to Model 20 upgrade	SAVE S
MV10000 4MB Meter high cabinet	\$4,500
MV8000-II 8MB Meter high cabinet	2,500
MV9500 8MB AOS/VS II	47,000
AviON All Models	SAVE S
MV8000 Model 9300	950
MV7800 4MB 16 slot chassis	2,100
MV7800XP 4MB	7,500
MV4000 2MB	700
MV4000DC 2MB, 120MB, floppy	2,250
MV2000 Enhanced 4MB 160 MB disk	5,200
MPT100 Dual floppy	350
MP100 8520-D	350
S-140 256KB Floating point	1,500
Desktop 10 Floppy, 15MB disk	875
Desktop 20 Floppy, 15MB disk	1,295
S-120 256K 16 slot	550
S-280 2MB	1,900

Processor Options:

8997 Expansion chassis MV15, 20	\$5,900
8819 Second IOC for MV10000	1,800
8762 Expansion chassis MV10, 8, 4, S280	3,500
8761 Floating point unit MV4000	950
8749 Battery backup for MV10000	1,100
8746-B Battery backup for 8762	
EXP Chassis	900
8704 Floating point unit MV8000	500

4543-B MCP1 8 Async 2 Sync DCH Ptr	1,900
4463-ZT USAM-4	275
4380 ISC-2 (Synch)	600
4370 IAC-16 RS232, 20MA, W TCB	1,550
4367 IAC-8 RS232, 20MA Modem Cnt	1,500
4532-A ILC	2,900
4560 LAC-12	1,100
4608 10 Port term. serv	2,800

Disk Storage Units:

6161 147MB Disk subsystem	\$900
6236 354MB Disk subsystem	1,300
6239 592MB Disk subsystem	3,200
6329 120MB MV2000/MV1400	800
6363 160MB MV2000/MV1400	1,200
6491 322MB for MV2500 or CSS	2,900
6554 662MB for MV2500 or CSS	3,900
6581 500MB R.A.M.S. Disk	Call
6720 CSS2 1.0GB Disk subsystem	12,000
6685 1.0GB Disk Drive A/O	5,700
2351 Fujitsu w/BMX3	3,200
6061/6122 Zebra Disks or Parts	Offer
Zetaco ARZ and SKS subsystems	Call
Zetaco Laser Disk subsystem	Call

Specials

D 411 Terminal	\$180
CSS (SCSI) Disk & Tape Subsystems	Call

Terminals:

6108 D200 Monitor with keyboard	\$125
6130 D400 Monitor with keyboard	150
6166-X D410 Monitor with keyboard	165
6169-X D211 Monitor with keyboard	165
6391-X D214 Monitor with keyboard	200
6392-X D215 Monitor with keyboard	225
6393-X D411 Monitor with keyboard	180
6394-X D461 Monitor with keyboard	375
6500 D216 Monitor with Keyboard	380
6567 D412 Monitor with Keyboard	475
4568 D462 Monitor with Keyboard	795

Tapes:

6021 800 BPI new style	\$400
6026 800/1600 BPI Brown, FCC compliant	1,250
6125 1600 BPI Streamer, FCC compliant	500
6311 15MB Cartridge MV4 DC/7800DC	650
6341-A 1600 BPI Streaming Tape	3,500
6270 15MB Cartridge for Desktop	650
6299/6300 1600/6250 BPI Subsystems	4,500
6586-A Galaxy Tape	5,200
6590M 2GB Tape Backup add-on for CSS	4,000
Megatape 2GB Subsystem	Call
Kenedy 9400 w/ BMX2 Subsystem	Call

Memories:

MV40000, All sizes
MV20000, All sizes
MV15000, All sizes
MV10000, All sizes
MV9500, All sizes
MV8000, All sizes
MV7800XP, All sizes
MV7800, All sizes
MV4000, All sizes
MV2000, All sizes

Call for our low prices!

International Computing Systems

P.O. Box 343 • Hopkins, MN 55343

1-800-522-ICSC

(612) 935-8112

FAX 612/935-2580

Circle 28 on reader service card.

Qualgen tool outputs Ada programs into Lotus displays

Claremont, CA—Software Systems Design has released version 1.0 of Qualgen, an Ada quality analysis tool. Qualgen

analyzes Ada programs to determine more than 200 metrics defining various quality factors, including Halstead and McCabe cyclomatic, as well as such metrics designed specifically for Ada: the number of tasks, derived types, or the extent of comments found in the source code.

Output is imported directly into Lotus 1,2,3 (or equivalent programs) to provide textual and graphic displays. The Qualgen

product is currently available on Aviiion systems, and is priced from \$4,600.

Software Systems Design, 3627 Padua Avenue, Claremont, CA 91711; 714/625-6147.

Circle 59 on reader service card.

Disk access improved on AOS/VS systems

Salina, KS—Expert Systems announces Exploit and Exercise, two new software products designed to improve performance on AOS/VS and AOS/VS II systems. Working together, Exploit and Exercise can eliminate up to 95 percent of the disk access required to execute a program. On interactive systems where users are constantly moving in and out of applications, these utilities can have a dramatic effect on overall system performance.

In addition to these utilities, Expert Systems provides performance consulting services for AOS/VS and AOS/VS II, and specializes in recovery of corrupted Infos files.

Expert Systems, Inc., 2233 Shalimar, Salina, KS 67401; 913/823-5600.

Circle 54 on reader service card.

Omninews e-mail brings hot headlines to CEO system

Wayne, PA—A new service compatible with Data General's CEO system enables electronic mail users to receive up-to-the-minute news, Comtex Scientific Corporation and Soft-Switch, Inc. announced.

Information in Omninews is compiled from the input of a dozen major domestic and international newswires and specialized sources, as well as the Securities and Exchange Commission and Comtex's own Washington, D.C., bureau. Omninews combines late-breaking coverage of corporate news and SEC filing information with international, political, economic, and market developments affecting business. Comtex integrates news from all of these sources, updating stories as they break and eliminating duplicate coverage.

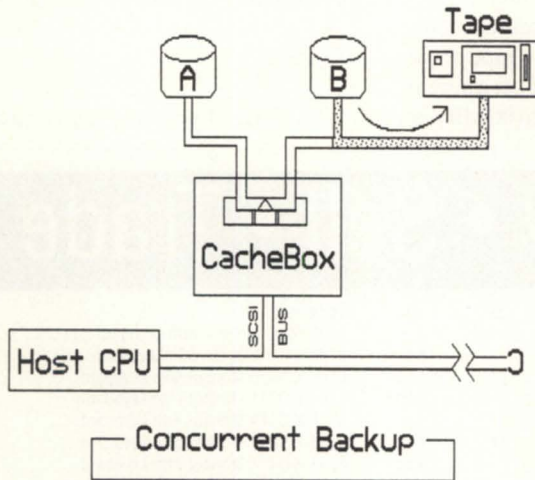
Another feature of Omninews is customized news—users may provide a "clipping profile" identifying what infor-



Delphi Data

Introduces the RAIDER™

CacheBox Driven Array of SCSI Disks for
Maximum Price/Performance



Additional Features:

- Mirroring / Stacking / Unstacking
The drive size you need with mirroring for data integrity.
- Concurrent Backup
No stop backup for systems that need high availability.
- Backup to 8MM tape / 4MM tape / optical cartridges for long term archiving and off-site secure data storage.
- Disk Arrays up to 5 GB deep to 3 wide (triple mirror) per cachebox.
- Up to 64MB disk cacheing with advanced Algorithms (LRU etc.).
- 486 EISA compute power for high speed response available.

Patent Pending



Delphi Data

(714) 279-7955
Fax: (714) 279-7957

9069 Cajalco Road,
Building 1 •
Corona, CA 91719

**Call for your
VAR pricing.**

Circle 18 on reader service card.

mation they wish to receive. Stories matching the profile are automatically formatted and addressed to the user's e-mail box. Headlining quickly defines a story's essence, keywording facilitates information retrieval, and stories are updated continuously.

Omninews electronic mail delivery pricing is defined by a site license for redistribution of copyrighted news wire material within a company, and based on a specific number of users and profiles.

Soft-Switch, Inc., 640 Lee Road, Wayne, PA 19087-5698; 215/640-9600. Comtex Scientific Corporation, 800/624-5089 or 203/358-0007 (in CT).

Circle 58 on reader service card.

Dynamics 4.0 software package offers distribution, accounting features

Alexandria, VA—Dynamic Business Systems announced release 4.0 of Distribution Dynamics for medium to large hardgoods distributors. The software package includes four modules: order entry, purchase, order, inventory control, and sales analysis, and offers extensive windowing in order entry and purchasing for instant lookups of stock availability, items on order, and substitute items. New features include complete inventory cycle counting and the ability to assign warehouses and multiple ship-to addresses at the line level of an order. Modules may be used independently or as an integrated system.

DBS also announces release 4.0 of Accounting Dynamics, an accounting software package including four modules: general ledger, accounts receivable, accounts payable, and payroll. It features windowing, hot keys, and instant data base lookups for enhanced operator efficiency. Five types of on-line help are available. A flexible financial report writer allows the user to create custom reports and profit/cost center rollup summaries at any level of the corporation. Modules can be used independently or as an integrated system.

Both software packages, Distribution Dynamics and Accounting Dynamics, run on Aviion systems. DBS offers distribu-

tion, accounting, and financial software developed using Progress, a fourth-generation relational data base language. Depending on hardware platform, modules are priced from \$3,000 to \$22,000.

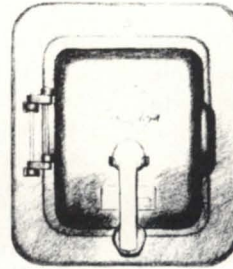
Dynamic Business Systems, 515 King Street, Suite 340, Alexandria, VA 22314; 703/549-3738.

Circle 53 on reader service card.

C&C introduces EC-40 replacement controller board

Northboro, MA—The EC-40, a plug-compatible replacement for the Data General DG4529 ethernet controller, will run

**IN
CASE OF
EMERGENCY**



**CALL
FAST TRACK
SYSTEMS, INC.**

FAST TRACK is best equipped to provide disaster recovery services to your company

Look at the facts:

- Multiple hot sites for better geographic coverage
- Fully equipped locations: Manhattan, Brooklyn NY, and Chicago
- Largest base of installed equipment, and most equipment per subscriber of any Data General disaster recovery firm
- Facilities manned 24 hours a day, 7 days a week by trained operators
- Data General VAR authorized to provide disaster recovery services
- The only Data General hot site facility with its own off-site high security data storage vaults offering 24 hour, 7 day a week courier service
- Fully equipped computer room, office space and conference room facilities dedicated to disaster recovery subscribers
- On-site inventory of hundreds of modems, multiplexors, and terminals
- Private communications network available in most major U.S. cities
- In-house Data General communications expertise ready to provide solutions to your networking needs

Before disaster strikes, you need FAST TRACK SYSTEMS™

(718) 522-7373

FAX (718) 260-4375

Data General has qualified FAST TRACK SYSTEMS as a provider of **DG/hot site** services based on FAST TRACK having met criteria established by Data General.



FAST TRACK SYSTEMS, INC.

61 Broadway New York, NY 10006

FTS is an independent company providing its disaster recovery services for users of Data General equipment.

Circle 25 on reader service card.

all existing Data General supplied communication software, according to an announcement from Claflin & Clayton, Inc. The replacement also runs TCP/IP networking software from C&C.

A single 7-inch-by-9-inch controller board that interfaces the DG Desktop I/O bus to the ethernet/IEEE 802.3 local area network, the EC-40 performs the physical and data link functions of the industry standard ethernet/IEEE-802.3 specification, permitting desktop generation mini-computers to communicate across the 10 MB/sec local network.

Single-quantity list price for the controller, including one year of warranty service, is \$1,700. Full documentation, diagnostics, and chassis cabling are also available.

The EC-40 is supported by C&C's TCP/IP software for AOS and RDOS operating systems, and by DG Xodiac software.

Claflin & Clayton, Inc., 203 Southwest Cutoff, Northboro, MA 01532; 508/393-7979.

Circle 50 on reader service card.

Sound reproduction, programmable audio synthesizer for MVs

Waterford, MI—Indocomp Systems, Inc., introduces the IS-4105 intelligent controller that produces high-quality audio reproduction of digitized voice, music, and sound effects. It provides an efficient man-machine interface for situations in which the user finds it inconvenient or impossible to use the traditional CRT screen to interact with the system.

The IS-4105 is a half-height (15 inches x 7 inches) option board that plugs into an L-bus based Data General computer (MV/2500, MV/2000, MV/1400, or DS/7500). Audio commands and data are transferred from the DG host to the IS-4105 through an on-board 128 KB dual port RAM. A powerful 68010 microprocessor executes the commands and controls the audio output section.

The programmable audio synthesizer

is priced at \$2,596. OEM/VAR discounts are available.

Indocomp Systems, Inc., 7338 Highland Road, Waterford, MI 48327; 313/666-9715.

Circle 55 on reader service card.

RDS emulator enhances NVT code for Portable Netware

San Rafael, CA—Popterm/NVT for MS-DOS, the first terminal emulation package designed specifically for use with the Netware Virtual Terminal (NVT) feature of Portable Netware, is available from Rational Data Systems, Inc.

Emulating VT52 and VT102 terminals and supporting up to 10 simultaneous sessions on the same or different Portable Netware servers, Popterm/NVT employs hot keys to switch instantly from one session to another.

RDS has licensed NVT technology from Novell, Inc., and has incorporated an en-

The B52 is an aircraft well used to superlatives. Massively powerful, its versatility and adaptability have extended the B52's lifespan in an age when technology has outpaced most other weapons systems and has left them outdated almost as soon as they enter service.

Designed in the 1940's the B52's role in the inventory of the USAF has been projected to the end of the of the century—few aircraft will have proved so long lived.

The longer and harder you push B32 Business Basic the more you'll appreciate the comparison.

Powerful - Versatile - Adaptable

B32 - Basically The Best

B32 Software (US) INC.
4412 Carver Woods Rd
Blue Ash, Ohio 45242
Contact: Felix Decsi
Phone (513) 791-6172
Fax (513) 791-6290

Synergistic Software Co. Ltd.,
Hughenden House, Main Street
Collingham LS22 4A
United Kingdom
Contact: Tony Deakin
Phone 44-937-73446 (24hr)
Fax 44-937-66903

Circle 2 on reader service card.

FREE! to NADGUG members!

- Focus Magazine/12 issues
- Electronic Bulletin Boards
- NADGUG software library
- Member Directory
- Networking with other DG users
- Access to RIG/SIG network
- Communication channel to DG
- Discounts on annual conferences

Make use of all the benefits of belonging to the North American Data General Users Group. Contact Greg D. Goss, Coordinator, Membership Services, for further information at
1-800-USR-GRUP
512/345-5316 (Outside U.S.).

If you live in one of these cities, life just got a whole lot easier!

Atlanta, GA
Boston, MA
Buffalo, NY
Chicago, IL
Cleveland, OH
Dallas, TX
Danbury, CT
Fort Lauderdale, FL
Indianapolis, IN
Irvine, CA
Milwaukee, WI
New York, NY
Pittsburgh, PA
Portland, OR
Saratoga, NY
Washington, DC

These are some of the select cities where Data General will be holding a "Technology Forum." You'll be able to find out first-hand how Data General ECLIPSE® systems can help you change the way you work. Namely, for the better and the easier. For more information about the "Technologies Forum" in your city, call 1-800 DATA GEN.

Data General

Life just got
a whole lot easier!

DG & COMPATIBLE
BUY • SELL • LEASE

CPU
MV/15000, 20000
MV/10000
MV/8000
MV/7800
MV/4000, 4000DC
MV/2000
NOVA 4-C, S/20
S/140, S/280, C350

MEMORY
for all MV &
ECLIPSE
for all NOVA &
MICRO

PRINTERS
4320 55CPS LQ
GENICOM 3318
Data Prod B300,B600
OKIDATA 192, 292
HP LASER JET

DESKTOP
DG/10, 20, 30 PKG
DISK UPGRADES
USAM-4, USAM -1
CARTRIDGE TAPE
MEMORY

COMMUNICATIONS
IAC-8, IAC-16
TCBs
COM BASIC I/O
ATI-16, AMI-8
ALM-8, ALM-16
MCP-1 W/TCB

DISK / TAPE
354, 592 MB
96, 192 MB
73, 147 MB
10, 12.5, 20, 25 MB
6231 CART N/E
6026, 6123, 6125
6299, 6300, 6021

CRT'S
6053, D-100, D-200
D-210, 211, 410, 460
D-214, 215, 411, 461
D-216, 412, 462, 470

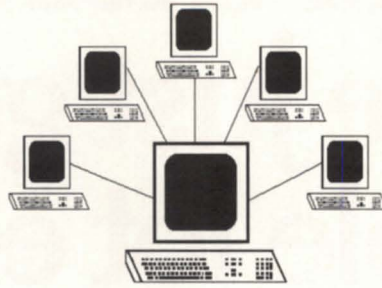
COMPATIBLES
ZETACO CDC
FUJITSU SCIP
DATARAM STC

SPECIAL AViiON
★★★★

AMES SCIENCES, INC.
Rt.1, Box 78 Chancellor Point Rd., Trappe, MD 21673
(301) 476-3200 • Fax 301-476-3396

Circle 1 on reader service card.

**Could you use
more than one
terminal?**



With MultiView Windows
you can have the equivalent of
eight terminals with just one!

DEMO ONLY \$49

**DIGITAL
DYNAMICS INC.**

3055 Plymouth Road, Ann Arbor, MI 48105
(313) 995-2400 FAX (313) 995-3232

Circle 49 on reader service card.

hanced version of the NVT code directly within the emulator itself. Normally, NVT is installed on the workstation as a separate memory resident (TSR) module, but by combining NVT and the emulator in one module, Popterm/NVT has been kept to less than 80 KB in size. This allows it to be installed as a TSR or even loaded into high memory between 640K and 1 MB. If loaded memory resident, Popterm/NVT can be activated at any time by simply pressing a hot key.

PopTerm/NVT is licensed for a specified maximum number of simultaneous users on a particular Portable Netware server. The standard license for 1-50 simultaneous users is priced at \$2,495, while licenses for reduced seat counts of 10 and 20 simultaneous users are priced at \$995 and \$1,495, respectively.

Rational Data Systems, Inc., 1050 Northgate Drive, San Rafael, CA 94903; 415/499-3354.

Circle 57 on reader service card.

**Take a letter, Aviion:
Postware system
standardizes mailing**

La Crosse, WI—Under a new cooperative marketing agreement with Data General, Postalsoft offers its Postware Mailing System on DG's multi-user, multi-tasking Aviion computer series. Data General will provide Postalsoft with technical support for sales calls, demonstrations, and seminars.

Postware is a family of software modules that commercial mailers use to simplify mail preparation. The system reflects all new U.S. Postal Service (USPS) rates and regulations, and relies on state and national directories that include all information contained in the USPS master ZIP+4 data base. Postware standardizes, corrects, and verifies addresses and assigns ZIP, ZIP+4, and carrier route numbers. The system also presorts first, second, and third class mail, prints address block and sack bar codes, produces USPS-required mailing reports, processes multi-entry point mailing, processes print image forms, merge/purges mailing lists, and palletizes second and third class mail.

Postalsoft, 4439 Mormon Coulee Road, La Crosse, WI 54601-8231; 608/788-8700. Δ

Circle 56 on reader service card.



SYSTEMS EXPRESS LIMITED

The Computer Specialist

For European Users:

Why buy Data General equipment 5,000 Kilometers away?
EEC Based Data General Sales Specialists

- ⇒ Prices will be better from us !
 - ⇒ Delivery will be faster from us !
 - ⇒ Power specifications will be the same from us !
 - ⇒ No import duty from us* !
 - ⇒ No export licence needed from us* !
- (*ECC countries)

**We will be
happy
to quote for
and supply:**

MV55 and MV95 upgrade boards - the latest Data General MV technology, featuring an MV family CPU on a 5 MIPS single-chip board.

MV 18,000 Range	MV 10,000	MV 2,500	MV 1,400
MV 15,000 Range	MV 7,800XP	MV 2,000	MV 1,000

Spares for all your Old Eclipse/Nova/Micronova Systems.

Full range of AViiON and 386 UNIX machines, workstations and the PLUS-type, AViiON-compatible terminals with twin-host working.

Data General Compatible equipment.
Fujitsu, Dataram, Kennedy, MegaTape, Zetaco

**THE BEST SUPPLIER FOR
THE NEW EUROPE !**

Systems House, Rear of 23/29 Daws Lane
Mill Hill, London NW7 45D
Tel: 44-081-906-8191
FAX: 44-081-906-8638
Telex: 8954111 Replay G

Circle 44 on reader service card.

FOCUS

The Magazine of the North American Data General Users Group

Do you need information, **today**, about products or services advertised in this issue?
Focus Magazine makes it easy!

1. Copy this page, or cut it out.
2. Find the ad you're interested in (the ad index is located on the following page).
Focus has requested that advertisers include their fax number in their ads. Write it down.
3. Fill in the information about you and your company.
4. Add any comments about the specifics of your request.
5. Then FAX it directly to the company. You'll receive the information you need fast!

Advertiser's company name: _____

Advertiser's FAX number: _____

I am looking for the following information: _____

Your name: _____

Your company's name: _____

Your fax number: _____

Your phone number: _____

**A
D
F
A
X**

*Now wasn't that easy?
You'll be excited about the quick response you'll get to your request!*

ADVERTISER!
This is a hot lead from *Focus Magazine*. Please give this prospect your immediate attention!

AD INDEX

Company	PG#	RS#	Company	PG#	RS#
Ames Sciences, Inc.	48	1	McIntyre's Mini-Computer Sales Group, Inc.	28	32
B32 Software (US), Inc.	46	2	NADGUG	39	-
Best Power Technology	28	3	NADGUG	46	-
BL Associates	1	4	NPA Systems, Inc.	37	33
Clafin & Clayton	26	5	NSTS	32	34
Clearpoint Research Corporation	C4	6	PereLine Data Systems	42	35
Compuplan International, Inc.	51	-	Rational Data Systems	5	36
Computer Engineering International, Inc.	40	7	RAVE Computer Association	17	37
Computer Maintenance Corporation	42	8	Rhintek, Inc.	9	38
Computer Wholesalers	23	9	Sabra Systems, Inc.	51	-
Concept Automation, Inc.	13	10	SCIP	35	39
Cyberscience Corporation	C2	11	Security Computer Sales	16	40
Data Assurance Corporation	34	12	Sysgen Data Ltd.	13	41
Data Bank Associates, Inc.	21	13	:SYSMGR, a division of B.J. Inc.	42	42
Data General Corporation	47	14	:SYSMGR, a division of B.J. Inc.	23	43
Data Investors Corporation	19	15	:SYSMGR Bulletin Board	51	-
DataLynx	15	16	Systems Express Limited	48	44
DataPlus	10	17	TextBase Imaging Corp.	27	45
Delphi Data	44	18	Threshold, Inc.	32	46
Digital Computer Consulting	C3	19	Wild Hare Computer Systems, Inc.	29	47
Digital Computer Service	23	20	WordPerfect Corporation	3	48
Digital Data Systems	36	21			
Digital Dynamics	48	49			
DMS Systems, Inc.	7	22			
DMS Systems, Inc.	51	-			
Dyna-Med, Inc.	27	23			
Eagle Software, Inc.	41	24			
Eagle Software, Inc.	51	-			
Fast Track Systems, Inc.	45	25			
Flying Point Software	12	26			
Indocomp Systems, Inc.	32	27			
International Computing Systems	43	28			
Interscience Computer Corporation	22	29			
Jacobsen & Associates, Inc.	11	30			
MarcAlan Software, Inc.	25	31			

PRODUCTS AND SERVICES

Company	PG#	RS#
Clafin & Clayton, Inc.	46	50
Contemporary Cybernetics Group, Inc.	43	51
Data General Corporation	43	52
Dynamic Business Systems	45	53
Expert Systems, Inc.	44	54
Indocomp Systems, Inc.	46	55
Postalsoft	48	56
Rational Data Systems, Inc.	48	57
Soft-Switch, Inc.	45	58
Software Systems Design	44	59

ON-LINE HELP

Who to call for answers about NADGUG and FOCUS

NADGUG

Membership, RIGs, SIGs

Greg D. Goss 800/877-4787
(Outside the U.S.) 512/345-5316

Electronic bulletin board

(300 or 1200 baud modem)
Rational Data Systems 415/499-7628

NADGUG staff and FOCUS Magazine address:

c/o Turnkey Publishing, Inc.
Livingston Building, Suite 250
3420 Executive Center Dr.
Austin, TX 78731
FAX: 512/343-7633

FOCUS Magazine

512/345-5316

Editorial comments, article suggestions Robin Perry
(please send product announcements to the address listed above)

Information about advertising Michelle Sentenne

FOCUS back issues Turnkey Publishing staff

Make the Connection!

- AOS/VS
- Business BASIC
- CQCS
- Educators
- Federal
- INFOS II
- ICOBOL
- Law Enforcement
- Lions Gate
- Music & Recording Industry
- OASIS
(Office Automation)
- :PERFSIG
(performance and capacity planning)
- SIG/UX (Unix)
- SMBASIC

Let the North American Data General Users Group (NADGUG) connect you with other Data General users who have a similar special interest and who want to share information, ideas, problems, and solutions. No matter what the special interest is behind the group — equipment, systems or application software, major language, operating system, industry type — the reason is the same: to work together to exchange ideas on how to get the best performance out of your DG system.

Listed above are NADGUG's current special interest groups. If you are interested in making the connection with one of these groups, or if you have an interest that needs a group, please contact NADGUG's RIG/SIG coordinator, Greg D. Goss, at 1-800-USR-GRUP (512/345-5316 outside U.S.) for further information.

SOFTWARE

LASER POWER

Utilize the full power of your HP/II or III laser printer for reports on the DG MV AOS/VS system. \$50 any MV. Order: Gary Burns. 1111 Carrie Ave., Endicott, NY 13760. Info: (607) 786-0676.

The North American Data General Users Group is an incredible resource when you need answers. So, don't go it alone—join NADGUG today!

EQUIPMENT



Compuplan's got what's HOT!

◇ NEW ◇
in the box

DG Compuplan
6617 450LPM printer --\$7795. \$6795.
6618 800LPM printer --\$8795. \$7595.

The hottest and newest printer for D.G. Systems!

Free Installation in the USA
Call: 214/228-0188
800/228-8889 outside Texas
FAX: 214/224-3281

Available immediately:

MV15,000 Model 10 System with 16MB memory

2 - 592MB disk s/s
1 - 6299 tape drive s/s
Sold together or separately.
Reasonable offers.

Sabra Systems, Inc.
Contact: Reuven Kalman
Phone #: 201-492-0317
FAX#: 201-492-1460

SERVICES

RAS

RESOURCE ACCOUNTING SYSTEM

- ✓ Capacity planning
- ✓ Resource allocation
- ✓ Chargeback accounting
- ✓ Security violation monitoring

(800) 284-8333

DMS Systems, Inc.

1111 Brickyard Rd., SLC, UT 84106
FAX (801) 484-3367

Moving from INFOS to UNIX?

EAGLE Software
"The INFOS Experts"
can help!



1-800-477-5432
169 East Cloud
P.O. Box 16
Salina, KS 67402-0016
FAX (913) 823-6185

EVENTS

Ed de Castro

Come meet Ed at private CEO club luncheons across the country.

For invitation
call 212-633-0060.

DIAL-UP BULLETIN BOARDS

:SYSMGR BBS specializes in file transfer of RDOS and AOS[/VS] DUMP files - no messaging facilities. XMODEM, YMODEM, and KERMIT supported. 415/391-6531(one line), 2400 baud (Micom M 3124 EH), 8 data bits, 1 start /stop bit or 415/550-1454 (voice). System is MV/4000, terminal mode is CHAR/605X.

Data Specific

\$\$\$ for schools

Data General will donate \$250,000 in equipment and software to the **New York State Education Department** for use in a program exploring the contributions made by technology in pursuit of educational excellence. Partners in the project are the **Albany Regional Information Center** and the **Broome Regional Information Center**.

Schools will be asked to plan for at least two of the following areas:

- creative use of laptop computers
- collaborative efforts with business, industry, university, community, or home
- the use of multimedia presentation systems.

DG will provide Intellibook software, a document management system for cross-referencing large collections of text and graphics.

Data General will also authorize access to its worldwide communications network to foster electronic mail exchange among students in New York secondary schools, the Soviet Union, and Singapore.

Participating schools will be selected through a competitive grant process. Winners will be announced on April 3.

And then there was business continuity

Data Assurance Corporation opened a full-service business continuity center to serve the Rocky Mountain region. The 1,700 square-foot facility accommodates up to 200 people in the event a company is faced with any situation that disrupts normal phone service or data processing functions, according to DAC.

The center contains prepositioned voice and data, a command center, and large-scale telecommunications capability. It also serves as a DG and Hewlett-Packard hot site. Business continuity is the next

logical step for a company that has been providing disaster recovery services, DAC says. DAC's first client for its continuity center is Invesco Funds Group, Inc., a mutual fund management company. Invesco, founded in 1932, manages approximately \$2 billion in 23 mutual fund portfolios.

Certified by Novell

Data General was awarded certification as an authorized Novell Support Organization (NSO) by Novell, Inc., which al-

lows DG to provide on-site service and support for Novell installations, from networked PC groups to large multivendor computer networks.

Zetaco goes home

Zetaco, manufacturer of peripheral storage devices, consolidated offices with its parent company, Carlisle Coporation. Zetaco's new address is 11400 Rupp Drive, Burnsville, MN 55337; New phone numbers are in effect. They are: 800/423-3020 and 612/890-5135. △

April 15-16, 1991

OASIS workshop
(office automation special interest subcommittee)

Location: Stouffer Concourse Hotel, St. Louis, MO

Topics: Retraining users, beta site testing, controlling users, data bases on the MV, managing CEO on multiple MVs, managing WP Office on multiple MVs

Cost: \$250 for members, \$285 for nonmembers, \$50 for DG personnel

Contact: Peggy Whitt, 205/544-3001

April 16, 1991

LA Edge
(Los Angeles end-users of DG equipment)

Location: Brookside Country Club

Time: 7 p.m.

Contact: Mark Speer, 818/897-7777

April 17, 1991

TADGUG
(Tri-state area DG users group)

Location: Philadelphia, PA

Time: 1:30 p.m.

Topic: Portable netware; MV-to-PC connectivity

Contact: James Linville, 717/293-4444

May 14, 1991

LA Edge
Hardware and Software Expo

Location: Brookside Country Club

Contact: Mark Speer, 818/897-7777

RIG/SIG gigs

APRIL/MAY/JUNE

May 17

DGUI conference

(DG users of Indiana)

Location: Quality Inn East, Indianapolis, IN

Time: 8 a.m.-5:30 p.m.

Description: The theme of the conference is "maximizing the potential." Sessions will be divided into management, technical, and application-specific. Session topics include standards, graphics, connectivity, and AOS/VS performance management. There will be a keynote address, exhibits, and a wine and cheese reception.

Contact: Nancy Miller, 317/253-1711

June 9-12, 1991

LEDGUG workshop
(Law enforcement DG users group)

Location: Inn in Aspen, CO

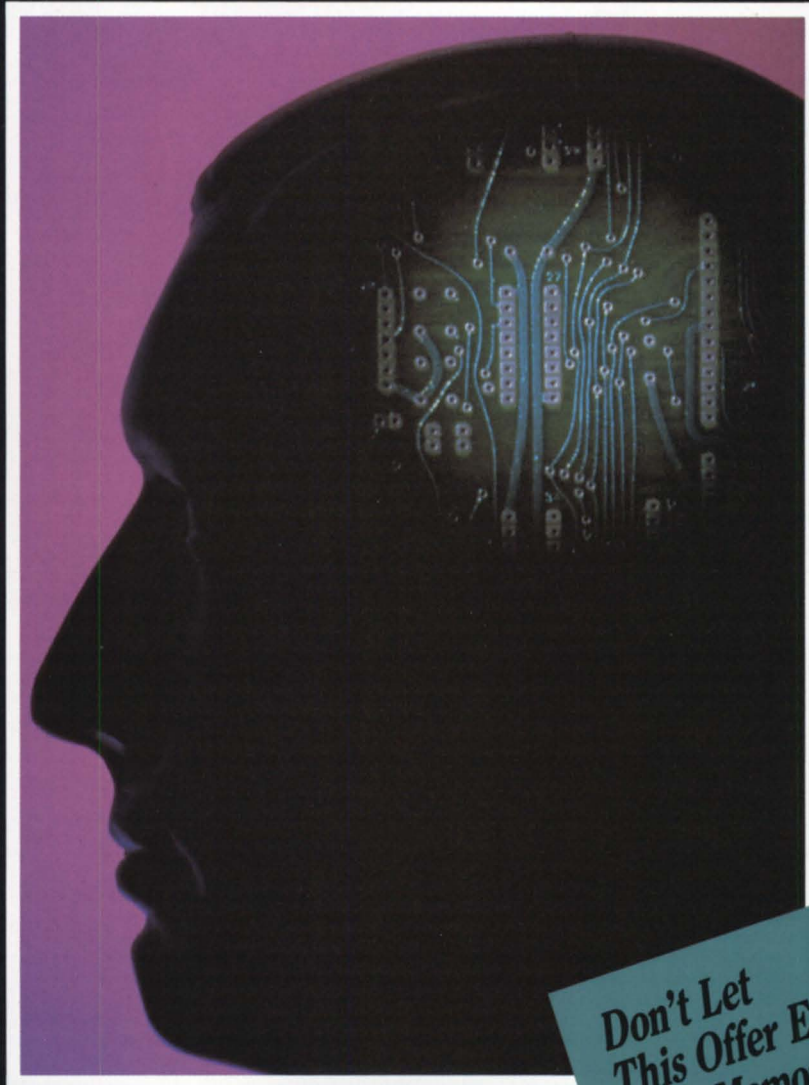
Description: With an overall theme of high-tech policing, topics will cover word processing, digital photo imaging, E911 systems, and more.

Cost: \$125 (includes one-year membership to LEDGUG)

Contact: John Myers, 319/291-2557

This calendar is for notices of regional interest groups (RIGs), special interest groups (SIGs), and NADGUG events. If you would like your group's meetings posted here, please send a notice to *Focus* magazine, Livingston Building, Suite 250, 3420 Executive Center Dr., Austin, TX 78731; fax 512/343-7633. We must receive your notice by the 5th of the month, two months prior to the actual event.

Fix Your Mind On Free Memory.



**Don't Let
This Offer Escape
Your Memory!**

Digital Computer Consulting is freshly stocked with the Data General hardware you've been looking for - at prices you've been waiting for.

Call for complete details on our Free Memory Giveaway.

DG is a trademark of Data General Corporation



DIGITAL COMPUTER CONSULTING, INC.

BOSTON
P.O. Box 1472
Marshfield, MA 02050
Tel. (617) 837-7255
FAX (617) 837-9641

BALTIMORE
3757 Church Road
Ellicott City, MD 21043
Tel. (301) 750-7200
FAX (301) 750-7202

Circle 19 on reader service card.

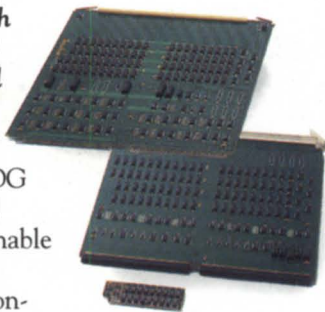
To Design Great Memory for Data General Systems, You Need a Team With Leading Edge Experience



The Clearpoint Team!

Clearpoint proudly introduces memory for Data General's MV and AViiON families, the first of our commitment to a comprehensive Data General product line. Our DG design team backs each product with over 100 years of Data General engineering design experience.

Our aim is to provide DG users with unparalleled performance at a reasonable cost. Commitment to new technologies and on-going product support have made Clearpoint the leading supplier of add-in memory for DEC, IBM, HP/Apollo, Sun, Compaq, Macintosh, and now Data General systems.



The Clearpoint Difference

Clearpoint's DG memory products are supported by

- a lifetime warranty
- 24-hour repair/replace
- round-the-clock technical support
- world-wide spares depots

Clearpoint's lifetime warranty is offered with confidence. To insure reliability, rigorous testing is done on each board throughout all stages of production. Clearpoint's Universal Memory Tester (UMT), a microprocessor-based

computer, runs an individualized DG bus translator to access bit-specific diagnostic tests.

Call or write to receive information on Clearpoint products for Data General systems.

- Product Specification Sheets
- Clearpoint's 1990-91 Product and Services Catalog
- The Designer's Guide to Add-in Memory*, an 80-page text on issues of technology and reliability
- Commitment to Quality*, Clearpoint's QA procedures.



CLEARPOINT

Clearpoint Research Corporation
35 Parkwood Drive
Hopkinton, MA 01748

1-800-253-2778 • (508) 435-2000

Call 1-800-253-2778 for availability and special pricing!