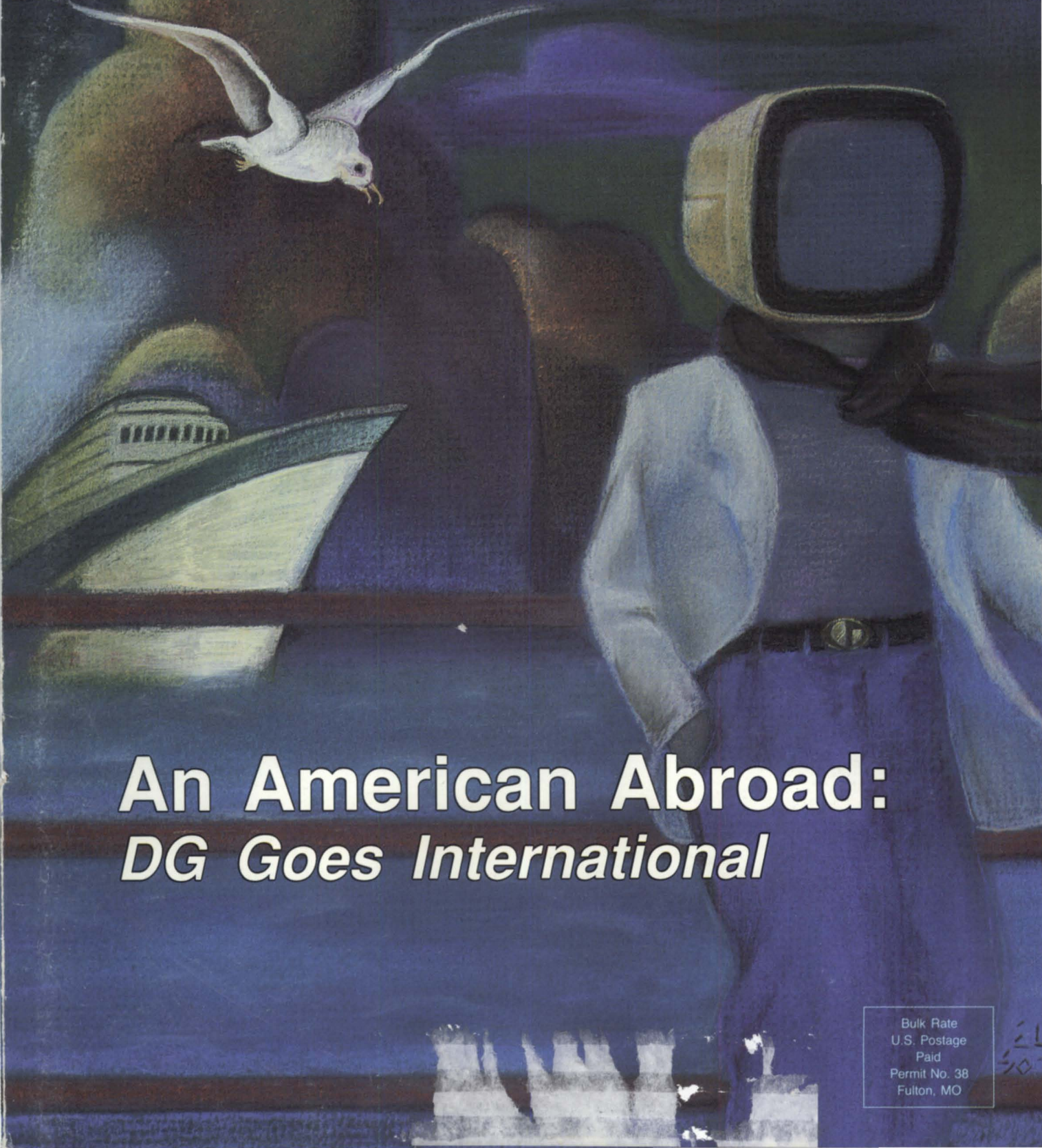


March 1989

FOCUS

The Magazine of the North American Data General Users Group



An American Abroad: *DG Goes International*

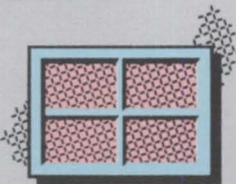
Bulk Rate
U.S. Postage
Paid
Permit No. 38
Fulton, MO

Please fasten



You chose ICOBOL™ because it takes you where you want to go. Fast. And very efficiently. It gives you big-machine performance without hogging all your resources.

Still, you aren't getting maximum mileage out of your ICOBOL programs. Not unless you're running them with CQCS™. Because only CQCS gives you the power of a fully functional 4GL – plus



CQCS gives you a relational view of ICOBOL. Without any additional demands on your machine resources.

complete ICOBOL compatibility.

Not only that. The CQCS Report Writer for ICOBOL is faster and more capable than anything else you've seen.

It's also ridiculously easy to handle. And an automatic graphics interface comes as standard equipment.

You're probably asking yourself how all



You don't need any programming knowledge to use the CQCS Report Writer.

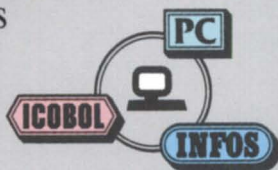
your seatbelt.



This can be true. Surely a genuinely powerful 4GL needs outrageous machine resources? And how can a fourth generation language go the distance with a 3GL like ICOBOL?

The answer lies in DG experience.

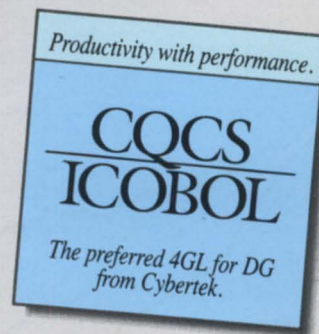
From the start, CQCS was developed exclusively for Data General. We know the MV™ environment like you know your own front seat.



Enjoy complete database independence with CQCS. You can run under INFOS™ or ICOBOL – or even on your PCs.

We just slip right in and get in gear. Smoothly. With only very modest demands on your DG resources.

So if you like ICOBOL performance, look into a CQCS retrofit. Do it today. Because only the preferred DG 4GL can get you moving this fast. With this much control. And horsepower to spare.



ICOBOL
MEETS
THE
PREFERRED
DG 4GL.



Cover illustration by E. Soto.

EDITOR'S NOTE

The next step

2

LETTERS

Comments from our readers

4

ROUNDUP

Use Focus to improve your image

News from NADGUG and its affiliates
by Cathlene Gentry

6

NADGUG ROSTER

Current roster of the Executive Board,
RIGs, SIGs, and international groups

8

LITIGATION

Round 1

Data General wins round one
of ADEX software fight
by Robin Perry

18

SOFTWARE LIBRARY

A complete listing of the NADGUG
software library

20

BULLETIN BOARD

Bits and bytes from the bulletin board

22

FOCUS ON: WORLD VIEWS

Americas/Far East

Developing computer market unifies
vast territories

26

Puerto Rican fortress guards state operations

26

DG is Australia's "Initial Choice"

32

The art of marketing in India

35

In New Zealand: Optical technology
cuts response time

35

DG Europe

Companies that succeed must do
business across borders

37

Computer system steers animal supply vendor

37

DG helps Belgium plastics plant operate smoothly

46

BCT installing first MV/40000 HA in the U.K.

47

Space chatter interpreted at Netherlands
Research Center

48

Many tongues, one voice

U.K. group reaches out to smaller users,
other European countries

49

DISCOVERIES

Sorta merged

Converting label data is just one example
of SORT/MERGE's usefulness
by Jim Siegman

51

SYSTEM MANAGER'S LOG

HELP

Interpreting those arcane switches
for the CHARACTERISTICS command
by Brian Johnson

56

BBASIC BUSINESS

Apples, oranges, and disk drives

If the speed on the 386 is any indication,
the 88000 is going to be one hot computer
by George Henne

62

OA TODAY

Macro-Aid for Wordperfect

New editor simplifies revision
of even the most monstrous macro
by Thane Perkins

66

MANAGEMENT

Your skills are showing

The process of planning for data recovery
can showcase your management skills
by Steve Handlos and Liz Straus

69

CLI

Strong arguments

Using Fortran and BASIC to accept
arguments from CLI
by John Huddleston

70

THE WORKSTATION

Off the charts

Optimum use of workstations
requires file distribution strategy
by Doug Kaye

72

BUGS

Bugs in the system

Pest can invade your environment in several ways
by Bill Spitz

75

AOS[VS] TRICKS

The IPC Man Cometh

Part 2: a simple way to code programs
to wait for IPC messages
by John A. Grant

76

PRODUCTS AND SERVICES

The latest products for DG systems

83

ON-LINE HELP

Who to call for answers about
NADGUG and Focus

84

PRISM

Brief notes from the DG community

88

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. Editorial and business offices are located at Stillhouse Canyon Office Park, 4807 Spicewood Springs Road, Suite 3150, Austin, Texas 78759, phone 512/345-5316. NADGUG headquarters are located at NADGUG, c/o Data General Corporation, 3400 Computer Drive, MS C-228, Westborough, Massachusetts 01580.

Postmaster: Send address changes to Subscription Department, Turnkey Publishing, Stillhouse Canyon Office Park, 4807 Spicewood Springs Road, Suite 3150, Austin, Texas 78759.

Focus Magazine is distributed to members of the North American Data General Users Group. Membership fees are \$40 per person. A one-year subscription to Focus (12 issues) costs \$36. For all memberships outside North America, add \$50 to defray costs of mailing. For information on NADGUG membership, call 508/898-4067. Address all other correspondence to Focus Magazine, c/o Turnkey Publishing, Stillhouse Canyon Office Park, 4807 Spicewood Springs Road, Suite 3150, Austin, Texas 78759.

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 opin-

ions of the authors, and do not necessarily represent the policies or opinions of NADGUG or of Turnkey Publishing.

Advertisements in Focus do not constitute an endorsement of the advertised products by NADGUG or Turnkey Publishing.

Copyright © 1989 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.

The next step

What may be the biggest piece of news this month for NADGUG members is so well hidden you probably wouldn't notice it unless somebody tipped you off. Look at the "On-line Help" box on page 84. Still don't see it? Look closer and you'll see that some of the addresses and phone numbers have changed.

Big deal, right?

Bigger than it looks, actually, but it isn't obvious why. The new numbers and addresses are there because NADGUG has taken a very significant step: it now has the nucleus of its own staff.

Until now, the group has depended on the good will and budgetary largesse of Data General to pay salaries for the staff and provide the office services that keep NADGUG going. Those new addresses and phone numbers are the first visible signs of a transition that was set in motion more than a year ago.

NADGUG is nothing if not deliberate. For a long time the Executive Board has been tending toward greater independence for NADGUG. The push for autonomy didn't come about because of any dissatisfaction with the way DG's employees were managing NADGUG's business. Rather, there was a sense that the group was growing up and ought to be able to take care of itself.

(There was also the matter of taxes, of course. If the IRS determines that NADGUG is a single-vendor user group, it will rule against the tax exempt status the group applied for several years ago. By paying its own way, the group may be able to improve its tax status.)

The first step was to figure out whether the group could afford to go out on its own. Past President Joyce Carter visited with a few management companies to determine what the costs would be. The Executive Committee reviewed the proposals, and then recommended that NADGUG expand on the agreement that currently governs the publication of *Focus*. Using the leverage of the existing *Focus* offices, NADGUG would essentially lease employees to handle the group's staff responsibilities.

The Executive Board approved the rec-

ommendation in principle at last year's meeting in Philadelphia, but it's taken a while to get all the details settled. The post-conference accounting had to be reconciled, and the membership data base had to be brought to a good stopping place. Then there were the details of moving the computer, setting up new bank accounts, ordering new phone numbers, and training the new staff.

The transfer is complete now, but what does it mean for members? Well, first of all, membership records and *Focus* circulation are all handled in the same place now. This should make it faster and easier to resolve address changes and circulation questions. It will also make it possible for the NADGUG staff to begin compiling more extensive information about the people and companies that use DG equipment. A side benefit for NADGUG is savings on mailing costs, because we will finally be able to qualify for second class postage. In addition, the new NADGUG staff members will begin keeping accounting and budget information to help the officers and Executive Board with their decision making.

Less tangible are the benefits that come from increasing the autonomy of the user group. In many ways, it's like growing up. Data General has shown exceptional wisdom in the way it nurtured the group through the 14 years it took to get established. Like a parent, DG has provided help, guidance, attention, money, and finally a gentle nudge out the door—along with an admonition to stay in touch and come visit often.

A footnote: Debra Bedrosian, a DG employee, has done the bulk of the work to make this transition happen. First as user group secretary, and then as NADGUG coordinator, she knows the members as well as anyone, and has worked hard to help the group grow. Fortunately, NADGUG doesn't lose Debra in the transition. She will keep the same title and continue to work on NADGUG's behalf as a DG employee. From her office in Westboro, she will make sure that we do, indeed, stay in touch and come visit often. —GF Δ

FOCUS

The Magazine of the
North American
Data General Users Group

NADGUG LEADERSHIP

President:
Donald W. Clark
Vice President:
Lee Jones
Treasurer:
Frank Perry
Recording Secretary:
Dennis Doyle
Audit Committee:
Jim Siegman
Meetings Committee:
Jan Grossman
Membership Committee:
Bart Bates
Planning Committee:
Joyce Carter
Publications Committee:
Wes Thomas
RIG/SIG Committee:
Charlene Kirian

FOCUS MAGAZINE

Editorial Advisory Board:

David Appel
Tim Boyer
Steve Kern
Steve Kristan
Jim Siegman
Wes Thomas
Editor/Publisher:
Greg Farman, Ph.D.
Associate Publisher:
Sharon Dennis
Associate Editor:
Robin Perry
Contributing Editors:
Tim Boyer
John A. Grant
George Henne
Brian Johnson
Doug Kaye
Charlene Kirian
Jim Siegman
Contributors:
Steve Handlos
John Huddleston
Thane Perkins
Liz Straus
Bill Spitz
Senior Art Director:
Ann Soto
Art Director:
Pat McMurray
Production Artist:
Tracy Grubbs
Production Assistants:
Robert Foster
John Houser
Tonia Klingensmith
Business Manager:
Brenda Millet
NADGUG Membership Coordinator:
Suzanne Himes
RIG/SIG Coordinator:
Cathlene Gentry
Administrative Assistant:
Betsy Zullo

The Right Stuff... We Deliver It!



We Explore All Possibilities.

Blaise Leeber, Rob Littlefield, Paul Leeber, Rick Sprowl and Jim Zardiackas have geared up all their expertise to form BL Associates Inc; offering you the best in:

**FULL SYSTEM CONFIGURATION • CPU'S • DISK DRIVES • PRINTER'S • CRT'S
THE LATEST IN D.G. COMPATIBLE EQUIPMENT FROM ZETACO AND MORE.**

BUY • SELL • TRADE • CASH FOR USED D.G.



**CALL NOW
(617) 982-9664**

155 WEBSTER STREET, SUITE C, HANOVER, MA 02339 TEL. # (617) 982-9664 FAX (617) 871-4456

Circle 5 on reader service card.

Searchlist

In the November issue of DG's monthly newsletter there was a request for a facility to drop one (or more) items from a searchlist without having to rewrite it.

As a systems manager/programmer/operator for nearly three years at a small university in Denmark, I have become very good at using the CLI. One of the first macros I wrote was ADDSEA.CLI, which inserts a directory in front of the current searchlist. The first was a no-frills version:

```
searchlist %1-% [!searchlist]
```

Later on, two switches, /E and /V, were added for putting the directory at the end of the list and, respectively, for displaying the list:

```
[!equal, %0/E%]
  searchlist [!searchlist] %1-%
[!else]
  searchlist %1-% [!searchlist]
[!end]
[!equal, %0/V%]
  searchlist%0\EV%
[!end]
```

But how does one remove an item from the searchlist? The problem is to find the element in question and then remove it. REMSEA.CLI can be written as a macro which 1) calls itself with the directory and the searchlist as its arguments, 2) kills the searchlist, and 3) re-creates it by appending each argument, as shown in Figure 1.

Figure 1: Macro REMSEA.CLI

```
[!equal, %1%]
  write %0% - Removes a directory from the
  searchlist
  write
  write Usage: %0%{/V}/L/Q) (pathname)
[!else]
  [!equal, %0/$2/$3%]
  [!pathname %0%.CLI]/$2,%1%, [!searchlist]
  [!equal, %0/V%]
  searchlist%0/L/Q%
  [!end]
[!end]
[!equal, %0/$2%]
  searchlist/K
  %0%/$3,%1%, (%2-%)
[!end]
[!equal, %0/$3%]
  [!equal (%1%), (%2%)]
  searchlist [!searchlist] %2%
  [!end]
[!end]
[!end]
```

new macro looks like this:

```
[!equal, [!pathname %1%]]
  class2_error Can't find directory - Directory %1%
[!else]
  comment A non-directory argument causes a class 1 error.
  searchlist/1=warning %1% [!searchlist]
  [!equal [?car [!searchlist]], [!pathname %1%]]
  searchlist [?cdr [!searchlist]]
  [!end]
[!end]
```

(If you modify these macros, think of what would happen if they

were called without an argument.)

The macros CLASS2_ERROR, ?CAR, and ?CDR are explained in *Focus* January 1988. (All my function-macros begin with a "?", so they almost look like the CLI's built-in pseudo-macros).

Speaking of the January '88 issue, it also contained a macro called SET.CLI for creating temporary variables. As a CLI-programmer, you are well equipped with integer variables but you have only one string variable. Instead of just creating temporary files all over the file system, I decided to create a general method for storing and retrieving string variables. It consists of two macros, VARS.CLI and ?VARS.CLI, that take the name of a string-variable as their argument. In each user's home directory a special directory called .VARS is created. Here, all the temporary string-variables are kept as one-liners with an "&" at the end, as shown in Figures 2 and 3.

Attaching the "&" (or removing the NEW LINE character) can be done in many ways, but a very clever trick is explained in

Figure 2: Macro VARS.CLI

```
[!equal, %1%]
  class1_error Command requires arguments %0%
[!else]
  [!equal, %0\1\2\L\K\Q%]
  class1_error Switch unknown - %0/%
  [!else]
  push; prompt pop
  directory :UDD:[!username]
  create/2=ignore/dir .VARS
  directory .VARS
  [!equal, %0/K%]
  delete%0K% =%1-%
  [!else]
  delete/2=ignore%0/% =%1%
  write/1==%1% %2-%<>
  [!end]
  pop
[!end]
[!end]
```

DG's CBT-program on CLI-programming. As you can't just put an "&" at the end of your WRITE you have to masquerade it a bit. In the example I saw it was done by putting it inside a pair of angle-brackets:

```
write/L=%1% %2-%<&>
```

but I prefer to put the "<>" at the end like this:

```
write/L=%1% %2-%<&>
```

Figure 3: Macro ?VARS.CLI

```
[!equal (), ([!filename [!pathname :UDD:[!user]:.VARS:%1%]])&
[!pathname :UDD:[!user]:.VARS:%1%]&
[!end]&
```

Using these macros, string variables become child's play:

```
vars FirstName [!read What is your first name?.]
vars LastName [!read and your last name?.]
  write Username: [!username] &
Last name: [?vars LastName] First name: [?vars FirstName]

vars/k FirstName
vars/k LastName
```

If you have any questions, please feel free to write to me, either at the address below or to <RUCJB@OS1100.UNI-C.DK>. You can also write to JAN BRUUN on RDS BBS (415/924-3652).

Jan B. Andersen
Institute III / Computer Science Department
Roskilde University Centre
DK-4000 Roskilde
Denmark

The best decision for improving computer response time.

Main memory.

From the DeskTop thru the MV series we manufacture your first line of defense against poor system response. Expand with SCIP memory and save slots and power too. Our boards are also easy to set up with board edge switches for the starting address and for memory board enable/disable.

Ram Cache Disks.

When you have topped out of main memory or if you just need to get the lead out of your disk access, then select one of our Ram Cache Disks to boost your I/O. Put 2 MB to 8 MB on line with a 1 microsecond average access time (emulates the Paging Disk and Nova Disk)

IAX16, I/O controllers.

Our IAC16 compatible muxes improves user response or allows 21% greater traffic with no additional CPU overhead yet they cost way less and are easier to set up. (emulates 4368/4370 or 4368A)

Why S C I P Memories & IAX16s? Because *they are the best value.*

Quality/Dependability.

Reliable performance is our design objective and our engineering team takes pride in the exceptional quality of manufacturing, test and customer response. So with little risk we backup our memories by extending to you a lifetime warranty.

Compatibility Plus.

SCIP memories are not only 100% compatible to their Data General counterparts, but offer more memory per board, free up power for expansion and have easy setup information silkscreened on their covers. Evaluation units are available so you can see for yourself.

Technology.

Innovative design, intricate tooling and distinguishing features make our memories more than just clones. . . . Our MV410 board allows an MV10000 a full 32 MB on only two boards yet they consume 1/2 the power. . . . Our MV680 memory extends the MV8000II thru its 8 MB "limit" to a full 16 MB of AOS/VS memory.

S C I P

SYSTEM CONTROLLERS & INTERFACE PRODUCTS

449 SO. BEVERLY DR. #201 — BEVERLY HILLS — CALIFORNIA 90212 — (213) 282 8700

Circle 54 on reader service card.



Use *Focus* to improve your image

News from NADGUG and its affiliates

Not long ago, NADGUG's conference organizers issued a call for papers to NADGUG members. I want to extend that idea into a call for papers to all of the regional and special interest groups, as well.

The Roundup column in *Focus* is one of the best vehicles for publicizing your group and its activities. People attend group meetings when they think they will get something worthwhile out of them; they want meetings to be interesting and productive. To attract more members, it is important that your group meetings are seen as exciting and informative. NADGUG wants your group to be as strong and successful as possible. This is why it has designated areas in *Focus* to promote RIGs and SIGs.

Not only is Roundup the best way to get your group recognized, it is free and easy! All you have to do is write the information down and send it to *Focus*. Or you can call and let us know what you need to announce, and we'll write it for you. The deadline for submitting an article is the 15th of the month two months before publication. In other words, in order to announce a meeting in Roundup that is going to happen in May, you need to submit your information by March 15.

Advertising in *Focus* is offered to RIGs and SIGs at no cost. Two-thirds of a page of advertising space is designated for RIGs and SIGs in every issue. To reserve space, your group should contact our office two months prior to the issue month. Either send us a copy of the ad, or tell us what it

should contain and we will design it for you.

The NADGUG spring board meeting is March 9 and 10 at the Hilton in New Orleans. Several regional and special interest groups will be petitioning for recognition at the meeting. In addition, the **RIG/SIG Committee** will meet to finalize plans for supporting RIGs and SIGs at the annual conference, as well as the rest of the year. Details will follow in future issues of *Focus*.

Plans are underway for reorganization and reactivation of the **Central Ohio users group**. RIG/SIG Committee Chairperson **Charlene Kirian** held a lunch meeting with **Bob Busick** and **Jerry Phillips** on January 17. The first meeting for the newly activated group will be in late February or early March. The organizers are planning an interesting meeting with a dynamic speaker who will be announced soon! Check your mail and future *Focus* issues for more details.

If you don't receive a mailing or you want more information, contact Bob Busick at 614/486-2966 or Jerry Phillips at 614/876-1270. Data General users in the Central Ohio area should not miss the chance to be associated with so many other interesting and knowledgeable DG users in the same area.

On January 12 and 13, Data General users who run **Cybertek's CQCS** met in Denver, Colorado for the purpose of forming a special interest group.

The first day of the two-day get to-

gether was reserved for Cybertek to address future plans, announce new revisions, and show off new products. "Users only" was the theme for the second day's activities. Over 40 users in attendance gave suggestions for activities and benefits for the group. NADGUG's RIG/SIG Committee Chairperson Charlene Kirian gave the group tips on organizing a special interest group and advice on how to keep the group active. She pointed out the advantages of being a special interest group under the NADGUG umbrella. The group is planning on petitioning for NADGUG recognition as a SIG at the spring board meeting in New Orleans this month.

Officers were elected and plan to meet again in March. The group decided to publish a newsletter for its members. The newsletter will contain news, technical tips, a job bank, and other features specific to Data General and Cybertek's CQCS. To get on the mailing list, contact the group's secretary, **Steve Cohen**, at 601/325-3227.

It was the first time for CQCS users to get together and share concerns and experiences while having fun. Networks and contacts were made and strengthened over the two-day meeting. **Ray Walther** is the group's president. He can be reached at AIM Management, 11 Greenway Plaza, Suite 1919, Houston, TX 77046; 1/800-231-0803 or in Texas 1/800-392-9681. Δ

Cathlene Gentry is the RIG/SIG coordinator for NADGUG. She may be reached at Turnkey Publishing Inc., 4807 Spicewood Springs Rd., Suite 3150, Austin, Tx. 78759, 1-800-877-4787, (1-800-USR-GRUP).

DIRECT FROM OUR FACTORY TO YOUR BUSINESS.



MEETING CUSTOMERS' NEEDS AND EXPECTATIONS.

At Data General we uphold the tradition of providing more powerful and cost efficient computers. And our customers have come to expect advancements from us in other areas including operating systems and utilities, data management systems, development tools, communications, office automation systems and applications.

WE BELIEVE IN BEING DIRECT.

It stands to reason, since we are the original equipment manufacturer, that we are the experts when it comes to refurbishing our Data General equipment. Our quality refurbished products—from CPUs to peripherals—are installed by both large and small customers. We offer you more benefits with each refurbished sale than any other source in the marketplace.

WE'LL DIRECT YOU TO THE RIGHT EQUIPMENT FOR YOUR NEEDS.

With the help of a Data General sales representative or your Value-Added Reseller (VAR), you may choose from our large product selection ranging from laptop portables up to the large ECLIPSE computers as well as packaged systems, magnetic peripherals, terminals, and communications and terminal interfaces.

DIRECTLY SPEAKING, WE TAKE "REFURBISHING" AS A SERIOUS BUSINESS.

You can feel assured that there are no risk factors involved when you purchase our refurbished products. Take advantage of these benefits...

- We offer low, competitive prices!
- Our products are refurbished with the latest ECOs relative to software enhancements!
- The warranty is identical to the warranty for our new products!
- We guarantee that each refurbished product has Data General field service certification before it is shipped to you!
- Data General field engineering and maintenance services are available!
- We offer Data General leasing options!

DIRECT FROM OUR FACTORY TO YOUR BUSINESS.

We have a dedicated marketing staff in our Continuing Products Division (CPD) ready to assist your DGC sales representative or VAR with configuration and pricing information.

Whether you are looking for a packaged system or a stand alone one, CPD marketing will locate the product or, depending upon your company's DP needs, may suggest a better product alternative. So if you are as serious about quality refurbished equipment as we are, then call your local Data General sales office or VAR immediately. They will work with CPD marketing to bring you the best solution... **direct from our factory to your business!**

TELEPHONE YOUR DATA GENERAL SALES REPRESENTATIVE OR VAR TODAY!

Or write for our free reference catalog on refurbished equipment. Data General Corporation, ATTENTION: Advertising Manager, 2400 Computer Drive. M.S. 1-D, Westboro, MA 01580.

Data General

Continuing Products Division

(508) 870-1400

© copyright Data General Corporation. 1988.

THE

Data General SOURCE

- systems
- spare parts
- cables
- upgrades
- exchanges

Call Today!

(818)
246-4915

Buy • Sell • Lease • Extensive Inventory

DATA GENERAL SPECIALS

MV/15000 Mod 8 Upgrade to MV/15000	MV/10000 8MB Memory PCB	\$5,500
Mod 10	MV/10000 2MB Memory	1,500
\$30,000	MV/8000 Spare Board Set	1,900
MV/10000 System 2MB, BBU	MV/8000 2MB Memory	1,100
32,000	MV/8000 CPU/Chassis Cabinet	900
MV/4000 SC, Additional I/O Slot, 2MB,		
70MB, Cartridge Tape Backup		
7,800		
MV/20000 2nd IOC		
8,500		

VERDUGO COMPUTERS, INC.

373 West Palmer Avenue / Unit C / Glendale, CA 91204
Phone: (818) 246-4915 / Telex 662758 / FAX: (818) 246-4919

P.O. Box 831078
Richardson, TX 75083-1078
214/238-3800

Lions Gate Special Interest Group

Bart Bates
Gibson Petroleum Co.
900 Guinness Hse.
727 7th Ave. SW
Calgary T2P 0Z5
Canada
403/263-6300

Music and Recording Industry Special Interest Group

Paul Duck
Abacus Software
8855 9th St. N.
St. Petersburg, FL 33702
813/577-4897

Office Automation Special Interest Subcommittee (OASIS)

Bobbie Pressman
Deutsche Credit Corp.
P.O. Box 329
Deerfield, IL 60015
312/948-1814

PERFSIG

Jess Brown
Techno-Dynamics
P.O. Box 765
Bowie, MD 20715-0765
301/390-6331

SIG/UX

David Novey
3M
3M Center
Bldg. 235-1D-19
St. Paul, MN 55144-1000

TEO 3D Special Interest Group

Fred Fondriest
Data General
3400 Computer Dr., MS-9S2
Westboro, MA 01581
617/898-4142

Regional Interest Groups

ALABAMA

Alabama Data General Users Group
Randy Smith
Lakeshore Hospital

3800 Ridgeway Dr.
Birmingham, AL 35209

CALIFORNIA Northern California Frequent Users of Data General Equipment (No Cal FUDGE)

Steve Tyler
Airco Solar Products
P.O. Box 4105
Concord, CA 94524
415/680-0501

Los Angeles End-User of Data General Equipment (L.A. EDGE)

Doug Reimer
GL Veneer Company, Inc.
2224 East Slauson Ave.
Huntington Park, CA 90255
213/582-5203

San Diego Data General Users Group

Chris Thorpe
Delphi Data
2220 Hartford
San Diego, CA 92110
619/275-2892

COLORADO

Colorado Data General Users

Group (CODGUG)

Bruce Cary
The Association of Operating Room Nurses
10170 E. Mississippi Ave.
Denver, CO 80231
303/755-6300

CONNECTICUT

Phoenix
Ronald F. Shea
American National Bank
P.O. Box 5568
Hamden, CT 06518
203/248-7060

FLORIDA

South Florida Data General Users Group

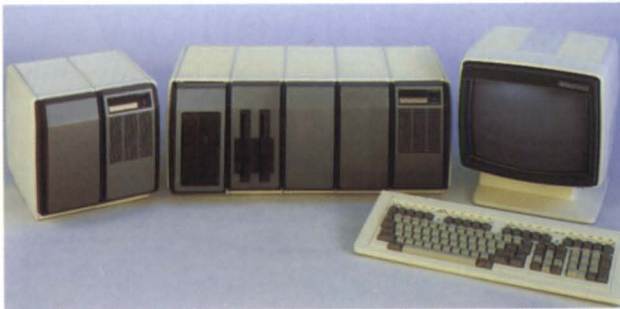
Terry Sponaugle
Dataworld
2981 NW 79th Ave.
Miami, FL 33122
305/556-3322

GEORGIA

Atlanta Area Data General Users Group (AADGUG)

Albert Still
Genuine Parts Co.
P.O. Box 4097

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



Whether you want to upgrade or expand your Data General system, Security Computer Sales is “The Solution”. We are recognized as one of the largest volume dealers in new and used Data General systems and components. That’s why we can custom-configure the exact system you need, to YOUR specifications. And whether you need a complete system or just a cable, we make every effort to assure your equipment is delivered when you need it.

Just tell us what you need. Complete systems, CPU’s, Controllers, Printers, Drives, Terminals, Memory, and Communications. MV’s, S/280’s, Nova’s and Desktops. We have them all. And when you order from us, your system comes complete — down to the last nut, bolt and cable! What is more, before you get it, we completely clean, fully test — and if necessary, totally recondition — every item we sell.

**Security Computer Sales, Inc., 622 Rossmor Building
500 North Robert Street, St. Paul, MN 55101**

PHONE: (612) 227-5683 or FAX: (612) 223-5524

Circle 55 on reader service card.



Security Computer Sales is known for its great deals. You just can’t get better price/performance. Our prices are all negotiable and open to bids too. And, we give you an additional discount on all cash purchases. We’re buying too, and we pay top dollar. When it comes to the best prices, we are “The Solution”.

We guarantee every piece of equipment we deliver to be complete, fully operational, and eligible for servicing by the maintenance company of your choice. And, we offer depot repair, on-site field service maintenance, and guaranteed uptime maintenance on remote sites — all for far less than standard DG prices!

We Are “The Solution” For All of Your Data General Equipment Needs

We offer the best deals and the best price/performance in new and used Data General systems and equipment. Why wait any longer? Call “The Solution” today. Discover the Security Computer Sales difference for yourself!



“THE SOLUTION”

THE 8MM MIRACLE.



You'd probably think it was miraculous if somebody offered you a disk backup system like this:

- Stores over 2 gigabytes on a \$10 cartridge.
- "Push the button and go home" simplicity.
- A spectacularly affordable price.

MegaTape has a long history of amazing backup feats. But our new 8mm system, GT-88, will be a real revelation—even to the most jaded computer or workstation user.

Start with uncanny compatibility. That's because the GT-88 is



completely transparent to your CPU. That means you won't have to spend from now to eternity struggling with modified hardware or patched software; your standard backup utilities will work unchanged.

In use, you'll find the GT-88 can create spare time out of thin air.

It equals or beats standard 6250 bpi tape drives in speed—and you'll never have to hang around to change reels or cartridges.

Of course, buying any new technology involves

an element of faith.

So it's worth remembering that MegaTape has been in the backup business—and *only* the backup business—for nearly a decade. Thousands of our cartridge systems are handling daily backup at sites all over the world.

Our support organization is in place, ready to respond in your hour of need.

So if you'd like to work a few miracles around your site, call MegaTape today and find out how affordable the GT-88 can be.

And that's not a suggestion—it's a commandment.

MEGATAPE CORPORATION
1041 Hamilton Road
Duarte, CA 91010-0317
(818) 357-9921 • Telex: 510 600 7131
Telefax: (818) 357-2369

 **egaTape**

**THE GREAT LEAP
FORWARD IN BACKUP.**

SEE US AT
DG REVIEW EXPO
BOOTH 700

Announcing
a better way to
get repairs and
parts for any DG
computer
system:

New S&T
Depot Express.
From Service &
Training.

From our new international service depot in Colorado Springs, *S&T Depot Express* makes it really easy to get fast, guaranteed repairs and top-quality parts for any Data General computer system.

That includes the *MV15000* and *MV20000*. And all parts, components and peripherals, even Argus disk drives.

DISCOVER NEW SAVINGS.

Just send us the parts you want fixed or exchanged. For replacement parts, simply call on our toll-free hotline. Our repair prices are flat rated, so you know the cost in advance. And you'll see that you can save as much as 40% of the cost of repairs by Data General.

FAST TURNAROUNDS TO MEET YOUR NEEDS.

For both repairs and parts exchange, we can meet your needs to the letter with a choice of response options offering either speed or economy or both:

- Express*: We can ship replacement parts to you counter-to-counter or overnight when emergencies arise.
- Priority*: Standard turnaround time for repairs or parts exchange is five days.
- Saver*: Where economy is more important than speed, you can use this lowest-cost, three-week service.
- Contract*: A unique option that covers your whole system or any part of it with Priority or Express service available on a *guaranteed* basis.

ANY PART YOU NEED SHIPPED PREPAID.

We maintain a complete inventory of parts and components for DG systems—circuit boards, electrical and electromechanical assemblies, disk heads, data modules, and much more.



All ready for immediate, pre-paid shipment to put ailing systems back into action right away. Every part, new and repaired, carries a 90-day warranty.

WE'RE FAST AND GOOD.

Service & Training has earned a solid reputation for swift, expert, reliable service on DG systems. Our factory-trained technicians, among the nation's best, use state-of-the-art test equipment and methods to diagnose and solve problems. All parts are automatically revision-locked to guarantee same or later revisions at no extra cost. So they're sure to conform to the latest performance standards.

SPECIAL BENEFITS FOR YOU.

Whether you're a broker, VAR, VAD, CMO or self-maintainer of DG systems—or even a TPM like ourselves—you can benefit from *S&T Depot Express* service. We welcome your inquiry and the opportunity to spell out the special advantages that apply to your situation.

SIGN UP NOW.

For complete details about the various *S&T Depot Express* service options and a service kit including pre-addressed mailing labels, call 800-225-7779, or write:

S&T Depot Express, Airport Square,
1641 South Murray Boulevard,
Colorado Springs, CO 80916.

Authorized  Data General VAR
©1988, Service & Training, Inc.

s&T Depot Express

— We'll keep you on line.

5420 Peachtree Industrial Blvd.
Norcross, GA 30091
404/449-7211

IDAHO
**Boise Area Users of Data
General Equipment (BUDGE)**
Roger Bradshaw
US Forest Service
3905 Vista Ave.
Boise, ID 83705
208/389-2600

ILLINOIS
**Chicago Area Data General
Users Group (CADGUG)**
Donald Mungovan
QST Industries
231 S. Jefferson St.
Chicago, IL 60606
312/930-9400

KANSAS
Kansas City Area Users Group
Tom Duell
Eagle Software
P.O. Box 16
Salina, KS 67402-0016
913/823-7257

LOUISIANA
New Orleans Frequent Users

**of Data General's Universal
Products (FUDGUP)**
Don Tyler
Stoltz Enterprises
6600 Plaza Dr., Suite 660
New Orleans, LA 70127
504/245-1000

MARYLAND
(See Washington, DC area)

MASSACHUSETTS
**Northern New England
Data General Users Group
(NNEDGUG)**
Brad Friedlander
Arthur D. Little
Acorn Park
Cambridge, MA 02140
617/864-5770

**Southeastern New England
Users Group**
(See Rhode Island)

MICHIGAN
Detroit Area Users Group
David Richardson
FX Coughlin
27050 Wick Rd.

Taylor, MI 48180
313/946-5850

MINNESOTA
**Minnesota Area Data General
Users Group**
Bruce Anderson
Elan Assoc.
7628 Executive Dr.
Eden Prairie, MN 55344

MISSISSIPPI
**Mississippi Users Group
(MISSUG)**
Thomas Bounds
McCarty Farms
P.O. Box 366
Magee, MS 39111
601/849-3351

MISSOURI
Kansas City
(See Kansas)

St. Louis Area Users Group
Robert McCarthy
Southwestern Bell
Telephone Co.
One Bell Center 14-Q-04
St. Louis, MO 63101
314/235-2077

NEBRASKA
**Mid-Plains Users Group
(MPUG)**
Chuck Paige
Sarpy County Courthouse
1210 Goldengate Dr.
Papillion, NE 68046
402/593-2325

NEW YORK
Can-Am (Upstate New York)
Rick Binder
PCB Piezotronics
3425 Walden Ave.
Depew, NY 14043-2495
716/684-0001

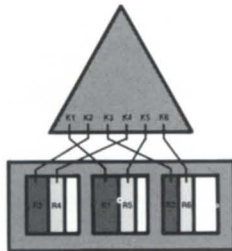
**Central New York Data
General Users Group**
Bob Albanese
Parsystems
West Mall Office Plaza
845 Central Ave.
Albany, NY 12206
518/438-4571

**Metropolitan New York Data
General Users Group
(NYC & NJ)**
Steve Kern
Werner & Pfleiderer

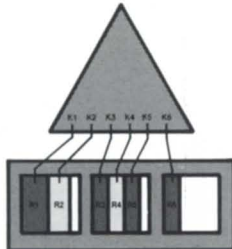
JOIN FORCES

IN THE FIGHT AGAINST POOR SYSTEM PERFORMANCE!

INFOS reorganization with the VS.TOOLBOX™



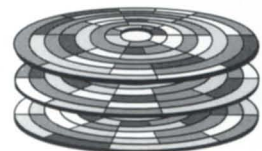
Before reorganization:
Modifications have made the INFOS file disorganized. As each record is accessed, a different page must be read from disk. A large amount of I/O is required, and INFOS performance is poor.



PHONE:
(913) 823-7257

After the VS.TOOLBOX:
Data records have been re-written sequentially. During sequential processing, each page must be read from disk only once. The amount of I/O is reduced, and INFOS performance is improved.

Disk reorganization with the DISK.PAK™



Before reorganization:
Directory information, frequent files, and available space scattered throughout the disk. High average seek distance and poor performance.



After the DISK.PAK:
Directory information and frequent files clustered on a few cylinders, available space made contiguous. Low average seek distance and improved performance.

EAGLE Software, Inc.

P.O. Box 16 / 169 E. Cloud
Salina, Kansas 67402-0016

VS.TOOLBOX and DISK.PAK are trademarks of EAGLE Software, Inc.

FAX:
(913) 823-6185

Circle 28 on reader service card.

Data General says:

"Performance so high you'd swear it was magic."

Interscience adds:

"At prices so low you can even afford it!"

Interscience, the DG compatible peripheral specialists and Dataproducts, the leading printer manufacturer, join forces to bring you the best printers at very affordable prices. *You save up to 40%! With the money you save you can equip your printer with all the possible accessories and supplies, and still put change back in your pocket.*

From laser to line printers, Interscience provides you with the latest technology, fully compatible with your DG systems.

Laser Printers

LZR 2630

Fast, rugged, versatile, crisp . . . for the professional look.

The LZR 2630 is the fastest laser printer available to DG users. At 26 pages per minute it combines high throughput with excellent print quality and automated paper handling.



This printer is capable of supporting about 40 workstations and replacing daisywheel printers. The 2630 is compatible with DG's software and Diablo™.

Portrait and landscape formats enable you to incorporate spreadsheets into documents, all in one efficient pass.

300 × 300DPI allows superior letter quality print and crisp graphics. Quiet operation, less than 55dBA, makes it perfect for any workspace and office networks.

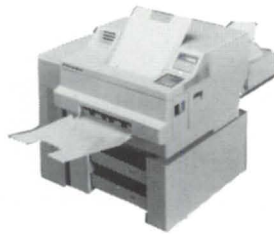
The LZR 2630 is easy to use. The control panel consists of a set of clear, understandable symbols to maximize uptime. A complete line of accessories and supplies is available.

LZR 1230

At 12 pages per minute, the LZR 1230 can replace several impact devices. Rugged construction extends the life of the printer to 600,000 pages and makes the per page cost remarkably low. The LZR 1230

can support up to 10 workstations and is perfect for multiuser systems.

This printer has three concurrent interfaces — Centronics™ parallel and two serial ports. It supports HP LaserJet Plus™, Epson™, FX-80 and Diablo™ 630. The LZR 1230 is also compatible with DG's software.



The print engine produces crisp, finely formed characters. The resolution is 300 DPI. The LZR 1230 was designed for the office environment. It operates at a quiet 55dBA and can move right into almost any existing workspace. Optional memory cards offer you the flexibility of additional fonts by simply inserting these cards in the control panel. A full line of accessories and supplies is available for the LZR 1230.

Band Printers

Fast, tough, reliable, inexpensive . . . for heavy duty jobs.

Our LB band printers represent the latest technology. They can handle high volume, heavy duty cycle jobs with unequaled efficiency and dependability.

There are four models to choose from: 300 LPM, 600 LPM, 1000 LPM and 1500 LPM. The LB printers feature a triple interface which includes Dataproducts™ parallel, Centronics™ parallel and RS-232 serial, and they are fully compatible with your DG systems.



The LB printers have a built-in DAVFU (direct access vertical forms unit) that allows more accurate control of the print format, saving time and

increasing throughput. The LB printers are easy to use, paper loading is done in one step. Using the control panel, format changes and setups are easy. All status is displayed in plain english. Automatic scroll feature makes it easy to position forms. Quiet operation makes these printers suitable for the office as well as the computer room. The LB printers have unsurpassed reliability and they are perfect for heavy and medium duty jobs. A full line of accessories and supplies is available for the LB series.

Interscience's commitment to you

Interscience is committed to bringing you the best peripheral subsystems for your DG systems, at very affordable prices.

Interscience has been providing high performance peripheral subsystems to the mainframe and mini-computer markets for over ten years.

We stand behind our systems with a comprehensive warranty policy. Support and service are available nationwide from both Interscience's 20 service locations and other regional and national affiliated organizations.



For more information on printers or other products, call

(818) 707-2000

or write for literature.

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

DP Dataproducts.

Authorized Stocking Distributor

DG and Data General are trademarks of the Data General Corporation.

663 E. Crescent Ave.
Ramsey, NJ 07446
201/327-6300

NORTH CAROLINA
Charlotte Area Users Group
Betty Tarbox
Freeman-White Assoc.
8001 Arrowridge Blvd.
Charlotte, NC 28217
704/523-2230

**Southeast Area Regional
Interest Group (SEARIG)**
Andy Wasilewski
North Carolina State University
School of Veterinary Medicine
4700 Hillsboro
Raleigh, NC 27606
919/829-4215

OHIO
**Central Ohio Data General
Users Group**
Raymond Mills
6565 Frantz Rd.
Dublin, OH 43017
614/764-6440

Cincinnati Area Users Group
Vincent Thomas

Thomas & Thomas Attorneys
2323 Park Ave.
Cincinnati, OH 45206
513/961-5311

**Northern Ohio Data General
Business and Science
(NODGBS)**
Tim Boyer
P.O. Box 951
Warren, OH 44482
415/924-3652

OKLAHOMA
**Oklahoma Data General
Users Group**
Stan Pedzinski
Oklahoma Blood Institute
1001 N. Lincoln Blvd.
Oklahoma City, OK 73104
405/232-0670

OREGON
Willamette Valley Users Group
Scott Carr
Brod & McLung
PACE Co.
9800 SE McBrod
Portland, OR 97222
503/659-5880

PENNSYLVANIA
Pittsburgh Area Users Group
Ken Krugh
LMV Leasing
121 Freeport Rd.
Pittsburgh, PA 15238-3447
412/826-8200

**Tri-State Area Data General
Users Group**
Lee Locke
The Philadelphia Corp.
for the Aging
111 N. Broad Street
Philadelphia, PA 19107
215/496-0528

RHODE ISLAND
**Southeast New England
Users Group**
Richard Wind
Southshore Packing
P.O. Box 4150
Brockton, MA 02403
617/587-6900

SOUTH CAROLINA
(See North Carolina)

TENNESSEE
Mid-South Area Users Group

Ed Sharbonnet
Automark Systems
637 S. Bedley
P.O. Box 429
Memphis, TN 38101
901/523-7711

TEXAS
Dallas Area Users Group
Marco Fehlbaum
Fannie Mae
13455 Noel Rd.
Dallas, TX 75240
214/770-7555

**Houston Area Data General
Users Group (HADGUG)**
Randy Berndt
American Urological Assoc.
6750 W. Loop South, Suite 900
Bellaire, TX 77401
713/665-7500

VIRGINIA
**Southwest Virginia Data
General Users Group**
Betsy Koeler
Medeco Security Locks
P.O. Box 3075
Salem, VA 24153
703/380-5000

**ONLY
\$69.95**

Data General 210/211 Terminal Emulation

**Standardize your
Company's PC
Communications
inexpensively using
the PereLine Data
Communications
Package for MS/DOS
2.0 or later! PereLine
is more than just a
terminal emulation
and file transfer
program—it's a . . .
Communication
Productivity
Tool.**

- User customized menus
- Converse with 2 separate computers simultaneously
- Learn mode builds scripts by copying your keystrokes so you can replay them whenever you want
- Terminal emulations
DG 210/211/ANSI/VT100/VT52/
IBM3101/VIDTEX
- Error free file transfers
XMODEM/YMODEM/Kermit/
TELINK/Capture
- Command recall that remembers your last 25 commands.
- Remote operation
- Unattended operation
- Automated Logons
- Printer pass through support
- Keyboard lockout to clear screen and stop access by snoopers when you are away
- Automate CEO file transfers
- Flexible Script Language
- Auto dialing directory
- 250+ page user guide



PereLine

Note: PereLine works great on the new IBM PS/2 Systems . . . (3½ inch format diskettes available)

Terms
Personal/Company Checks, Cashiers
Check/Money Order. Add \$3.00 shipping/
handling. CA residents add 7% sales tax.
VISA/MasterCard accepted

(408) 356-6105

Make Checks Payable To:
Peregrine Data Systems, Inc.
5365 Baron Drive, San Jose, CA 95124
(408) 356-6105

WASHINGTON, DC, & MARYLAND
Potomac Users of Data General Equipment (PUDGE)
 Barbara Zataro
 8235 Glendale Dr.
 Frederick, MD 21701
 301/694-3578

WISCONSIN
Milwaukee Area Users Group (WISrig)
 Jon Radmer
 Time Insurance Co.
 P.O. Box 624
 Milwaukee, WI 53201
 414/277-4783

CANADA
Ontario (see Can-Am RIG under New York)

Quebec Area (QUADGUG)
 Tod Rich
 Institute of Canadian Bankers
 1981 McGill College Ave., #675
 Montreal, Quebec H3A 2X2
 Canada
 514/282-9480 ext. 206

International Nonaffiliated Groups

Australia
 Colin Breen
 Data General Users Group Australia
 100 Dorcas St.
 S. Melbourne, Victoria 3205
 Australia

NSW CEO Users Group
 Maria Rodoreda
 Data General
 407 Pacific Hwy.
 Artarmon NSW 2064
 Australia

Belgium
 Stany van den Bossde
 Data General SA
 191, Boulevard de Souverain
 Bte.11
 B-1160 Brussels
 Belgium

Holland
 I-Fongchi
 Data General Nederland BV
 Laan Van De Helende

Meesters 13
 1186 AC Amstelveen
 Holland

Finland
 Leevi Raasina
 Data General OY
 Nihtisillantie 3D
 P.O. Box 61
 SF 02631 Espoo 63
 Finland

Mexico City
 Victor M. Ramirez
 Cypensa/Data General
 Eje Central No. 2
 Mezannine Torre
 Latinoamericana
 06007 DF
 Mexico
 905/512-9866

Japan
 Shinichi Noda
 Nippon Data General
 4-3-13, Toranomom, Minato-ku
 Tokyo 105
 Japan

Portugal
 A. Bras Gomes/A. Sendin

Data General Portugal
 Cassel Data Computadors
 Esistemas, Lda.
 Lisbon-Sintra Rd.
 Casal Do Garoto-Estrada
 P.O. Box 1100
 Amadora
 Portugal

Singapore
 Kam Fai Lee
 Data General Singapore
 141 Market St.
 05-00 Harapan Bldg.
 0104 Singapore

Sweden
 Kjell Nyhlen
 Data General AB
 Box 28
 164 93 KISTA
 Sweden

United Kingdom
 Ivor Coleman
 Data General
 Hounslow House, third floor
 724-734 London Rd.
 Hounslow, Middlesex TW3 1PD
 England △

“The Data General difference: OFFICE/Publisher™ and DG/LIBRARY.™”

*Two new software products to expand the capabilities of your
 CEO® office automation system.*

Now you can find and retrieve documents quickly and easily using your CEO word processing system. And publish professional, quality documents right from your desk.

Data General introduces **OFFICE/Publisher** and **DG/LIBRARY**.

These new software products for electronic publishing and text retrieval give you better control over your information. And save you significant time and effort.

With **OFFICE/Publisher**, you don't have to be a publishing expert to produce typeset-quality material. You can even incorporate graphics and text in the same document. To improve the appearance and quality of your business communications.

DG/LIBRARY can find the letters, proposals, or reports you need in a matter of seconds! It's fast, powerful and gives you comprehensive search capabilities. And, extremely easy to use.

Each product is fully compatible with our industry-leading CEO office automation. So, you can continue to use all of your CEO functionality, such as word processing and electronic mail.

The result is one of the most extensive office automation solutions available today!

To learn more about how Data General can make a difference for you, send the coupon below. Or call, **(508) 898-4183**.



3400 Computer Drive, Dept./SPSD
 Westboro, MA 01580

(c) 1988 Data General Corporation
 CEO is a registered trademark of Data General Corporation.
 DG/LIBRARY is a trademark of Data General Corporation.
 OFFICE/Publisher is a trademark of Intercon Associates, Inc.

Name _____
 Company _____
 Address _____ Phone _____
 City _____ State _____ Zip _____

Circle 22 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 \$499
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 (415) 550-1454
Dial-up BBS (1200 baud): (415) 391-6531

Circle 59 on reader service card.

Why blast your CPU...

**TurboTran
(XMODEM/YMODEM)**

**Error-Free
file transfer
that won't drive your
system into the dust!**

TurboTran Includes:

- **Checksum & CRC Modes**
- **Integration with CEO**
- **PC Support Utilities**
- **AOS & AOS/VS Systems**
- **Many Other Extras!**

\$225

30 Day Risk Free Offer

Data Bank Associates, Inc.

20010 Century Blvd., Suite 104
Germantown, Maryland 20874

(301) 540-5562

FAX# 301/540-8105

Circle 19 on reader service card.

LITIGATION



**Data General wins
round one of ADEX
software fight**

By Robin Perry
Focus staff

Data General won preliminary court victories in its battle to prevent unauthorized parties from copying or using its diagnostic software ADEX—but primary opponent Grumman Systems Support Corporation (GSSC) has vowed to continue the fight.

In late December, a federal judge in Boston granted a preliminary injunction against GSSC, a unit of Grumman Corporation, preventing GSSC from "copying, using, and possessing all or any part of Data General's propriety ADEX diagnostic software," according to an announcement by Data General. The lawsuit, filed by DG in Massachusetts last year, claims that GSSC infringed Data General's copyrights and misappropriated its trade secrets relating to ADEX.

In response to the injunction, GSSC President Joseph Mulderig said "obviously, we're disappointed, but it's far from over. It still has to go to trial by jury." GSSC has developed its own diagnostic software that is comparable to ADEX, and its customer service will not be affected by the injunction, Mulderig said.

"Grumman is going to obey the order of the court," said GSSC attorney Ron Katz, of the San Francisco law firm of Coudert Brothers. However, GSSC is going to continue its effort to legally use ADEX, he said.

Data General provides ADEX and other maintenance tools to members of its Cooperative Maintenance Organizations (CMO) program. Last summer, GSSC filed a suit against Data General in federal court in San Francisco that claims this tying of software and services to maintenance agreements is a violation of federal anti-trust laws. The suit was dismissed without prejudice in January. Without prejudice is a legal term that means if a motion is dismissed, it can be resubmitted at a later date, said Ed Russell, DG spokesman. According to the judge in San Francisco, the claim could properly be filed in Massachusetts.

"If Grumman elects to file the claims dismissed in San Francisco as counterclaims in Massachusetts, we believe they will be without merit and will be vigorously defended," Russell said.

GSSC will "absolutely, positively" file the suit in Massachusetts, said Mulderig. There are several issues other than the use of ADEX addressed in the suit, he said. In an open letter to GSSC customers, Mulderig stated that "it is our belief that DG, by limiting access of Grumman to diagnostic software, depot services, and other tools of the trade, is attempting to preclude Grumman and other third party maintainers from competing against DG on the maintenance of their computers."

In other actions last November, Katz filed two lawsuits on behalf of smaller third party maintenance companies that claimed DG monopolizes the DG computer repair market through its ADEX policy and by restricting service companies from purchasing spare parts and other maintenance tools. One of the suits, brought by NPA Systems of California, has been dropped without prejudice "for reasons not related to the merits of the case," Katz said.

The suit brought by Computer Products and Repair, Inc. (CPR) "still stands as an act of litigation in California. They have an option of bringing the suit to Massachusetts," Katz said.

In a separate action in the United Kingdom, Data General was granted another injunction against a computer maintenance company. DG and its subsidiary Data General Ltd. won a temporary injunction that prohibits Granada Computer Systems Ltd. from possessing, using, or copying ADEX software until after a judgment is issued on the merits of the case, or until further action of the High Court of Justice. Δ

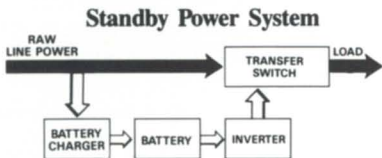
How to Protect Your DG[®] Computer And Make It Last Longer

World's largest manufacturer of uninterruptible power systems for Minis, Micros, and LANs tells how

Your DG computer is bombarded daily by spikes, sags, surges, noise, and blackouts. Bad power eats away at fragile electronic circuits, increases service costs, damages disks and causes down time.

You can eliminate these problems by investing in an Uninterruptible Power System (UPS). Your investment in a UPS will mean reduced down time, increased equipment life, and lower service costs. Typically, a UPS will pay for itself in less than one year, but not all UPS are created equal. Many are off-line, standby systems. Most won't even provide isolation from the power line or a separately derived neutral.

Shown below are three traditional UPS configurations. Each has its advantages and disadvantages.

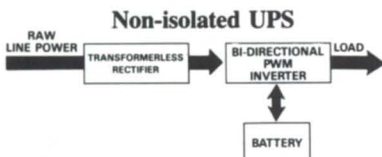


Advantages:

- Low cost
- Inverter normally off
- High efficiency

Disadvantages:

- No derived neutral
- Break in transfer
- Poor isolation
- Poor brownout protection
- Poor high line protection
- Poor lightning protection

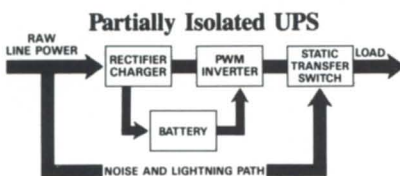


Advantages:

- Moderate cost
- Brownout protection
- High line protection
- No break system

Disadvantages:

- No derived neutral
- Poor isolation
- Inverter on continuously
- Poor lightning protection
- Non-linear load



Advantages:

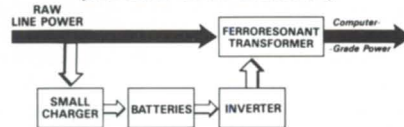
- Brownout protection
- High line protection
- Partial no-break system
- Separately derived neutral

Disadvantages:

- Break in transfer to line
- Poor isolation
- Poor lightning protection
- Non-linear load
- Poor efficiency
- Expensive

Best Power Technology's new Uninterruptible Power System called FERRUPS[®] is a breakthrough in computer power protection. FERRUPS represents a major advance over the three traditional types of UPS technology.

Advanced Technology FERRUPS (Provides True Isolation)



FERRUPS uses a ferroresonant transformer which is on-line continuously to provide outstanding isolation and eliminate spikes, sags, noise and brownouts. If power fails, the inverter takes over. Because of the flywheel effect of the ferro transformer, there is absolutely no break in output power. FERRUPS provides continuous on-line computer-grade uninterruptible power.

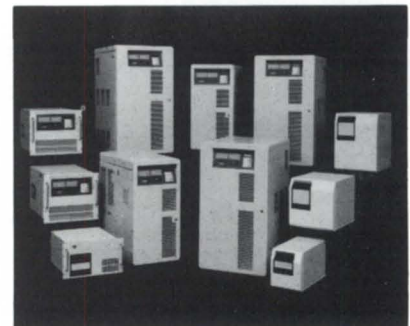
FERRUPS Provides Better Protection Than Any Other Design

- Inverter normally off
- High efficiency
- Filters non-linear loads
- High line protection
- Low cost
- Separately derived neutral
- High isolation
- No-break transfer
- Brownout protection
- Lightning protection

Advanced Interactive Communication Package Standard on Every Model

Most UPS only provide basic relay contacts for alarm and loss of line. FERRUPS

gives you even more. Every FERRUPS includes an RS232 port for full duplex TTL communication. You can control FERRUPS from your computer console or from thousands of miles away. FERRUPS has an on-board micro-processor, which keeps track of everything. It even records the time and duration of power outages. FERRUPS can even initiate a controlled shutdown for unattended operation. FERRUPS is the smartest, most communicative UPS in the world today!

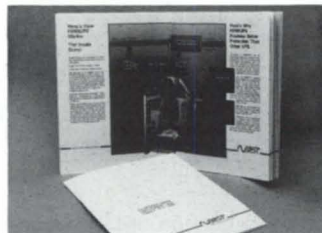


350 VA to 15 KVA uninterruptible power systems for Minis, Micros, LANs and anything else that needs clean, continuous power. BEST UPS are plug compatible with all DG computers within its power range.

Advanced Meters and Alarms Standard on Every Model

Meter Functions: AC Volts Out, AC Volts In, Battery Voltage, AC Current Out, VA Load, DC Current In, Frequency, Heat Sink Temperature, Ambient Temperature, Time/Date, Number Power Outages, Log of Power Outages, Projected Run Time Available, System Hours, Inverter Hours, Number of Overloads, Full Load %, Log of Alarm Conditions.

Alarm Messages: Low Battery, Near Low Battery, High Battery or DC Bad, Low Run Time Left, Low AC Out, High AC Out, Output Overload, Ambient Over Temp, Heat Sink Over Temp.



Interested? Call or send for our NEW, FREE LITERATURE today!



Best Power Technology, Inc.
P.O. Box 280 - Necedah, Wisconsin 54646
1-800-356-5794, ext. 3465

In Wisconsin (608) 565-7200, ext. 3465

Please print legibly.

Name _____ Company _____

Address _____

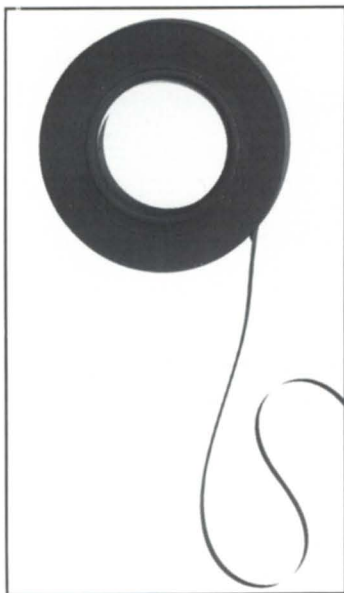
City _____ State _____ Zip _____

Equipment to be protected _____

Phone (____) _____ CHECK ONE: User Dealer Specifier OEM

©1989 Best Power Technology, Inc.
1-800-356-5794, ext. 3465

A complete listing of the NADGUG software library



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

Randy Berndt
American Urological Association
6750 West Loop South, #900
Bellaire, Texas 77401

or call 713/665-7500. (MV/2000 and MV/1400 users should send one tape cartridge.) Software contributions should be sent to the same address. Be sure to include your membership number.

People with AOS/VS rev 6 should send a 2,400-foot tape and specifically request a DUMP_II instead of the usual compressed version. The decompression program is rev 7-specific.

Please include a self-addressed envelope with sufficient return postage. In compliance with postal regulations, do not date the postage, because the tape will not be returned to you on that date. If you send it at the end of the month, please

have the postage read for the following month.

Big Brother

Automatic log-off program written in Fortran 77. Donated by the U.S. Forest Service. 181 blocks.

B.J.'s BBS contributions

This addition to the library consists of 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. 5,749 blocks.

CRTEDIT

This is the old RDOS screen editor ported over to VS. 51 blocks.

DBCHECK

This program checks the open status of an INFOS file and examines the checkpointing status of a file. 230 blocks.

DUMpload

DUMpload is a Macintosh program to dump and load AOS/VS-compatible dumps on a Macintosh. 140 blocks.

ERP

A process-termination program developed by NASA and modified by Manville. In Fortran 77. 338 blocks.

FILEMNGR

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. 459 blocks.

FTNCVT

This is a Fortran 5 to Fortran 77 translator. 287 blocks.

Games

Games is a collection from various places. Enjoy. 19,293 blocks.

Glossary

Glossary is a program from John Grant that builds a list of words used in a document and shows where they are used. 416 blocks.

IMSLUTIL

This is a collection of CLI macros, COBOL routines, and assembly routines callable from COBOL. By IMSL of Houston. 6,154 blocks.

JAG_UTIL

JAG_UTIL consists of several programs:

Filecount, Userspace, Scan, and Laminate. 1,501 blocks.

Kermit

Kermit is a file-transfer protocol developed at Columbia University. Uses 9,328 blocks.

Logout

Another auto log-out system. 246 blocks.

Look

Look is used to view text files. It allows you to move forward and backward in a file. This program was donated by Data General. 438 blocks.

Macbook

This is a collection of macros from the Colorado users group. 342 blocks.

MENUDIR

This is an initial user menu that can chain to other applications. It features a password-control system. From the Fed SIG. 492 blocks.

Misc Kerm

An expanded version of AOS Kerm, this now includes other versions of Kermit including DG/One Kermit. 6,298 blocks.

QHelp

QHelp is a tree-structured help facility. 2,277 blocks.

SKLSCRN

This is the COBOL standard entry screen featured in George Burns' article that appeared in the April 1988 issue of *Focus*. 385 blocks.

Softtrans

This is a file-transfer protocol written in Fortran 77. It's used to communicate with proprietary PC communications packages. 496 blocks.

SWITCHES

SWITCHES is the GET.SWITCHES routine from John Grant's column in *Focus*. 1,297 blocks.

TEX 2.25

TEX (Terminal Emulator with Xmodem) is a terminal-emulation program written by David Down. He has recently revised the TEX software to include a command language. TEX is being distributed as shareware. At the end of 30 days, either remove it from your system or send the author a \$45 fee. 495 blocks.

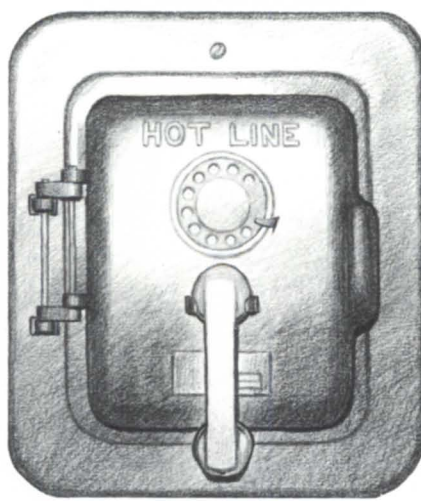
VT100KER

VT100KER is the VT100 emulator from John Grant. 1,135 blocks.

Xfer

Xfer is a tape-conversion utility. 653 blocks. Δ

**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 SYSTEMSSM
(212) 422-9880 (800) 633-3282

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.

FTS

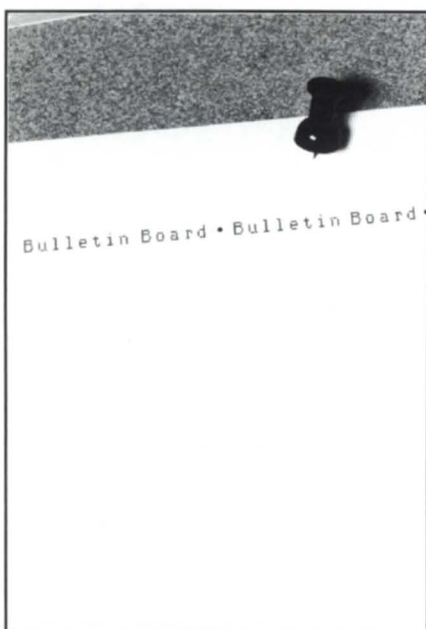
FAST TRACK SYSTEMS, INC.

61 Broadway New York, NY 10006

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

Circle 30 on reader service card.

Bits and bytes from the bulletin board



Master Console

From: Jeff Campbell

Does anyone know of a way to locate a master console further away from the CPU than the standard 50 feet? I need to move the console into an operations room about 100 feet away. Is this a safe thing to do or is my system going to get flaky because of it?

From: Dell Setzer

You'll probably have to go to current loop instead of EIA (RS-232) to be able to use longer lines. If you need them, Black Box sells EIA-to-current loop converters. Note that you'll probably have to use four-wire cable instead of two-wire plus ground.

From: Walter Mossdrop

You might want to try one of the EIA line distance boosters available. We use one of Inmac's fiber optic line drivers and it has worked perfectly from day one.

From: Tim Boyer

Couldn't you just go to a lower baud rate? We've got 4800 baud running over 250 feet with no problems. And there really is no noticeable difference between 4800 and 9600.

From: Richard Hankins

We use RS-232 at 19.2 Kbaud at a distance of 150 to 200 feet. Moving the master console to 100 feet should be no problem if you use the right kind of cable. The best cable to use for over 50 feet is shielded twisted pair with each pair with its own shield.

PC Integration

From: Bryan Boyle

If any of you haven't seen Rational Data System's report on PC Integration, I suggest you beg, borrow, or steal a copy if you can. Of all the words coming out of all of the vendors (both inside and out of the DG world), this has to be the best examination of how and what PCI means in the environments we work in. I highly recommend it.

I thought it proves 1) good ideas come from *all* people involved in technology, and 2) contributions that help move the technology forward can't be bottled up at one vendor or another. If more people took critical looks at global user needs, perhaps the products from all vendors would address the marketplace better.

From: Tom Moore

I couldn't agree more. But the first step in marketing or supporting a product is having a *good* product that is easy to use and functional. Period. The problem with the industry in general, is the "P" word, proprietary. It has slowly started to disappear, but in order to be profitable, a company has to find its place in a market, and pursue it fully.

From: Doug Kaye

Gee, thanks for the praise of our *Report on PC Integration*, Tom and Bryan. By the way, if anyone would like a copy, please call Michael McGill in our Pasadena office (headquarters): 818/568-9991. Ask for Kelly, actually, and she'll send you a copy at no charge.

TCP/IP 2.50

From: Bill Benedetto

Has anyone installed this product yet? I have not and was wondering if anyone has and what they thought. We will more than likely upgrade to this release.

From: Richard Kouzes

I got 2.50 to work, but I had to drop the wait for ports on ftp in the up macro (it waited forever). It was also essential that the network be quiet. We had a lot of collision problems due to a bad transceiver tap. In four attempts to bring up TCP/IP before removing wait for port ftp and removing routes, the system locked up solid in the up macro. No attempt to abort it worked so I had to reboot. After removing wait for port and routes, it came up and functioned. I was able to add routes only after the net became "quiet" despite the fact that all functionality was operational on both my MV TCP/IPs.

From: Jan Bruun

I have just received rev. 2.50, but it still doesn't support screencredits. The only problem I have had after revving up, is that when I TELNET to the MV, my terminal goes into some kind of page mode. I have to send a SPACE, NL, or any other character every half page. It reminds me of a problem I had when I forgot to link a multitasking program with the outer ring emulator.

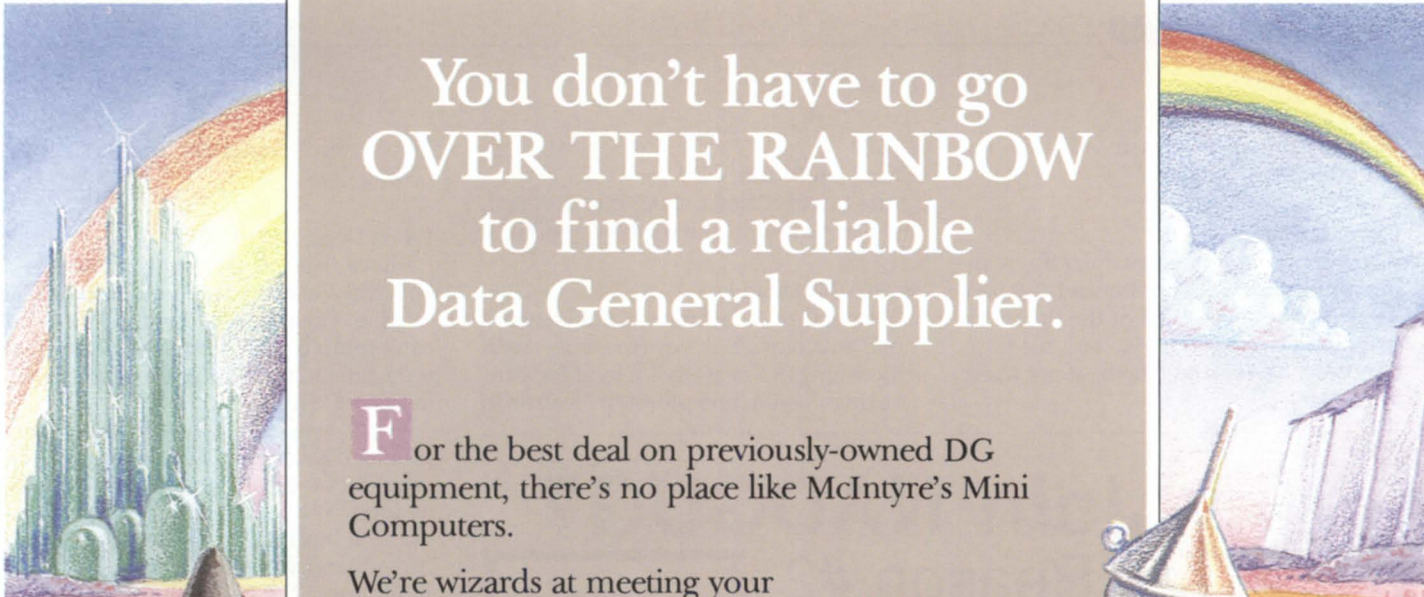
From: Bill Benedetto

I see that going to 2.50 is indeed a scary prospect. Thanks for the warnings. I will pass them on to our administrator and let him decide. He may decide to load it and see what happens . . . He's brave that way.

Printing between networks

From: Sam Pitts

I know that within CEO you can print across a Xodiac network. I also realize that you can QPRINT a job across the network via :net:15k:pathname, etc. However, can you create a queue on one machine and associate it with a CON port on another machine? Or can you "stack" the jobs up in a queue and somehow create a macro that "fires" them transparently across the network to print on an-



You don't have to go
OVER THE RAINBOW
to find a reliable
Data General Supplier.

For the best deal on previously-owned DG equipment, there's no place like McIntyre's Mini Computers.

We're wizards at meeting your Data General needs.




mcintyre's
Mini-Computer Sales Group Inc.

DATARAM

FAX: (313) 524-4970 • TLX: 810-232-4866 • Answer Back: MCDATAGEN TROY • 575 E. Big Beaver, Troy, Michigan 48083-1301 • (313) 524-4900

Circle 43 on reader service card.

other machine? Thanks in advance for any comments or tips.

From: Michael Meissner

I tried to do something similar by creating a print queue to a pipe, and it failed miserably because XLPT at the time was using block I/O (?WRB) to any file type that wasn't a console. Maybe it got fixed in 7.62.

C 4.00

From: Jan Bruun

Has anyone tried C 4.00? It looks good, but I'm nervous about the new optimizer.

From: David Down

We got C rev 4 last month, but I haven't done much with it yet (too busy with other things). I'm really looking forward to using the function prototype feature to

help reduce argument mismatches in coding.

From: Doug Rady

I have been playing with it some at a beta test site and have found it to be real reliable. There is only one module that I can't compile with optimization and that is documented in the release notice (exec.c in microEMACS).

It eats memory, especially with large files, and eats CPU. They are not kidding when they estimate compile times at twice as long. The .OB module size has gone up a bit but the .PR size hasn't gone up more than expected due to the changes in libraries. The /PROFILE option is interesting but limited. Nothing like Unix profiler.

As is demonstrated by the exec.c example, you may need to tack the volatile modifier onto some variable declarations. If you don't tack it on, the optimizer may do you a few favors that you really don't want.

Disk fragmentation

From: Margrit Eade

Is there any way to tell how fragmented your disks are other than dumping them to tape, wiping them, reloading them, and seeing if response time improves? I know about the DMS Disk Optimizer, but is there any way to evaluate the disk situation without buying the \$90 demo? Also, if you move data from one disk to a blank disk, does that "compress" the data? Thanks in advance.

From: Jan Bruun

I use DISK_ANALYZER from Eagle Software to determine if I should reorganize my disks (using DISK_ORGANIZER). Dumping onto a newly formatted disk should work, but my experience shows that it takes nearly the same time doing it with tapes.

From: Doug Rady

Last I saw, the Eagle demo was only \$50. Dumping to a clean disk works in terms of compacting space and lumping files together, but not much in terms of real organization.

From: Brian Johnson

The vendors of disk repackers won't be too thrilled by this, but I've always categorized such software as "anxiety-ware". (Got poor performance? Must be the dreaded disk fragmentation!)

Disk repacking sounds like a reasonable way to speed up disk I/O, but the

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.

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 •

**NORTH AMERICAN
DATA GENERAL
USERS
GROUP**

800/877-4787
(1-800-USR-GRUP)

fact of the matter is that its effect on operating systems that make use of sophisticated caching and buffering algorithms, and that are multiuser (i.e., multiple simultaneous requests for data from the same drive at the same time), is minimal. You can prove this to yourself by simply dumping a disk to tape, doing a Full DFMTR, and reloading the data. We had to do that last week when a 277 MB drive was swapped out. As a result of the "repack", the average seek dropped from 97 to 49 (an encouraging factor of two), but the average service time (use X DISCO/CYCLE=60 to see it) only dropped from 22 ms to 21 ms (a disappointing 5 percent).

The makers of the disk repacking programs argue that their programs are better than reloading because they use "optimal" repacking algorithms and allow placement of specific files nearer the center of the disk for faster access. Irrelevant. There is no universally optimal packing algorithm any more than there is a universal hashing algorithm. What may be optimal for online will be non-optimal for batch, and vice versa. Also, the incremental benefit of optimal algorithms over and above simple offload-DFMTR-reload strategies is microscopic for general time-sharing; significant results can usually only be seen during batch or during benchmarks.

In summary, there are other factors affecting your disk I/O speed as much or more than the minor slowdown caused by disk fragmentation (mostly having to do with balancing I/O across drives uniformly, or by avoiding I/O in the first place through proper cache sizing and adequate LRU sizes). Primitive single-user systems like MS-DOS need disk repackers, AOS/VS doesn't. Several thousand dollars is an awful lot to pay to reduce disk I/O by 1 ms for a short time.

P.S. There is an easy way to get a rough idea of the fragmentation on your disk. Run DISCO while you're backing up the drive and capture the starting and ending access count and cylinders sought. At the end of the backup, divide cylinders sought by accesses and get average seek. The lower the number, the less fragmented the disk is. Do this for all your drives and then compare the "fragmentation" to the average service time from DISCO. I predict you'll see little correlation.

From: Doug Rady

Actually, in some cases, the commercial packages can cause a degradation in per-

formance. This is especially true in an environment where a lot of scratch files are created and deleted.

I have also seen this with DUMP/DFMTR/LOAD. For large files that are hit upon often, it can make a noticeable difference, which we have seen. This is mainly due to a reduction in travel time for the heads. We have several 30-70MB files that are random access via separate

key files (not our design).

64 MB ON 15K & 20K


From: Doug Rady

Word from the Detroit office is that you can now put 64 MB on an MV/15000 or a MV/20000! Supposedly they redid the artwork for the boards to deal with newer chips and power constraints. At last! Now, is 64MB as high as they will go? Δ

Only The Best For Your DG System

The disk subsystem that sets the standards

<p>FOR YOUR MV COMPUTER Argus 623X Emulation SKS-XX Plug and Play Series</p>	<p>FOR YOUR ECLIPSE & NOVA COMPUTERS Zebra Emulation SKZ-XX Plug and Play Series</p>
---	---



ZETA
Authorized
Stocking Distributor

<ul style="list-style-type: none"> ● 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 ● 16.5 msec average seek time (21% faster than DG's 6239 Argus) ● 4.0MB/sec transfer rate 	<ul style="list-style-type: none"> ● 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
--	--

For Back-up:







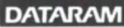


The Helical-scan Cartridge Tape Subsystem

2 Gigabytes on a small 8mm cartridge



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

Up to 40% savings on DG Compatible memories

<p>We specialize in peripheral subsystems for your DG systems</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">   </div> <div style="text-align: center;">  </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="text-align: center;">   </div> <div style="text-align: center;">   </div> <div style="text-align: center;">   </div> </div>	<p><i>Ask Us About DATAPRODUCTS Laser Printers</i></p>  <p style="font-size: small;">Dataproducts Authorized Stocking Distributor</p>
---	--

Your First Choice for DG solutions

interscience

COMPUTER CORPORATION
5171 CLARETON DRIVE, AGOURA HILLS, CALIFORNIA 91301

Call

(818) 707-2000

Circle 36 on reader service card.

Americas/Far East

Developing computer market unifies vast territories

Below is an interview with Wayne Fitzsimmons, vice president of Americas/Far East for Data General Corporation. To give readers another viewpoint, we have included on the following pages randomly selected profiles of users of Data General products throughout the world.

Focus: Why does Data General go to the trouble of addressing markets in so many countries around the world—why not focus the same amount of effort on a few countries and do extremely well there?

Fitzsimmons: First, being a multinational company allows us to serve other multinationals in all the markets they address, wherever they are. That gives us a tremendous competitive advantage. Also, in some of these countries we can become a dominant force because a lot of companies won't pay attention to them. In the Republic of South Korea, for instance, we are a major company—I think we're ranked third in terms of revenues. Each of these national markets may be small, but if you have several \$25 million operations, it adds up to a lot of revenue. Not all of them will be up at the same time, but as economies go up and down around the world we can balance our revenue opportunities and allocate resources according to market conditions.

Focus: Why does Data General combine countries that

are as far apart and as different as Argentina and Singapore into a single operation called Americas/Far East?

Fitzsimmons: One could be cynical and say there are three geographies in the world: North America, Europe, and the rest. I got the rest.

Focus: Okay, if that's the cynical view, is there another view you could take?

Fitzsimmons: Latin America is largely composed of third world and developing countries. Likewise Asia. But there is a kind of unity of business practices related to the stage of development of the computer markets, which are in stark contrast to North America. That's a good rationale for combining Asia and Latin America into a single group trying to serve that type of marketplace.

Focus: Can one person really understand everything that goes on in such a vast territory?

Fitzsimmons: I don't think it's down to one person. Obviously there's a significant management structure underneath me. One person can understand the business problems that arise in such a vast geography provided you've got competent management in the field.

Focus: If it depends on having competent management in the field, what is DG doing to assure that you have good managers in place?

Fitzsimmons: One philosophy that Data General has held to is that we try to employ a local team. In China we have Chinese and in Argentina we have Argentinians. This policy also manifests itself in the fact that I'm an Australian running this vast operation known as Americas/Far East. Somebody like myself has a vastly different perspective from somebody who was born and raised in Wisconsin.

With trained management who are all locals, your job is a lot easier. I'm as comfortable dealing with Latin Americans as I am with Chinese, provided that the top guy in the national market can straddle the cultural differences. That's a very important part of the management skill level I'm looking for.

Focus: Is there anything in particular that prepared you for the job you hold now?

Fitzsimmons: I started with Data General in 1972 as general manager for Australia and New Zealand. There were six people when I started, but it had grown to a couple hundred by the end of 1979, when I left to go to the U.K. as a general manager. I left there at the end of 1983 and came to North America to take my current job. While I was in the U.K. I dealt with several international distributors, which prepared me for a broad geography. Australia, New Zealand

(Fitzsimmons continued on Page 29)

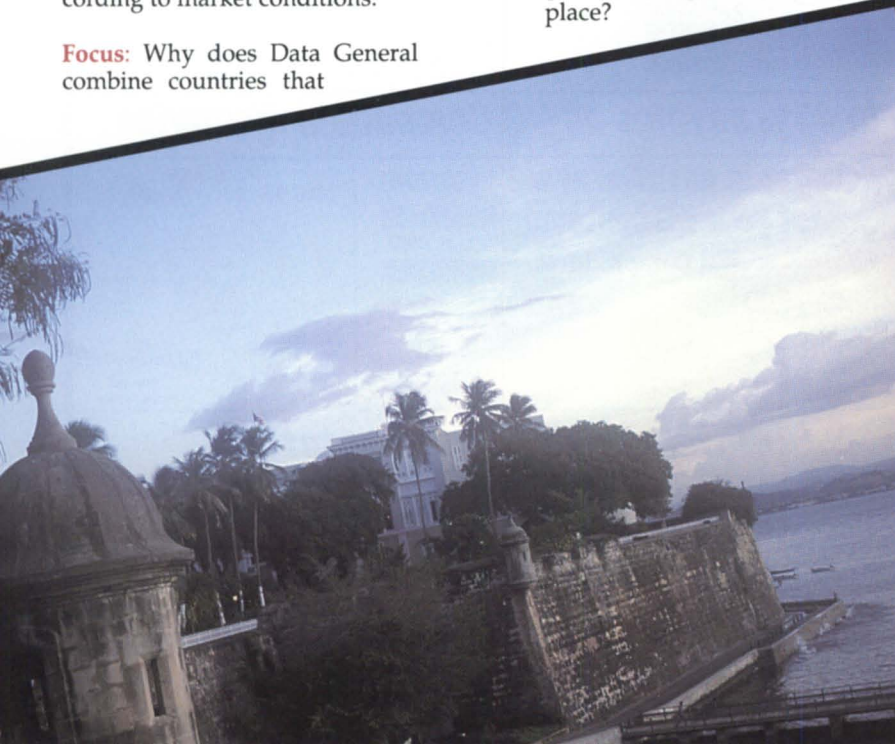
Puerto Rican fortress guards state operations

When Arnaldo Ramos was deciding which computer system to recommend to his client, he had more than the usual factors to consider. The system had to have remote capabilities, be able to support hundreds of users, share printers and other equipment, and, preferably, speak two languages. Then there was the fact that it was going to be installed in a 400-year-old fortress in San Juan, Puerto Rico.

Ramos, a consultant and professor of computerized information systems at the University of Puerto Rico, assisted in choosing a system that would bring the operations of the Office of the Governor

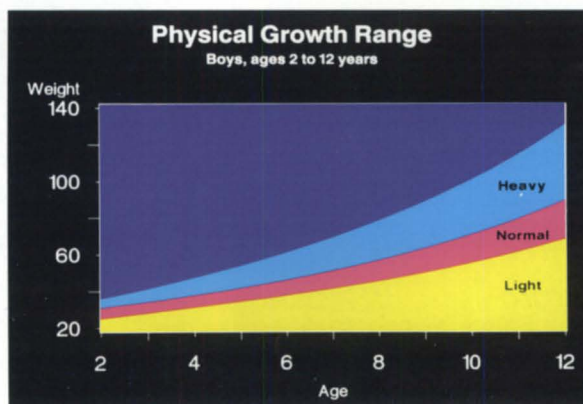
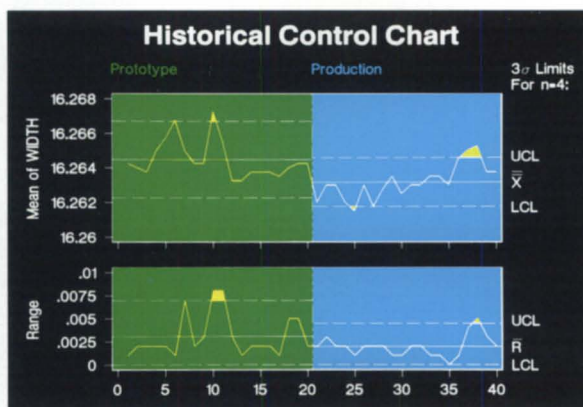
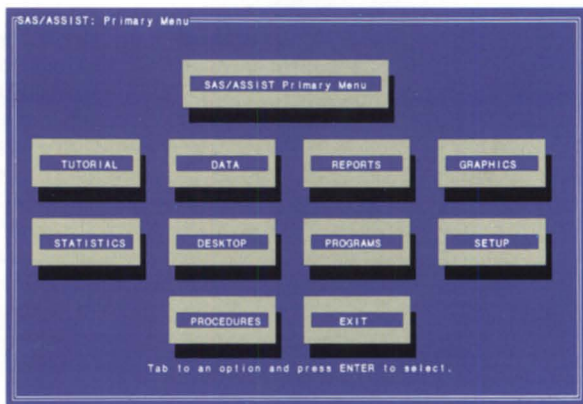
(Ramos continued on page 28)

La Fortaleza, DG's largest installation in Puerto Rico (photo courtesy DG Corp.)



The SAS System

More Choices, for More Applications, than Any Other Software.



The SAS System is the software you'll never outgrow. No other software offers so many choices for data management, analysis, and presentation. For any user—new computer user to seasoned pro. For any environment—PC to technical workstation to minicomputer to mainframe.

Choices to Build On. Start with a powerful English-like language and essential data management tools. Then take your pick of ready-to-use applications: statistical and mathematical analysis...report writing and color graphics... project management and quality control... forecasting and decision support.

Or build your own menu-driven applications—quickly and easily—with the SAS System's interactive applications development tool. Even first-time users can command the power of the SAS System... just by filling in the blanks.

Choices to Count On. More than a million users throughout the world—in business, industry, government, science, and education—have made the SAS System their #1 choice for data analysis and color graphics. And **every** SAS System application is backed by expert technical support, documentation, and training.

We'll tell you more in a free 12-page executive summary. Just give us a call at (919) 467-8000. In Canada, call (416) 443-9811.



SAS Institute Inc.
Software Sales Department
SAS Circle Box 8000
Cary, NC 27512-8000
Fax (919) 469-3737

The SAS System runs under IBM Corp.'s MVS, CMS, and VSE; Digital Equipment Corp.'s VMS®; Data General Corp.'s AOS/VS; Prime Computer, Inc.'s PRIMOS®; Sun Microsystems, Inc.'s SunOS™; Hewlett-Packard's HP-UX; Microsoft Corp.'s MS-DOS®; and IBM Corp.'s PC DOS.

(Ramos continued from page 26)

into the computer age.

"I was called at the beginning of 1985 when the current administration (the Hon. Rafael Hernandez-Colon) took charge," Ramos said. "They had an old computer, but by that time it was not being used. We started from scratch."

Ramos was contacted by Sila Calderon, the Secretary of the Governorship (a position similar to the White House Chief of Staff in the United States). Calderon wanted to not only computerize the internal offices of the governor, but also those of over 100 government agencies scattered about the capital city.

"We evaluated several different office automation packages," Ramos said. "The decision to choose DG was based "not just on software, but also on the hardware." The Office of the Governor is located in a Spanish-built fortress known as La Fortaleza located in Old San Juan, so special consideration was given to the machine's distribution system. "The only one that could really provide us with that configuration at the time was Data General. We liked the user-friendliness of the programs, and the fact that they were available in both English and Spanish. We also liked the fact that all the applications were completely integrated. DG was the only one that offered a full office automation package for each computer."

Installers had to work carefully around the existing narrow



High tech/classic architecture
(Photo courtesy D.G. Corp.)

streets and colonial architecture. To preserve the integrity of the castle, cobblestones had to be removed to lay the LAN cable. These were numbered and put back in the same spot so that structural alterations would not be visible.

The initial installation included one ECLIPSE MV/4000, five MV/4000 DCs, 75 terminals, and 30 letter-quality printers. It has since been upgraded to one MV/15000 Model 10, five MV/4000 DCs, five MV/2000s, 150 terminals, and 60 printers. All of the systems are connected to the LAN Ethernet. Applications used by the government include CEO word processing, electronic mail, calendar, phone message and reminders, plus decision-based spreadsheets, datatables, and graphics.

Training was another important aspect of the installation, Ramos said. "We insisted on in-house training. Our computers are up and running 24 hours a day. After basic training, we went through a hand-holding period and we've continued to follow up. We are always training and retraining."

The La Fortaleza installation is one of the largest in DG's Americas/Far East region. Because of the unique challenges, it has turned out to be a mutually beneficial experience. "I am pleased with the way that Data General Puerto Rico works. They are very cooperative," Ramos said. "But I would say the people (at DG Puerto Rico) learned as much from us as we learned from them. It was a learning process for both of us." Δ

DATA GENERAL

BUY • SELL • TRADE

★ SPECIAL 6161 147MB Disk S/S \$1,990 ★

CPU's:

MV15000 Mod 10	Call
MV10000 w/BBU	\$29,900
MV4000 w/o Mem	1,500
MV8000 9600 Series w/2MB	3,900
MV6000 w/2MB	2,500
Eclipse S/140, w/256K, 16 Slot	1,950
DT Mod 10 w/256KB 15MB Flpy	1,500
DT Mod 20 w/256KB 15MB Flpy	1,500
Nova 4/X w/256KB, 16 Slot	990

MEMORIES:

8990-D 16MB MV20/MV15 Mem	\$17,900
8871 8MB MV4/MV10 Mem	6,900
8765 2MB MV Universal Mem	1,490
8708 2MB MV8000 Mem	1,490
8687 256KB S/140 Mem	290
8656 256KB MOS Eclipse Mem	100

DISKS AND TAPES:

6236 354MB ARGUS S/S	\$9,500
6122 277MB S/S	1,500
6061 192MB S/S	990
STC 1920 6250 BPI Tape S/S	2,900
6123 Micro Streamer	990
6026 800/1600 BPI Tape S/S	1,390

CRT's:

D214	\$490
6130 Dasher D400	190
6169 Dasher D211	425

COMMUNICATIONS:

IAC16	\$3,900
IAC8	1,700
ISC II	690
4340 AMI8	290
4342 ATI16	390
4206 MCA	450

PRINTERS:

M200 340CPS	\$690
4327 300LPM Band W/DCH	1,900
6190 LP2 Enhanced	950
6194 TP2 Enhanced	950

CONTROLLERS:

Floating Pt. for S/140	\$790
25MB, 10MB, 20MB, Controllers	200
Comm Basic I/O	690
6026 800/1600BPI Controller	690



D400 TERMINAL EMULATION

- high performance D400 emulation for IBM PCs, XTs, ATs & PS/2s
- simultaneous normal & compressed character windows (up to 24)
- horizontal scrolling
- powerful softkeys & script language
- network support
- ASCII, KERMIT & XMODEM file transfers

KEA SYSTEMS LTD.

Tel: 604-732-7411 Telex: 04-352848 VCR

FAX: 604-732-0715

Order Toll Free: (800) 663-8702



COMPUTER WHOLESALERS

MARK BRADT FAX 404/457-5841
3246 Marjan Drive 404-455-4542 Doraville, Georgia 30340

Circle 13 on reader service card.



Circle 38 on reader service card.

(Fitzsimmons continued from page 26)

and Papua, New Guinea were a pretty big geography to start with but it was all under my control. When I got to the U.K. I was looking after England and Africa, and that gave me an exposure to multi-cultural and third world countries. Also, within the U.K. I developed quite a lot of practical knowledge about how you run the field marketing in a subsidiary of a multinational North American computer company.

Focus: Is it difficult to be even-handed with the management representing DG in different countries that may have very different ways of doing business?

Fitzsimmons: I don't see that as a major issue. The name of the game is to get paid for your computers. That's a common assumption amongst our management. They handle the business practices, and they bridge the differences in terms of the North American culture. Those differences are largely transparent for my daily activities, but I have to say that down the line there's a lot of very fast footwork to

accept letters of credit, get export licenses, and satisfy all the people involved in the transactions.

Focus: How do you find people in all these countries who have the background to do the job that DG needs done, and what do you provide in the way of training?

Fitzsimmons: First of all, a North American high technology company like Data General is a very attractive employer for skilled people in these countries. You can imagine that for a young engineer from Thailand who's been trained in the United States, that's the sort of job he'd like to have. So we can attract—as can our competitors—the very best talent in those countries. The starting point is skilled people, and then we have to adapt them into the Data General culture. We have a very comprehensive range of technical and management training courses that have expanded over the years so we can integrate anyone from a field salesman right up to a manager right across the world.

There is one obvious problem, and that's language. Generally speaking, the senior management team in any country has to have a pretty good grasp of English. On the other hand, a lot of our sales and training materials are translated into many languages. We have a very large translation department here in Westboro to address those sorts of issues.

Focus: Does that include translating software products?

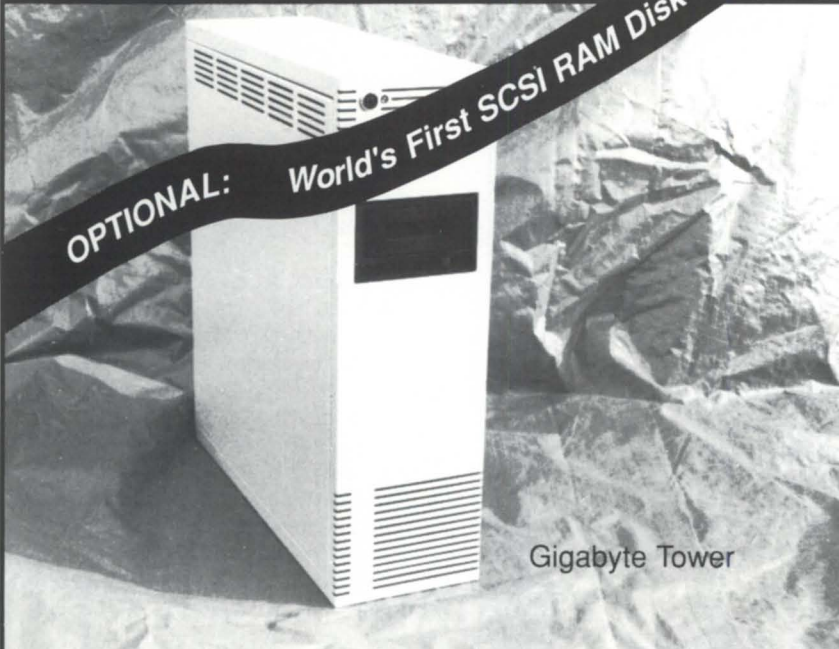
Fitzsimmons: Absolutely. We have CEO in all of the European languages, and we're on a path to announcing it in many Asian languages as well, which is much more complex. We have Japanese CEO and are working on Chinese and Korean versions.

Focus: Is Nippon Data General separate from your Americas/Far East territory?

Fitzsimmons: Yes, but because of the pervasiveness of Japan throughout Asia, I work extremely closely with them.

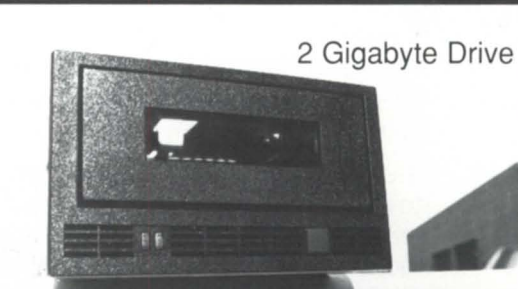
Disk/Tapes • Entire MV/ Line

• MV/1400-MV/40000




OPTIONAL: World's First SCSI RAM Disk Cache!

Gigabyte Tower




2 Gigabyte Drive

and the tape to back it up!



EXABYTE™ Data Cartridge 2048



Delphi Data

(714) 354-2020 Fax: (714) 354-2023

12155 Magnolia Ave., Ste 6C • Riverside, CA 92503

Call for your VAR pricing.

Circle 26 on reader service card.

Focus: Where do Africa, India, and the Middle East fit into DG's organizational structure?

Fitzsimmons: Africa is a European responsibility. The Middle East is European. Dave Lyons and I are arguing about who is going to do representation in Iran and Afghanistan. We're not finding any volunteers.

Focus: What proportion of DG's revenues and earnings come from South America and Asia?

Fitzsimmons: Not enough. We have to be realistic about Latin America's debt problem. In 1987 we had a fantastic year in Latin America. In 1988 the bottom dropped out in Mexico and Brazil and Argentina; 1989 is not a lot better. The

business is volatile—you have to be swift of foot and adjust accordingly. One thing going for us is that while the inflation rates are incredibly high in Latin America, they're matched by the depreciation of the currency, so our operating expenses continue to go down in dollar terms every month.

Asia is where the real growth is. The Asian and Japanese revenues are a very substantial part of this corporation's total revenues, and are the most rapidly growing.

Focus: Which national markets in your territory do you pay the most attention to and for what reasons?

Fitzsimmons: Singapore, Hong Kong, the PRC (*People's Republic of China*), Taiwan, and South Korea. You don't have to be an intellectual genius to figure out why. Their gross national products cumulatively will exceed that of Japan in 1991. You better believe we're interested.

Focus: Do you see problems like patent infringements in foreign countries hurting the ability of a North American company to compete in these markets?

Fitzsimmons: To some extent, but through U.S. government pressure, that problem in those particular countries is rapidly disappearing. It's still a problem in some Latin American countries.

Focus: Are there any countries that are not producing very much for Data General right now that you expect to bloom in the next few years?

Fitzsimmons: Brazil. Mexico. India. Brazil in 1987 was the eighth largest economy in the world. Their political situation and the external debt have torn the country apart and they can't get focused on what they're going to do as a nation. They've got the extremes of poverty and wealth now, but when they get their act together, it will be a superb market and very well educated. We aim to be there—we've been very successful in the past but right now it's a very low revenue source.

Focus: What trade restrictions does DG have to work around?

Fitzsimmons: I'll give you a few examples. If you want to do business in India or the PRC, the U.S. Department of

ALL WITHIN YOUR BUDGET !!

Infos sites,

In these days of super tight budgeting you owe it to yourselves to have a look at the **fastest selling** productivity tool yet !

At a fraction of the price of comparable alternatives you can get the **testing, enquiry and development tool** of the 21st century, *THE_ULTIMATE*.

THE_ULTIMATE attacks the most time consuming phases of system development in **INFOS** installations : program testing and system testing.

Through using *THE_ULTIMATE* you can cut down the overall time you spend on testing by a minimum of 60% – and this at a price you hardly need to get justification for. Beat that !

The big corporations have latched on to it, government departments fall over themselves to beat one another to it, and Joe next door is thinking about it **DON'T BE LEFT BEHIND**, contact us now for details and a demonstration tape :

North America

DataLynx Inc.
6659 Convoy Court
San Diego
CA 92111
Tel: (619) 560 8112

Otherwise

Le Software Man Ltd.
P.O. Box 545
London N7 8DF
(England)
Tel: + 44-1-809-2762

le software man LTD.
Systems consultants

Circle 24 on reader service card.

Commerce export regulations play very heavily. It's a common problem for American companies versus Europeans. Quite often the European governments are much more lax, and European companies can sell products that we don't get approval for—or if we do, it takes six months longer and we miss the business.

Another example is the inward investment policies. India does not allow 100 percent ownership, and neither does Brazil. It's difficult to get into China because of tax treaties or lack of tax treaties. Trading in a country like South Korea is very difficult because of the Foreign Corrupt Trade Practices Act. There's a whole host of regulations that restrict the manner in which you can conduct your business.

Focus: With the new presidential administration in the U.S., do you expect any of this to change?

Fitzsimmons: In policies like export regulations and trade restrictions it's going to be largely a continuation of the policies of the Reagan administration. I must say that I have high hopes that George Bush will be more business-oriented.

Focus: Service and software are very big parts of DG's business in North America. Do they carry as much importance for customers in your territory?

Fitzsimmons: Absolutely. In some ways we're ahead of the U.S. In the U.K. for instance, I set up a software products group back in the early 1980s to offer a software maintenance service in the same way we offer hardware maintenance. That service became more sophisticated and spread into New Zealand and Australia when I got to my current job. Some of the recent policies in North America, for instance the versioning approach, have fitted very well with what we've been doing for about the last five years. In New Zealand and Australia we've been cutting common invoices for software and hardware service for the last four years.

Focus: What types of applications are customers in the Americas and Far East addressing with DG systems?

Fitzsimmons: It's different in every country. Some of the applications you get in the third world are incredibly sophisticated. For instance, in Brazil we've been very successful with a company that's an information provider to all the banks.

They provide exchange rates and financial information throughout Latin America, as well as New York and Chicago and the U.K. We've installed 20 or more large systems for them over the last five years or so, including a couple of MV/20000s just before Christmas.

In Venezuela we're into the state-owned oil company, and they use CEO throughout their management team.

In South Korea we've installed hundreds of large MV systems into educational institutions and hospitals because we've got the application software, and they're quite sophisticated applications.

Focus: Does DG help developers who have promising applications running on DG equipment to bring them to other national markets?

How many sales have you lost by depending on a single hardware vendor?

Wild Hare's *Choice!*[™] software gives you the market and vendor freedom to immediately sell your ICOBOL applications on all types of computers - from small PCs to large mainframes!

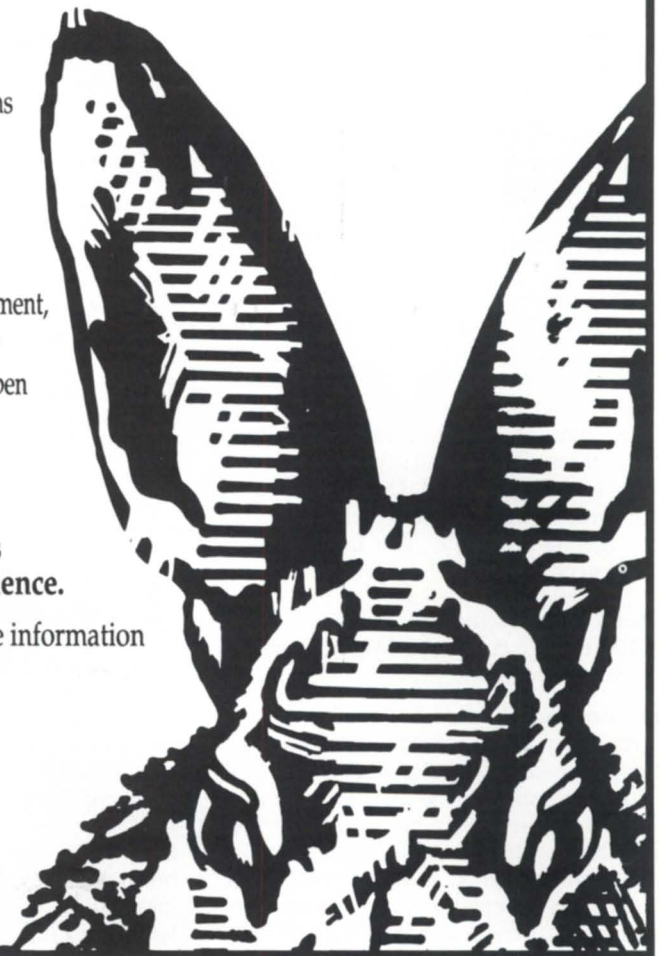
Take a close look at how our soft-solutions can help you reduce high hardware and development costs, enhance and protect your software investment, give you true vendor independence and open new markets to your products.

Wild Hare means vendor independence.

Call today for more information
(303) 442-0324



ICOBOL on UNIX



Circle 70 on reader service card.

Fitzsimmons: We actively encourage that. In Australia, Data General Australia sells software written in the U.K. and U.S. Likewise Data General Corporation sells TEO/3D, which is basically an Australian software development. The VAR conferences we hold have a very strong international representation and cross-fertilization. Obviously it's in our interest to encourage all of that.



The competition is not as fierce in Latin America as it is, say, in Australia, where you've got every major vendor from North America, Europe, and Japan crawling all over a fairly small but sophisticated market

—Wayne Fitzsimmons

Focus: Who are the major competitors for DG in your part of the world?

Fitzsimmons: In Latin America it's IBM, Unisys (through Burroughs), NCR, and to a lesser extent Digital. Digital is not as well represented as a direct subsidiary as we are in Latin America. They're probably bigger than us, but we're much closer to them there than we are in North America.

The competition is not as fierce in Latin America as it is, say, in Australia, where you've got every major vendor from North America, Europe, and Japan crawling all over a fairly small but sophisticated market. The Japanese use it as a trial marketplace for all sorts of products.

In Asia, Digital, IBM, Unisys, Hewlett-Packard, Wang, and ourselves are probably the most visible. The Japanese are there very strongly, of course.

Focus: What standards (such as Unix, X.400, etc.) do customers in other parts of the world demand?

Fitzsimmons: In the telecommunications area, many of the companies are government owned and regulated, and they pay a lot of attention to the CCITT standards. We're very successful because of our capabilities with the established standards.

In terms of Unix, it varies a lot from country to country. Unix is about as pervasive in Australia as it is in North Amer-

ica—strong in the technical market but not yet of age in the commercial market. In countries like Taiwan and Korea they're trying to figure out what to do with Unix. In Mexico with Pemex, the state-owned oil company, if you don't have Unix, you don't make it. In countries like Chile they don't care—Unix is nothing. Of course Unix is much bigger in Europe than it is in North America.

Focus: How have customers in other countries responded to DG's announced intention of migrating toward the Unix standard?

Fitzsimmons: Very positively. Our bigger customers are asking when they can get this product. The developers are chafing at the bit to get it.

Focus: Does DG pattern its software policies in the rest of the world on the policies it has announced for North America?

Fitzsimmons: Yes. As I said before, to a large degree, we'd already implemented policies like versioning in other parts of the world. North America was just catching up with the policies that the rest of the world had already put in place.

Focus: Do you recall any experiences from your career that might help explain the challenges of doing business across so many national and cultural boundaries?

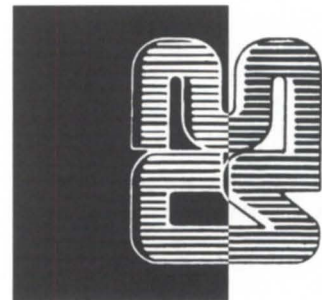
Fitzsimmons: We had an incident about two years ago where we installed the first MV/20000 in South Korea for a big cement company in Seoul. At the time, our skill levels in Korea for supporting that machine weren't all that great, so we brought in an Australian engineer. The installation went pretty well, but a week later the thing crashed. We flew in a spare

board from Hong Kong, but it failed, too. The customer was getting a little irate, so we called the U.S. and said to ship in an MV/20000 CPU board urgently, which still took a few days. It came in through Hong Kong and our guy was out at the airport calling the customer to say it's here, but when he picked up the package it was all crunched up. We showed it to the customer and he said, "Don't tell me about your problems. Fix mine." We ended up flying an engineer in from Australia with a board under his arm and we got the thing restored, but the whole incident took about 10 days. We can laugh about it now, but when you're in the middle of something like that, it's very serious business.

Focus: What are some of your goals for the next year?

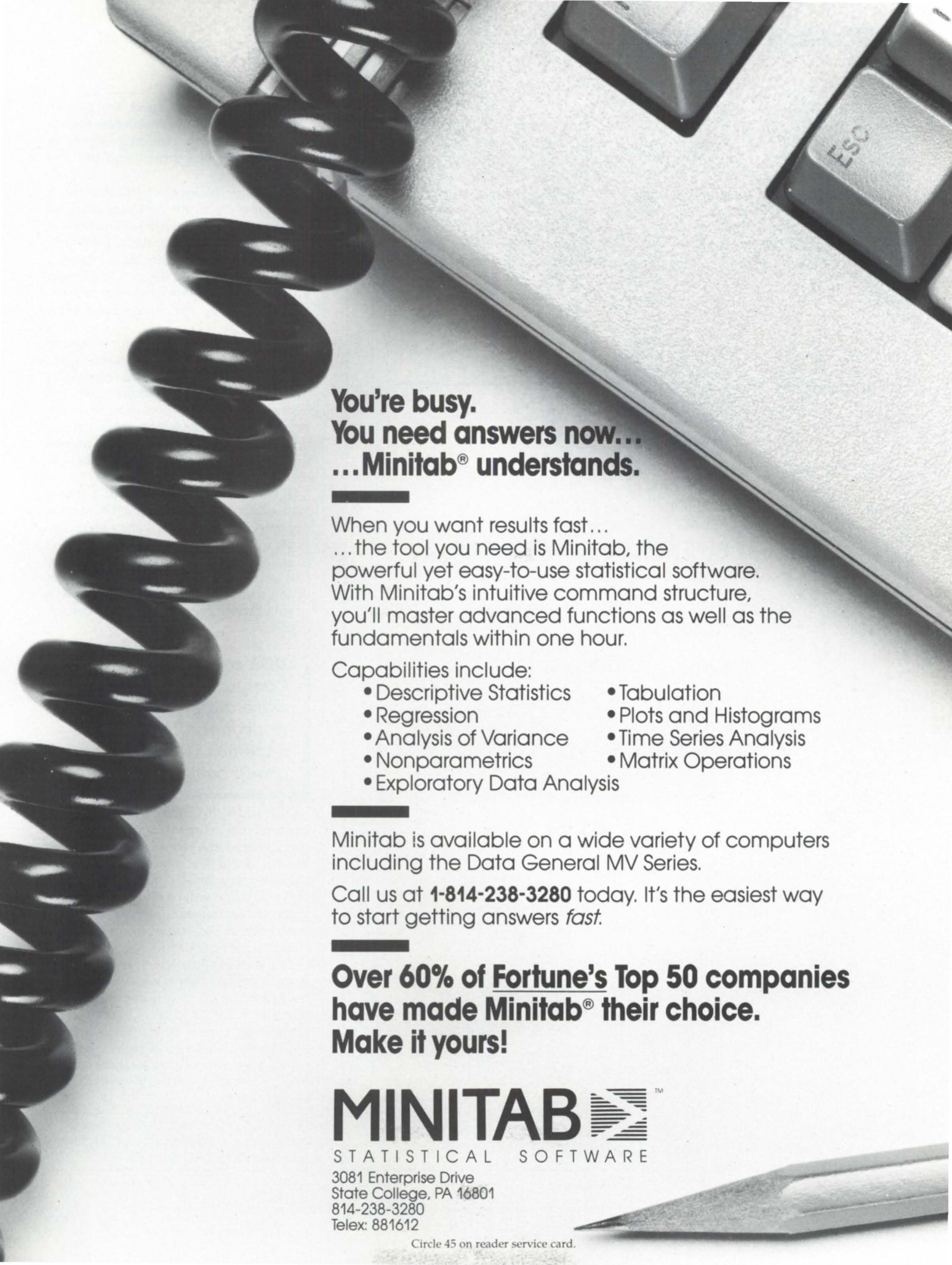
Fitzsimmons: We are really going after vertical markets either directly or through VARs. Secondly, we have very comprehensive plans to bring the sales force up to speed on Unix, so when our 88K products are launched later this year we'll be ready and able to sell this product—at the same time insuring that we don't take our eyes off our AOS/VS products. Thirdly, we're going to concentrate on the high growth opportunity in Asia. I have a personal goal to see that Data General exploits that opportunity to the maximum. △

DG is Australia's 'Initial Choice'



by Phillip O'Connor
Special to Focus

Mini Computer Systems is one of Data General Australia's oldest and most loyal VARs. We have been using Data General equipment since DG was first established in Australia by Wayne Fitzsimmons (now Data General's vice president Far East). We have seen DGA grow from just a handful of staff at a small office in Melbourne,



**You're busy.
You need answers now...
...Minitab® understands.**

When you want results fast...
...the tool you need is Minitab, the
powerful yet easy-to-use statistical software.
With Minitab's intuitive command structure,
you'll master advanced functions as well as the
fundamentals within one hour.

Capabilities include:

- Descriptive Statistics
- Regression
- Analysis of Variance
- Nonparametrics
- Exploratory Data Analysis
- Tabulation
- Plots and Histograms
- Time Series Analysis
- Matrix Operations

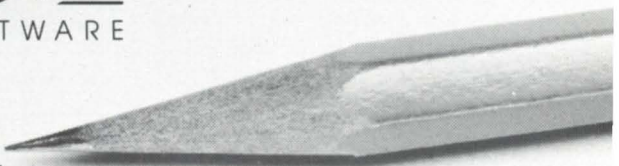
Minitab is available on a wide variety of computers
including the Data General MV Series.

Call us at **1-814-238-3280** today. It's the easiest way
to start getting answers *fast*.

**Over 60% of Fortune's Top 50 companies
have made Minitab® their choice.
Make it yours!**

MINITAB ™
STATISTICAL SOFTWARE
3081 Enterprise Drive
State College, PA 16801
814-238-3280
Telex: 881612

Circle 45 on reader service card.



to over 300 employees at offices in all states of Australia.

Our own installation has developed from our first Nova 2 to our current site in which we have an MV/2000, a DG/30 running AOS, a DG/10 running RDOS, and the obligatory DG/One and Dasher 286. To the horror of the DG techs, the MV, DG/30 and Dasher are networked, to provide media compatibility with gen-

erations of clients.

Our customers range from single terminal MP200s (still going strong) to a legal firm with a network of an MV/20000, two MV/15000s, and half a dozen MV/2000s. Most are desktops and MVs running accounting and/or word processing applications. We provide general purpose business accounting systems, office automation, and specialist applica-

tions. Our aim is to meet the general computing needs of our clients, including programming, training, operator support, site management, and DG consulting services.

We are the national distributors for a selection of software packages for Data General systems, including Wordperfect, Rational Data Systems, Blast, DMS Systems, BJ, Inc., Le Software Man, and other overseas suppliers. A large proportion of our activities are associated with promoting, supplying, and supporting these products.

The population of Australia is around 16 million people, clustered in the capital cities, with over half in the regions of Melbourne (DGA's headquarters) and Sydney. This population represents approximately 2 percent of the United States' population, and DG's Australian market is approximately 2 percent of the DG market in the United States.

During 1988, DG carried out a television campaign representing DG as the "Initial Choice." The advertisement featured a conversation conducted entirely in initials and this caught on, to the extent of being satirized in one of our television comedy programs. It raised DG's profile in the general community considerably.

DGA and Mini Computer Systems were instrumental in organizing a national DG users group some years ago

DGA and Mini Computer Systems were instrumental in organizing a national DG users group some years ago. This has been inactive for a few years, but there has been interest expressed again recently, and we hope that it will be revived. There is a fairly strong informal network of users, especially in the larger companies and government organizations.

DG VARs appear to be less interested in such groups. Some VARs work in cooperation with each other, especially when in different states. Others remain fairly independent. Many VARs are not exclusively Data General dealers, but represent a number of manufacturers. Most VARs have an identifiable vertical market specialty. △

Phillip O'Connor is managing director of Mini Computer Systems Pty.; 411 Hawthorn Rd., South Caulfield, Australia.



Alloy Computer Products, Inc. proudly announces the availability of its new

ALLOY BUSINESS BASIC COMPILER

A program designed to convert your Data General Business BASIC and

Bluebird Business BASIC programs to a native MS-DOS format

and...Alloy's new

386/MULTIWARE DOS O/S

A multi-user/multi-tasking DOS based operating system

for 386 machines which runs hundreds of multi-user DOS programs available

for standalone or networked PCs.

Both of these great new products will be presented at the DG Review Expo in

New York on March 14 & 15,

BOOTH 900

Please come by and see us or better

yet, call us at 1-800-432-4356 to schedule

a personal demonstration.

Alloy Computer Products, Inc.

Systems Division

100 Winners Circle, Suite 450, Brentwood, Tennessee 37027

615-370-0037

Alloy Business BASIC and 386/MultiWare are the registered trademarks of Alloy Computer Products, Inc.
Data General Corporation. Bluebird Business BASIC is the registered trademark of Bluebird Systems.
© Alloy Computer Products, Inc., 1989

Circle 1 on reader service card.

The art of marketing in India



Having sold Data General products in both India and the United States, Mrinal Sattawala, regional manager for Data Conversion Inc., knows that

the flavor of high-tech sales in the two countries is different. In India, extra helpings of patience and diplomacy are required.

Data Conversion Inc., based in Cambridge, Massachusetts is the international marketing and support branch of Patni International, a company that has been marketing Data General computers in India for about 10 years.

"We have over 100 Data General users (in India) in fairly widespread areas—government, manufacturing, financial institutions . . . almost all areas of activity," Sattawala said. "In addition to the hardware business, we have a software consulting business. We provide complete installation, warranty, and customer training."

Although Data General has a good reputation in India, selling the company's products is often a challenge because of the buyers' expertise. "It takes a lot longer to close a deal in India. It is a very technical market and there is a lot of technical selling that has to be done. We have to go through fairly rigorous benchmarking," Sattawala said.

In addition to the well-informed customers, the seller faces another obstacle in India, Sattawala said. Because of the large population, there is often resistance when a company proposes a change that could cause displacement of workers. The decision of whether or not to purchase a computer can be a controversial one.

"Companies making decisions (to purchase computers) have to look for more justification. They have to go through an intense union investigation. The visibility is much higher. Frankly, the amount of money (spent to purchase the computers) is nominal."

Sattawala said that Data General's financial losses of the past two years are also an area of concern. "It's just a hurdle we have to overcome with marketing," he said. △



Wullie Grant

In New Zealand: Optical technology cuts response time

New Zealand Industrial Gases Ltd. is Data General's largest commercial site in New Zealand. Located in Wellington, the main office has an MV/20000 Model II, three 6250 bpi tape drives, and a Zetaco Laser Re-



For Sale or Lease

MV/20000 MOD 1 CPU:

- Available Early March 1989
- Currently under DGC maintenance
- This is a large system with many options and peripherals but we can down-configure or up-configure to your specifications

UPGRADES:

- UVIK-G IOC2 Upgrade for MV/20000
- UVIK-H IOC2/3 Upgrade for MV/20000
- UVIKW-A MV/20000 MOD 1 to MOD 2
- U15810 MV/15000 MOD 8 to MOD 10



**CATALINA
COMPUTERS, INC.**

1001 W. Arbor Vitae St., Inglewood, CA 90301

(213) 215 - 0641

FAX # 213/649-1065

Circle 6 on reader service card.



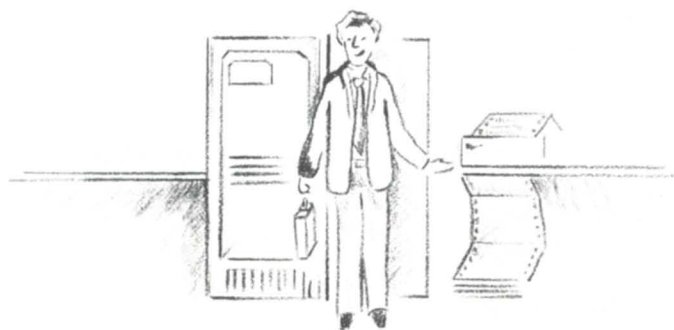
Do you need help to get the best performance out of your DG system?

Do you wonder who to turn to for advice about DG? Do you feel alone? Unattached?

If you answered yes,

the *North American Data General Users Group* (NADGUG) is your answer. NADGUG is a network of active DG users who can connect you with a regional interest group (RIG) or special interest group (SIG).

RIGs and SIGs bring people together to share ideas on how to solve problems. RIGs enable users to meet their peers close to home. SIGs are focused on a specific interest, such as Unix, CEO, AOS, AOS/VOS, etc.



Join a RIG or SIG today

Take advantage of all that the RIG/SIG program can offer! The roster of RIGs and SIGs is printed in this month's issue. If you don't find a RIG in your area or a SIG to meet your needs, contact the RIG/SIG Coordinator, Cathlene Gentry, 800/877-4787 (1-800-USR-GRUP), or the RIG/SIG Committee Chairperson, Charlene Kirian, 614/476-1237 for assistance.

ording Subsystem (LRS-10) optical disk.

Using this technology, Wullie Grant, manager of information resources, recently put several years of archived sales records online, which allows the company to cut the time required to perform a critical customer service from a week down to a few minutes.

NZIG is a 75-year-old firm that sells gases to the medical, manufacturing, cryogenic freezing, and welding industries. Customers are served from 21 offices throughout the country. When gas is sold, the cylinders in which it is packed are rented. Keeping track of the cylinders is therefore a critical part of the operation.

"If we charge a customer rental on 100 cylinders, for instance, and he thinks he only has 95 cylinders, we have to be able to prove that we actually moved 100," Grant said.

Under the old system, records of gas sales and cylinder movements were kept online, so that NZIG employees could access data on any of the 220 networked terminals on the system. The problem was that after 12 months, these records were transferred to microfiche. The microfiche printing machines are located in regional centers in Auckland, at the top of the north island, and Christchurch, on the south island. If a customer wanted a copy of an archived record, branch NZIG personnel had to call an office with a microfiche printer, wait for someone to find the correct film and print it, then wait for the copy to arrive in the mail. This process took about a week, according to Grant.

"We have quite a number of records, as you can appreciate, which we're supposed to keep seven years," Grant said. "Thousands and thousands of pieces of film."

"The idea of getting the optical disk was to move the records—the cylinder movements and invoices—onto the disk, and make them available over the network, so that any NZIG employee, anywhere in the country, could find not only the current cylinder movements, but also find the previous movements."

He chose the LRS-10 because "the Data General optical system is a tape emulator. We wanted something that was going to be compatible with our interactive mode of operation."

NZIG employs 650 people, 20 of whom make up the information resources department. "I would describe us as a general commercial shop," Grant said. "We run sales ledgers, general ledgers, payroll systems, and management information systems. We keep the MV/20000 active Monday through Friday, about 20 hours out of the 24." Δ

DG Europe

Companies that succeed must do business across borders

The following is an interview with Dave Lyons, vice president of European Operations for Data General Corporation. Included on the next pages are profiles of end-users and interesting installations in Europe.

Focus: I've heard that Europe has accounted for an increasing share of DG's revenues and profits over the last few years. Why is that? Do you expect it to continue?

Lyons: Parochially speaking, I hope it does continue. DG does about one-third of its business now in Europe. Just to put that in perspective, back in 1982 we did about 20 percent of our business in Europe, so you can say that in the last five or six years our business in Europe has been growing at a faster rate than for the world as a whole.

DG does nearly half of its business now internationally, and it's becoming a greater proportion. That's not unusual in our business—IBM's business is about 55 percent international, for example. We see this trend

continuing over the next several years.

Focus: When you say Europe, how much of the world are you including?

Lyons: DG Europe includes Europe, the Middle East, and Africa. We have 15 subsidiaries representing all the major countries in Europe. In the Middle East and Africa we work through distributors.
Data

(Lyons continued on page 38)

Computer system steers animal supply vendor

Readers may recall coverage of Coopers Animal Health, a company located in Berkhamsted, England in our August 1988 issue ("Pilgrim's Progress: Site-seeing in and around London"). This month we bring you an update.

Coopers Animal Health was founded in 1984 with the ambitious goal of becoming the world's leading vendor of veterinary products. Through the timeless process of trial-and-error, it has established a computer system to steer it closer to that goal.

The system has gone through several upgrades since its initial installation, beginning with a collection of 16-bit Desktop Generations that were quickly replaced by two MV/4000s. These were soon joined by an MV/10000, which in turn was soon replaced by an MV/20000. Cybertek's CQCS was adopted as a 4GL for development, and Oracle for a data base management system. An Ethernet local area network now connects the MV/20000 and two MV/4000s. An MV/15000 Model 8 was recently brought in to relieve overcrowding.

Information Systems Manager Richard J. Larter explained that the latest upgrade was necessary because the MV/20000 (directly connected) were placed on the MV/20000, the MV/20000 and placed on the MV/15000.

While they had hoped to use a package designed for the medical profession (similar to that used by a company founder, the Wellcome Foundation) manag-

(Coopers continued on page 38)



Coopers Animal Health Ltd., Berkhamsted, England

(Coopers continued from page 37)

ers discovered that it did not suit their special needs. Coopers turned to an off-the-shelf product that more closely meets the requirements of its business. The demand in the medical business is relatively stable compared to that of the veterinary business, suggested Larter. "It is far more important in the animal business to get things to the customer fast."

With suitable hardware in place, and the accounting and order processing functions automated, Coopers' management is now in the early stages of training the sales staff to utilize the available technology.

"We are trying to get the sales people to use Oracle. What we're trying to do is put together a training and education program to give them awareness of the technology and of specific programs. We have found it is hard to change their traditional approach," Larter said.

"For the future . . . we've just been through some upgrades. The next two years should be relatively stable, with just the adding of some memory. On the whole, we're relatively happy with what we've got." △

(Lyons continued from page 37)

General has about 2,200 people in its European operations. I have a very small staff at our European headquarters in Paris—we've tended to put nearly all of the resources into the field operations.

Since the beginning of the fiscal year in October, four of the countries—the U.K., Germany, France, and Italy—are reporting to me directly. I also have a general European area that's headquartered in Zurich and includes all of the Scandinavian countries, Switzerland, Austria, the Netherlands, Belgium, Luxembourg, Spain, and Portugal.

We put that organization in place to reflect what we're seeing in Europe as the European Economic Community moves toward 1992 and a more open economic environment. This will allow us to be one level closer to our customers.

Focus: You mentioned the European Economic Community and the more open economic environment you anticipate in 1992. What changes are you expecting?

Lyons: You probably know about the movement to remove the barriers to trade

that have existed across borders within the EEC. The major countries are removing the trade and currency barriers to allow Europe to function more as a unified market, rather than separate countries with separate economic organizations.

Focus: We're hearing a lot about the possibility of a trade war between the European Community and the U.S. So far it only involves a few agricultural products, but does it concern you?

Lyons: Well, we're not going to be shipping any beef with improper hormones over there . . .

Seriously, I don't think anybody can say what's going to happen. You would hope that we won't get into a situation where import/export duties or trade barriers would prevent multinational companies from doing business there.

I have a very different view. I think the companies and organizations that will be successful in the Europe of 1992 and beyond are the companies that truly organize themselves as multinational companies. They will be companies that have a

PopTerm

Memory-Resident
Hot-Key
Terminal Emulator
D410 and
40 other CRTs

PC/VS

The High-Performance
LAN-Based
PC Integration
Alternative

Now Novell-Compatible!

Solutions

for Every
PC Integration
Problem

Call for your free copy of the
RDS Report on PC Integration

PC/Mail

CEO-Compatible
PC-Based
Electronic Mail

New!

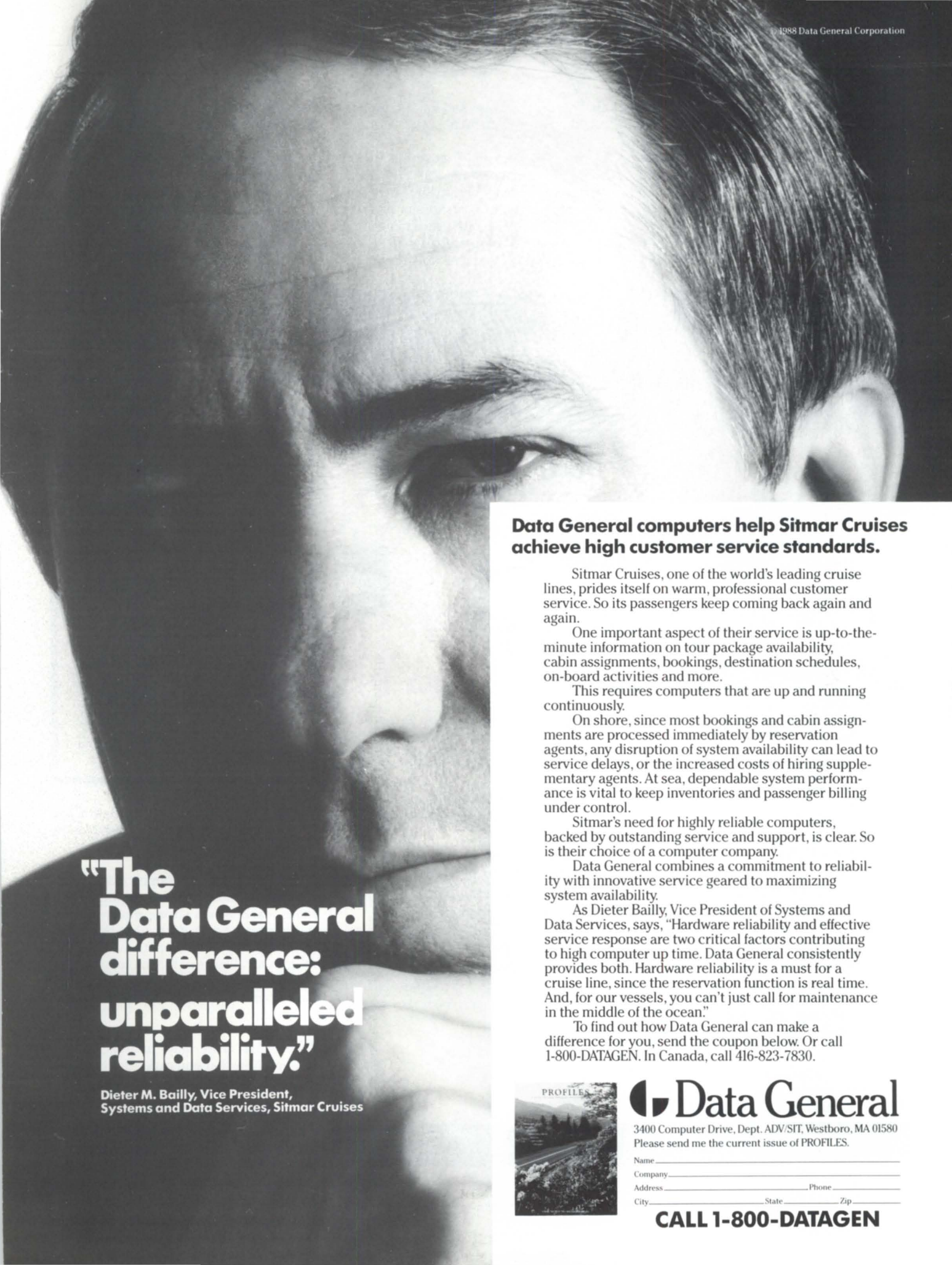
PC/Remote

LAN Functionality
Using just a Modem
or Direct Asynch
Connection



Rational Data Systems
150 South Los Robles Avenue
Suite 410
Pasadena, California 91101
Phone: 818/568-9991
FAX: 818/568-9990

Circle 48 on reader service card.



"The Data General difference: unparalleled reliability."

Dieter M. Bailly, Vice President,
Systems and Data Services, Sitmar Cruises

Data General computers help Sitmar Cruises achieve high customer service standards.

Sitmar Cruises, one of the world's leading cruise lines, prides itself on warm, professional customer service. So its passengers keep coming back again and again.

One important aspect of their service is up-to-the-minute information on tour package availability, cabin assignments, bookings, destination schedules, on-board activities and more.

This requires computers that are up and running continuously.

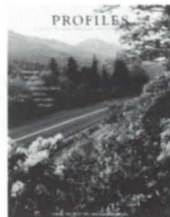
On shore, since most bookings and cabin assignments are processed immediately by reservation agents, any disruption of system availability can lead to service delays, or the increased costs of hiring supplementary agents. At sea, dependable system performance is vital to keep inventories and passenger billing under control.

Sitmar's need for highly reliable computers, backed by outstanding service and support, is clear. So is their choice of a computer company.

Data General combines a commitment to reliability with innovative service geared to maximizing system availability.

As Dieter Bailly, Vice President of Systems and Data Services, says, "Hardware reliability and effective service response are two critical factors contributing to high computer up time. Data General consistently provides both. Hardware reliability is a must for a cruise line, since the reservation function is real time. And, for our vessels, you can't just call for maintenance in the middle of the ocean."

To find out how Data General can make a difference for you, send the coupon below. Or call 1-800-DATAGEN. In Canada, call 416-823-7830.



Data General

3400 Computer Drive, Dept. ADV/SIT, Westboro, MA 01580
Please send me the current issue of PROFILES.

Name _____
Company _____
Address _____ Phone _____
City _____ State _____ Zip _____

CALL 1-800-DATAGEN

real presence throughout Europe and have the ability to develop and market applications across borders. European organizations will have to operate across borders, and the companies that succeed in doing business with them will have to be able to do the same.

Focus: Are you saying that it will be a fairly level playing field for multination-

als based in Europe and multinationals based in North America?

Lyons: We don't know that yet, and we're seeing the threat of trade restrictions, but my view from knowing the industry and the attitudes of our customers and the governments, is that the companies that truly operate multinationally will have a good chance to compete. Nobody knows

the specifics of what's going to happen, but I believe that the companies that will succeed will be those that are working now to get a stronger presence across all the major countries of Europe. I include Data General in that category.

Focus: How does Data General compare in that respect with the competition? Who are your major competitors?

Lyons: The competitors we see in Europe are very much the same competitors we see in North America. Day to day we deal with companies like IBM, Digital Equipment, and Hewlett-Packard. The added dimension you have in Europe is companies that have built up markets in their own countries, such as Siemens, Olivetti, ICL, and Bull. They are formidable, but in many cases they have really not become a force multinationally. Those companies, even though they're European, will have the same challenge that any North American company would have.

B32 Means a Winning Performance!



Like an Olympic hurdler, B32 combines blinding speed and amazing agility.

B32 was benchmark tested a full 50% faster than DG Business BASIC Rev 5.0! On a CPU intensive track, B32 was proven to be over 100% faster than Rev 5.0.

B32's additional features mean more Agility:

- Program size up to 512K
- 32767 line numbers and 30,000 variables

- WordPerfect and CEO integration
- Screen Save/Restore facility

B32's performance delays costly hardware upgrades.

Unprecedented speed, performance features, and superior technical support put your system on the Gold Medal podium. Call MAXON today for your *free*, full function B32 Demonstration Tape.

MAXON
COMPUTER SYSTEMS INCORPORATED

AUTHORIZED  SYSTEM DISTRIBUTOR

Call: (212) 227-1922

575 Madison Avenue
Suite 1006
New York, New York
10022

85 Scarsdale Road
Toronto, Ontario, Canada
M3B 2R2
Fax: (416) 445-6228



Something that's common to all these markets is a strong move toward industry standards.

— Dave Lyons

Focus: Does the same hold true for the Middle East and Africa, where you're dealing through distributors?

Lyons: It's largely the same kind of environment. Something that's common to all these markets is a strong move toward industry standards. We have to be sure to implement a very competitive Unix offering. Our alliance with Motorola is going to provide some industry standard RISC-based hardware that will make us very competitive.

Focus: Are there any underachieving markets now that you expect to start producing for DG in the next few years?

Lyons: We have a very focused market strategy that we've been implementing in Europe for the last couple of years. We pursue a focused set of target markets,

Circle 41 on reader service card.



LEADING THE WAY

In the 5th Generation of Service . . .



OLD FACILITY

3 times bigger to serve you 10 times better. Your total support is here . . . NOW!!!

Serving all your Data General needs



SERVICE DIVISION:
 24-Hours, 7 Day Coverage
 10,000 Sq. Ft. Repair Shop
 Full Systems Testing Facility
 Upgrade Emulation Service
 Full Support For "Mixed Systems"
 "Swap & Repair" Program
 Free Upgrade Installation
 Expanded Service Locations
 Largest On-Hand Spares

HARDWARE DIVISION:
 10,000 Sq. Ft. Warehouse
 New and Reconditioned Systems
 Leases, Rentals and Trade-Ins
 Power Conversions For Exports
 Spare Parts
 Peripherals
 Compatibles
 Over Night Deliveries



**FACILITY MANAGEMENT/
 RECOVERY SITE:**
 10,000 Sq. Ft. Computer and
 Conference Space
 Office Space
 State-Of-The-Art Computer Room
 Software Testing Facility
 On-Line MV 20,000's, 320 Users
 Full Site Generator Back-up
 400 Line Communication Center
 Free Recovery Site For
 Qualified Customers
 Multiple Facilities In The USA

SOFTWARE DIVISION:
 Operating System Support
 Application Software
 Turn-Key Systems
 Office Automation
 Custom Program Design
 4th Generation Language

EAST COAST MAIN OFFICE:

NPA Systems, Inc.
 761 Coates Avenue, Holbrook, New York 11741
 (516) 467-2500 • FAX: 516-467-5609

WEST COAST MAIN OFFICE:

NPA Systems of California, Inc.
 2323 Fourth Street, Berkeley, CA 94710
 (415) 848-9835 • FAX: 415-845-1665

get to understand the segments we're pursuing, and then provide total solutions.

In Europe, we've chosen a few strategic markets, but even within those markets you've got to be very focused and choose the segments where you have the best chance to succeed. One of those target markets is finance. We've established a finance competency center in Zurich,

and we're now expanding that in London.

Another target market is government. In the last couple of years we have had very good experience in winning government contracts at the federal level, as well as the state and local levels across Europe. We won a very large contract last year in Holland with the Ministry of Social Affairs—about \$13 million for auto-

mating all of the employment bureaus across Holland with a network of more than 60 MV systems running CEO. We had a similar award as the office automation vendor of choice in West Germany—that was about a \$15 million deal built around CEO in the state of Baden-Wuerttemberg.

Another area where we have had a lot of focus is air traffic control. Just in the last three months we were awarded a very large contract in France. This is an industry that will be increasingly important all over Europe because of the growth in air traffic and the increasing emphasis on safety.

One other market I should mention is education, particularly prestigious universities in countries like Portugal and France. We think this is very important just because of the impact that these educational institutions have across all of industry.

Focus: You mentioned Unix and industry standards as a requirement for selling to governments in Europe. In general, which industry standards are your customers demanding?

Lyons: European customers have historically been in a leadership position in defining industry standards, especially in the area of communications. Data General's strategy of supporting OSI standards with the ISO organization is a sound one, because Europe is clearly defining that as a requirement for communications systems, and they are defining the standards for ISDN as we move toward an overall communications architecture. We have been one of the leadership companies in this area, for example, by making CEO mail available on X.400.

Unix is clearly another standard. There are many governments in Europe today that won't let you bid unless you have a clear response for Unix. I can remember as long ago as 1983 that European governments were defining that requirement, which was really before that became a clear requirement in the U.S.

There are other emerging standards in areas like videotext, where European customers may have experience that is ahead of the rest of the world. We've established a development center for communications products in Cambridge in the U.K. One of our reasons for doing that was to have a development presence in communications in Europe, so we could be quicker on our feet and respond to the standards that are defined in Europe.

Focus: Does Data General have to handle

Now available in Data General 32 bit Business BASIC

STATE-OF-THE-ART SOFTWARE PACKAGES FOR DASHER / 286 THRU MV-15000

- Order processing/Billing • Payroll • Inventory Control • Purchasing • Sales Analysis • Fixed Assets
- Accounts Receivable/Payable • General Ledger • Word Processing • Electronic Spreadsheet

DATA GENERAL HARDWARE

- COMPLETE SYSTEMS
- PERIPHERALS
- NEW OR REFURBISHED EQUIPMENT
- UPGRADES
- SYSTEM TRADE-INS
- MODEMS, CABLES, ETC.

Call today for pricing!

- VERTICAL SYSTEMS
- EXCELLENT DOCUMENTATION
- TURN-KEY SOLUTIONS
- PROVEN SOFTWARE PACKAGES
- STAND ALONE OR INTEGRATED MODULES
- CUSTOM DESIGNED SOFTWARE

COMPLETE INDUSTRY SPECIFIC SYSTEMS

- AUTOMOTIVE DEALERS
- AUCTION MANAGEMENT
- GLASS DISTRIBUTORS
- TELEMARKETING
- MANUFACTURERS REP. COMPANIES
- OFFICE PRODUCT DISTRIBUTORS

And many more custom designed to fit your business!



Authorized DataGeneral System Supplier
COMMERCIAL DATA SYSTEMS

404/799-1000

1000 SOUTH PIONEER DRIVE SMYRNA (ATLANTA) GEORGIA 30082

Circle 9 on reader service card.

service differently for European customers than in North America?

Lyons: Yes. We've gotten to the point in Europe where software and services are in excess of 40 percent of our total business. Probably over the next few years more than half of our business will be other than the standard hardware offerings that we think of traditionally in our industry.

What we traditionally think of as field engineering is very important to our customers, but we also have a strong software services division that develops applications with and for our customers. There are other areas such as network design and overall communications and network services that are emerging as new requirements.

We're establishing our competency centers in Europe and staffing them with Data General people who understand key communications areas

Focus: You're saying that DG is in the process of transforming itself from a minicomputer company into a multinational company that provides computing, communications, and service solutions. If that's the case, what are the most pressing items on your agenda for the next year.

Lyons: First of all, anything we say about that transition has to make the important point that we will continue to support our current base of customers. The functionality that our customers get today with our proprietary systems is something that will continue to be a top priority for us. That means we will protect the investment they have in proprietary systems and applications like CEO. As an example of how important this is, the MV/40000 announcement was received tremendously well in Europe—as a matter of fact the orders we received for it in the first quarter were significantly above what we had anticipated.


It will be very important to us to work with the VARs, software vendors, and strategic allies as we move into these new industry standard worlds. We're providing them with the support up front to begin bringing up some of their critical applications on the new products.

Thirdly, as part of our total solutions strategy, we need to shift our resources—and our presence of mind—toward the solutions and the applications. In the past we may have been focusing just on the core technology and the price/performance. We're establishing our competency centers in Europe and staffing them with Data General people who understand key communications areas, that understand

Unix, that understand key industry areas like finance, air traffic control, Ada, and so on. These competency centers will provide the industry expertise to help our account teams and our customers get the total solutions they need.

The last thing I would say is that it's very important to pursue the right kind of strategic alliances to prepare us to penetrate the markets I've defined. We

Expand your capacity



With the new IS-4200.

When your DG computer needs more capacity—simply and economically—you need Indocomp's new IS-4200 SCSI controller. With a single IS-4200, your MV/2500, MV/2000, MV/1400 or DS/7500 can be interfaced with as many as *seven* high-performance peripherals. Transfer data to magnetic tape systems, disk drives and more at speeds of up to 1.2 Mbytes per second.

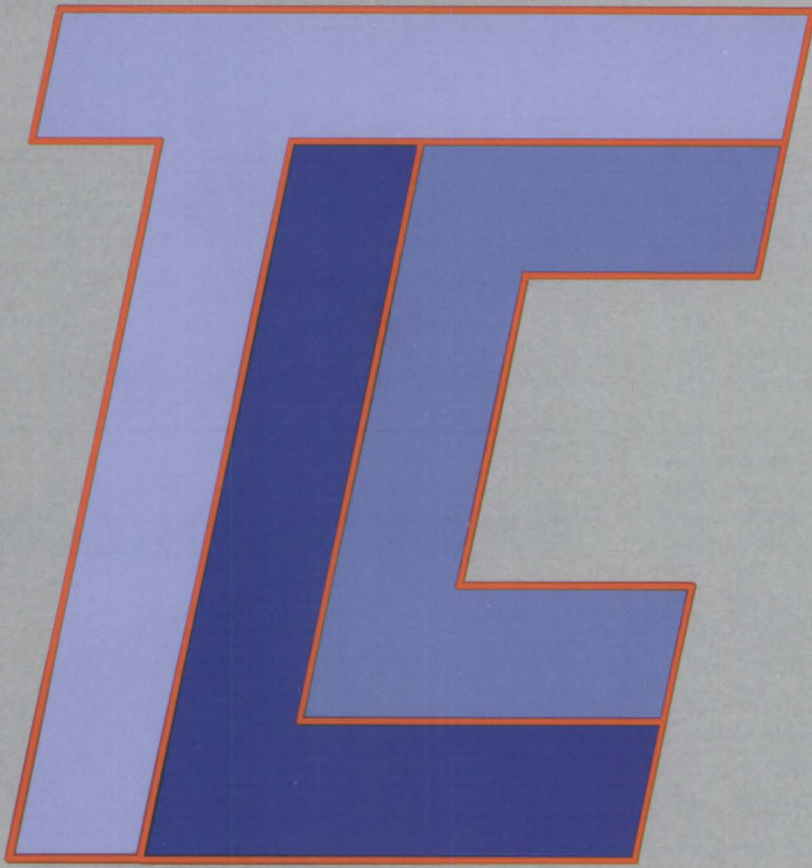
Just look at all you get in a half-height option card:

- ANSI X3T9.2 compatibility • Powerful on-board 68010 I/O processor
- High-performance on-board DMA controller • 128KB of dual-ported RAM memory • 32-bit wide L-Bus transfers • AOS/VS driver

Call Indocomp today for complete details of the IS-4200 SCSI controller. It's just one of Indocomp's innovative products to help you get the most from your DG computer, including: the IS-3200 VME adapter, the IS-4100 intelligent I/O controller, and the IND-68000 intelligent I/O frontend.

INDOCOMP SYSTEMS, INC.
 P.O. Box 157 • Drayton Plains, MI 48020 • (313) 666-9715 • FAX (313) 666-1001

Circle 31 on reader service card.



Systems, Inc.

*Software
and Services*

- Application integration from PC to Mini and Mainframe
- **TLC EXPRESS** application front end and email for remote PCs
- **PC/VS** local area networks connecting PCs, Novell LANs and Minis
- Consulting - AOS/VS performance tuning
 - CEO integration
 - Communications - DG, IBM, Telenet, PBX
- Media conversion - micro to MV
- Application software for accounting, manufacturing and distribution



• 5 Airport Drive, Hopedale, MA 01747 • 508-478-8211 • FAX 508-473-3109

Circle 64 on reader service card.

TLC:

*it's more than a name. . .
It's a commitment!*

**Customer Satisfaction
Guaranteed!**



**Technical
& Logistical Consultants, Inc.**

*Hardware
and Services*

Equipment Sales

- We pay cash for all used equipment
- Best quality reseller of refurbished equipment
- Value added reseller of new Data General equipment
- Customer satisfaction guaranteed!

Services

- Technical support - MV configuration specialists, low and high end
- Communications - modems, multiplexors, and cabling

SYSGEN DATA Ltd. MARKETING

Data General COMPUTERS & PERIPHERALS WORLDWIDE

MV10000 8 MB	\$31,500	MV8000 Memory 2 MB	\$1,000
MV8000 2 MB	2,250	COMM BASE I/O Rev 12	750
MV4000 2 MB	2,750	IAC 16 (RS232)	3,750
MV4000 CPU 0 MB	1,750	IAC 8 (RS232)	1,500
MV4000 DC CPU w/4MB	4,960	MCP 1w/TCB	1,500
MV4000 SC CPU 2MB	Call	DG 160 MB Disk	3,000
M600 1MB, ALM 16, 6026	1,500	4433 Printer	600
6061 S/S (Earthtone FCC)	1,450	38 MB Disk	450
6239 S/S	15,250	ISC-2	1,000
120 MB Drive	1,200	6026 and cabinet (Earthtone)	2,500
6231 Tape Drive S/S	500	Exp. Chassis (MV10000)	2,250
6311 Tape Drive	800	BBU (MV10000)	2,000
WIOC (MV10000)	4,500	4327 B300	1,750
MV 4 & 10 Memory 1 MB	500	D460	450
MV 4 & 10 Memory 2 MB	1,100	D410	425
MV 4 & 10 Memory 4 MB	3,000	D411	450

DATA GENERAL SPECIAL

DG MV4000 DC, 4 MB, IAC-16, 6311 Tape, 120 MB Disk, 4433 Printer, LQ Printer, 7-D460 Terminals \$12,500

END USER FINANCING SHORT AND LONG TERM LEASING

PRICING SUBJECT TO CHANGE WITHOUT NOTICE

QUANTITY DISCOUNTS AVAILABLE ON ALL ITEMS

ALL EQUIPMENT SOLD IS WARRANTED FOR 30 DAYS

WE ALSO DISTRIBUTE IBM PC, XT, AT, COMPAQ & PERIPHERALS

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

Circle 58 on reader service card.

will be very aggressive about putting strategic alliances together where they are required to put total solutions into a market. △

DG helps Belgium plastics plant operate smoothly

Joel Moisse is a systems manager for UCB in Brussels, Belgium, a company that produces high-grade chemicals, pharmaceuticals, and plastics used in computer chips, paints, raincoats, and a variety of rubber products.

"I am responsible for having 12 machines up day and night and for installing the latest upgrades from Data General," Moisse said. The 12 machines at seven sites range from an MV/1400 to an MV/15000 Model 10. The DG machines collect information at the different sites and feed it into the company's Sperry mainframe computer.

With the exception of a few disk crashes and some electrical problems at the manufacturing plant that were affecting the operation of the computers, Moisse reports that he has had little trouble with the machines. "We get our service from Data General Belgium, which has offices in Brussels. They give excellent service. We have no complaints. They give mostly rapid solutions to our problems and always have spare parts," he said. Data General Belgium has a contract with UCB to be at the plant within four hours of reported trouble.

"The major problem we have is with the software that is available for DG machines," Moisse said. "We can't find a solution for every problem we have. We were looking for a plant management (program) and we couldn't find it for DG, so we had to implement it on our mainframe."

He is currently running CEO on AOS/VS and plans to upgrade to AOS/VS II. "As far as the future of DG, they say it is with Unix, not AOS/VS. That fact that we have to decide to stay with AOS/VS or go to Unix is not very comforting." △

Announcing...

Integrated File Crypt Rev. 1.10

CEO Document Security Guaranteed

Easily Mails Encrypted Documents

Available for WP & AOS/VS

Installs in minutes

and the demo copy is free!



Concept Automation, Inc.

703/450-6000

Circle 14 on reader service card.

BCT installing first MV/40000 HA in U.K.



BCT Business Systems Ltd. has the distinction of being the first VAR in the United Kingdom to install an MV/40000 HA (High Availability), Data General's most powerful computer. The \$3 million system was purchased by a central heating company with 40 branches throughout the UK.

"The reason that they purchased from us is that we already had the (appropriate) software in place," said Edward Stanley, a director of the company. The MV/40000 is scheduled to be fully installed by the end of this year.

As the sixth largest Value-Added Reseller (VAR) in the United Kingdom, BCT uses its three MV/2000s and one MV/7800 for two purposes: one is to develop custom software and the other, according to Stanley, is to support customers through a hotline for their computer systems.

Some 120 Data General customers may tap into BCT's support facility and BCT can either "interrogate their data, actually take over their machine to undertake any housekeeping tasks, or send them modified or enhanced programs," Stanley said.

BCT's claim to fame in the UK is its PACS software program for suppliers of building materials. "It is specially designed to assist in the control of the paperwork for a builder's merchant or a timber merchant, (what Americans call a building supplier). The building supplier will have a trade counter (inventory) of between 5,000 and 30,000 products. The builder will go to the building supplier and ask for any one of those 5,000 to 30,000 products," Stanley explained. PACS allows the supplier to locate the part easily and it provides the customer "a smartly designed piece of paper from which his bill will be produced automatically," Stanley said.

Stanley has only one concern about Data General, and that is profitability. "The products that they have are very good. My concern is that while all the competition has been making money, Data General has been losing money. But there are indications that they are pulling around."

△

Virtual Terminal Emulation and File Transfer

VTerm facilitates dial-up sessions to and from any remote system, including file transfer capability. DG to DG communications using complete virtual mode. DG to PC in TTY compatible mode (great for bulletin boards, etc.).

VTerm Features Include:

- TTY Emulation
 - Supports all public networks
 - Pre-programmed script files most popular networks
- Menu-driven CEO® Style User Interface
- Xmodem File Transfer Protocol
- Supports Generation and Use of Script Files
- Context Sensitive Help
- Default Answers for Most Parameters

Price \$495.00

AMR
P.O. Box 619616 MD 4360
DFW Airport, TX 75261-9616
(817) 963-3435



CEO is a registered trademark of Data General

Circle 3 on reader service card.

Our Software Makes Your Job Easier

File Finder - locate AOS/VS files by text string

menuOP - Consistent user interface for security

Pipeline - E-mail for AOS/VS compatible w/CEO

File Mover - Async file transfer program

Mate - Async terminal emulator



Concept Automation, Inc.

703/450-6000



Circle 15 on reader service card.

Hardware that works



Let Essex Computer Service, Inc. conquer your hardware dilemmas. Our problem solving system is built around a complete inventory of Data General equipment and compatible subsystems. We have found Data General products to be among the most reliable and versatile in the computer industry. It is these qualities that enable our configuration specialists to build a system you can rely on.

Every system, peripheral or component part purchased from Essex is thoroughly system tested previous to shipping and carries a full warranty which is backed by our National Product Repair Center. Instal-

lation and maintenance is available through our expert staff of qualified technicians.

We also offer MV computer time and customized programming under RDOS or AOS/VS. Call our office for further details.



ESSEX

Essex Computer Service, Inc. in business to serve you since 1980.

Computer Service, Inc.

263 - 267 Cox Street, Roselle, New Jersey 07203

(201) 245-8300

Circle 29 on reader service card.

Space chatter interpreted at Netherlands research center



The Infrared Space Observatory (Photo courtesy ESA)

How is a signal far out in space captured on the Soviet space station, the MIR, and processed into information understandable by humans? That is one of the challenges for the Space Research Laboratory in Utrecht, Netherlands.

Lammert van den Brink heads the computer division of the government-owned research center where he is responsible for "personal and system management" of the MV/8000 and MV/4000 that process scientific data from space.

"Our main business is the design and construction of scientific and astronomical instruments; and processing the data collected from the instruments after they are launched," van den Brink said. Most of the computer programs are written in-house using Fortran F77.

One of the instruments is the COMIS, stationed on the MIR, which "searches the sky for images of X-rays," he said. "We try to find new ones and record information about them." Using this information, scientists could discover the location of a black hole (a small and intense gravitational field that is thought to be a collapsed star). The data recorded on the COMIS is sent to the Soviet Union via satellite, where it is placed on tape. "The tape then comes to the Dutch Embassy in Moscow, then it is transferred" to the Space Research Laboratory, van den Brink said.

Another project underway at the Space Research Laboratory is the construction of an infrared space observatory that is being sponsored by an alliance of European countries. One function of the observatory will be to study the short wavelength spectrum. Of this exciting research in the leading edge of space exploration, van den Brink said, "Oh, it's just a job." Δ

Unlike more expensive CEO text retrieval software

TEXT SCOUT 2

Installs in minutes...

Runs on existing systems...

Shows immediate results...

and the demo copy is Free!



Concept Automation, Inc.
703/450-6000

Circle 16 on reader service card.

Many tongues, one voice



U.K. group reaches out to smaller users, other European countries

The Data General Users Group for the United Kingdom and Northern Ireland is holding its annual general meeting on March 9-10. Focus interviewed the group's president Hugh Ross to find out how it is doing, and what its goals and concerns are for the coming year.

Q. *In what ways is the DG Users Group most valuable to its members?*

A. One thing the group has done is to create a help line facility.

There are about eight or nine people in various positions and companies who are prepared to give help to users who encounter problems. If someone has a specific problem in a particular area or industry, they can talk with someone who is in a similar industry or who is using the same type of equipment. The help line began 18 months ago and it is used quite extensively. We now have a full-time, paid administrator who acts as a kind of fulcrum, a point of contact. The administrator who coordinates the process, Shelia O'Reilley, has been extremely effective in linking appropriate members.

Q. *How has being a part of the users group benefited you personally?*

A. Of course there is the helpline. I appreciate the fact that assistance is available from fellow users if any problems arise. The group also serves as a collective voice when talking to Data General management, and we are able to be more effective than an individual user would be. An example of that is AOS/VS revision 6. When rev 7.54 was announced,

there was a corporate decision from DG that they wouldn't support rev 6. The user group here in the U.K. put enough pressure on DG that we now have support for rev 6 as well. That's a particular incident where the user group has been of benefit, not directly to myself, but to a great number of users who were stuck on rev 6 and couldn't move to rev 7.54 either because their machinery couldn't handle it or because the cost was prohibitive.

Q. *What do you do to retain old members and to attract new members?*

A. Basically, the problem we have with membership is not so much retaining the older members; it's more a question of attracting the smaller members. The older members tend to stay with us because of the benefits they receive from the programs we run. We frequently hold one-day seminars, and we have an annual

As we move toward 1992 and the open Europe market, we should really be thinking of having one voice

conference in March of each year. Our members are very interested in special interest groups and we have already formed one for CEO.

The problem is that when you have a large percentage of bigger users in the group it is often difficult when planning conferences to address issues that pertain to the smaller members, such as the desktop publishing people. We think the CEO special interest group will help alleviate that problem because a number of the smaller users are using CEO. The CEO SIG group has created an outlet for the

smaller user. Basically, our numbers have gone up over the last couple of years and indications are that they will continue to grow. We are now just over 300 strong.

Q. *What reactions have you noticed from U.K. DG users concerning Data General's versioning policies?*

A. On the question of AOS/VS II, we actually polled all of our members here in the U.K. to get their impressions of the new policies that we think are coming out. Nothing has been officially announced to us, but we sent out the questionnaire and we finally got the results back a couple of weeks ago. Virtually all members said they couldn't understand why they should pay an additional fee for VS II. The majority believed the maintenance fees they paid over the last couple of years have helped to refine and define VS II. The added question is when does VS III come about? The results of our survey indicate that 99 percent of respondents were very much against this versioning policy for VS II. The consequence of this is that we have written to DG and asked for a meeting with their executives in the course of the next couple of weeks.

Actually, to be honest, I think we're hitting our heads against a brick wall. The decision has already been made in the States and I think it is going to be very difficult for us to get them to change their mind on it. As I say, a lot of people are very much against it and my company in particular. We just don't understand why we have to pay an additional license fee, irrespective of whether it's 20 percent or 30 percent or whatever. Our maintenance over the last seven or eight years should have paid for whatever went into making VS II. A lot of our users are asking about all the STRs they sent in and received responses saying the fixes would be in rev 8. Where is rev 8? And, how much of the new version is already contained in rev 8? We hope to get some answers when we meet but I'm not very optimistic that we are going to be able to change their minds on this at all.

Q. What are some of the problems particular to DG users in the U.K. that one wouldn't find in other parts of Europe?

A. We probably have fewer problems than some of the others. I think in the U.K. we have the advantage that we can talk to the top of the tree and to the decision-makers much easier than other people can. We certainly find that talking from the user group itself allows access to the top levels within DG in the U.K. It has to do with the relationship we have developed.

We are a group of extremely professionally minded people, and I think because we are professional, DG has recognized that we are not always going to be critical. I think they are seeing that we are there primarily to give help and advice to our members. At the end of the day we are both out to make money. And if DG is successful, the users will be affected positively; the converse is true as well.

Q. In addition to DG's versioning policies, what issues do you think will emerge at this year's spring conference?

A. Obviously, at the spring conference, we will be looking at quite a number of issues. Unix is still being looked at very closely, as well as VS II and VS III, increased software charges, and third party licensing.

Another issue we will discuss is that of starting a users group composed solely of European Data General users. We've already had contact with quite a number of others within Europe who are quite keen to start off a common user group. We believe that as we move toward 1992 and the open Europe market, we should really be thinking of having one voice. And so there are some thoughts of creating—I wouldn't exactly say a super user group—but a group of all DG user groups. It would meet on a bi-annual basis so that we could speak as one mind to DG within the confines of Europe. I've already had words with the Swedish and the Belgian chairmen, and one as far away as Turkey, and it looks as though we will have some success in getting things off the ground. I've invited these people to our conference as our guests. At the end of several days we should be able to de-

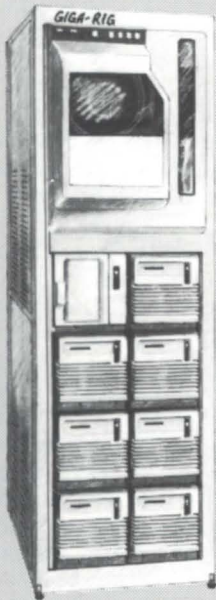
termine if this is feasible.

Q. What are some of the users group's goals for 1989?

A. Basically, we would like to increase our membership to 400. That is our primary focus. We also wish to improve the quality and increase the number of services we provide to members. Another aim for 1989 is, to a certain extent, to become more and more independent from DG itself. At the present time we work very closely with DG, and we do receive financial and other support from them. What we are striving for now to do is to try to become totally independent.

Something else we are looking at this year is starting our own in-house magazine. We've already set the wheels in motion and it looks that by the early spring of this year we should have something in place for our members. It will probably be a quarterly magazine which will go not only to members but basically to the entire DG community within the U.K. We'll use the magazine as a means of increasing our membership and also to keep our users more informed. Δ

for Nova, Eclipse, and MV Users



78" cabinet with one tape and eight disk drives. Smaller cabinets are also available to suit your system. Call us today for a quotation. Also ask about our memory and line printer products.

GIGA-RIG[®]

Tape & Disk Drives

- ◆ 800/1600/6250 bpi 1/2" Tape Drive
- ◆ Your Choice; fixed or removable disks emulating DG Models 6236/37 or Models 6239/40
- ◆ 76 MB to 1.2GB
- ◆ Argus Compatible
- ◆ 6 ft² Floor Space

GIGA-RIG is a trademark of System Technology Associates
Argus is a trademark of Data General Corp.

for: **Compatible Memory Boards**

S/280
MV 4000
MV 7800
MV 10000
MV 15000/20000

- ◆ Add-ons & Upgrades
- ◆ 2MB, 4MB, & 8MB
- ◆ Reliable
- ◆ Lifetime Warranty
- ◆ Save 50%

ZETA  **AUTHORIZED**
Stocking Distributor

System Technology Associates
15111 Mintz Lane Houston, Texas 77014

(800) 553-5124

In Texas **(713) 440-8340**

estab. 1976

Sorta Merged



Converting label data is just one example of SORT/MERGE's usefulness

The SORT/MERGE utility is one of the most useful pieces of software available for DG systems. It is frequently used for data conversions and reformats, and it is also a good report generator. Recently, we used this feature to reformat a list for one of our clients.

The client was loading a mailing list onto a data base for use with PC software that sorts by various categories (city, state, or zip). The problem was, the list printed labels four up, that is, four labels across a print line. The database load was designed to print one address at a time. In essence, we needed to convert the four-up labels into one-up labels. This type of project is ideal for SORT/MERGE.

The print image file had eight lines for each label and no form feeds. The print lines in the input file contained 134 characters each; no shortening techniques were used. The format of the print line could be represented in COBOL as:

```
01 PRINT-LINE.
05 PL-NEWLINE      PIC 99 COMP VALUE 10.
05 PL-FIRST-LABEL  PIC X(30).
05 FILLER          PIC X(04) VALUE SPACE.
05 PL-SECOND-LABEL PIC X(30).
05 FILLER          PIC X(04) VALUE SPACE.
05 PL-THIRD-LABEL  PIC X(30).
05 FILLER          PIC X(04) VALUE SPACE.
05 PL-FOURTH-LABEL PIC X(30).
05 PL-RETURN      PIC 99 COMP VALUE 13.
```

Since we had eight fixed-length print lines for each set of four labels, the conversion was easy. I decided to break the input file into four new files. I then defined my input records at 1,072 bytes. Reading the entire set of labels, I picked out the fields belonging to each label and put them into a new file.

Making four passes against the original input file, I made each column of labels into a new file. I wrote four SORT/MERGE command files, one for each pass. These are shown in Figure 1. To run SORT/MERGE using these command files, I set @DATA to the input file name and then invoked SORT/MERGE with the single CLI command line of:

```
DATA <filename> ; SORT/C=PART(1 2 3 4).CMD
```

When finished, I had four intermediate files with 240 byte records, each containing one label's worth of information. Then all I had to do was put them back together.

The first field on the first print line was the account number of the person on the label (the labels had originally been printed in account number sequence). I now had four fixed-length record files defined in AOS/VS with a record length of 240 (to show record length, use F/S/REC). The four files were in sequence, and the sort field was at the beginning of the record. I used the CLI command line form of SORT/MERGE to collate the data into a single file with the following CLI command:

```
MERGE INTO PASS2 FROM PART<1 2 3 4>
```

At this point I had a file with all the labels in it but no form controls. Since the input file definition in SORT/MERGE overrides AOS/VS, I used the sort command file shown in Figure 2 to add the NEWLINEs back in. The CLI command line was:

```
SORT/C=ADDNL.CMD
```

Figure 1: SORT/MERGE command files

```
% PART1.CMD - SORT COMMAND FILE
%
INPUT FILE IS "@DATA", RECORDS ARE 1072 CHARACTERS.
OUTPUT FILE IS "PART1", RECORDS ARE 240 CHARACTERS.
REFORMAT 2/31, 136/165, 270/299, 404/433, 538/567, 672/701, 806/835, 940/969.
COPY.
END.

% PART2.CMD - SORT COMMAND FILE
%
INPUT FILE IS "@DATA", RECORDS ARE 1072 CHARACTERS.
OUTPUT FILE IS "PART2", RECORDS ARE 240 CHARACTERS.
REFORMAT 36/65, 170/199, 304/333, 438/467, 572/601, 706/735, 840/869, 974/1003.
COPY.
END.

% PART3.CMD - SORT COMMAND FILE
%
INPUT FILE IS "@DATA", RECORDS ARE 1072 CHARACTERS.
OUTPUT FILE IS "PART3", RECORDS ARE 240 CHARACTERS.
REFORMAT 70/99, 204/233, 338/367, 472/501, 606/635, 740/769, 874/903, 1008/1037.
COPY.
END.

% PART4.CMD - SORT COMMAND FILE
%
INPUT FILE IS "@DATA", RECORDS ARE 1072 CHARACTERS.
OUTPUT FILE IS "PART4", RECORDS ARE 240 CHARACTERS.
REFORMAT 104/133, 238/267, 372/401, 506/535, 640/669, 774/803, 908/937, 1042/1071.
COPY.
END.
```


Find the answer to your IAC questions.

*too costly? too much power? too confusing?
too little assistance? too much in service costs?*

The new SLIM-3 from Interface Electronics provides a combination of IAC interfaces that are not available to D.G. users today.

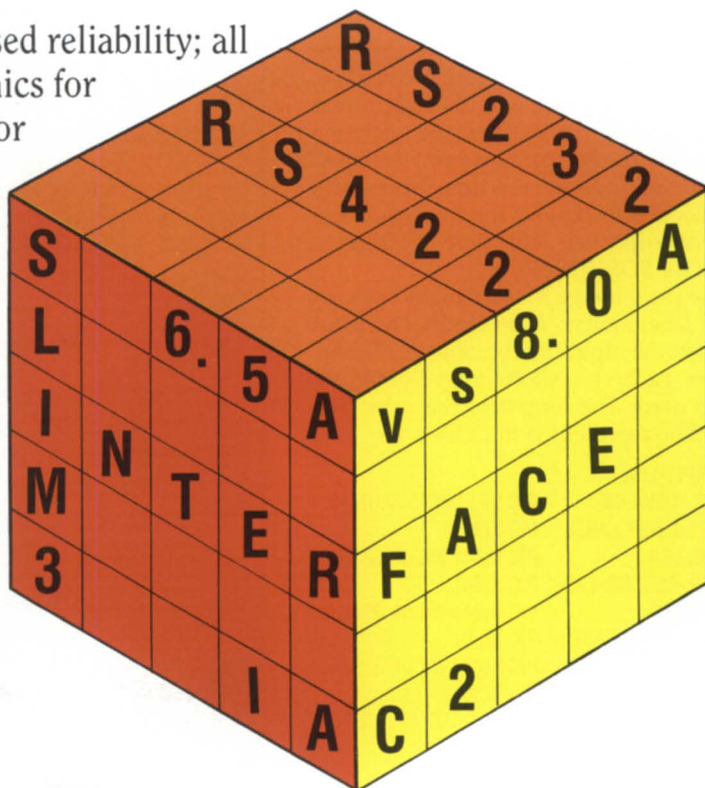
Now users have the opportunity to have 16 ports of RS422 and RS232 in an easily selectable, low voltage unit that is pin compatible to both the IAC/2 (4368A) and the IAC (4368/4370). The SLIM-3 utilizes mode plugs eliminating the high number of switches typically associated with the DG product. Now a user can individually set each line and not have to fuss with the high number of switches on the IAC.

Greater flexibility, lower power, increased reliability; all reasons to consider Interface Electronics for your future communication's needs. For more details, we invite you to inquire how Interface Electronics continues to be "The Communication Specialist".

Solution:



37500 Enterprise Court
Farmington Hills, MI 48331
(313) 553-9820
Telex 494 8113 Oasis Soft



Then I renamed PASS3 into something more meaningful and sent it back to the client. The whole process took just over one hour from start to finish.

Variable length

Now let's consider what to do using other parameters, like the case of the original print image file having print lines of variable length, anywhere from two to 134 bytes (a two-byte line containing a <NEWLINE> followed by <CR>).

This could be handled by making an additional pass prior to splitting into the four work files, using the command in Figure 3 to make the input file into fixed-length records. From that point on the processing would have been the same. As you can see, the command file replaces any <NEWLINE> (octal 012) and <return> (octal 15) with spaces. It then lengthens the record and makes the last character a <NEWLINE>.

Form feed

In the next scenario, the input file has from six to eight print lines for each set of labels and uses a form feed when the last line on a label is complete. Assume once again that the print lines are fixed-length. In this case, I would use the command file in Figure 4 before splitting out the lines.

Variable length and form feed

Now let's suppose both of the above cases are true. Then we would keep <CR> as the end-of-line delimiter and keep <formfeed> as the end-of-record delimiter. This means getting rid of <NEWLINE> as the first byte of the print line. My approach is to make two passes using the command files shown in Figure 5. The first removes the <NEWLINE>, decides if you have a <formfeed> or <return>, pads to a fixed-length record using that character, and removes all extra



another program!

I sure am glad
we called

DataGen ...

... to increase programmers productivity in coding and debugging data entry programs.

Designed for DG application programmers using Infos II Isam structures with VS COBOL.

Call or send for a free introduction manual which includes:

- a functional description
- a system overview
- sample screens
- pricing options

Productivity Systems
Development Corp.
Suite 206
2138 Ashley Phosphate Rd.
North Charleston, SC 29418

(803) 553-6649

Figure 2: Add NEW LINES

```
% ADDNL.CMD - SORT COMMAND FILE
%
INPUT FILE IS "PART2", RECORDS ARE 30 CHARACTERS.
OUTPUT FILE IS "FINAL", RECORDS ARE 31 CHARACTERS.
PAD TO 31 CHARACTERS WITH " ".
REPLACE ALL " " IN 31/31 WITH "<012>".
COPY.
END.
```

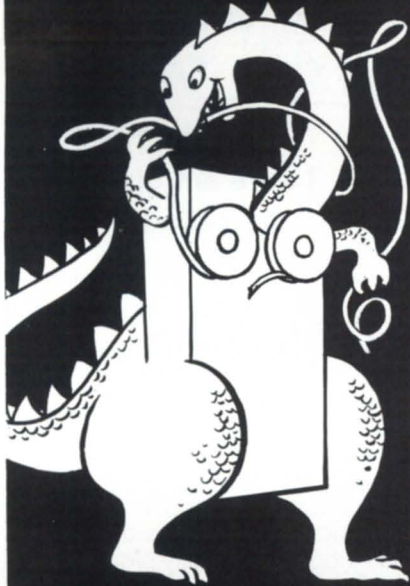
Figure 3: Variable-length print lines

```
% MAKE134.CMD - Sort command file
%
INPUT FILE IS "@DATA",
RECORDS ARE DATASENSITIVE UPTO 134 CHARACTERS,
DELIMITERS ARE "<015>".
OUTPUT FILE IS "PASS0", RECORDS ARE 134 CHARACTERS.
REPLACE "<010>" IN 1/LAST WITH " ".
REPLACE "<015>" IN 1/LAST WITH " ".
PAD TO 134 CHARACTERS WITH " ".
REPLACE " " IN 134/134 WITH "<015>".
COPY.
END.
```

Figure 4: Form feed with fixed-length lines

```
% MAKE1072.CMD - Sort command file
%
INPUT FILE IS "@DATA",
RECORDS ARE DATASENSITIVE UPTO 1072 CHARACTERS,
DELIMITERS ARE "<014>".
OUTPUT FILE IS "PART0", RECORDS ARE 1072 CHARACTERS.
REPLACE "<014>" IN 1/LAST WITH " ".
PAD TO 1072 CHARACTERS WITH " ".
REPLACE " " IN 1072/1072 WITH "<014>".
COPY.
END.
```


IS YOUR DATA ENTRY SYSTEM OUTDATED?



MOVE UP TO VDE!

VDE — Viking Data Entry system — is a fast, accurate, easy-to-use data entry system for mini and micro computers. VDE requires no special hardware and eliminates programming for most requirements. Zap your pre-historic data entry equipment back into the ice age and start saving time and money with VDE! We'd like to tell you more about it . . .



call 918/491-6144

VIKING
SOFTWARE SERVICES

4808 E. 67th • SUITE 100
TULSA, OK 74136

Circle 69 on reader service card.

DISCOVERIES

carriage control before the 134th byte. The second command file reads the file using only a formfeed as a delimiter and pads those records to the fixed length of 1,072 bytes. When it adds spaces it does not change them to a form or carriage control because they are no longer needed for delimiter purposes.

SORT/MERGE has many other uses. If the sort order is not practical, you can merge back to the original order. You can do something as specific as isolate a zip code that is always in positions 21-30 in the last print line of each label even though the labels have from four to seven non-blank print lines with them. We haven't

Figure 5: Form feed with variable-length lines

```
% MAKEFIXED1.CMD - Sort command file
%
INPUT FILE IS "@DATA",
    RECORDS ARE DATASENSITIVE UPTO 134 CHARACTERS,
    DELIMITERS ARE "<014>",
    DELIMITERS ARE "<015>".
OUTPUT FILE IS "TEMPO", RECORDS ARE VARIABLE UPTO 134 CHARACTERS.
REPLACE "<010>" IN 1/LAST WITH " ".
IF LAST/LAST = "<014>" THEN PAD TO 134 CHARACTERS WITH "<014>".
PAD TO 134 CHARACTERS WITH "<015>".
REPLACE "<015>" IN 1/133 WITH " ".
REPLACE "<014>" IN 1/133 WITH " ".
COPY.
END.

% MAKEFIXED2.CMD - Sort command file
%
INPUT FILE IS "TEMPO",
    RECORDS ARE DATASENSITIVE UPTO 1072 CHARACTERS,
    DELIMITERS ARE "<014>".
OUTPUT FILE IS "PASS0", RECORDS ARE 1072 CHARACTERS.
PAD TO 1072 CHARACTERS WITH ">".
COPY.
END.
```

Figure 6: Drop blanks

```
% DROPBANKS - SORT COMMAND FILE
%
INPUT FILE IS "@DATA", RECORDS ARE 240 CHARACTERS.
OUTPUT FILE IS "@LIST", RECORDS ARE 240 CHARACTERS.
IF 1/20 = " " THEN SKIP.
COPY.
END.
```

Using SORT

Let's assume that the original file was not in order and that we wanted to sort the records by the first line of the address. Since the sort key is at the beginning of the record I can use the CLI command line. Instead of merging the files, I could perform a sort with:

```
SORT INTO PASS2 FROM PART<1 2 3 4>
```

One minor inconvenience I encountered while merging the original files was that not all of them were multiples of four. In order to weed out the blank labels, I added an additional step after the MERGE but before the ADDNL command file. The command file in Figure 6 shows how I dropped the records that had no information other than the account number on the first line of the label.

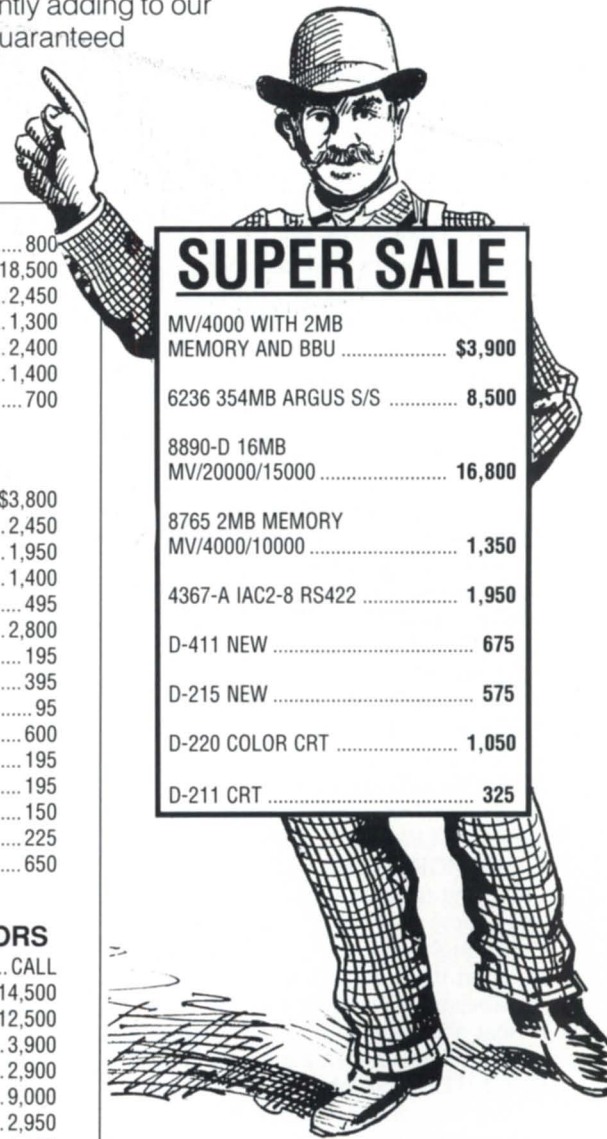
even begun to consider what you can do if you add the report writer module.

I have found **SORT/MERGE** to be an extremely useful tool, able to handle many data conversion requests from clients who exchange data with suppliers, customers, or other departments of the same company. With its ability to manipulate the contents of a record, translate bytes, select records, and load or unload INFOS databases, it provides an amazing amount of flexibility. Δ

Jim Siegman is a contributing editor to Focus, chair of the NADGUG Audit Committee, and treasurer of the Chicago Area Data General Users Group. Send comments or questions to Datamark Corp., 3700 W. Devon, Suite E, Lincolnwood, IL 60659; 312/673-1700.

YOU DEMAND, WE SUPPLY.

When you're in the market for Data General equipment, call Data Investors to supply the equipment to meet your demands. As an international supplier of pre-owned equipment, we make it our policy to stock every possible model. We are constantly adding to our stock. Every machine is tested prior to shipment, and each one is guaranteed to be eligible for Data General maintenance. When you're looking to buy or sell DG equipment, call the people who understand supply and demand. Call Data Investors.



SUPER SALE	
MV/4000 WITH 2MB MEMORY AND BBU	\$3,900
6236 354MB ARGUS S/S	8,500
8890-D 16MB MV/20000/15000	16,800
8765 2MB MEMORY MV/4000/10000	1,350
4367-A IAC2-8 RS422	1,950
D-411 NEW	675
D-215 NEW	575
D-220 COLOR CRT	1,050
D-211 CRT	325

MEMORIES

8890-D 16MB MV/20000/15000	\$16,800
8871 8MB MV/4000/10000	6,900
8870 4MB MV/4000/10000	4,100
8765 2MB MV/4000/10000	1,350
8708 2MB MV/8000/6000	1,100
8754 512KB S/140	850
8687 256KB S/140	450
8387 256KB NOVA/4	450
8656 256KB ECLIPSE	350
DESKTOP MOD 20 512KB	450
DESKTOP MOD 10 512KB	650

TERMINALS & PRINTERS

D-216, D412, D462	CALL
D-214, D-215, D-411, D-461, D-470C	CALL
D-210, D-211, D-410, D-460, USED	CALL
4364 600 BAND D.C. S/S	\$4,900
4327 300 BAND D.C. S/S	2,700
4215 600 LPM D.C. S/S	2,500
6216 180 CPS	1,400
6190 180 CPS LP-2	495
6193 TP-2 BROWN	650
6262 DESKTOP COLOR CRT S/S	900
4221 DESKTOP PRINT CONTROLLER	400
005-8096 D.C. PRINT CONTROLLER	950
OKIDATA PRINTERS NEW	CALL

DISK DRIVES & MAG TAPES

6239 592MB ARGUS S/S	\$15,200
6236 354 MB ARGUS S/S	8,500
6161 147MB WINCHESTER S/S	2,450
6160 73MB WINCHESTER S/S	1,800
6234 50MB WINCHESTER S/S	1,400
6122 277MB DISK S/S	1,750
6061 192MB DISK S/S	1,300
6060 96MB DISK S/S	950
6070 20MB DISK S/S	800
6045 10MB DISK S/S	800
6100 25MB WINCHESTER W/1.28	1,200

6103 25MB WINCHESTER	800
6300 1600/6256 MAG TAPE S/S	18,500
6026 DUAL MAG TAPE S/S BROWN	2,450
6026 DUAL MAG TAPE S/S BLUE	1,300
6123 MICRO STREAMER BROWN	2,400
6270 DESKTOP CARTRIDGE TAPE	1,400
6125 STREAMER MAG TAPE S/S	700

COMMUNICATIONS

4360 IAC-16 RS232	\$3,800
4367 IAC-8 RS232	2,450
4367-A IAC2-8 RS422	1,950
4380 ISC-2	1,400
4342 ATI-16	495
4543-B MCP-1	2,800
4340 AMI-8	195
4257 ALM-16	395
4255 ALM-8	95
4463ZT USAM-4 DESKTOP	600
4254 DCU-200	195
4250 DCU-50	195
4241 ULM-5 4-LINES ASYNC	150
4243 ULM-5 4-LINES WITH SYNC	225
4206 MCA	650

SYSTEMS & PROCESSORS

8780 MV/10000	CALL
8888 MV/7800XP 4MB	\$14,500
8790 MV/8000 MOD-2 4MB	12,500
8760 MV/4000 2MB	3,900
9600 MV/8000 2MB	2,900
8770 S/280 2MB W/BMC	9,000
8633 C/350 2MB	2,950
8678N S/140 254KB	1,150
8622V C/150 1MB	1,900
8395N NOVA 4X 256B 16 SLOT	850
DESKTOP MOD 10 384KB 15MB	1,350
DESKTOP MOD 20 768KB 15MB	2,100
S/20 MICROECLIPSE 512KB FCC	750

CALL FOR OTHER UNLISTED EQUIPMENT ON SALE

DATA INVESTORS CORPORATION

6 West 18th Street
New York, NY 10011

(212) 675-1000

FAX # (212) 645-4539

HELP

Interpreting those arcane switches for the CHARACTERISTICS command

:HELP:CLI.TPC.CHARACTERISTICS

In the past, I've warned against depending too much on the information provided by the CLI's HELP facility. The best example I can come up with of a HELP topic that's filled with misleading information is the one for the CHARACTERISTICS command. Couple that with the fact that there probably isn't a CLI command that causes more difficulty for system managers, and "Presto!", a column topic. Or maybe it's my obsession with XLPT over the past year . . .

:HELP:CHAR:FUNDAMENTALS

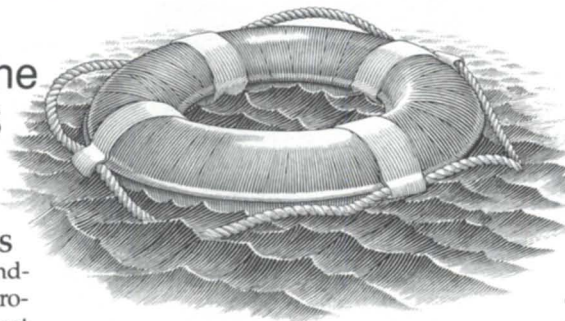
Before I launch into a discussion of the various CHAR switches, let's get a few fundamentals down first.

Port handling is done by PMGR (PID 1) with the assistance of some software that PMGR downloads into your particular multiplexor. For example, IACs run a piece of software contained in IACRS.PR. IOPs run IOPRS.PR. And so on. In addition, some of the preliminary grunt work involved with character I/O is handled in the requesting PID's ring 3 by the AGENT using a piece of shared code stored in LPMGR.PR (which stands for Local PMGR). For the rest of this column, I'm going to refer to this whole complicated mess as "PMGR".

Although you can theoretically do I/O to a port using any record format except for tape-specific ones (undefined and IBM format variable length), the two most common record formats are data-sensitive (?RTDS) and dynamic (?RTDY).

Over and above the specified record format, you can also indicate that the I/O is to be performed in binary fashion (?IBIN). If you so indicate, then PMGR read/writes the number of characters you have requested without interpretation.

If binary I/O is not specified, then PMGR does "standard" I/O; parity is set



on output and trimmed on input, ^C^X sequences work, and the ^A, ^B, ^D, ^E, ^F, ^H, ^I, ^O, ^P, ^Q, ^S, ^U, ^W, ^X, ^Y, ^Z, and DEL keys may be interpreted.

:HELP:CHAR:TERMINAL_TYPE

The console type (e.g., /605X) selects a table within the multiplexor (MUX) software that determines how to handle various terminal options like cursor addressing, line cancel (^U), EEOL, and character delete so that "screenedit" style I/O can be handled within PMGR. No, Virginia, there isn't a CHAR/ANSI or a CHAR/VT100.

Over the years, many people have tried to solve the foreign terminal problem by editing the console-type tables within IACRS.PR, but all to no avail. Some lax programming has resulted in a lot of software that "knows" the CRT commands and bypasses the IACRS logic (e.g., DISCO, PED, and SED). That pretty much puts the kibosh on using non-standard CRTs.

:HELP:CHAR:KEYWORDS

The next group of CHAR switches are of the /keyword=value type. A lot of new keyword value switches were added in the last couple of revs of AOS/VS to allow customization of the modem signal timing logic.

Most of the keyword value switches are obvious (/BAUD=n/CPL=n/LPP=n/CHARLEN=n/PARITY=val/STOPBITS=n) and need no clarification.

/BREAK= is used to specify the action to be taken upon detection of a break sequence (defined as an interruption of the data line that lasts more than a few hundred milliseconds). This switch should

normally be set to BMOB (the default). Any software that uses a non-standard setting for this switch will set the value itself. Very few pieces of software use non-standard settings.

/TCC=ms/TCD=ms/TDW=ms /THC=ms allow customization of the timing required for modem connect/disconnect handling. The defaults work fine for most auto-answer modems, so don't play with these unless you know what you're doing. They are probably not the solution to the problems you've been having with your new El Sleazo modems, anyway; it's more likely that you've misconfigured the modems.

/TLT=ms only applies to half duplex lines. Half duplex lines are lines on which you can either transmit or receive, but not do both at the same time. Anyone using half duplex modems is not likely to be using them for consoles, so this switch (and its related on-off type switches /SMCD and /RTSCD) will typically be used only by CPU-to-CPU communication packages talking to leased lines.

:HELP:CHAR:ON_OR_OFF

The next category of characteristics are those that you set to be either on or off.

/ON/8BT causes PMGR to leave the parity bit alone during non-binary I/O. /OFF/8BT tells PMGR to set the parity bit for non-binary I/O according to either the /PARITY= characteristic (AOS/VS), or the current settings of the EPI and SPO switches (AOS).

/ON/CALLOUT is used for DG's incredibly popular voice-data PBX system. In other words, it's not of much general interest.

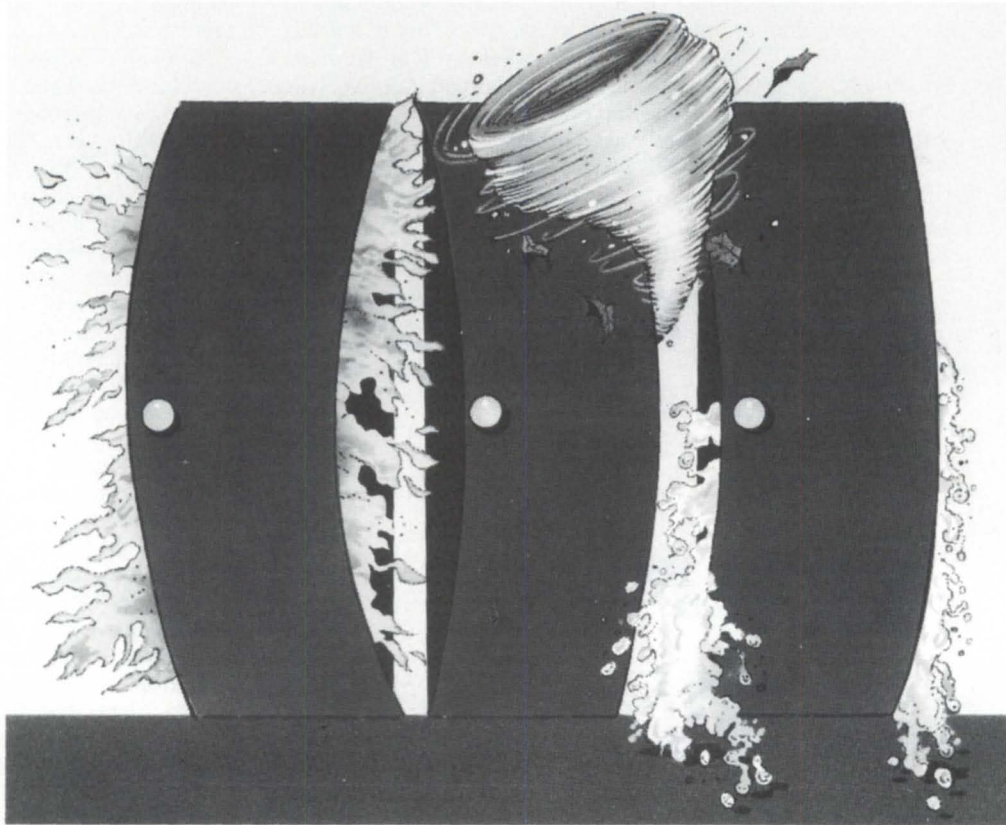
EB0 and EB1 are used to control the way that characters are echoed. The normal setting is /ON/EB0/OFF/EB1. /OFF/EB0/EB1 is typically used for ports without terminals (e.g., serial printers and communication links). The only other valid combination, /OFF/EB0/ON/EB1, is rarely used.

/ON/EOL causes lines longer than the current CPL value to be truncated. It is rarely used.

/ON/EPI and /ON/SPO apply only to the master console controllers (4010 or

DG/hot site

From Data Assurance Corporation



Data General has qualified Data Assurance as a provider of **DG/hot site** services, based on DAC having met criteria established by DG. Why? Because DAC is the only nationally recognized company dedicated solely to disaster recovery services.

- **More subscribers** than all of our competitors combined — which means we can offer the lowest fees in the industry.
- **More DG equipment dedicated exclusively to disaster recovery** than any other company . . . DAC's MV/20000 Mod 2's and MV/10000's can support up to 1400 on-line users.
- **Dedicated, high speed packet switch network links** allow public data network access from anywhere in North America.
- **More experience** in recovery operations — including hundreds of successful on-line and live tests — and the only responses to actual customer emergencies.

For more information on **DG/hot site**, call us toll-free **1-800-654-1689**

6551 S. Revere Pkwy, Suite 130
Englewood, CO 80111
(303) 792-5544



**Data Assurance
Corporation**

2 New Road, Suite 103
Aston, PA 19014
(215) 358-0104

DAC is an independent company providing its disaster recovery services for users of **DataGeneral** equipment.

Circle 18 on reader service card.

4075 style used for @CON0/1) and to old-style DG multiplexors that had no parity checking/generating capability (remember the 4060?). These two switches cause even parity to be checked/generated during non-binary I/O (odd parity is not available). Newer MUXes (e.g. IAC, ATI, etc.) use the /PARITY= switch instead.

/ON/ESC causes the ESC key to be

interpreted as ^C^A. This characteristic is set by BASIC and ICObOL during program execution to allow the ESC key to interrupt keyboard I/O. This is a hold-over from the days before "real" function keys came into widespread use; ESC was the one and only function key. /ON/ESC is rarely used otherwise.

/ON/FF causes a form feed to be issued whenever the port is opened for the

first time. This characteristic is typically used on serial printers that are not handled by XLPT. In other words, it is rarely used.

/ON/FKT causes function keys to act as delimiters. If the characteristic is off, the function key code sequence is simply passed through to the program as data. Any program that uses function keys turns this characteristic on. It should normally be off. If you're wondering why this switch is needed instead of just some bits set in the delimiter table used for data sensitive I/O, the answer is that the delimiter is not the function key introducer character itself, it's the second character beyond it. The value of that character cannot be known in advance of the keystroke.

/ON/MDUA is a new kludge switch that was added to handle the case of intelligent modems used for both dial-in and dial-out. It overrides /MOD and allows you to talk to the modem before a call has been established (as indicated by the presence of DSR/CD). If the patronizing restriction that allows changing /MOD only from the master console was removed, then this characteristic would probably be unnecessary (a patch is available on the :SYSMGR BBS that eliminates the restriction).

/ON/NAS causes NEW LINES to be converted to CR-LF pairs on output. On input, CRs are converted to NEW LINES and LFs are converted to CRs. This characteristic is typically used for non-standard terminals and serial printers for which CR implies CR and LF implies LF. If CR implies CR and LF implies CR+LF, then NAS should be off.

/ON/NRM suppresses SEND messages to the port. We turn this characteristic on for all of our serial printer ports so that SEND @CON- commands, which can be done by any user, will not cause junk to appear on the printers. Some pieces of software, especially ones that do screen I/O (like COBOL), turn this characteristic on during execution to avoid having the screen despoiled by SEND messages. Opinions are divided on whether or not this is a good idea, especially when you're trying to send out a message that the system is coming down. That's undoubtedly why the URGENT option on the ?SEND command was added. Unfortunately, CLI currently doesn't support SEND/URGENT. You can only use this option if you write a program that uses the ?SEND system call.

/ON/PM is used to keep stuff from sliding off the top of screens when perusing text files. It stops and waits for a ^Q

Why Join NADGUG?

Reason #25

Learn What Works

Trying something new can be a little too exciting. Talking with someone you trust can help make the process a lot more comfortable. The North American Data General Users Group (NADGUG) puts you in touch with people who can give you confidence as you make improvements to your system. You can learn what works by talking with others who have tried the

same moves. They can help you avoid pitfalls you might have fallen into otherwise. NADGUG has many ways to connect users who can help each other. Among these are *Focus* magazine, the NADGUG bulletin boards, regional and special interest groups, and annual conferences. Don't learn the hard way, join NADGUG today.

**NORTH AMERICAN
DATA GENERAL
USERS
GROUP**

800/877-4787
(1-800-USR-GRUP)

(XON) after LPP lines, or upon encountering an FF. The HELPV.CLI macro uses this BBS-like facility.

/ON/SHR is used to share a console between two processes. I love the description of this in CLI.TPC.CHARACTERISTICS: "A characteristic some DGC programs set." No kidding? Gosh. It also points out that this switch is DG-proprietary and shouldn't be used. I concur.

/ON/ST causes horizontal tab characters to be converted to the appropriate number of spaces by PMGR using eight column tab stops (columns 9, 17, 25, etc.). We used to turn this characteristic off on serial ports with printers that supported eight column tabs, or had programmable tabs that could be set by a cleanup file. It improved throughput noticeably when printing program listings and other text files with lots of tabs. Unfortunately, the new XLPT (7.62) unconditionally converts tabs to spaces for everything except VFU-assisted data channel printers, so the advantage has been lost. Progress marches on.

/ON/TO enables time outs. The default value is 30 seconds, but it can be changed (using the ?STOM system call, or the TIME OUT syntax in COBOL) to anything from 2 seconds to 65,534 seconds. Any software that uses timeouts sets the /TO characteristic itself, so you should leave it off.

/ON/UCO converts lowercase characters to uppercase on output only (the HELP text is wrong). This is one of the Skokie characteristics (described in more detail later); Teletypes would neither print lowercase, nor convert it to uppercase. Amazing, eh?

/ON/ULC suppresses conversion of input characters to uppercase. This characteristic should always be on. It should only be used by data entry programs that require uppercase input, and where the pay rate is too low to hire clerks who can find the shift lock key.

/ON/WRP indicates that PMGR need not inject a NEW LINE (or CR-LF, if /ON/NAS) after putting a character in column n (where "n" is the current value of the /CPL=n characteristic). Read that last sentence a few more times; it's critical. There probably isn't a characteristic, other than /MOD, that has caused more problems than /WRP.

The cause of the difficulty is that CRT and printer designers have taken two distinct approaches for wrapping long lines. CRTs have to wrap as described above because the cursor has to go somewhere after depositing a character at the right margin. If the cursor were to stay in

column 80 waiting to see if the next character was a CR or not, then the user would get a bit confused during keyboard input into column 80; which character would the DEL key affect at that point? Normally the DEL key gets rid of the character to the left of the cursor. In this case, the DEL key would have to treat column 80 as a special case and delete the character under the cursor and then not move

the cursor left.

If you set /CPL=80/OFF/WRP, and then output a line exactly 80 columns long followed by a delimiter, a NEW LINE (or CR-LF) will be injected after the character in column 80, but before the terminator. But what if the terminator is a CR? In that case, the PMGR should replace the CR with a CURSOR UP.

Most printer manufacturers handle

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 • (213) 283-5347

Circle 37 on reader service card.

Our DP staff pulled it off



If you want a backup service
that will make you look good,
I recommend

DataSafe
Corporation

Call or send for free information
describing how DataSafe will benefit
you and your company.

Suite 206,
2138 Ashley Phosphate Road,
Charleston, S.C. 29418

(803)553-5847

SYSTEM MANAGER'S LOG

wrapping by forcing a CR-LF when an attempt is made to print *beyond* the right margin, instead of *at* the right margin as CRTs do. For these printers, the strategy to follow depends on which rev of AOS/VS and XLPT you're using. (This is due to confusion between PMGR and XLPT—see my previous columns on spooler problems for a more complete discussion of what settings to use).

:HELP:CHAR:CARD_READERS

I wonder how many card readers DG sells each year?

/ON/NNL suppresses the appending of a NEW LINE onto the data read from each card from a card reader. Card readers are rarely used anymore, and even among users with card readers this characteristic is rarely used.

/ON/PBN is used to read binary card images (i.e., it suppresses Hollerith to ASCII conversion).

/ON/TSP causes trailing spaces to be included instead of discarded. The only use I know of for this is FORTRAN card decks with Hollerith strings that are continued onto a subsequent card. Not exactly cosmically important to The Rest Of Us.

:HELP:CHAR:SKOKIE

The following characteristics attempt to provide support for some ancient terminals called the Teletype Corporation Model 33 and 35 KSR, which were made in Skokie, Illinois, of all places. These terminals were 10 cps (Model 33) and 15 cps (Model 35) hardcopy devices with a keyboard and optional paper tape reader/punch. Also, only the Model 35 could handle FORM FEEDs (hence the /SFF characteristic). Because these terminals were developed in the days before flow control, and because of their crude circuitry (the average doorbell is more sophisticated), they required fill characters to be added after any character that might cause them to do something that takes more than a character time (100 ms. or 67 ms.). The offending characters were CR, LF, HT, and FF. The manuals for these terminals actually contained formulas for calculating the number of fill characters required based on the distance in columns or lines. DG chose instead to implement fixed fill character counts that worked most of the time. When I was at DG ('72-'80), we used to get a call about once a year asking for the path location to adjust the fill character count.

The /OTT/RAC/RAF/RAT/SFF characteristics that support the Teletypes all work as advertised. /OTT is required

because the Model 35 generated a non-standard code (175 or 176 octal) when the ESCape key was pressed. /SFF was needed for the FORM FEEDless Model 33.

Why this stuff is still supported is a mystery. If any of you are successfully using any of these characteristics, please give me a call at (415) 550-1444 and I'll print a retraction.

:HELP:CHAR:FLOW_CONTROL

This may come as a surprise to some of you, but the default state for ports is for both inbound and outbound software flow control (XON/XOFF) to be enabled at all times, except when binary I/O is being performed on the port. Few programs perform binary I/O to PMGR ports, and many of those that do, like CEO and WordPerfect, do so unnecessarily. (*Aside to the CEO and Word-perfect developers, and anyone else that's interested: you should be using "binary data-sensitive I/O". If you don't know what that is, please call me and I'll explain it to you.*)

Programs that insist on doing binary I/O to ports, and which must also honor software flow control, have to set the /IFC (in the case of binary input) and/or /OFC (in the case of binary output) to force flow control in spite of the binary I/O. Unfortunately, this makes binary protocols such as XMODEM and YMODEM impossible on the port as long as either /IFC or /OFC is on.

Misuse of these two characteristics is probably the primary reason for the invention of the CLEARDEV/RXON command. Put simply, turning /IFC and /OFC on outside an application program that performs binary I/O is absolutely unnecessary, and will cause problems with application programs that need to do true binary I/O.

Hardware flow control using the CTS and RTS signals is supported only on multiplexors that handle modem signals (e.g., IAC-8s).

Another surprise for many of you: hardware input flow control (based on CTS) is enabled by default on all IAC-8 ports. In fact, you can't turn it off; it's hard wired into the IAC circuitry. So why is there a /HOFC characteristic? Who knows?

By default, RTS (hardware output flow control) is not supported on IAC-8s. RTS is turned on as soon as the port is turned on at system boot time.

:HELP:CHAR:MODEMS

Prior to AOS/VS 7.6x, the only modem characteristics were /MOD and /MRI. Let's ignore the new modem characteris-

tics for a moment and look at how 7.5x and earlier revs worked.

/ON/MOD/OFF/MRI was designed for use with auto-answer modems. An auto-answer modem is one that answers the phone any time that DTR is on and ringing is detected. It hangs up the phone when a) carrier is lost, or b) DTR goes off. This behavior is typical of modems built in the last 10 years. This kind of modem handles the mechanics of answering the phone and establishing carrier without any intervention by the operating system. The fact that a call has been established is presented to the operating system as a *fait accompli* when CD and RTS are turned on.

/ON/MOD/ON/MRI was designed for use with non auto-answer modems. A non auto-answer modem is one that answers the phone whenever DTR goes from false to true, and hangs up the phone only when DTR goes from true to false. It's up to the operating system to monitor the RI signal and raise DTR when a ring is detected. It's also up to the operating system to force the modem to hang up the phone by dropping DTR when the user process terminates, or when it detects that CD has gone off (i.e., carrier was lost). Hardly any non auto-answer modems are around anymore, much less being manufactured.

:OLD_BUSINESS:XLPT

Apparently all the heat about the new XLPT introduced with AOS/V5 7.62 was not lost on DG. A major rework to address most of the problems has been undertaken and is slated to be released soon. Keep your eyes peeled.

In the *mea culpa* category, I recounted some items from my XLPT STRs last month and DG has since called in response to my STR and pointed out that at least one of my assertions was wrong; previous versions of XLPT did not remove trailing blanks. I don't know where I got the idea that it used to, but I stand corrected. However, the new version reportedly will remove them. Hooray! The status regarding honoring the /OFF/ST switch is still uncertain. Δ

Brian Johnson 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. B.J. can be reached at 109 Minna St., Suite 215, San Francisco, CA 94105, 415/550-1444. The :SYSMGR bulletin board number is 415/391-6531 (1200 baud) or 415/550-1454 (voice).

WE HAVE MOVED

FROM STOCKPORT TO MANCHESTER

As it says in Adventure, "You will never get it up the stairs". True... the MV10 was given an 'airing' and re-fenestrated!

All In-House Training Courses, Communicative Disaster Recovery and Bureau Services will operate from our new offices. Backup recovery facilities will remain in Birmingham.

Please call Phil or Tony for all consultancy, capacity planning, performance and application software issues.

Robson & Deakin Ltd.

Computer Consultants
Bridge Street
Swinton
Manchester
M27 1FJ

Phone : **061 794 8080**
or
Phil Robson : **02602 76488**
or
Tony Deakin : **0937 73446**

Circle 52 on reader service card.

START THE NEW YEAR WITH THE BEST DEAL AROUND!

We don't have to tell you why you need more memory for your MV6, MV8 and MV8 MOD II.

We will only tell you why you should buy Vanguard's 8 MB memory boards now!

- Increase your system memory up to 16MB!!!
- Original upgraded Data General boards, retaining the proven Data General architecture.
- Guaranteed overnight swap in case of problems.

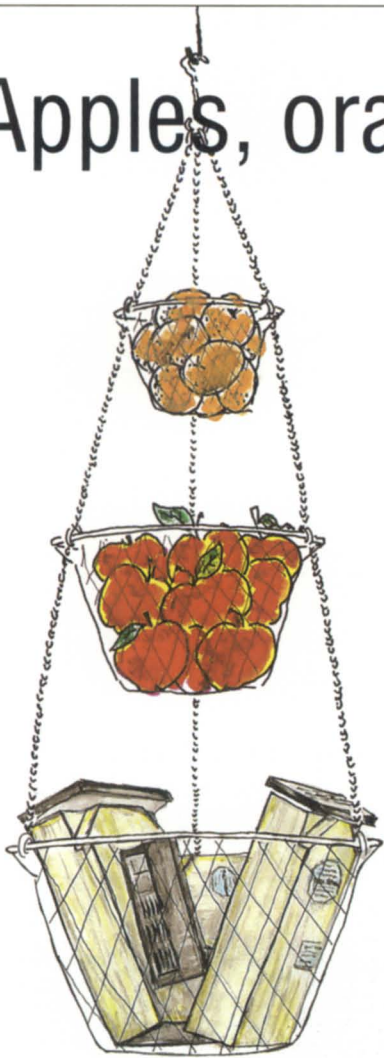
And best of all, you get them at special New Year prices!

CALL NOW
(212) 725-2030
FAX (212) 725-4554

VANGUARD International Management Services, Inc.

245 Fifth Avenue, Suite 2104 • New York, NY 10016

Apples, oranges, and disk drives



If the speed on the 386 is any indication, the 88000 is going to be one hot computer

It's been said that computer benchmarks do nothing more than measure benches. This month's column is certainly proof of that. I bring perhaps the most complete collection of apples, oranges, and disk drives ever seen in a single set of tests.

Just the same, the results are very interesting. They reveal a lot about the future of Business BASIC, computers, and Data General.

Before I get to the conclusions, let me state that all the numbers on these tests are presented as they were furnished to me: I don't make any claims as to their accuracy. Furthermore, they are tests of tests: your applications are sure to behave differently.

Figure 1: Single user tests on various environments

Company CPU Software	Generate Prime #s	KADD	Disk I/O (650000 bytes)		1 Million FOR /NEXT
			WRITE	READ	
Alloy IBM PS/2 60 MS-DOS	478 el	394 el	43 el	16 el	
Alloy IBM PS/2 80 MS-DOS	210 el	261 el	22 el	12 el	81 el
Alloy Desktop 20 RDOS	1334 el 1391 cpu	492 el 213 cpu	94 el 18 cpu	116 el 32 cpu	
Transoft ACER 386/16 SCO XENIX	242 cpu		21 el 6 cpu	36 el 6 cpu	
Transoft Olivetti 386/20 ATT Unix	160 cpu	123 el 79 cpu	16 el 4 cpu	25 el 5 cpu	207 el 206 cpu
Transoft MV/1400 BBASIC 4.20	433 cpu				
Maxon MV/15000 mod 8 BBASIC 4.20	336 el 269 cpu	193 el 47 cpu	138 el 14 cpu	41 el 13 cpu	67 el 65 cpu
Maxon MV/15000 mod 8 B32	147 el 68 cpu	223 el 40 cpu	66 el 9 cpu	19 el 9 cpu	34 el 28 cpu
B32 AMC 386/20 SCO XENIX	60 el 59 cpu	63 el 59 cpu	14 el 9 cpu	15 el 9 cpu	23 el 23 cpu

Figure 2: Multiuser tests

CPU Operating Sys Language	Users	KADDS		KFINDS		KDELS		TOTAL	
		EL	CPU	EL	CPU	EL	CPU	EL	CPU
MV/15000 mod 8 AOS/VS B32	1	110	40	100	38	93	36	306	114
	4	174	42	167	41	171	40	479	124
	8	175	45	157	44	154	42	442	131
AMC 386/20 SCO XENIX B32	1	71	67	64	58	73	65	208	189
	4	84	68	68	61	74	68	209	197
	8	92	76	76	69	86	75	231	220

WordPerfect® Announces Integration With CEO®

WordPerfect supports the CEO filing system, calculator, and interrupt key.

Same powerful features users have come to expect from WordPerfect 4.2.

WordPerfect files transfer from one machine to another without a conversion program.

WordPerfect Corporation announces a new enhancement for Data General users: WordPerfect® with CEO® integration.

If you use CEO (revision 3.0), you can also have the powerful advantages of WordPerfect word processing software. WordPerfect can be accessed directly from within CEO, and will support the CEO filing system, calculator, and interrupt key. There is no need to leave WordPerfect to use these CEO features.

Documents can be saved and retrieved from the appropriate CEO drawer and folder. The CEO calculator is easily accessible as well, by using only a few quick keystrokes.

If a mail message is received while you are typing a document in WordPerfect, you will be notified at the WordPerfect status line. You can then use the CEO interrupt key to temporarily suspend

WordPerfect while you access your message through CEO. When you return to WordPerfect, the cursor will be right where you left it.

The WordPerfect/CEO combination will provide you with the same host of powerful features users have come to expect from WordPerfect 4.2. For example, you'll have the Thesaurus and 115,000-word Speller at your fingertips. Columns appear side-by-side on the screen as they will look when printed. Footnotes and Endnotes are automatically formatted and numbered for you. Macros let you record and automate keystroke combinations, and the Merge option allows you to combine data from two or more different sources into a single document.

With WordPerfect on your AOS/VS machine, you have the added benefit of opening as many as ten documents, and seeing two simultaneously on-screen.

If you've considered buying WordPerfect 5.0 for the IBM PC, rest assured that WordPerfect documents created on Data General machines can be retrieved into 5.0 format on the PC. Likewise, files created with 5.0 for the PC can be saved in 4.2 format and then re-retrieved on the Data General. (Features new to 5.0 will not transfer to 4.2.)

Because all WordPerfect file structures are identical, you can transfer them from one machine to another in a straight binary format—no conversion program is necessary. WordPerfect is available on many machines, including DG, VAX, UNIX, IBM 370, IBM PC, Apple, Macintosh, Atari, and Amiga. For those who work in an environment that combines several computer systems, the convenience of WordPerfect connectivity is invaluable.

For more information on programs or marketing, contact the Data General Products Division at WordPerfect Corporation.

WordPerfect CORPORATION

1555 N. Technology Way · Urem, UT 84057
Telephone: (801) 222-4100 · Telex: 820618
FAX: (801) 222-4477



ETHERNET TCP/IP NETWORKING FOR ALL DG SYSTEMS

- Industry standard TCP/IP LAN connections for AOS/VS, AOS and RDOS systems.
- Connects DG systems to non-DG systems such as VAX, IBM-PC, SUN and APOLLO.
- High speed file transfer using the standard FTP protocol.
- Virtual terminal remote logon using the standard TELNET protocol with VT100 terminal emulation.
- Supports ECLIPSE/MV, ECLIPSE, NOVA and DESKTOP systems.

CLAFLIN & CLAYTON, Inc.

117 Maynard Street, Northboro, MA 01532

(508) 393-7979

FAX 508/393-3169

Circle 7 on reader service card.

INFODEX PRESENTS CONVERSION PLUS™

Moving from one Data General to another or between different vendors has become far easier with CONVERSION PLUS.™ Now, transfer between data media and upgrade your software—all through Infodex, the Data General experts.



INFODEX

7000 Boulevard East • Guttenberg, NJ 07093

Circle 32 on reader service card.

BASIC

The tests show extremely varied results. This is due to several reasons: CPU speed, disk speed, operating systems, and language variations. *Few of these results are actually comparable to each other.* In other words, do your own tests before investing.

The slowest system was the desktop Model 20 running RDOS Business BASIC. Over 20 times faster was an AMC 386 running at 20 megahertz and B32 under XENIX

So, on to the fun! Figure 1 shows tests that were run with a single user on the system. The programs used are nothing more than stated: they are the bare minimum of code to do the function at the top of the column.

The tests show "el" for elapsed seconds and "cpu" for CPU seconds used (measured using SYS(5)). Here are a few observations:

- The slowest system was the desktop Model 20 running RDOS Business BASIC. Over 20 times faster was an AMC 386 running at 20 megahertz and B32 under XENIX.
- CPU timings on the MV/15000 Model 8 may not be entirely accurate. I believe the timings for system calls are estimated. Elapsed time may be better to look at; however, the relative speed of disk drives then distorts the results.
- CPU timings on the 386 machines may also be suspect. For Transoft's Olivetti 386 at 20 megahertz, note that the total of the three disk I/O tests was 164 seconds elapsed, 88 seconds CPU. B32's results for a similar machine were 92 seconds and 77 seconds. The prime number test (a straightforward test of CPU speed) shows B32 to be over three times as fast as Transoft. Something looks fishy!
- Comparing elapsed times between the MV/15000 Model 8 and the 386 seems fair though. The results are clear: a 386, running at 20 megahertz, is quite capable of outrunning the MV in both CPU and disk operations!

Data General has just announced a 386 of its own, the Dasher 386. It is a 16 megahertz machine, and comes with ATT Unix. It should also be able to run SCO XENIX, but you'll have to buy that at your local dealer, not DG. Will it work? How should we expect it to stack up?

There is no reason why the Dasher 386 should not be able to run the products from Alloy, B32, and Transoft. B32 and Transoft are perhaps more interesting; they both run in Unix multiuser mode.

The speed of the new Dasher 386 will probably be most comparable to the ACER 386/16 in the tests, putting it in the MV/15000 Model 8 range of performance, running a bit slower under Transoft, and faster under B32.

But, you say, you're not interested in single-user systems. Your users all want to hang a bunch of terminals on the system. You know that AOS/VS does a good job sharing its time over a bunch of users. Surely Unix will fall down here!

Figure 2 shows the results (with a major disclaimer, which I'll get to). B32, running on that same AMC 386/20, has elapsed

times substantially better than the MV/15000. What's more, the degradation does not go up as fast on Unix as it does under AOS/VS.

At eight users, B32 under Unix is almost twice as fast as AOS/VS running B32. Of course, running Data General Business BASIC will make the MV/15000 look even worse.

Now for the disclaimer: these tests do not do any screen I/O. AOS/VS unloads a lot of the work connected with screen I/O to the IACs. It is possible (and preliminary tests seem to support this) that Unix on a 386 does not do nearly as good a job. More tests are needed before deciding that Unix will be as good for real multiuser environments.

A cautionary note as well: there is nothing here that says these results can be extrapolated to 16, 32, or 64 users. We know that an MV/15000 Model 8 can handle 64; it seems very unlikely that the 386 can do the same.

Once again, how would Data General's Dasher 386 perform? Probably not much differently than the machine in Figure 2. The AMC's CPU advantage will probably be lost in the disk I/O results. The Dasher 386 allows you to add in up to 26 asynchronous devices, via adding in eight-line intelligent multiplexors. DG claims it will support up to 16 users, depending on application.

What conclusions can we draw from this for the future? Well, it seems clear that price/performance for Business BASIC is about to take a big jump.

The 386 running B32 or Transoft looks like it will be faster than

There is no reason why the Dasher 386 should not be able to run the products from Alloy, B32, and Transoft

an MV/1400, at half the price. The message for both Data General and VARs is clear: the new technology cannot be ignored any longer. Even if you don't adapt to the new environment, your competition certainly will.

Data General's announcement of the Dasher 386 is timely. I've grown comfortable with DG over the years, and I'd rather buy what I need from DG than hunt for a new supplier. It also means that we can start testing our applications on the 386 under Unix without having to leave the Data General fold, which will certainly make the DG salespeople happy.

Part of Data General's strategy of bringing out the Dasher 386 with Unix is to give its customers a chance to prepare for the first 88000 machines, due out in a few months. If the speed of the 386 is any indication, the 88000 is going to be one hot computer!

What about Business BASIC for the Dasher 386 from Data General? Right now, it doesn't seem imminent. It would make sense for DG to put its efforts into the 88000 version for now, so that it will be ready when the flagship arrives. Δ

George Henne, a contributing editor to Focus, has worked with Business BASIC users for more than a decade. He is the vice president of Maxon Computer Systems, 575 Madison Ave., Suite 1006, New York, NY 10022; 416/445-4823.

K&M Computers

Sell • Buy • Lease

(516) 232-2530

FAX (516) 232-2709

DataGeneral

Give us a call for all your DG needs—
from the Desktop 10 to the MV/20000.
Full line of DG terminals—new and used.
Discounted.

*** SPECIAL ***
Certified MV/8000 with 2MB, AT116, 277MB
S/S, 6026 S/S, 2-D450's \$5,500

77-10 Allwood Avenue
Central Islip, NY 11722

Circle 39 on reader service card.

Pop-up Windows For COBOL!

- *Electronic Mail*
- *Pop-up Notepad*
- *Pop-up Calculator*
- *Redraw Screen*
- *Print Screen*
- *Swap to CLI*
- *Faster Screen Display*

Many other functions included or create your own. Works with existing programs. Versions for AOS/VS COBOL or ICOBOL.

SCREEN DEMON
\$750

Demo available \$25

Threshold, Inc.

165 E. Magnolia Ave.
Auburn, AL 36831

(205) 821-0075

Circle 63 on reader service card.

Macro-Aid for Wordperfect



New editor simplifies revision of even the most monstrous macro

By Thane Perkins
Special to Focus

The latest, most fantastic, up-to-date Wordperfect feature is not in Wordperfect. For those who have used the M-Edit macro editor on PC Wordperfect macros and looked forward to the day when Wordperfect would offer it for DG users, it's finally here. Though you can use M-Edit to edit P-Edit and Planperfect macros, most DG users will use it to create, edit, and assemble Wordperfect 4.2 macros.

A Wordperfect macro is a file that records Wordperfect keystrokes. The following example shows how to create a macro that places the date at the top of any document:

- 1) Press CTRL-F10 and enter the name of the macro (DATE);
- 2) Press HOME, HOME, and the up arrow;
- 3) Press SHIFT-F5 and select option 1;
- 4) Press the NEW LINE key twice and the CTRL-F10 key again.

Now you can add a date at the top of a document by pressing CTRL-SHIFT-F10 and entering the macro name (DATE). The Wordperfect macro will repeat each keystroke, in order, just as you did when defining the macro. However, if you found you made a mistake while defining the macro, or you wanted to change the macro slightly (like placing the date flush right) you would have to completely redefine the macro.

This is where the new M-Edit macro editor steps in. It is a specialized program editor. If you used a program editor, like SED or P-Edit, and retrieved the date macro, it might look like this: ^H^H^We1 (depending on the terminal).

The macro editor takes these characters and translates them so the same file in M-Edit looks like: <Home><Home><Up><Date>1.

In M-Edit, you can place the cursor under the "<" in "<Date>". To add the Flush Right to the macro, press CTRL-F10 and the Wordperfect function key for Flush Right (CTRL-SHIFT-F6). The Flush Right code is inserted in the macro between the up arrow and the date function. Once saved, this macro will run in Wordperfect 4.2 and will insert a date that is flush right.

Do not worry about having to learn a new and unfamiliar program. The core of M-Edit has the same Wordperfect function keys you are already used to. In fact, a good way to teach yourself about Wordperfect macros and the macro editor is to define a simple macro in Wordperfect, write down each step, and then create the same macro in M-Edit using the CTRL-F10 functions feature. As you follow the macro's hand-written script, you will be using the same Wordperfect keystrokes. Upon comparing the two files you can learn a great deal.

M-Edit is great for fine-tuning and improving your old standby

macros. It is a lifesaver for those who need to make changes to those monster macros of several hundred to a thousand keystrokes. It is also a way to troubleshoot macros that just do not want to work the way the user intended (many times there is an accidental keystroke fouling things up). If you want to delete one function or letter, you now have the ability. If you want to add a keystroke here or there, that is possible too. The user is the only limitation. He or she must keep in mind what effect each new keystroke will have on the document. Some features also have option numbers or letters that are crucial to how a macro runs. These must be included and entered in the appropriate place. Our date macro needed the option 1 to select the Insert Text feature.

One of the most usable features of M-Edit is the ability to quickly and easily send another user macros by mail. Simply retrieve the macro into M-Edit and print out a hard copy. Mail the hard copy of the macro to a fellow user. The fellow user brings up the M-Edit, presses CTRL-F10, puts the Wordperfect template on the keyboard, and simply keystrokes the macro in so it reads just like the one on paper.

For example, there is a chained-conditional macro (actually three macros that are chained together) I have had several requests for, and it is one that I use frequently while testing the Mark Text feature of Wordperfect. This macro creates a Full Form Table of Authority mark and then searches through the document and places Short Form marks where applicable. The user also has the opportunity to delete any of the Short Form marks if desired.

The following is my TOA.MAC macro. It is chained to the TOA.FOUND.MAC macro.

```
<Search><Delay 000><Pause><Search End><Block><Word Left>^^
<Delay 000><Pause><Mark Text>6<Delay 000><Pause><NL>
<Exit><Delay 000><Pause><NL>
<Page Down><Macro>toa.found<NL>
```

The next macro is a conditional macro, Named TOA.found.MAC, that is chained to itself if the search finds something and chained to TOA.NFOUND.MAC if it fails.

```
<Macro>toa.nfound<NL>
<Search><Search End><Mark Text>4<NL>
<Bold><Hyphen><Hyphen><Hyphen><Hyphen><Left><Left><Left><Left>^^
<Left><Left><Left><Delete Right><Delay 000><Pause><Right>^^
<Delete Right><Delete Right><Delete Right><Delete Right>^^
<Delete Right><Word Right><Macro>toa.found<NL>
```

The last macro, TOA.NFOUND.MAC simply returns you to the top of the document so you can define the Table of Authorities if you wish, or restart the macro.

```
<Home><Home><Up><NL>
```

There are two things you need to note about the previous

macro editor print-outs: 1) the ^^ mark is only used as a point at which the line is wrapped down to the following line and is not a Wordperfect function, and 2) the <NL> codes were added by me—you cannot normally see them in M-Edit.

No more mangled text

Anyone who uses, wants to use, or would like to learn to use Wordperfect macros shouldn't be without the macro editor, M-Edit. Once you get used to how macros are constructed, you can

skip the entire macro define process and simply create the macro in M-Edit. M-Edit will let you clean up any macro, and a stripped down, cleaned up macro runs much faster. If you have ever tried using macros and found that they mangled more text than they improved, now is the time to dig in and find out what happens and why. It is amazing how much you can learn about how macros work from looking at their structure in M-Edit. The greatest new feature in Wordperfect for Data General isn't in Wordperfect, but it's worth looking at. Δ

Knowing naming conventions makes it easier to locate macros

By Thane Perkins
Special to Focus

One of the more difficult aspects of working with Wordperfect macros is the naming convention used by Wordperfect. If you are planning to use the macro editor, you may find it difficult to locate some macros without a little help.

Convention #1: This is relatively easy. Check your List Files and you will find macros are listed by the name entered when defining the macro, followed by ".MAC" for Wordperfect 4.2 macros, ".PEM" for P-Edit 4.2 macros, ".MEM" for M-Edit macros (yes, you can create macros with an M-Edit macro), and

".MPM" for Planperfect macros.

Convention #2: Temporary macros can be created by using a single character to name a macro (the same holds true for hitting the NEW LINE key instead of entering a filename). These macros exist only as long as you are in Wordperfect. As soon as you exit Wordperfect, they are deleted (if you exit Wordperfect abnormally, they will become permanent, however). Wordperfect names these macros for you by using the following pattern: ?X#.MAC. The "?" tells Wordperfect that the file is temporary; X is the character, and # is the PID number. If your Wordperfect process was at PID 34 and you created a macro and named it "H", your macro would be named "?H34.MAC". If you create a macro by pressing the NEW LINE key instead of entering a name, you will create a temporary macro that is the PID number followed by .MAC; i.e., "34.MAC".

Convention #3: If you create a macro and instead of typing a

SAVE — THAT'S THE RAVE WAVE!
**DATA GENERAL SYSTEMS, PERIPHERALS,
PARTS AND COMPATIBLE EQUIPMENT**

Rave is second to none when it comes to quality equipment.

While we offer immediate delivery, nothing leaves our door until it meets

- Quality Equipment
- Immediate Delivery
- Competitive Pricing

our high standards. Call and find out why Rave is the fastest growing Data General second source.

- Large Inventory
- Nova to MV
- 45 Day Warranty

Reliability - Availability - Value - Experience

**BUY • SELL
TRADE • LEASE**



RAVE COMPUTER ASSOCIATION, INC.
35455 Stanley Drive
Sterling Heights, MI 48077
FAX: 313/939-7431

DATARAM
AUTHORIZED DEALER

ZETACO
AUTHORIZED DEALER

313/939-8230

Circle 49 on reader service card.

Figure 1: Macros created using a function key

W361.MAC	F1	W257.MAC	CTRL-F1	W341.MAC	SHIFT-F1	W241.MAC	CTRL-SHIFT-F1
W362.MAC	F2	W262.MAC	CTRL-F2	W342.MAC	SHIFT-F2	W242.MAC	CTRL-SHIFT-F2
W363.MAC	F3	W261.MAC	CTRL-F3	W343.MAC	SHIFT-F3	W243.MAC	CTRL-SHIFT-F3
W364.MAC	F4	W277.MAC	CTRL-F4	W344.MAC	SHIFT-F4	W244.MAC	CTRL-SHIFT-F4
W365.MAC	F5	W265.MAC	CTRL-F5	W345.MAC	SHIFT-F5	W245.MAC	CTRL-SHIFT-F5
W366.MAC	F6	W266.MAC	CTRL-F6	W346.MAC	SHIFT-F6	W246.MAC	CTRL-SHIFT-F6
W367.MAC	F7	W267.MAC	CTRL-F7	W347.MAC	SHIFT-F7	W247.MAC	CTRL-SHIFT-F7
W370.MAC	F8	W270.MAC	CTRL-F8	W350.MAC	SHIFT-F8	W250.MAC	CTRL-SHIFT-F8
W371.MAC	F9	W271.MAC	CTRL-F9	W351.MAC	SHIFT-F9	W251.MAC	CTRL-SHIFT-F9
W372.MAC	F10	W272.MAC	CTRL-F10	W352.MAC	SHIFT-F10	W252.MAC	CTRL-SHIFT-F10
W373.MAC	F11	W273.MAC	CTRL-F11	W353.MAC	SHIFT-F11	W253.MAC	CTRL-SHIFT-F11
W374.MAC	F12	W274.MAC	CTRL-F12	W354.MAC	SHIFT-F12*	W254.MAC	CTRL-SHIFT-F12
W375.MAC	F13	W275.MAC	CTRL-F13*	W355.MAC	SHIFT-F13*	W255.MAC	CTRL-SHIFT-F13*
W376.MAC	F14*	W276.MAC	CTRL-F14*	W356.MAC	SHIFT-F14*	W256.MAC	CTRL-SHIFT-F14*
W360.MAC	F15*	W260.MAC	CTRL-F15*	W340.MAC	SHIFT-F15*	W336.MAC	C3*

*Macros marked with an asterisk can be started by pressing the function key alone—you do not need to press CTRL-SHIFT-F10 first.

name you press a function key, Wordperfect names the macro using the method shown in Figure 1. This naming convention works for P-Edit macros as well. Simply replace the "W" at the beginning of the filename with a "P" and you have it; e.g., P360.MAC is a P-Edit macro that starts by pressing F15.

By following these naming conventions, you should be able to use List Files from M-Edit to find any file you want to edit or any

one you want to use as part of a new macro. You can also use the same convention when saving a Wordperfect macro file. Δ

Thane Perkins is a tester for the Data General Division of Wordperfect Corporation. He can be reached at 1555 North Technology Way, Orem, Utah 84057; 801/227-4455.

CALLING ALL UK USERS

There are many third party products that can improve the efficiency of your Data General computer environment. Some of the most popular ones are indicated below:

B32 now has both CEO and Library shell interfaces. **Dimension** is a 4GL which creates robust, commercial environment BB code.

EMU/470 is the most cost-effective way to color your applications.

File Finder is a utility for information retrieval with AOS/VS files.

GENISYS I is a fully featured DBMS for non-technical end users.

InfoLynx takes the strain from INFOS users.

PC/Remote gives PC integration using async RS232 instead of LANs.

THE ULTIMATE could save a lot of coding for INFOS users.

WPFile provides drawers, folders and documents for WordPerfect users.

WordPerfect is simply the best word-processing software for DG.

20/20 is the definitive spreadsheet product, now with CEO integration.

If you think that there may be other third party packages that would be of benefit to you, please phone, we would be delighted to help you to prove the case.

Synergistic

Software

Company Ltd.

Hughenden House
Main Street
Collingham
West Yorkshire
LS22 5AY

Phone 0937 74637
(24 hr) 0937 73446
Fax 0937 66903

All products listed above are trademarks of their respective companies.

Circle 57 on reader service card.

**DG & COMPATIBLE
BUY • SELL • LEASE**

CPU

MV/15000, 20000
MV/10000
MV/8000
MV/7800
MV/4000, 4000DC
MV/2000
NOVA 3, 4, S/20
S/140, S/280

MEMORY

for all MV &
ECLIPSE
for all NOVA &
MICRO

PRINTERS

4320 55CPS LQ
4589 SERIAL
OKIDATA 2410
OKIDATA 192, 292
HP LASER JET II

DESKTOP

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

COMMUNICATIONS

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

DISK/TAPE

354, 592MB
96, 192MB
73, 147MB
10, 12.5, 20, 25MB
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
★★★★**

MV/4000DC, 1MB,
120MB DISK, FLOPPY

AMES SCIENCES, INC.

2 EAST MAPLE AVE. TRAPPE MD 21673
(301) 476-3200 • FAX 301-476-3396

Circle 2 on reader service card.

**Finally...
An AOS/VS
Performance
Seminar for
Normal Humans.**

Brian Johnson is leading three-day seminars covering the basic principles of AOS/VS performance analysis & capacity planning. The minimum prerequisites are 6 months of experience as an AOS/VS System Manager or System Programmer, and access to a performance analysis utility such as **PERFMGR** or DG's **MONITOR**.

Schedule:

Mar 15-17
Apr 4-6
July 10-12

London
Australia
New York

Call for a registration kit, or for on-site seminar information.

:SYSMGR

Software for System Managers
A Division of B.J. Inc.

109 Minna Street, Suite 215
San Francisco, CA 94105 (415) 550-1454

Circle 60 on reader service card.

Your skills are showing

The process of planning for data recovery can showcase your management skills

by Steve Handlos and Liz Straus
Special to Focus

As DP manager and an important member of your company's management team, you are well aware that developing immediate and long-range goals is one obvious way to promote a healthy climate for corporate growth. Your superiors support you in this effort because they know that running a department without such a plan is akin to driving across country without a road map—it can be done, but it's much more difficult. The necessity of devising a method for data recovery may *not* be so readily apparent to your supervisors, however—until the system crashes.

This means that in addition to honing your management skills, you also need to become somewhat of a salesperson to convince your boss that the company needs a detailed set of procedures to handle unplanned (but not unexpected) data losses.

There are several reasons why taking time to develop an efficient, cost-effective way to retrieve lost information is preferable to dousing fires as they erupt:

- You gain a reputation as a problem-solver and become a more visible and valuable employee;
- Creating viable solutions long before they are needed offers time to test their effectiveness;
- Outlining and refining methods to deal with the unexpected insures your organization against costly shut-downs, making it more productive and organized.

Management by design

To succeed in making the data process-

ing function as important as possible within the organization, you must be aware of which issues are special concerns for your superiors, especially those that are unspoken. For top management, a disaster recovery program represents an insurance policy on the business; for you, it can provide yet another opportunity to demonstrate foresight, ability, and dedication to the company.

If one of your goals is to reduce the probability of data failure to the smallest possible value, consider the following:

- there is an event that will certainly cause the business to fail;
- the occurrence of that event *cannot* be controlled;
- the outcome of that event *can* be controlled.

Method of action

There are a couple of ways to get started with your data recovery program. Using a professional consultant is one option. A professional's skills, objectivity, and commitment to meeting your deadlines may contribute to a workable plan; additionally, by hiring a consultant, you will not interfere with internal projects.

Do-it-yourself planning guides are readily available in a range of prices and quality, and if you look carefully, you will find one that meets your needs. The guides contain technical information to help you evaluate current usage and prioritize functions.

It is up to you, though, to breathe life into the plan by customizing it to your organization. When designing your program you must know the direction of your company's corporate path, so keep the following in mind:

- What factors are bringing about changes to which your organization must respond?
- How will marketing techniques vary as a result of these changes?
- What are the growth trends within the industry, and how do they affect your company?

Training/Testing

The success of data recovery depends

on the skills of your staff, so training must be an integral and ongoing component of your disaster plan. You can get a good idea of how effective your training program has been during the testing phase.

The testing you do for this project is a little like writing a complex program—you know it won't work perfectly the first time. You make it work through diligent trial and error.

There is one big difference, however, between a program and a disaster recovery drill, and that is the human element. If inputs are constant, a computer running a program produces the same output; the human reaction is unpredictable.

Testing gives you the opportunity to review your training procedures and to modify them if necessary.

Your management skills are showing

As you execute the recovery plan, be sure your managers are aware of the process. Invite them to the tests (once you are sure the procedures are working) and give them periodic progress reports in non-technical language.

Think of the disaster recovery as a bridge to company management. To be effective, the plan must become an integral part of the company's long-term planning. And, no matter how carefully the plan is researched, structured, and documented, it must be periodically reviewed and revised.

Disaster recovery is a serious issue that is frequently discussed and infrequently implemented. You can control the operation by assuming a true managerial posture—participate in the planning, delegate the production, and most importantly, analyze and document the results.

△

Steve Handlos, the founder of Productivity Systems Development Corp. and Data Safe Corp., can be reached at 2138 Ashley Phosphate Rd., Suite 206, Charleston, SC 29418; 803/553-6649. Liz Straus, the president of Stewart and Assoc., can be reached at P.O. Box 11944, Columbia, SC 29211; 803/771-4636.



Strong arguments

Using Fortran and BASIC to accept arguments from CLI

By John Huddleston
Special to Focus

This column describes two ways to accept arguments from CLI from within BASIC and Fortran programs running in AOS/VS environments. Some readers may remember the examples used here from my presentation, *Intelligent Processing with CLI*, given at the 1987 NADGUG conference.

Figure 1 contains the Fortran source and

Figure 1: Fortran 77 source code to get an argument from CLI

```

SUBROUTINE CLI_ARG(argv,argc,ier)
%List (off)
%Include "Qsym.f77.in"
%List (on)
c
c *** J.HUD. 11/11/85  get arguments from the CLI
c
character(*) argv          ! CLI argument
c
Integer*2 lpack(0:lsys_gtln-1)/lsys_gtln*0/ ! whole packet
Integer*2 lpack_word(0:lsys_gtln-1)         ! single words
Integer*4 lpack_dword(0:(lsys_gtln-2)/2)    ! double words
c
Integer*4 ler,AC0,AC1,AC2,lsys              ! error and accumulators
Integer*2 argc                             ! argument number
c
Equivalence(lpack,lpack_word,lpack_dword)
c
c *** packet input will start
c
lpack_word(lsys_greq)=lsys_garg           ! set request type
lpack_word(lsys_gnum)=argc               ! argument number
lpack_dword(lsys_gsw/2)=0                 ! no switches set
lpack_dword(lsys_gres/2)=byteaddr(argv)  ! byte ptr to argv
c
AC0=0
AC1=0
AC2=wordaddr(lpack)
ler=lsys(lsys_gtmes,AC0,AC1,AC2)
if(ler.eq.0 .and. AC0.gt.0) then
  argv=argv(1:AC0)
else
  argv=" "
end if
return
end

```


Figure 2: BASIC source code to get an argument from CLI

```

01480 rem
01490 rem subroutine ARGS to get arguments from CLI
01500 rem   programmed by J.Huddleston 11/11/85
01510 rem   modified by R.Hartman 08/25/88
01520 rem
01530 rem arguments:  argv$ = returned argument (char*(*))
01540 rem           argc = position of argument requested (i*4)
01550 rem           len  = encountered length of argument (i*2)
01560 rem           ier  = return flag, 0=okay (i*4)
01570 rem Caveats:
01580 rem This routine must be contained within the main program
01590 rem and not be external in order to operate properly.
01600 rem The initialization of ARGV$ in this subroutine defines
01610 rem the maximum size of the CLI argument.
01620 rem
01630 sub ARGS(ARGV$,ARGC:integer*4,LEN:integer*2,IER:integer*4)
01640 rem
01650 option base 1
01660 declare integer*4 IADDR
01670 declare integer*4 GTMES_PACKET(3)
01680 declare integer*4 AC0,AC1,AC2
01690 let IER=0
01700 let ARGV$="xxxxxxxxxxxxxxxxxxxxxxxxxxxx"      ! ARBITRARY NAME
01710 mat GTMES_PACKET=zer                          ! CLEAR THE PACKET
01720 let IADDR=0                                    ! INITIALIZE ADDRESS
01730 let IADDR=addr(ARGV$)                          ! GET ADDRESS IN IADDR
01740 let GTMES_PACKET(1)=3*65536+ARGC              ! lsys_garg + argument
01750 let GTMES_PACKET(2)=0                          ! NO SWITCHES SET
01760 let GTMES_PACKET(3)=IADDR                     ! ADDRESS OF ARGV
01770 let AC0=0                                       ! RESERVED
01780 let AC1=0                                       ! RESERVED
01790 let AC2=addr(GTMES_PACKET)                    ! PACKET ADDR. IN AC2
01760 let IER=sys("gtmes",AC0,AC1,AC2)              ! GOOD OLD SYSTEM CALL
01800 let LEN=AC0                                    ! PUT ARG LENGTH IN LEN
01810 rem
01820 end sub

```

Figure 2 contains the BASIC source. The Fortran source corresponds directly with Figure 13-30 of Data General's *Advanced Operating System Programmer's Manual Volume 2*. In this illustration, a packet is made up of three 32-bit double words (as opposed to 16-bit single words). The lower 16 bits of the first double word are the argument number and the high 16 bits are the request type, in this case ?GARG (copy the command line argument specified in the lower 16 bits to the ?GRES buffer area). The second double word is reserved and is set to 0. The third double word contains the byte pointer to the resulting argument.

In Figure 2 (BASIC code), the argv\$ is initialized to some value. If your argument turns out to be larger than the 22 x's that are in the figure, then increase the number of x's to be as large as your argument. Note that the argc in the BASIC code is of type integer*32, since it will be

added to the ?GARG number (multiplied times 65536 to put it into the high 16 bits). The Fortran argc is of type integer*16 since it is put directly into the lower 16 bits of the double word.

The number of arguments used in the two examples is different. This is due to a modification by another programmer who wanted to use the return length in the BASIC code. Also, the Fortran code sets the return argv string just equal to the length so no extra characters are put out by the calling routine. One other caution, the BASIC code must be placed in the main BASIC module whereas the Fortran code can be a separate module. Δ

John Huddleston is vice president of the NADGUG SIG/UX. He can be reached at the USDA Soil Conservation Service, 511 NW Broadway, Portland, OR 97209; 503/326-2843.

Now available
in Data General
32 bit
Business BASIC

DIMENSION

THE ORIGINAL Business BASIC APPLICATION GENERATOR

A fourth generation language
for all Data General Systems

Don't settle for a mere program generator. DIMENSION is a complete, mature, tried and proven eight year old data base oriented application generator that works. Develop complete, sophisticated applications in weeks instead of years.

Standard features include:

- shorthand coding commands
- data dictionary
- screen builder/editor
- full function text editor
- intelligent spooler
- translator/compiler
- support utilities
- automatic documentation
- program generators (entry, maintenance, and report)
- generates Business BASIC source code program
- compatible with existing Business BASIC programs (can be intermixed)
- develops sophisticated, standardized, full function software in a fraction of the normal time
- generated application software is extremely easy to modify and maintain
- can be learned in approximately 1 day

Literally any Business BASIC application can be developed with DIMENSION. Available today for RDOS, AOS, and AOS/VS. Desktops through MV/15000.

404/799-1000



COMMERCIAL DATA SYSTEMS
CORPORATION

1000 South Pioneer Drive
Smymna (Atlanta), Georgia 30082

Off the charts

Optimum use of workstations requires file distribution strategy

Before it was possible to integrate PCs with minis via high-speed local area networks, being a system manager was simple. It took so much time and trouble to move a file from one computer to another that there was rarely a need for long discussions on where to keep your data. But with the advent of file servers on local area networks, the system manager now has to develop a "file distribution strategy."

After years of working with various forms of file service, we have developed guidelines for file management that apply to most PC integration users. My goal this month is to help you decide where to keep your files: which ones go on the file server, and which ones do you keep on your PC workstation?

I'll be referring to Rational Data Systems' PC/VS throughout the text, but comments apply to Data General's DG/PC*I as well. Note that revision 4.00 of RDS's PC/VS now includes True File Service in addition to the previously supported virtual disks and file import/export utilities.

In a typical environment, there are three places a file can be stored:

- on a PC user's hard disk;
- on a Novell NetWare file server;
- on an MV/family file server.

In addition, files stored on the MV/family file server can be accessed in one of three ways:

- true file service;
- virtual disk service;
- file transfer service.

These three access methods were described in last month's column. Refer to the February issue for details.

You may or may not have a NetWare server. Since PC/VS works well with it, many PC/VS users have added NetWare to their PC integration environments. The following discussion will be relevant to

those using a NetWare server as well as to those who are not.

Let us now consider the six attributes that are used to determine where and how a file should be stored and accessed.

Access from AOS/VS

If you need to access a file from an application or terminal connected to your MV/family computer as well as from MS-DOS, there are only two choices: through the file redirector (convenient) or via the file transfer commands (fast). Files on the

local hard disk, NetWare, and virtual disks are not readily accessible by AOS/VS programs.

Shared PC access

If a file must be shared by multiple PCs, on the other hand, you can keep it anywhere except on one PC's hard disk. NetWare is the best performer for shared files, but the PC/VS file redirector is the most convenient. If read-only access is acceptable, you might consider keeping the file on virtual disk (unless it's a program).

Figure 1: PC/VS file distribution chart (with standard ratings)

		File Service Options				
		PC Local Hard Disk	PC/VS File Redirector	PC/VS Virtual Disk	PC/VS File Transfer	Novell NetWare
File Service Attributes	Access From AOS/VS	N/A	4	N/A	2	N/A
	Shared PC Access	N/A	3	R/O:3 R/W:N/A	2	4
	Performance	4	1	2	2	3
	Program Files	4	N/A	3	N/A	3
	Convenience	4	3	2	1	3
	Frequent Backup	1	4	2	3	2
Total						

Figure 2: PC/VS file distribution chart (example: Wordperfect documents)

		File Service Options				
		PC Local Hard Disk	PC/VS File Redirector	PC/VS Virtual Disk	PC/VS File Transfer	Novell NetWare
File Service Attributes	Access From AOS/VS	N/A	4	N/A	2	N/A
	Shared PC Access	N/A	3	R/O:3 R/W:N/A	2	4
	Performance	4	1	2	2	3
	Program Files	4	N/A	3	N/A	3
	Convenience	4	3	2	1	3
	Frequent Backup	1	4	2	3	2
Total		N/A	15	N/A	10	N/A

Virtual disks are fast and have low overhead, but if mounted read/write, they can only be accessed by one user at a time. Finally, consider file transfer (IMPORT and EXPORT) for occasional access or for large files.

Performance and cost

First, accept the fact that no matter how much you spend on your file server, it will rarely be faster than a hard disk attached directly to the workstation.

If a file has to be shared, but doesn't need to be accessed from terminals or applications on your MV/family computer, consider keeping the file on a Novell NetWare file server. NetWare is an operating system designed for nothing other than file service, and is typically at least three times as fast as AOS/VS. Furthermore, consider that the dollars per MIPS and dollars per megabyte are substantially less for a NetWare server than for an MV/family computer. The only time the MV is less expensive is when there is excess capacity that would otherwise go unused.

Program files

It is not possible to execute a program (.EXE or .COM file) via the PC/VS file redirector. At first this may appear to be an unreasonable restriction. However, consider that these files are of no value to AOS/VS, since they contain 8086/80286/80386 instructions. Furthermore, program files are accessed far more frequently than the files on which they operate. This includes the constant reading of overlays from within these files. For these reasons, programs should be stored on the local PC's hard disk (if they are private), on read-only PC/VS virtual disks, or on a NetWare file server (if they must be shared) for optimum performance.

Programs are also relatively non-volatile. They are not frequently modified, and if they are accidentally erased or destroyed, they can be easily restored from archival backups. This is another reason why they are excellent candidates for storage on local hard disks.

Convenience

Nothing is as convenient as the local disk. It's fast, its response time is predictable, and it's available even if the server is down for backup or maintenance. But on the assumption that other attributes are also important, the other options (in decreasing order of convenience) are PC/VS's file service, NetWare's file service, virtual disks, and finally, file transfers via IMPORT and EXPORT.

The more often a file needs to be backed up, the farther it should be kept from the PC's hard disk. Critical files are best kept on your MV/family computer, which has the best system management tools for backup and recovery. Individual AOS/VS files accessed via the PC/VS file redirector are the easiest to back up and restore, followed by files accessed via IMPORT and EXPORT, which are just some-

what less convenient to use. Files in virtual disk format are very easy to back up using standard AOS/VS utilities, but only entire virtual disks (not individual files) can be restored. NetWare includes good backup and recovery software, but it is not as convenient as using the existing AOS/VS tools. Finally, files stored on the workstation must be backed up by the user to floppy disk, or via PC/VS, possi-

NEW & IMPROVED!

DG Color Graphics Terminal Emulator for IBM Micros.

Comprehensive products spanning the entire Dasher Terminal Line. \$95 to \$195.

Terminals Emulated	Graphics Boards	File Transfer	Bonus Features
D470C	VGA	XMODEM	Compressed Mode
D461	EGA	Kermit	70+ Macro Keys
D411	HERCULES	File Capture:	Auto Dial
D220	MCGA	• Text	Auto Logoff
W460	CGA	• Binary	Unlimited Config. Files

EMU/470™

Version 2 Now Available

- Higher Speed • Same Low Cost • Free Support
- Volume Discounts • Technology Leader



Rhintek, Inc.

P.O. Box 220
Columbia, Maryland 21045
301-730-2575

VISA and MC accepted.

Circle 50 on reader service card.

bly with the aid of the remote executive (REXEC) utility.

The file distribution chart

We have developed a file distribution chart that should help you decide where to store your files. There are six rows, one for each of the six attributes that may apply to a particular file. There are also five columns, one for each of the possible

places or manners in which a file could be stored.

For each file, identify the important attributes, then add up the numbers in each column for those attributes. If there are any N/As in a column for the attributes you've selected, you cannot use that column. Otherwise, the column with the highest score represents the best place to keep that file.

There are two versions of the chart: Figure 1, a complete chart which you may reproduce for your own use; and Figure 2, an example for documents that must be shared between PCs and users at AOS/VS terminals.

R/O and R/W

Note that the third box in the second row has two values. This is a reminder that PC/VS virtual disks may be shared, but only if they are accessed in "read-only" mode by all users. If you need read-write access, use N/A in this box. If you need read-only access, use a three.

Figure 2 is an example of how the chart should be used. For this purpose, we selected Wordperfect documents. These files may be accessed via terminals by users running the Data General version of Wordperfect. Because the file formats are compatible, these documents may also be accessed by users at PCs running the MS-DOS version of Wordperfect.

First, note that we have crossed out all numbers in the "Program Files" row. This is because these are data files, not programs. This attribute has no value in this case. If other attributes were also not of interest to us, we would, likewise, cross out those rows, but in this example, we're interested in all of the other attributes.

Now we look at all of the remaining squares. If there are any N/As left, we know we have encountered something that just won't work, so we write N/A at the bottom of any column that contains an N/A that is not crossed out. For example, there's an N/A in the upper left corner, because AOS/VS users would not be able to access files on a PC's local hard disk.

Finally, we add up all of the digits that are not crossed out in columns that are not N/A. The highest total should tell us the best way to store and access this type of file. In this case, the chart recommends we store the file under AOS/VS, and access it via PC/VS file redirector.

Of course, this chart is not foolproof, but we have found it to be a good starting point when organizing a distributed file system. I would appreciate hearing from anyone whose experience does not match this chart. Δ

Doug Kaye is a partner in Rational Data Systems. He can be reached at 5725 Paradise Dr., Corte Madera, CA 94925; 415/924-0840. This article excerpted from the "1989 Rational Data Systems Report on PC Integration." For a free copy, contact RDS at 150 S. Los Robles Ave., Pasadena, CA 91101; 818/568-9991. Copyright 1989, Rational Data Systems.



Results
3CI InFoCen[®]
RDBMS/4GL

"InFoCen is our most significant, competitive weapon..."

Lori A. Pickett

Lori Pickett
Director of MIS
Associated Travel
Services, Inc.

3CI InFoCen[®]
Compatible with Vax-VMS, DG-AOS/VS,
DPS-GCOS8, CDC-VSOS. 2057 Vermont Drive, Fort Collins, CO 80525

The travel industry is very competitive. Information is required on a timely basis. There isn't time for lengthy application development schedules. Getting results from a software investment is more important than buying a name.

InFoCen emphasizes rapid application development through a number of sophisticated tools including MACRO 4GL, FORMS, Report Writer and a comprehensive library which can interface to virtually all 3GL's including ADA.

When you're looking for the best RDBMS/4GL,

you want top performance and total, on-going support. When you're asked why this is important, the answer is—RESULTS.

**See the Results today.
Call 1-800-525-2001**

3CI InFoCen[®]

Compatible with Vax-VMS, DG-AOS/VS,
DPS-GCOS8, CDC-VSOS.

2057 Vermont Drive, Fort Collins, CO 80525

Circle 61 on reader service card.

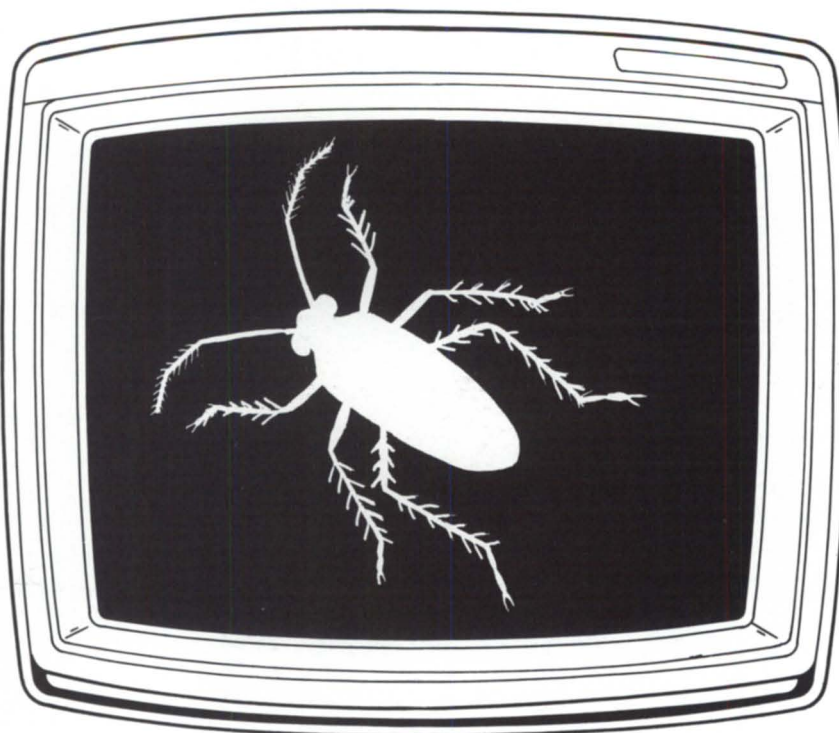
Bugs in the system

Pests can invade your environment in several ways

Bugs can be serious problems at any computer facility—not programming errors or listening devices, but insects. According to Bill Spitz, chairman of the board emeritus of Big State Pest Control in Houston, Texas, it isn't so much the insects or rodents—no matter how unpleasant they are—but the products used to exterminate the pests that cause the most harm. "Pesticide dusts and aerosol sprays can cause serious damage to delicate computer circuitry and even ruin electronic computerized phone systems," said Spitz.

Insects and rodents can invade otherwise sterile premises in several ways. Roaches are particularly fond of paper, and can arrive in cartons of computer paper or in packing material around supplies or the computer terminals.

Many companies caution their users against bringing food or drink into the work areas. Spilling a soft drink in the mechanism or getting sticky chocolate on the computer keyboard is a bad idea, because food remains attract insects and rodents. It takes a "computer-literate" expert to get rid of them without damaging the computers.



For example, one well-meaning employee tried to eradicate a roach problem with spray pesticide and then with insecticide dust. By the time the exterminator arrived, the computers and the phone system were down. No one in the company had made the connection between the extermination attempts and the equipment malfunctions.

Spitz advises facilities to check regularly to catch a problem before it becomes a disaster.

"One time, rodents got into a Houston factory. They found a home under a wooden floor that held the computers that monitored all of the factory processes. The floor was raised to allow the air conditioning cooling the computers to circulate. Wires from the computers were

threaded through the space. A mouse chewed through a wire. That sent a message to the computer that the factory wasn't functioning properly, and hundreds of employees stood by as the plant automatically shut down. It took many hours of checking all areas of the plant for a system failure before the culprit, the mouse, was discovered."

Spitz offered the following suggestions:

- Never allow any food or drink in an area where there are computer or electronic computer phones.

- Unload supplies and computer terminals

outside your facility and leave the boxes and packing material for trash pick up. Don't bring them into your facility.

- Check cartons of computer paper carefully for signs of insects before bringing them into your facility for storage.

- Don't use just any pesticide in a computer area. Call a computer literate professional to apply the chemicals.

- When you have computer or phone system malfunctions, consider pest or insecticide damage before scrapping your equipment. Δ

Bill Spitz is the chairman of the board emeritus for Big State Pest Control. He can be reached at 3333 Eastside, Suite 116, Houston, TX 77098; 713/529-3598.



The IPC Man Cometh

Part 2: a simple way to code programs to wait for IPC messages

Last month, in Part 1, I discussed the various methods of inter-process communication provided by AOS/V.S. IPC messages were the easiest to use, particularly since the CLI CONTROL command does half the work for you. The difficult task of checking on the progress of a program that is running in batch mode requires some direct two-way communication between you (via the CLI) and your program. This month I present a few easy-to-use tools with which you can implement this.

WAIT_FOR_IPC

What is required is a simple way to code your program to wait for IPC messages via the CONTROL command and then send back status information to your terminal, just like EXEC. Subroutine WAIT_FOR_IPC (Figure 1) is a deceptively simple little subroutine that hides all of the messy details from you. The first time it is called, it looks up its own program name (GET_PROGRAM_NAME was listed in *Focus*, July 1986) and then creates an IPC file with the same name in the

Figure 1: Subroutine WAIT_FOR_IPC

```

subroutine WAIT_FOR_IPC(ipid,message)

    implicit none

c>>>constants
%list(off)
    include "qsym.f77.in"      !'?', not 'ISYS_'
%list(on)
    integer local_port
    parameter (local_port=123) !arbitrary

c>>>variables
c->subroutine arguments
    integer ipid
    character*(*) message

c->local (stack)
    integer*4 ac0,ac1,ac2,ier,global_port
    integer*2 cre_pkt(0:?clth-1) !for ?create
    integer*2 header(0:?iplth-1) !for ?irec
    integer*4 wa_message
    equivalence (header(?iptr),wa_message)
    equivalence (header(?ioph),global_port)
    character*32 port_name
    character*256 message_buffer
    integer lm

c->local (non-stack)
    logical first_time_called/.true./
    save first_time_called

c>>>externals
    integer*4 isys              !f77 intrinsic

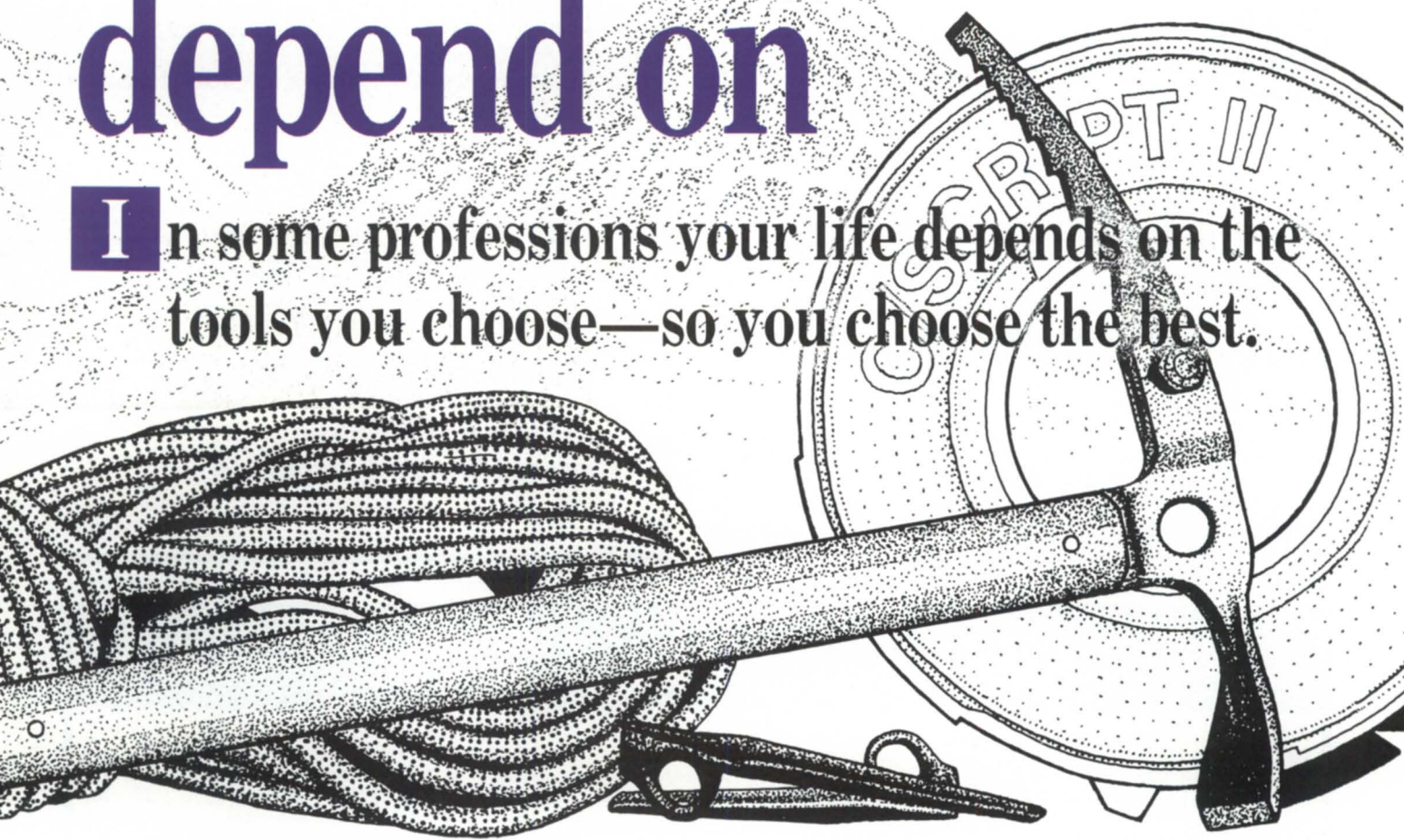
c>>>begin
c->create IPC port if first time called
    if(first_time_called) then

        call GET_PROGRAM_NAME(port_name)
        lm=index(port_name," ")
        port_name(lm:lm)="<>
                                !for ?create

        cre_pkt(?cftyp) = ?fIPC      !file type=IPC
        cre_pkt(?ctim) = -1         !current time flag
        cre_pkt(?ctim+1)= -1
    
```


Tools you can depend on

In some professions your life depends on the tools you choose—so you choose the best.



- **C/SCRIPT** - COBOL application development system.

- **Screen Demon** - Pop-up windows for DG terminals. Hot-key calculator, CLI, print screen, and more. Works with existing COBOL programs.

- **ICHOST** - Single and multi-terminal ICOBOL interpreters for MS-DOS systems. Up to 33 users. Fastest product of its kind.

- **Scream** - Fast file Transfers over ASYNC lines.

- **DG Dump/DG Load** - Create and load DG-compatible dump files on your MS-DOS or Unix system.

- **ICOBOL to RM/COBOL Translator** - Translates ICOBOL source code to RM/COBOL.

- **ICIO** - Access ICOBOL data files from a 32-bit program.

For more information

(205) 821-0075

Threshold, Inc.

165 East Magnolia • P.O. Box 831 • Auburn, AL 36831

Circle 62 on reader service card.

C/SCRIPT is a registered trademark of Threshold, Inc.

Figure 2: WAIT_FOR_IPC modification: put PID in IPC filename

```
...
ac0=0
ac1=-1
ac2=0
if(isys(?pname,ac0,ac1,ac2),ne.0) ac1=0 !use 0 if error
```

current directory. After that and on subsequent calls, it simply waits for an IPC message on that file. When a message is received, the message and the PID of the sender are returned to the calling program for analysis and response.

For example, if the program is called MY_APPLICATION.PR, then the IPC file will be "MY_APPLICATION". If you run more than one copy of the program from the same initial working directory, there will be a filename collision since each program will try to create the same filename. You can modify this by including a PID number in the filename. The program can use ?PNAME to look up its own PID and then create a name using the PID (Figure 2). Note the use of F77 format i5.5 to output "0" characters instead of " " which is an illegal filename character.

Since your program probably has better things to do than sit around and wait for IPC messages, the best way to implement WAIT_FOR_IPC is with a task as shown in the example program in Figure 3. The TQSTASK routine (supplied with F77) initiates the SENTRY task. Independent of the operation of the main task,

the SENTRY task just loops forever, receiving IPC messages and sending replies. Since you can't pass arguments to a task subroutine, it retrieves information to reply to the sender through a COMMON block with the main task. When you LINK (or F77LINK) a program, the /TASKS=1 switch is the default. If you add a task such as this, you must use the /TASKS=2 switch when you LINK your program (assuming it is only one task without the SENTRY task).

EXEC parses its messages according to a defined grammar

If you run more than one copy of the program from the same initial working directory, there will be a filename collision since each program will try to create the same filename

Data General • Buy • Sell • Trade

Processors

MV20000 Model 1 16MB	.....	SAVE \$
MV20000 Model 2 16MB	.....	SAVE \$
MV20000 Model 1 16MB, FPU	.....	SAVE \$
MV20000 Model 2 16MB, FPU	.....	SAVE \$
MV20000 Model 1 to Model 2 upgrade	.....	SAVE \$
MV15000 Model 20 8MB	.....	\$139,000
MV15000 Model 8 to Model 20 upgrade	.....	SAVE \$
MV15000 Model 10 to Model 20 upgrade	.....	SAVE \$
MV10000 4MB Meter high cabinet	.....	31,000
MV8000-II 6MB Meter high cabinet	.....	9,800
MV8000-II 8MB Floating point	.....	12,300
MV7800 4MB 16 slot chassis	.....	8,800
MV4000 2MB Meter high cabinet	.....	3,400
MV4000 2MB in 16 slot chassis	.....	2,800
MV4000DC 2MB, 120MB, floppy	.....	4,500
MV4000SC 2MB (w/MCPI) & as DC above	.....	7,500
MV2000 4MB 160 MB disk	.....	9,800
MPT100 Dual floppy	.....	350
MP100 8520-D	.....	350
S-140 256KB Floating point	.....	2,800
Desktop 10 Floppy, 15MB disk	.....	999
Desktop 20 Floppy, 15MB disk	.....	1,850
Desktop 30 Floppy, 15MB disk	.....	2,250
DG1 256K (Tilt screen)	.....	1,150
DG1 256K (No tilt screen)	.....	900

Processor Options

8819 Second IOC	.....	\$5,500
8762 Expansion chassis MV10,8,4,S280	.....	4,500
8761 Floating point unit MV4000	.....	1,500
8749 Battery backup for MV10000	.....	3,200
8746-B Battery backup for 8762	.....
EXP Chassis	.....	1,800

8704 Floating point unit MV8000	.....	2,800
4543-B MCPI with TCB connector	.....	2,900
4463-ZT USAM-4	.....	550
4380 ISC-2 (Synch)	.....	1,650
4372-B TCB-16	.....	500
4371-C TCB-8 for expansion	.....	455
4370-A IAC-16 RS422, 20MA	.....	2,600
4368 IAC-16 RS232, 20MA	.....	3,900
4367 IAC-8 RS232, 20MA Modem Cnt	.....	2,100
1625 Power Conditioner SKVA	.....	1,400

Disk Storage Units:

6061 192MB Disk subsystem	.....	\$ 1,500
6122 277MB Disk subsystem	.....	2,400
6160 73MB Disk subsystem	.....	2,500
6161 147MB Disk subsystem	.....	3,200
6214 602MB Disk subsystem	.....	3,800
6236 354MB Disk subsystem	.....	9,800
6239 592MB Disk subsystem	.....	14,900
6329 120MB Winchester add-on	.....	2,100
6336 71 MB Winchester add-on	.....	1,500
6363 160MB Winchester add-on	.....	2,500

Specials

D 215 (New) Terminal	.....	\$550
D 211 Terminal	.....	\$325

International Computing Systems

P.O. Box 343 • Hopkins, MN 55343

(612) 935-8112

FAX 612/935-2580

Terminals:

6053 D2 Monitor with keyboard	.....	\$ 100
6108 D200 Monitor with keyboard	.....	125
6130 D400 Monitor with keyboard	.....	250
6166-X D410 Monitor with keyboard	.....	400
6169-X D211 Monitor with keyboard	.....	325
6391-X D214 Monitor with keyboard (new)	.....	500
6392-X D215 Monitor with keyboard (new)	.....	550
6393-X D411 Monitor with keyboard	.....	600
6394-X D461 Monitor with keyboard (new)	.....	800
Note: Add \$45.00 per unit for Amber Screen.		
6308-X D470C Color Monitor w/Keyboard	.....	1,000

Tapes:

6021 800 BPI old style	.....	\$ 600
6026 800/1600 BPI Blue, non FCC	.....	1,900
6026 800/1600 BPI Brown, FCC compliant	.....	3,800
6125 1600 BPI Streamer, FCC compliant	.....	500
6270 15MB Cartridge (Desktop) new	.....	1,600
6299 1600/6250 BPI Rack mount	.....	18,500
6300 1600/6250 BPI Meter cabinet	.....	18,500
6311 15MB cartridge	.....	1,500

Memories:

MV20000, All sizes	
MV15000, All sizes	
MV10000, 2Mb	
MV10000, 4Mb	
MV10000, 8Mb	
MV8000, 2Mb	
MV8000, 256Kb	
MV4000, 2Mb	
MV4000, 4Mb	
MV4000, 8Mb	

Call for our low prices!

Circle 34 on reader service card.

Figure 3: Example of application using WAIT_FOR_IPC

```

program UMPIRE

implicit none

c>>>variables
common/events/ n_strike,n_ball,n_foul
integer n_strike,n_ball,n_foul

integer ier
external SENTRY

c>>>begin
c->start up task 2
call tqstask(SENTRY,2,0,0,ier) !task id=2, pri=0
if(ier.ne.0) call errcode(ier) !oops

c->main loop to count events forever
n_strike=0
n_ball=0
n_foul=0
do while(.true.)
if(...) then
n_strike=n_strike + 1
else if(...) then
n_ball=n_ball + 1
else if(...) then
n_foul=n_foul + 1
end if
end do
end
subroutine sentry
implicit none

c>>>variables
common/events/ n_strike,n_ball,n_foul
integer n_strike,n_ball,n_foul
integer pid
character*256 message,reply

c>>>begin
do while (.true.)

call WAIT_FOR_IPC(pid,message)

...<analyze message if you wish>...

call SEND_IPC(pid,"(UMPIRE)")

write(reply,1) n_strike
call SEND_IPC(pid,reply)

write(reply,2) n_ball
call SEND_IPC(pid,reply)

write(reply,3) n_foul
call SEND_IPC(pid,reply)

end do
1 format("<15><11>No. of strikes= ",i5)
2 format("<15><11>No. of balls= ",i5)
3 format("<15><11>No. of fouls= ",i5)
end

```

THE KEYS TO THE FUTURE...

... Total DATA GENERAL Systems Support
From the Desktop Generation to the MV/20000

An Authorized DATA GENERAL OEM

For More Information call Jennifer Ryu at: **301-247-5244**

COMPUTER ENGINEERING ASSOCIATES, INC.
3922 Vero Road, Baltimore, MD 21227

Offices in Baltimore, MD • Cambridge, MD • Washington, DC • Pittsburgh, PA • Denver, CO • Moorestown, NJ

SUPPORT SERVICES AVAILABLE NATIONWIDE

Circle 12 on reader service card.

and responds accordingly. Since it knows the PID of the sender, it can also validate the command (hence the "valid only from OP" messages). If you wish, you may parse and validate the message, but most of the time I ignore it and send a progress report back to the user's console. CONTROL requires a non-zero message, so I just send something like:

```
)CONTROL MY_APPLICATION
hello
```

which "tickles" it and makes it cough back the report.

Your application can send messages back to the CLI with SEND_IPC (Figure 4). This subroutine is essentially an envelope around ?SEND so you don't have to count the number of characters in the message yourself.

Note in Figure 3 that the first message of the reply identifies the program (UMPIRE) and subsequent messages contain a leading "carriage return" <15> to overwrite the "From PID n:" prefix that AOS/VS adds to each message and then a "tab" <011> to indent. I think it looks better that way (you can do exactly the same with [!ASCII,n] in your CLI SEND commands).

CONTROL requires
a non-zero message,
so I just send
something like:

```
)CONTROL MY_APPLICATION
hello . . .
```

Note that IPC files can be created only in the initial working directory (an AOS/VS restriction). That is why your UP.CLI macro contains the following:

```
PROCESS / DEFAULT /
DIRECTORY=@EXEC
```

so that the IPC file "EXEC" will be created in ":PER" instead of the current directory. This makes it accessible to all users. Your application won't be able to do that unless you have SUPERUSER privileges to allow WRITE access to :PER.

Other uses for WAIT_FOR_IPC

A good example of this type of CONTROL application was presented by Tim Maness ("A Demon for Work", *Focus*, December 1986). His DAEMON program loops forever, waiting for and acting on IPC messages to do specific tasks that require privileges on behalf of a non-privileged user.

WAIT_FOR_IPC not only provides you with a window to view the progress of your batch program, it also provides a mechanism for terminating your program in an orderly fashion.

* IC/TOOLBOX *

IC/TOOLBOX is a Collection of thirty five assembler Sub-Routines Designed for AOS & VS DG/Icobot Environments. These Routines extend DG/Icobot's Capabilities by adding:

- a) Binary Synchronous Communications to DG/Icobot for 2780, 3780, 3271, 3277 Communications.
- b) MagTape Read/Write Acsii-Ebcdic Translations.
- c) Set Time-out values for Com Lines
- d) String/Unstring, Parsing & Text handling routines for faster character manipulation.
- e) Extending DG/Icobot's record I/O capabilities. Dynamic Read/Write I/O & Sequential Read of XD files.
- f) IPC interface for use with RCX70 EXEC & other DG products. Use for Electronic Mail.
- g) POP-UP WINDOWS.
- h) Burroughs TC-500 Poll/Select Ctl.
- i) REV. 1.30 & 1.40 Supported

Provided is our Assembler Sub-Routine Management Program That can maintain your library and automatically Assemble-Link any Runtime package set of routines via a menu selection. Pricing from \$100. Custom routines available. OEM/VAR inquires Welcome.

COMPUTER ARTS.Ltd
717 3rd Ave N. Surfside.SC
(803) 238-1688

Circle 11 on reader service card.

AOS/VS Consulting

System Tuning	
Networking/Communications	
DG/DBMS	PRESENT
INFOS	CEO
TRENDVIEW	C/SCRIPT II
UNIX	RM/COBOL

Commercial Applications

Development	Installation
Support	

Tool Packages

MENUMANager
BACKUPMANager
SPOOLMANager

Conversions

ICOBOL→AOS COBOL
COBOL→RM COBOL

Turnkey Applications

A/P, A/R, P/R, GL, OE, INV, PO
Mes AMIS Apparel Manufacturers'
Information System

Upgrades

Authorized Data General
System Supplier

VANTAGE SOFTWARE, INC.

(212) 956-2240

555 W. 57th Street, 11th Floor
New York, NY 10019

Circle 67 on reader service card.

TRI-US AT TRI-DATA

BUSINESS SOFTWARE

FOR
MANUFACTURING
DISTRIBUTION
ACCOUNTING
TRUCKING
VIDEO
CONSTRUCTION
CATERING
JOB COSTING

PROFESSIONAL TIME & BILLING

WE BUY, SELL & TRADE
THE COMPLETE LINE OF
DATA GENERAL EQUIPMENT

All Equipment Guaranteed
For Data General Maintenance

TRI-DATA
SERVICES INC.

3220 Beta Ave., Burnaby, B.C.
Canada V5G 4K4
604-291-2360 Fax# 604-291-9162

Circle 65 on reader service card.

If you can't wait for the program to finish or if you think it is in an endless loop, you can send a STOP command to the program so it can terminate itself. For security, you can either require a password to follow the STOP command;

```
) CONTROL MY_APPLICATION STOP password
```

or only accept the command from certain PIDs.

Even if the main task is in a loop, the "sentry" task should still respond to the IPC message (you can adjust the relative priorities of the "sentry" task to suit your application). This method of terminating a program is better than TERMINATE or QCANCEL. Most programs buffer disk I/O and it is quite conceivable that a program may not access the disk until the end of the program. If you blow it away prematurely, you will lose all of the data still in the buffers. If you have it terminate itself normally, it will flush the buffers. I recall the F77 folks in Westboro telling me that F77 I/O now uses 64 KB buffers, so that if your application writes less than 64 KB to a file, it won't even talk to the disk until it STOPS.



... which
"tickles"
it and
makes
it cough
back the report

in the process name:

```
) QBATCH PROCESS/DEFAULT/NAME=[!ENAME,!EFILE,  
[!DIR]] XXX
```

then when you do "?" you can see which PID is running in which directory. This will only work if the simple directory name is less than or equal to the maximum process name length

Another trick

If you start up the same program in different directories as we do, you may want to know which PID corresponds to which directory. If you look at the input queue with QDISPLAY, it will tell you the pathname of the input file you QBATCHed or QSUBMITTED but it won't tell you which PID. When you use CONTROL to talk to a program, you are talking to a file, without knowledge of the actual PID. Of course, your application can respond with its PID number, but there is another way to keep track of directories and PIDs. You can start up each copy of the program with the directory name

FINANCIAL MANAGEMENT SOFTWARE FROM MAXON COMPUTER SYSTEMS

GENERAL LEDGER
ACCOUNTS PAYABLE
ACCOUNTS RECEIVABLE
TAILOR-MADE DISTRIBUTION SOFTWARE

Responsible purchasers of Financial Management software demand proof of performance – up front.

They call MAXON for a demonstration.

Ask MAXON to show how Maxon software is designed, optimized, and continues to be enhanced for the Data General environment.

Ask MAXON about Maxon's high functionality and unparalleled performance.

Ask about installation.

Ask about training.

Ask about support.

Seeing is believing.

MAXON
COMPUTER SYSTEMS INCORPORATED

AUTHORIZED DataGeneral SYSTEM DISTRIBUTOR

MAXON COMPUTER SYSTEMS INCORPORATED
575 Madison Avenue, Suite 1006 New York, New York 10022
85 Scarsdale Road
Toronto, Ontario, Canada
M3B 2R2

Call:
(212) 227-1922

Circle 42 on reader service card.



Informed buyers make better buys. Experience MAXON Financial Management Software.

Winner of Customer Satisfaction Awards for previous three years.

Over 200 companies currently operating Maxon Financial Management Software.

MAXON is an Authorized Data General Systems Distributor.

Data General is a major force in the computer industry and has installed over 226,000 computer systems worldwide since its founding in 1968.

Figure 4: Subroutine SEND_IPC

```

subroutine SEND_IPC(pid,message)

    implicit none

c>>>constants
%list (off)
    include "qsym.f77.in"           !?', not 'ISYS_'
%list (on)

c>>>variables
    integer pid
    character(*) message

    integer*4 ac0,ac1,ac2,ier
    integer lm
    integer*4 isys                   !f77 intrinsic

c>>>begin
c->get the message length (exclude trailing blanks)
    lm=len(message)
    do while(lm.gt.0.and.message(lm:lm).eq." ")
        lm=lm-1
    end do
    if(lm.eq.0) lm=1                 !blank message

c->send the message
    ac0=pid                          !PID of destination
    ac1=byteaddr(message)            !bp to message
    ac2=lm                            !length (bytes)
    ier=isys(?send,ac0,ac1,ac2)      !ignore error
    return
end

```

of 15 characters. For example, if the initial working directory is :UDD:GRANT:TEST then CLI command WHO will show the process as:

PID: 29 GRANT TEST :PUBLIC:XXX.PR

Clarification from last month

In last month's article I said the maximum length of an IPC

message was 256 bytes. Since the IPC header has room for a 16-bit number, the maximum length is probably 32,767 words. Δ

John A. Grant is a geophysicist with the Geological Survey of Canada. He is also system manager, chief cook, and bottle washer for the Exploration Geophysics Subdivision's MV/4000. He may be contacted at 601 Booth St., Room 591, Ottawa, Ontario, K1A 0E8; 613/992-1082.

DETROIT AREA!

Detroit DG Users...

Mark the third Tuesday of every month as RIG meeting day! Members of the Detroit Area Users Group know the benefits of belonging to a regional interest group —

networking with other DG users, getting DG news and information first-hand, building a base of peers who can help in an emergency. If you aren't a member yet, don't wait any longer!

S	M	T	W	T	F	S
		X				

For more information about future meetings, or about the Detroit RIG itself, contact the president David Richardson. David can be reached at FX Coughlin, 27050 Wick Road, Taylor, MI 48180, 313/946-5850.

WE BUY-SELL & TRADE

CPU 's/MEMORIES /SOFTWARE :

MV 20000/15000
 MV 2000/4000/8000/10000
 Desktop Model's 10/20/30
 NOVA & Eclipse CPU's & Memories

DISKS/TAPES:

6239 592MB Disk Subsystem
 6236 354MB Disk Subsystem
 6161 147MB Disk Subsystem
 6122 277MB Disk Subsystem
 6061 192MB Disk Subsystem
 6060 96MB Disk Subsystem
 6161 147MB Disk Subsystem
 6160 73MB Disk Subsystem
 6125 1600BPI Tape Subsystem
 6026 1600/800BPI Tape Subsystem
 6021 800BPI Tape Subsystem

PRINTERS:

DP300 300 LPM Subsystem
 4215 600 LPM Subsystem
 4034G 300 LPM Subsystem
 PR1250 Rolland Printers

CRT'S:

6500 D216
 6168 D210
 6246 D-460
 6391 D-214
 6169 D211
 WY60 WYSE

COMMUNICATIONS:

4368 IAC-16
 4367 IAC-8
 4257 ALM-16
 4255 ALM-8
 4241 ULM-5
 4340 AMI-8

Call for prices on Equipment not Listed
 All Equipment Guaranteed
 For Data General Maintenance.

COASTAL COMPUTER SERVICES INC.
(206)734-3928

DG introduces industry-standard Dasher/386 Unix

Westboro—Data General Corporation has introduced an entry-level, multiuser Unix system based on its Dasher/386 personal computer.

The Dasher/386 Unix platform incorporates a 16-megahertz Intel 80386 microprocessor, is compatible with the IBM PC-AT, and uses the industry-standard 386/ix (Unix V/386 rev 3.0) product set developed by Interactive Systems.

"The 386/ix operating system is a flexible, multiuser, multitasking platform for the development of new applications, in addition to supporting a wide range of existing Unix applications," said Herb Osher, Data General's director of product marketing. The 386/ix also features portability for SVID-compliant applications to and from DG/UX 4.0

The Dasher/386 Unix system supports up to 16 MB of system memory in 1 MB or 4 MB increments and up to 318 MB of internal disk storage. Also provided are intelligent eight-line serial controllers that allow up to 26 asynchronous serial connections for terminals, modems, or printers as well as an integrated parallel printer port. High-capacity peripherals offered in the Dasher/386 Unix system include a 150 MB SCSI tape drive with optional error checking and correction.

The 386/ix is complemented by a full range of optional support software. Available from Data General and third-party vendors are language compilers, text-processing software, system language compilers, text-processing tools, communications and networking products, and the Interactive VP/ix MS-DOS-under-Unix facility. Third-party vendors also have database/4GL system and graphics libraries available for use with the system.

In a related announcement, Data General said that it has signed an agreement with Language Processors, Inc. (LPI). The agreement states that DG will offer LPI's 32-bit controllers on the Dasher/386, including BASIC, Cobal, Fortran, Pascal, PL/I, and LPI-DEBUG (an interactive source-level debugger). Data General will also license language products and compiler technology from LPI to develop and market industry-standard compilers for fu-

ture Data General systems based on Motorola's 88000 RISC processor.

The foundation of the 386/ix product set is the 386/ix operating system, a flexible application runtime environment based on SVID-compliant, AT&T-certified Unix system V/386 rev 3.0. Two of the most popular Berkeley facilities are also featured: the C shell, a command language interpreter; and Sendmail, a general-purpose, inter-network mail routing facility. An MS-DOS file transfer facility enables users to transfer files between MS-DOS and Unix operating systems using fixed disks or diskettes.

Ward MacKenzie, vice president of corporate marketing for Data General, said the announcement "further demonstrates our commitment to an industry-based Unix product line and will complement future RISC-based processors."



The Dasher/386 Unix system with 40 MB of disk storage, 4 MB of memory, and a 386/ix runtime operating system is priced at \$7,320. The same system with 70 MB of disk storage is available for \$8,020.

The 386/ix product set is offered in seven separate modules. The 386/ix runtime operating system (with TEN/PLUS user interface) for one or more users is \$299; for three or more users, \$645; the 386/ix Software Development System is \$595; the 386/ix Text Processing Work-

bench, \$195; the network connection facility is \$299. The VP/ix environment (with MS-DOS) for one or two users is \$395; three or more users \$795; TEN/PLUS User's Toolkit and TEN/PLUS Programmer's Toolkit are \$199 each. Δ

Circle 76 on reader service card.

DG offers 727 MB Winchester subsystem

Westboro—Data General Corporation has released an eight-inch, 727 MB disk drive subsystem that offers high capacity, reliability, and performance at a low cost per MB of storage. The new disk drive—designed for medium and larger multiuser, interactive environments—is supported on ECLIPSE MV/family systems with burst multiplexor channel (BMC) support, including the ECLIPSE MV/40000 superminicomputer announced in October.

The disk drive (Model 6492) features 727 MB of formatted error checking and correcting data storage with 16 ms average seek time and 8.3 ms average rotational latency, complemented by a 43 KB data buffer. Subsystems of up to seven of these drives can be managed by a single BMC controller (Model 6434), resulting in more than 5 GB of storage per CPU slot in 727 MB increments. Packaging allows over 1.4 GB of storage in seven inches of vertical rack space, and over 5.8 GB in a meter-high cabinet.

"The performance of the 727 MB, eight-inch disk subsystem is similar to that of the Data General Combined Storage Subsystem (CSS) but at a lower cost per MB. It also offers incremental growth to higher storage capacity," said Joe Clayton, product manager for Mass Storage Peripherals.

The 727 MB, eight-inch Winchester disk drive (Model 6492-A) is priced at \$16,400. The BMC controller (Model 6434) is \$7,000. Immediate delivery is available. The disk drive subsystem includes a one-year, on-site warranty. Δ

Circle 77 on reader service card.

Western Automation buys Spectra Logic

Boulder, CO—Western Automation Laboratories, Inc., a manufacturer of

AD INDEX

Company	PG#	RS#	Company	PG#	RS#
Alloy Computer Products	34	1	Minitab Statistical Software	33	45
Ames Sciences, Inc.	68	2	NADGUG	24	-
AMR	47	3	NADGUG	58	-
Best Power Technology, Inc.	19	4	NPA Systems Inc.	41	46
BL Associates Inc.	3	5	Peregrine Data Systems, Inc.	16	73
Catalina Computers, Inc.	35	6	Productivity Systems Development Corp.	53	47
Clafin & Clayton, Inc.	64	7	Rational Data Bulletin Board	85	-
Coastal Computer Services	82	8	Rational Data Systems	38	48
Commercial Data Systems Corporation	42	9	RAVE Computer Association, Inc.	67	49
Commercial Data Systems Corporation	71	10	Rhintek, Inc.	73	50
Computer Arts, Ltd.	80	11	RIG/SIG	36	51
Computer Engineering Associates, Inc.	79	12	Robson & Deakin Ltd.	61	52
Computer Systems Remarketing Corp.	85	-	Sartox Data Systems	87	53
Computer Systems Remarketing Corp.	85	-	SAS Institute Inc.	27	-
Computer Wholesalers	28	13	SCIP	5	54
Concept Automation, Inc.	46	14	Security Computer Sales, Inc.	10	55
Concept Automation, Inc.	47	15	Service & Training, Inc.	12 & 13	56
Concept Automation, Inc.	48	16	Service & Training, Inc.	12 & 13	-
Cybertek Software, Inc.	C2	17	Synergistic Software Company Ltd.	68	57
Data Assurance Corporation	57	18	Sysgen Data Ltd.	46	58
Data Bank Associates, Inc.	18	19	:SYSMGR Bulletin Board	85	-
Data General Continuing Products Division	7	20	:SYSMGR, a division of B.J. Inc.	18	59
Data General Corporation	39	-	:SYSMGR, a division of B.J. Inc.	68	60
Data General Direct	C3	21	System Technology Associates	50	74
Data General Software Products & Services	17	22	3CI	74	61
Data Investors Corporation	55	23	Threshold, Inc.	77	62
DataLynx	30	24	Threshold, Inc.	65	63
DataSafe Corporation	60	25	TLC	44 & 45	64
Delphi Data	29	26	Track Data	85	-
Detroit RIG	82	75	TRI-DATA Services Inc.	80	65
DMS Systems, Inc.	86	27	Vanguard International Management Services, Inc.	61	66
Eagle Software, Inc.	14	28	Vantage Software, Inc.	80	67
Essex Computer Service, Inc.	48	29	Verdugo Computers, Inc.	9	68
Fast Track Systems, Inc.	21	30	Viking Software Services	54	69
Fast Track Systems, Inc.	85	-	Wild Hare Computer Systems Inc.	31	70
Indocomp Systems, Inc.	43	31	Wm. Hotchkiss Company	85	-
Infodex	64	32	WordPerfect Corporation	63	71
Interface Electronics	52	33	Zetaco	C4	72
International Computing Systems	78	34			
Interscience Computer Corporation	15	35			
Interscience Computer Corporation	25	36			
Jacobsen & Associates, Inc.	59	37			
KEA Systems Ltd.	28	38			
K & M Computers	65	39			
Language Processors Inc.	87	40			
Maple Systems	85	-			
MAXON Computer Systems Incorporated	40	41			
MAXON Computer Systems Incorporated	81	42			
McIntyre's Mini-Computer Sales Group, Inc.	23	43			
MegaTape Corporation	11	44			

PRODUCTS AND SERVICES

Company	PG#	RS#
Data General	83	76
Data General	83	77
Data General	86	79
Innovative Computer Tools, Inc.	86	80
Western Automation	83	78

ON-LINE HELP *Who to call for answers about NADGUG and FOCUS*

NADGUG's electronic bulletin boards

(300 or 1200 baud modem)
 Rational Data Systems415/924-3652
 OIS (to get an OIS ID and password, contact a DG field engineering telemarketing representative)800/325-3065
 In Massachusetts800/952-4300
 In Canada416/823-7830

NADGUG membership, address changes

Suzanne Himes.....800/877-4787
 (1-800-USR-GRUP)

Information on RIGs or SIGs

Cathlene Gentry800/877-4787
 (1-800-USR-GRUP)

Editorial questions, comments, article suggestions

Greg Farman or Robin Perry
 (please send product announcement to the address listed below)..... 512/345-5316

Information about advertising in FOCUS

Sharon Dennis.....512/345-5316

Back issues of FOCUS

Turnkey Publishing staff.....512/345-5316

NADGUG staff

c/o Turnkey Publishing Inc.
 Stillhouse Canyon Office Park
 4807 Spicewood Springs Road
 Suite 3150
 Austin, TX 78759

FOCUS Magazine

c/o Turnkey Publishing Inc.
 Stillhouse Canyon Office Park
 4807 Spicewood Springs Road
 Suite 3150
 Austin, TX 78759

EQUIPMENT

CSR Corp.

Computer Systems
Remarketing Corp.
8601 Sanford Drive
Richmond, VA 23228
(804) 262-3555

**Wants to buy
your Data General equipment.**

Top dollar cash or trade for good used systems

Data General Model 10, 2 15MB drives, single floppy, master console, 3 terminals, running WordPerfect (included), less than 2 years old, perfect condition, bids being accepted, contact Jim Helton, Wm. Hotchkiss Co., 195 Church Street, New Haven, CT 06510, 203/772-3200.

S/140

For Sale: S/140 CPU, 256 KB MOS/ERCC, 16 slot chassis, 25MB Disk (#6103) Subsystem, Serial interface, low cabinet. Guaranteed eligible for DG maint. contract. \$1,600. Kennedy 9000 Tape, 1600 bpi, formatter \$900. Call Maple Systems: 201-654-8022.

CSR Corp.

Computer Systems
Remarketing Corp.
8601 Sanford Drive
Richmond, Virginia 23228

The Mark Of Excellence In . . .

DATA GENERAL EQUIPMENT

CALL US FIRST AT:

(804) 262-3555

FREE! to NADGUG members!

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

Make use of all the benefits of belonging to the North American Data General Users Group. Contact Suzanne Himes, NADGUG membership coordinator, for further information at **1-800-877-4787 (800-USR-GRUP)**.

**6239 592 MB
Winchester
Disk Subsystem**

**\$13,000.
(two for \$24,000.)**

For information call
Barbara at
Track Data **212/943-4555**

DIAL-UP BULLETIN BOARD

**Use the
NADGUG BBS!**

*No Charge—Simple, on-line registration.
Supported by your membership dues.*

300, 1200, 2400, 9600 baud
24 hrs/day, 7 days/week

415/924-3652

Now with multiple lines and downloads!
Operated by Rational Data Systems, Inc.

: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), 1200 baud (Vadic 3447), 8 data bits, 1 start/stop bit or 415/550-1454 (voice). Systems is MV/4000, terminal mode is CHAR/605X.

SERVICES

**TIMESHARING SERVICES
ON MV/10000 CPU S**

- Remote Processing Thru Dial-Up Access
- 1600 & 6250 BPI Tape Drives
- Local or Remote Printing
- Complete Data Security
- Modems & Multiplexors
- 24 Hour, 7 Days a Week - Full Operator Service

FAST TRACK SYSTEMS

61 Broadway, New York, NY 10006
(212) 422-9880

memory products, controllers, and peripherals, purchased the assets and corporate name of Spectra Logic division from Cipher Data Products, Inc. of San Diego. Spectra Logic will maintain its headquarters in Sunnyvale, California, as a division of Western Automation, and will continue to manufacture its existing product lines.

Western Automation, a manufacturer

of computer peripherals for over eight years, provides products for numerous markets including spooling and network products for PC CAD systems, and memory expansion products for Unix-based systems. Spectra Logic is a manufacturer of disk and tape controllers for minicomputers, including Data General. The purchase will allow Western Automation to expand its offerings to the Data General

Market.

Western Automation, 1700 N. 55th St., Boulder, CO 80301; 800/227-4637; 303/449-6400. △

Circle 78 on reader service card.

DG and TLD Systems offer Ada/1750A

Westboro—Data General Corporation has signed an Independent Software Vendor (ISV) agreement with TLD Systems Ltd under which TLD Systems will supply its Ada/1750A compiler systems for use with Data General ECLIPSE MV family computers. The compiler allows development and testing of Ada programs that are targeted for U.S. MIL-STD-1750A-based systems.

Ada is the computer programming language required by the U.S. Department of Defense and NATO for use on all computers integral to weapons systems.

Components of the Ada/1750A compiler system include a MIL-STD-1750A compiler, run time library, program library manager, macro assembler, extended memory linker, simulator, symbolic debugger, single program kernel, and multiple program kernel.

The software is licensed on a host CPU basis, on a company-wide basis, or on a company-plus-subcontractor basis. Pricing for the Ada/1750A compiler system ranges from \$5,000 to \$90,000. △

Circle 79 on reader service card.

Patented screwdriver design won't slip

New York—Innovative Computer Tools, Inc., has announced the Compu=Driver, a tool specially designed to fit over male screw locks (standard "D" connectors). The patented design adapts to the screw slot to eliminate slippage during tightening and untightening.

The tool was designed by a data communications technician who got frustrated with lining up the slot of a screw only to have it slip after 1/8 of a turn. The Compu=Driver is available in two models: Model 4, a four-inch pocket size (\$11.95) and Model 10, a 10-inch size for hard-to-reach areas (\$14.95).

Innovative Computer Tools, Inc., 165 W. 18th St., New York, NY. 10011; 212/675-8077. △

Circle 80 on reader service card.

AOS/VS System Managers:

get RAS'd

When you get DMS Systems'

RESOURCE ACCOUNTING SYSTEM, you get:

- An easy-to-use, menu-driven replacement for DG's REPORT program
- Customized reports of system usage without programming
- The ability to track disk space usage
- System usage and cost accounting by users, groups and/or projects

To order your copy of **RAS**
(or your \$50 demo copy)

CALL
1-800-284-8333

DMS Systems, Inc.

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

Circle 27 on reader service card.

The Value Added Resellers whose products are advertised on these pages are all Data General VARs and have been recognized in the marketplace as leaders. This section of Focus provides a sampling of the products that are available through DG VARs. If your company is a DG VAR that would like to be included, or if you know of other DG VARs that may be interested, please contact the Focus Associate Publisher at 512/345-5316.

Grow With the Best!



From...
FINANCIAL to DISTRIBUTION to MANUFACTURING,
ALCOR® Information Systems offer an integrated, comprehensive package designed by professionals for today's aggressive marketplace. We at **SARTOX™** can meet your needs.



P.O. Box 35623, Richmond, Virginia 23235-0623
(804) 794-2800 FAX (804) 794-7649

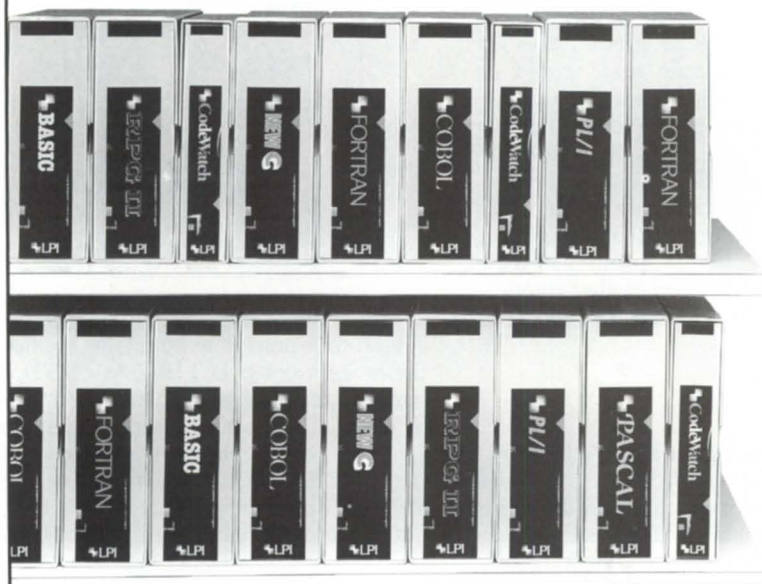
Circle 53 on reader service card.

DG VAR?

You could be here! Put your company in front of the most active Data General users available -- call and place your VAR ad today!

512/345-5316

LPI: THE SOURCE FOR STANDARDS IN COMPILERS.



Whatever language you're working in, there's an LPI compiler that can boost your performance in development and execution while meeting all applicable ANSI and industry standards. LPI's unique product line offers a complete environment including an exceptional array of debugging and conversion aids. Our modular, integrated architecture maximizes reliability while enabling you to combine different languages in a single program, then debug them through a common source-level facility. And our exclusive code generator technology protects your application investment by allowing easy migration without conversion. Add LPI's unmatched documentation and CareWareSM technical support, and no wonder our products are the standard among America's leading hardware vendors. Call your hardware representative or LPI today for information, ordering, and immediate delivery.

LPI compilers for Dasher/386 UNIX systems.



Language Processors, Inc., 959 Concord St., Framingham, MA 01701
Federal Office (301) 595-2558, Telefax (508) 626-2221

The companies mentioned herein own various trademarks.

Circle 40 on reader service card.

Data General reported a loss of \$19.5 million in its first fiscal quarter ending December 24. Company officials said they still expect to make a profit for the year, following three years of losses.

The loss was blamed on slower sales due to anticipation of DG's announcement of the MV/40000 last October. Orders for the MV/40000 exceeded expectations, according to **Ed Russell**, a DG spokesman. However, since the machines didn't begin shipping until the end of the quarter, the company was not able to book the revenues, Russell said.

Russell added that the development of computers based on Motorola's industry standard 88000 microprocessors is on schedule. The first members of the new product line should be announced this quarter.



Data General launched its effort to capture the small- to medium-sized hospital market by announcing an independent software vendor (ISV) agreement with **Infostat, Inc.** of Dallas. Under the agreement, Infostat will supply its Hospital Information and Control System software, running on Data General ECLIPSE MV/family systems, to hospitals with 75 to 250 beds.

The Infostat Hospital and Information Control System is a Unix software package that features online, real-time processing, and a fully integrated patient data base. The software runs under the DG/UX operating system on MV/family computers, from the MV/7800 DCX through the MV/20000 Model 2.

Frank Keaney, DG's vice president, North American Sales Division, said the move will allow Data General to provide "turnkey solutions to hospitals who previously found our systems too large for their needs."

Founded in 1982, Infostat develops and markets turnkey computer information systems for hospitals. Infostat's products utilize a set of fourth-generation development tools, 4th Write, and run under the Unix operating system.



Among the recent internal organizational changes announced at Data General: **John Kavazanjian** is the vice president of a new Communications Systems Group reporting to Senior Vice President **Colin Crook**. **Lee Henning** is the vice president of International Manufacturing and Central Manufacturing Services. All

Far East Manufacturing operations (Thailand, the Phillipines, Singapore, and the European Distribution Center) now report to him.



Recruitment of value-added resellers (VARs) is a high priority at Data General, where VARs account for 50 percent of equipment revenues. The Solutions Recruitment Division of DG recently held a sales training session on ways to recruit more VARs. Targeted are those resellers who are now doing business with Wang Laboratories.

Along these lines was the recent announcement of DG/WCC, a tool to convert Cobol programs written for Wang systems into programs that will run on MV machines. The product is intended to give Wang VARs and end-users a low-cost migration path to the MV family line.

"Data General's Value-Added Reseller program has made strides that place it at the top of the industry. We believe that we provide a superior alternative to the Wang community, with higher discount margins, and systems with greater processing power," said **Rick Boyink**, director of the Solutions Recruitment and Development Division.



A DG VAR reports that he is pleased with DG's efforts to attract VARs. **Jim Whipple**, president of **Admark Service Inc.**, was quoted in *Computer Systems News* as saying that he has noticed an improvement in relations with DG in the past 12 to 18 months. DG has been implementing suggestions made by the VAR advisory council into its VAR program. Areas for improvement, Whipple said, would be advanced communication about upcoming products and technology (like the industry-standard Unix systems based on Motorola's 88000 RISC chip), and better deals on peripherals purchased from OEMs and resold under DG's label. Currently, DG won't service printers bearing the Toshiba label, even if the identical printers are sold with the DG label, he said.



But can it change a tire? A DG/One laptop computer was presented to the **Los Angeles Philharmonic** by DG Southern California Regional Sales Director **Bruce Wiens**. The laptop will be used to handle administrative chores while the philhar-

monic is on tours. Data General sponsored the Los Angeles Philharmonic's 1988 Summer Season at the Hollywood Bowl.

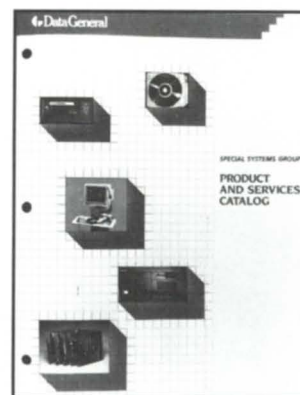


Wordperfect rev 5 will soon be ready for DG systems. Users who have been impressed with the PC versions' desktop publishing features will soon get a chance to try them out on DG systems, according to several sources. A demo version is now being shown to certain influential parties, and an announcement was imminent at press time. Beta test copies of Wordperfect Office rev 2 are also making the rounds.

Data General salespeople are apparently paying more attention to Wordperfect, as well. **Guy Pribyl**, Wordperfect's manager for the DG market, reported that sales through DG had increased considerably in recent months. VARs still account for 80 percent of Wordperfect's sales to DG customers, however.



All **NADGUG members** should receive a free copy of the Product and Services Catalog of Data General's **Special Systems Group**. The full-color, 34-page catalog lists 57 special-purpose hardware products and a wide range of solutions to special applications.

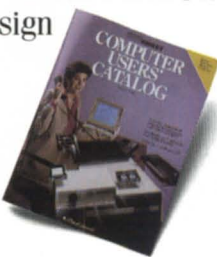


First-time entries in the catalog include the rack-mounted ECLIPSE MV/2500, a bar code scanning terminal with laser gun or wand, a point-of-sale terminal, and a series of general purpose interfaces for the ECLIPSE MV/1400, MV/2000, and MV/2500 processor family. If you have not received a catalog, call any Data General sales office, or Data General in Westboro at 508/480-7150.

The shortest distance to a complete installation is a direct line.



When you buy products for your Data General computer you want someone who understands your equipment. Which is why you should call us—DATA GENERAL DIRECT. Because we design and test each product to complement every system, you're assured of the highest quality products.



And with our enormous buying power, you get the lowest price.



Hardware. Software. Accessories. Supplies. At DG/DIRECT, we stock every product imaginable for your computer. From unique environmental products to supplies that have been custom designed to fit your Data General equip-

ment perfectly. All backed by a level of support that only our technically trained sales specialists can provide.

For a free copy of our latest DG/DIRECT Catalog, and to be put on our mailing list, call us today. It's the shortest distance between you and a perfect installation.

Data General
4400 Computer Drive MS-1D
Westboro, MA 01580

1800 343-8842
Supplies & Accessories

1800 336-9001
Hardware & Software

NEW

**SKS-HP Disk Subsystems with
R.A.M.S.-like performance!**

FAST

80% *more* transactions per second per dollar, drives with 16.5 *ms* average seek time, and 2nd generation SCSI technology make SKS-HP the fastest subsystems around!

BIG

SKS-HP provides 2.6 times *more* megabytes per dollar than R.A.M.S.! Build the system you need, from 654 megabytes up to 4.2 gigabytes!

SMALL

These 5.25" drives need only 3½" vertical space in your rack, and draw only 55 watts per drive.

EASY

SKS-HP Subsystems are plug-and-go compatible with your 32-bit MV computer running under AOS/VS. Call us for a quote on price & delivery.



For the full story on how you can add a higher-than-R.A.M.S. performance at a lower price, with Data General-compatible, Argus-emulating SKS-HP Disk Subsystems, call us today!

(612) 941-9480

ZETA O

The Link To Tomorrow.

A Subsidiary of the Carlisle Corporation

6850 Shady Oak Road
Eden Prairie, Minnesota 55344
telex 290975, FAX 612-941-1395