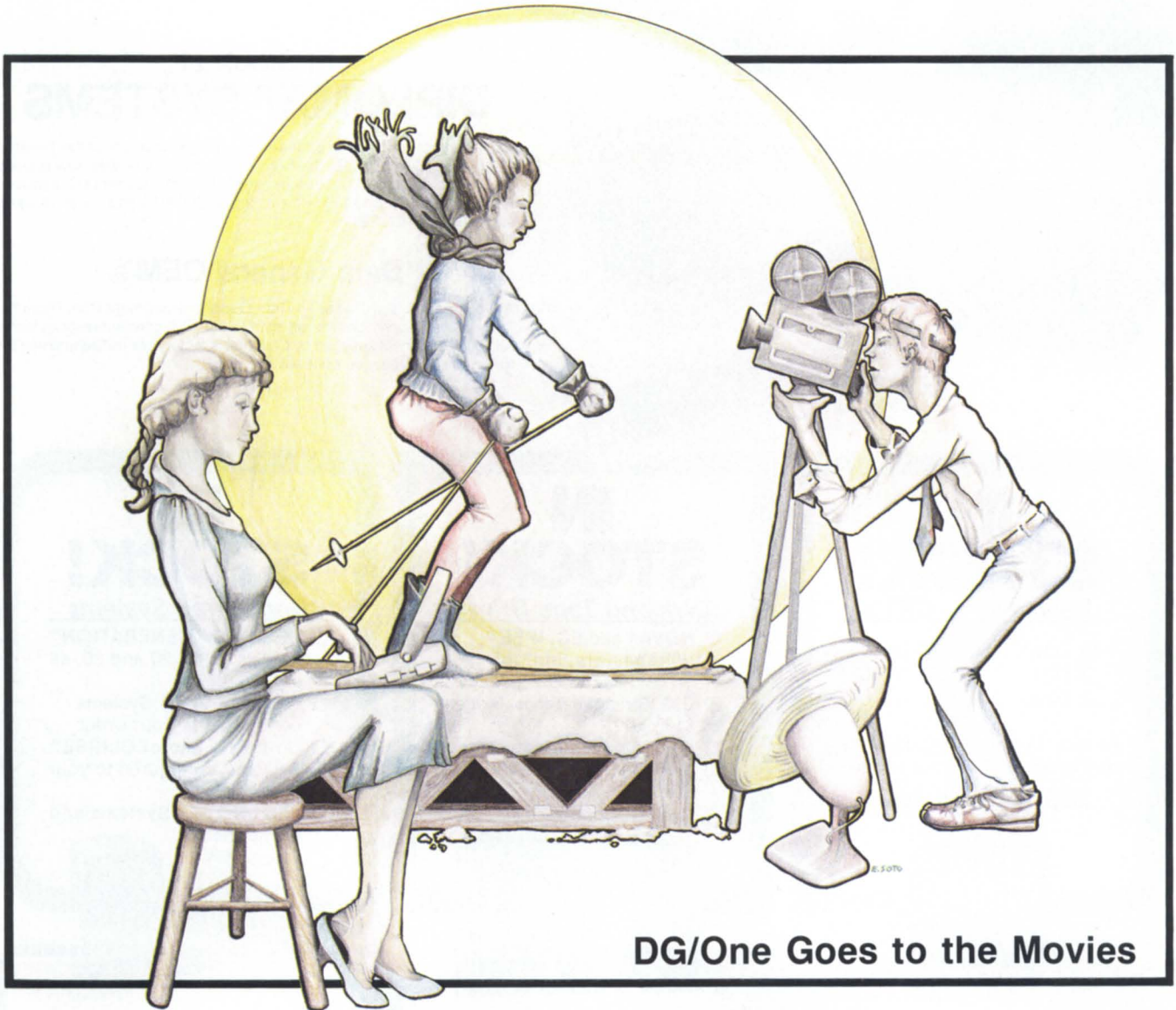


FOCUS

The Magazine of the **North American
Data General Users Group**

February 1986

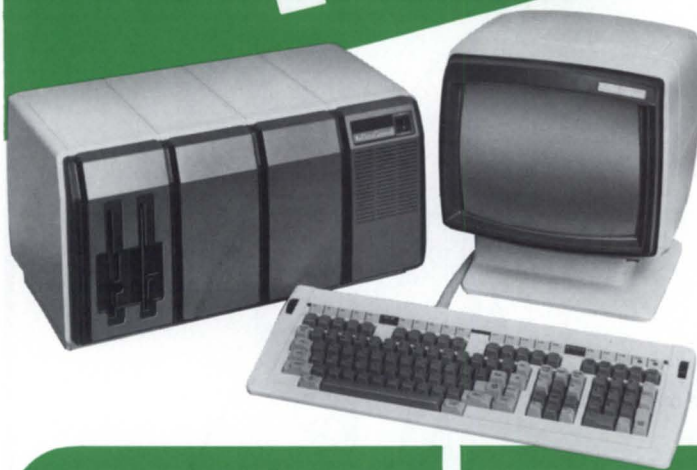
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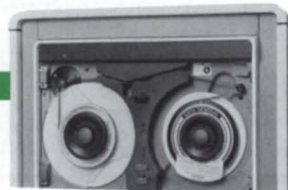
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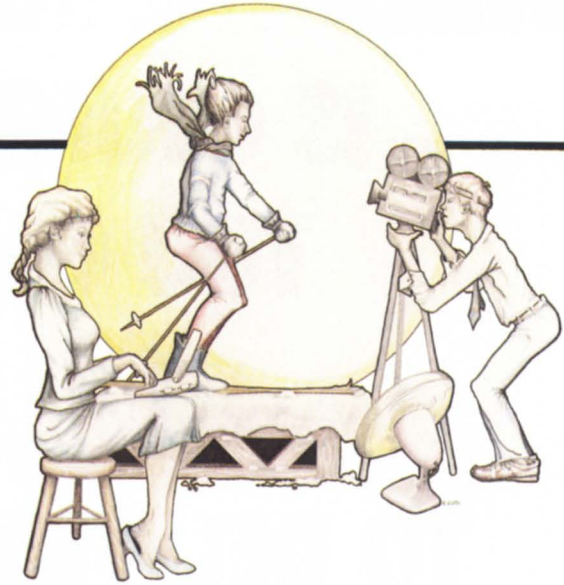
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The Magazine of the North American Data General Users Group



Art Director Ann Soto captures the spirit of a camera trek to snowy Vermont in this Rockwellesque drawing.

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Brief notes from the DG community

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This is no way to run swift word processing.

Though CEO software for Data General systems includes word processing among its many capabilities, the clumsy structure and huge memory requirements make its use a burden on your entire system. It will slow you down in the word processing race.

It would be one thing if there were no alternative. But WordPerfect's fleet-footed 4.05 version is reason enough to give CEO the boot.

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split screen function for dual document editing, a facility for writing outlines automatically and a table of contents generator, to name a few. But WordPerfect's greatest feature is the swiftness with which all features are performed.

WordPerfect adds a dash of simplicity.

WordPerfect's function-key orientation makes it easy to learn in the short run. Because of its super keystroke efficiency and hard-copy printout that matches on-screen display, WordPerfect is also easier to use in the long run. That means winning results with less training time.

WordPerfect sprints to the finish.

If the switch from CEO gives you cold feet, keep in mind that it is actually less expensive to purchase WordPerfect for your Data General system than to upgrade your hardware for more memory, which is what you'll eventually need with CEO. And through CEO Connection, your current CEO files can be changed over to WordPerfect files.

In other words, you have nothing to

lose. Except a lot of heavy baggage that'll slow you down in the word processing race. For more information see your dealer. Or call or write:

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Waiting for the muse

Deadline approaches. I have hoped for days that some sort of inspiration would rescue me before I absolutely, positively had to write this editor's note. It appears my waiting was in vain.

To my way of thinking, waiting for the muse is even more enervating than your common, ordinary, garden-variety form of procrastination; it bears many of the hallmarks of productivity, yet is singularly unproductive. I sit in front of the keyboard for what seems like hours, brow creased in aimless thought, trying to beckon that noble idea that will crystallize experiences and launch an essay.

The most noble idea to enter my head so far is Groundhog Day. Well, what else can you say about February? The greeting card companies seem to have an unbeatable monopoly on Valentine's Day, and Tim Boyer and George Henne beat me to the punch with leap year and other calendar oddities (see Inside ICOBOL and Prism for details). So what's left?

How about end-of-year musings? After all, it's only January 2 as I write this. (Printing and mailing take so long that even an information age publication like *Focus* has to operate with deadlines at least a month before the issue date.)

It was a December more hectic than Decembers past. The holidays were a welcome break from work, of course, but they raised more obstructions to business-as-usual than a filibustering senator. I think it all started when our express delivery service absolutely, positively guaranteed that the art boards for the January issue would reach our printer the next morning—and then misplaced them for three days.

It was a difficult month, but we finished the February issue on time, and in a better fashion than I had a right to expect. Perhaps I should let the results speak for themselves.

After five issues in its new format, February's *Focus* establishes a benchmark. Through the efforts of many individuals, the magazine is approaching the level of excellence that NADGUG's officers foresaw when they launched this project not quite a year ago.

The first to reach the high ground were the writers. While it's usual for an editor to refer to contributors as a "stable" of writers, my thesaurus suggests an alternative: "galaxy." Take a look at the masthead, and you'll see

what I mean. None of the people listed as contributing editors and contributors work exclusively for *Focus*; they all hold demanding jobs in other companies. They give *Focus* some of the time they could have spent playing golf or computer games, or even shoveling the snow; they offer their thoughts to others in the DG community, and they do it on a schedule not of their own choosing. Yet, if the evaluations that come back from readers are representative, our authors are indeed a collection of shining stars.

Their efforts are now being matched by two recent additions to the *Focus* staff, Jeanne Sangster and Ann Soto. Jeanne is the one who takes care of the details, both large and small, of editorial scheduling and accuracy. To the extent that time permits, she will also be contributing feature stories on members of the Data General community. If you've noticed a decrease in the number of typos and stylistic inconsistencies in the magazine, the credit goes to Jeanne. Perhaps you also noticed improvements in the covers and artwork in *Focus*. The credit here goes to Ann. As art director, it's her job to make sure that the editorial material is showcased in an attractive and readable way.

This month also marks the beginning of financial success for *Focus*. Largely due to the efforts of advertising sales manager Anita Catron, with each month that passes, more companies are placing more advertising. Their sponsorship has brought *Focus* a hair away from the break-even point. Meanwhile, the pace of requests for information about membership in NADGUG has quickened. We are excited to see a growing magazine in a rapidly growing community.

But it's more than that. It's also a communications channel that is increasingly used to solve the problems that arise in any active community. People both within Data General and in the community at large are using *Focus* to find out what problems others are experiencing, and how they are dealing with them. That purpose launched the magazine, and the credit for its success in this respect goes to the community at large.

Well, the column's almost finished, and still no muse. I had to resort to end-of-year musings, after all. At least it was better than Groundhog Day. The best you could have expected from that would be 6 more weeks of winter. Δ

—G.F.

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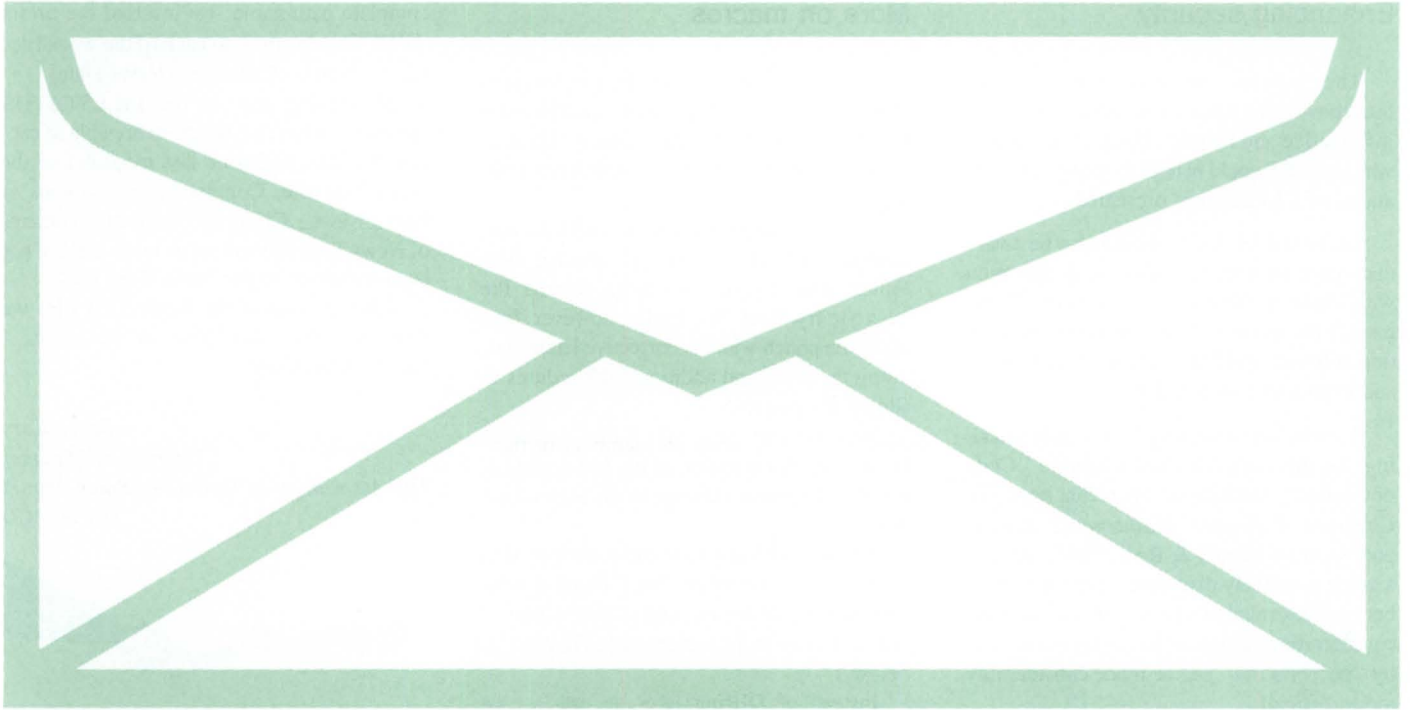
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CSC complaint

This is certainly a first. I am writing you regarding your article "Raising the bar" on page 28 of December's *Focus* while using the latest version of our word processor which, unfortunately, has a completely new set of function keys.

I expect to hold Jim Foxworthy accountable for his promises when we next meet for the 1986 NADGUG meeting. I subscribe to the Customer Support Center (CSC) for several languages and have long been a critic of this service. In August I voted with the participants who had either given up on CSC or were still completely dissatisfied with its performance.

Conference '85 was held three months (one quarter of a year) ago. Since then I have tried to use CSC in an unprejudiced fashion. Unfortunately, I have not seen any signs of its accomplishing its "mission to raise the level of customer satisfaction." I can't get through to the center on the telephone. I've read about all the money spent on new communications equipment and heard how the

statistics regarding the amount of time customers are left waiting on the lines are under constant review. From my perspective, the situation has not improved and is not satisfactory. Perhaps I am not a typical customer.

Your block diagram (page 29) has left out the most important block in the "Customer Service Call Processing Flow." That key block is called "Play Telephone Tag with Caller." This block can invisibly change the "9- to 16-minute wait before a technical representative calls them back" to days or even weeks. Even the most resolute give up after a while.

I suspect the facet that bothers me the most about CSC (and all the other attempts to correct software problems) is the "STR". If I finally get someone to understand the problem, and if the STR generated by CSC is understood "up the line," and if it is felt "up the line" that the problem should be corrected, then about two or three revs out they say it will be fixed. By that time, I have forgotten all about the problem, worked around it, or if I still need the fix I find that it in fact has *not been fixed in that revision*.

Then I must start all over by calling CSC. For those products I run with only written STR support, the problem is even worse, but less expensive.

Perhaps I exaggerate, perhaps I am just not in tune with what is really going on, but I do know the following:

- I am using several different revs of run-time libraries.
 - I am using MASM 5.02 with 6.02 AOS/VS.
 - It took about 3 weeks to put up 6.02 AOS/VS instead of the usual half day.
 - RPG and the AOS/VS rev 6.02 are causing me grief.
 - I am quite sure F77 is two revs out of date.
 - CEO is on the shelf and will not return.
- Keep up the good work in *Focus*; I will see you in Florida.

Edward E. Lindberg
Treasurer, AOS/VS SIG
Director of Computer Services
Computer Center
Western New England College
Springfield, MA

Enhancing security

The articles on preventing security breaches in the December 1985 issue were informative and helpful. Many of our clients who use AOS could benefit from the considerations of CLI dangers presented.

Interested DG users should also be aware that other approaches, used in conjunction with those presented, are of help. These include the use of call-back modems, encryption software and hardware in certain cases, and even locks on terminals.

A major aid to security is user understanding. To this end, I devised a sample "Code of Conduct" (included in my recent book *The Complete Computer Maintenance Guide*, published by Harper & Row, 1985). If such a guide is actively discussed, and staff members are informed of various ethical and legal considerations as discussed in my book, acts by "perpetrators" can be made considerably more difficult.

David Bellin
President
System-Aid Computer Control, Inc.
Flushing, NY

More on macros

After two scenarios, one by Jim Siegman (Focus, October 1985, page 28), and the other by M. Brent Fuller (Focus, Letters, December 1985, page 6), we might now have a full play.

Mr. Siegman gave us the start with the fundamental Check__News.CLI macro. Mr. Fuller, like myself, promptly entered the macro to try it out. Mr. Fuller, however, beat me to the punch with his corrective letter, outlining the error and additional procedures to add to the macro.

Now the one thing Mr. Fuller neglected to add, but did question in his last sentence, was how to detect a change to the News.Text file.

It took a little playtime and fooling around with our specific setup, but I found a solution that works for us, and is now a part of our initial log-on procedure. (See NEWS.CLI below.)

Instead of DIRing into the user's own directory, DIR into the directory that contains the News.Text file (in our case, :MACROS). By utilizing complete path names to the user directory, the individual work files may be checked, deleted, and written to. To form the

complete path name, we inserted the prefix :UDD (!Username): to each of the work files (Last__News__Check and News.Date).

By making use of the FILESTATUS command with /L=switch we are able to capture the date and time last modified of the News.Text file. Comparing the contents of Last__News__Check file against the contents of News.Date file will let us know if there has been a change to the News.Text file.

After perusal of the News.Text file, we reset the date and time in the Last__News__Check file.

Bruce Cary
Operations Manager
The Association of Operating Room Nurses
Denver, CO



Editor's Note: We haven't seen the last on this subject. Jim Siegman has a response this month to the most recent responses to his original article, and he says another is in the works for next month. Stay tuned.

```
COM *****
COM NEWS.CLI 11/27/85 BRC
COM *****

[!EQUAL,[!LOGON],CONSOLE]
PUSH
  PROMPT BYE
  CLASS1 IGNORE
  STRING/K
  STRING [!PATH NEWS.TEXT]
  [!NEQUAL,[!STRING,]
    [!NEQUAL,[!SIZE [!PATH NEWS.TEXT]],0]
    STRING/K
    DIRECTORY :MACROS
    [!EQUAL,[!FILE :UDD:[!USERNAME]:LAST__NEWS__CHECK],]
    WRITE/L=:UDD:[!USERNAME]:LAST__NEWS__CHECK NONE
  [!END]
  STRING [:UDD:[!USERNAME]:LAST__NEWS__CHECK]
  PUSH
    DELETE/2=IGNORE :UDD:[!USERNAME]:NEWS.DATE POP
    FILESTATUS/L=:UDD:[!USERNAME]:NEWS.DATE/NH/TLM [!END]
    NEWS.TEXT
    STRING [:UDD:[!USERNAME]:NEWS.DATE]
    [!NEQUAL,[!STRING],[!STRING/P]]
    WRITE
  [!END]
[!END]

WRITE *** THERE IS A NEW BULLETIN ***
WRITE
[!END]
POP
STRING/K
[!EQUAL,[!READ DO YOU WANT TO SCAN THE NEWS BULLETIN? Y/N ),(Y)]
CHARACTERISTICS/ON/PM
TYPE NEWS.TEXT
CHARACTERISTICS/OFF/PM
(!READ TAP <NEW-LINE> WHEN FINISHED READING THIS PAGE . . .)
DELETE/2=IGNORE :UDD:[!USERNAME]:LAST__NEWS__CHECK
FILESTATUS/L=:UDD:[!USERNAME]:LAST__NEWS__CHECK
/NH/TLM NEWS.TEXT
[!END]
[!END]
[!END]
[!END]
COM *****
COM END OF MACRO
COM *****
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If we want to see dictatorships destroyed, we should volunteer to give free personal computers to any citizen of an oppressed society who wants one

The truth shall make you free

The technological revolution involves much more than computers

by Mort Kahl
Special to Focus

We Americans grow up with the phrase "The truth shall make you free." Though we profess to be firm believers in this principle, at times we act as if the opposite were true. I've lost count of the number of people who have complained to me about the immense data files being collected by governmental and quasi-governmental bodies. These people seem consumed by a fear that these files will somehow be used to limit our liberty.

The overwhelming potential of the spread of technology is to liberate, not to enslave. We in the information processing community should be the first to realize this. Would-be dictators fear progress. "Keep the status quo" is their unofficial motto. Knowledge and education are the enemies of slavery; the technological revolution spreads both.

Let's look at two common assumptions. (1) "Confidential information is being collected." (2) "Such information can be used to control, influence, intimidate, or blackmail, so the person or group of people who control this information can control the society." Accepting these assumptions leads to the belief that we're heading for hell on roller skates!

However, let's examine our assumptions. "Confidential information is being collected." That's true, but when wasn't it? "Such information can be used. . ." That's also true, but when wasn't it? Why aren't *They* controlling our society already?

The voice of doom says, "We didn't have

computers before. With their capacity for storing and correlating data, the 'days of wrath' are approaching." Sounds bad, but one thing is incorrect: the computer we're talking about is a prime example of a two-edged sword. If anyone still believes it possible to keep stored data confidential, please refer them to me. I have a very attractive bridge for sale.

Here's a couple of old sayings I just made up. (1) "If you can't keep the world from looking at your cards, don't play poker!" (2) "If you want to really publicize something, call it a secret." (3) "If you want a 'secret' to be widely disseminated, put it on a computer."

Look around you. Despite the complaints, which country has the highest degree of personal freedom in the world? Which has the highest number of computers per capita? The answer I hear to both these questions is "the U.S." Could there be a connection? I think there is, though our freedom predates the invention of computer. Each at least influences the other; each tends to enhance the other.

Dictatorships have a problem. They know they need much wider use of computers if they're ever going to truly compete with the free world. They know the computer must become as ubiquitous as it is in this country. How does a society that considers an unregistered mimeograph machine or typewriter a capital offense allow computers to be "personal"? What happens to a government based on secrecy when its most closely held

secrets become public knowledge?

I think the answer is obvious. *There are no secrets from hackers.* The fact that the 414s were caught only reflects their age and their inability to keep their mouths shut. A true conspirator wouldn't have been caught. In a dictatorship, if the hardware were available, all conspirators would rapidly become hackers. No dictatorship can last without either the support or the general apathy of its populace. Support is created by constantly feeding the public skillful propaganda. When all avenues of communication are controlled by the bureaucracy, the truth is whatever *They* want it to be.

In general, technology increases the difficulty of control. Anyone who owns a small personal computer with a modem, a telephone, and an 18-inch dish antenna can access the world. You can't jam wide-beam satellite broadcasts without jamming your own communications. Such a user is difficult to lie to. If he learns the truth, he can spread it easily. If the truth is widely known, people become disenchanted, and disenchanted people stop cooperating. No society can continue to exist if its members stop cooperating. The populace doesn't need to rise up with guns in their hands; they only need to become contrary.

For example, imagine if the present system of underground publications in Russia expanded to include the deliberations of the Central Committee of the Communist party.

Knowledge and education are the enemies of slavery; the technological revolution spreads both

Or if the secret figures of casualties in Afghanistan became public. Or if the true picture of economic development were disseminated. Or if complete lists of the citizens who had been sent to Siberia for disagreeing with the central authorities were published. I think you see what I mean.

The usual objection is that no one invention can change the world as much as I am implying. This is true, but what I'm presenting is not one invention. The industrial revolution was not one invention. It was a completely new systemic approach to all aspects of society. An Englishman transported in time from the start of the industrial revolution to just 50 years later wouldn't recognize his own country. The technological revolution is also creating a completely new world. Many of the rules we think are immutable will change. Many of the methods commonly used today will no longer work. We already see some changes. When I look back on my own life, I see that during the 30s and 40s, despite severe upsets the war caused, life didn't change that much. The same is basically true of the 50s but in the 60s something began to happen. If we look back now, we can see we live in a different world.

The industrial revolution changed England first and then spread slowly to the rest of the world. The technological revolution has changed this country already. The rest of the world will feel it soon enough.

In my opinion, if we want to see dictatorships destroyed, we should volunteer to give free personal computers to any citizen of an oppressed society who wants one. I wouldn't keep high technology from the Communist world. I'd lend the Communists money to buy more. I wouldn't worry about their use of that technology against us. They might not have time to. They had better worry about what it could do to them.

High technology needs hordes of well-educated technocrats to maintain and use it. Good education means higher levels of curiosity. More curiosity is dangerous! Have you noticed how much science fiction is written by technocrats? The U.S.S.R. has no problem with Ivan Doeski. It's the Andre Sakharovs who scare it. Anatoly Scharansky is a computer programmer! Let people like him have free access to an interconnected computer net, and there goes the ballgame.

Perhaps we in NADGUG need to view ourselves in a new light—as part of the true revolutionaries! If we have the courage to acknowledge it, we'll realize we're actually in the process of remaking the world. Δ

Mort Kahl, a NADGUG past president, understands revolutionaries—his office was once destroyed by a bomb. He can be reached at 865 United Nations Plaza, New York, NY 10017; 212/751-6475.

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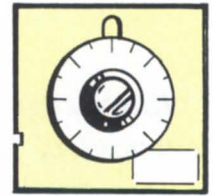
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Another note to [!READ]

The debate on security and CLI macros continues

by Jim Siegman
Contributing Editor

I have received quite a few responses to my original "[!READ] and System (in)Security" article (*Focus*, October 1985, page 28), but so far no one has completely solved the problem. I'd like to use this space to respond to some of the responses.

M. Brent Fuller wrote to say that the potential security breach opened up by using a [!READ] in the UP macro could be remedied by modifying the [!READ] statement (*Focus*, December 1985, page 6). He also pointed out an error in my original macro that kept him from being able to reproduce the breach. He then went on to question the value of the macro. I will concede, with apologies, the error in the comment with the [!SIZE]. The original version read [!SIZE NEWS.TEXT], but in my haste I overlooked it when keying in the macro for the article. (Before you say it, I did not write the article on the system that the macro was on, so I couldn't tell SED to "APPEND FROM.")

On the other hand, it took me only about 2 minutes to find the combination that would get past Fuller's modified [!READ] statement: "Y);[!END];X_CLI;" will do it nicely.

As far as the usefulness of the macro, it can have great benefit. You don't run SED on NEWS.TEXT because it is a link. You use EDIT.NEWS.CLI, which can be summarized as:

```
PUSH; PROMPT POP
DIR_:MACROS
VAR0_[news__rev]
VAR1_[!UADD,1,[!VAR0]]
COPY__NEWS__TEXT__[!VAR1]__NEWS__TEXT__[!VAR0]
X__SED__NEWS__TEXT__[!VAR1]
DELETE/2=ERROR__NEWS__REV
WRITE/L=NEWS__REV__[!VAR1]
DELETE/2=ERROR__NEWS.TEXT
CREATE/LINK__NEWS.TEXT__NEWS__TEXT__[!VAR1]
POP
```

This macro serves to change the file name on the current revision of NEWS, and the CHECK.NEWS.CLI macro gets the current version by using [!PATH] to resolve the link. You could also simply examine the contents of NEWS__REV, but I didn't, mostly because I didn't write EDIT.NEWS.CLI until two weeks after I wrote CHECK.NEWS.CLI.

Now let's turn to some of the other methods readers used to attack the [!READ] problem. One method involved basically the following

approach:

```
CLASS1__IGNORE
CREATE/2=IGNORE__CLI.PR
... [!READ] ...
DELETE/2=IGNORE__CLI.PR
CLASS1__ERROR
```

Although not preserved in its original form, this demonstrates the creation of a non-PRV file that could not be executed. This is very creative, but could still be defeated by responding ";" X_:CLI" instead of ";"X_CLI". Besides, I've seen installations where the user was put in a directory with +,E and :CLI.PR was set to +,OWARE. This approach + that system = trouble.

Another interesting approach was to first copy :CLI.PR to a file such as :HIDDEN:PROGRAM.PR, then DELETE :CLI.PR, and finally change your SYSGEN and PREDITOR profiles to execute that instead of :CLI.PR. This would certainly befuddle many of Brian Johnson's perps, but would have the adverse effect of "breaking" the CLI and DO commands in SED as well as causing a number of miscellaneous annoyances. (However, if you wanted to give them SED without the CLI, that might be a good way to do it.)

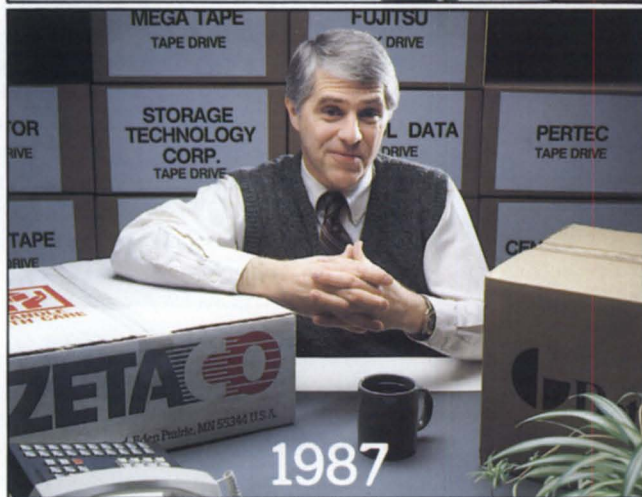
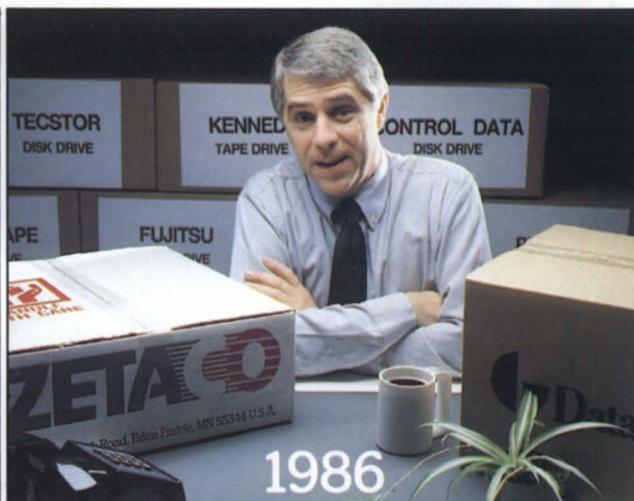
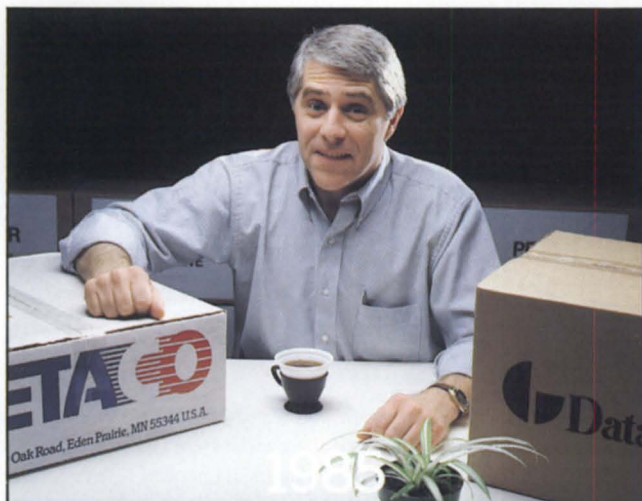
The only problem here is if one of your devious and ingenious would-be perpetrators manages to think of responding:

```
; WHO/2=IGNORE__<0,1,2,3,4,5> <0,1,2,3,4,5,6,7,8,9>;
```

In this case the ingenious perp would most likely find out how he or she was temporarily foiled.

I want to thank all of you who tried, but so far nobody has won my can of Dr. Pepper. I tend to agree with Tom Gutnick (*Focus*, December 1985, page 18) when he says, "I'll guarantee you that I can always break out to the CLI." Keep trying, though, because I do have a way that is much more difficult to defeat (I think), although it has a terrible response time. Even though there's probably no surefire method to lock out the perps, there are most certainly a number of things that we can do to make it very difficult for them to break in. Δ

Jim Siegman is chairman of the NADGUG Publications Committee, and president of the Chicago Area Data General Users Group. Send comments or questions c/o Focus Magazine, 5332 Thunder Creek Road #105, Austin, TX 78759.



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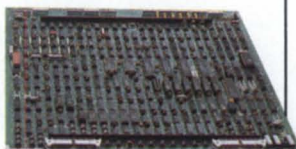
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How they do it at DG

The Marketing and Sales Information Systems department puts the squeeze on unauthorized access

by Patricia Johnson
Special to Focus

It's easy to see why those of us on the operations and technical staff of DG's Marketing and Sales Information Systems (MSIS) department consider ourselves "Data General users"—the MSIS data center currently boasts 15 MV/ series computers for a total of 1,920 lines. It's a varied environment—seven CEO systems, three development systems, and five of the production systems on which part of the company's business is run. The user count is more than 800. The systems themselves are part of the private DG network that connects more than 600 hosts internationally.

Our job is to provide support for a large-scale internal data center serving the marketing and sales user community within corporate headquarters. Due to the size and varied requirements of our user community, we saw

a need for an additional layer of security over and above what AOS/VS provides. Our solution works in conjunction with AOS/VS features such as access control lists (ACLs), username/password pair checking, and enhanced logging to provide us with tighter security on the systems in MSIS.

The MSIS Security System is a *preventative* approach to security; its aim is to defend against unauthorized access to any system. It basically is a series of PL/1 multi-tasking programs tailored to our specific concerns and needs. Since the system is not available to external users, the intent here is to illustrate one possible approach to the security problem, and the benefits that can be derived from this simple yet effective approach.

The system has six major components:

- the system security profile,
- the user security profile,
- on-line polling,
- modem line monitoring and call-back,
- automatic logging,
- report generation.

Each of these components is described in more detail in the following paragraphs.

Information in the system security profile defines user violation and termination criteria, system backup times, system down times, and security (call-back) modems. It also provides

us with automatic enable, disable, or shutdown of the user system. All information is stored on disk in an encoded form accessible only to the system manager. Figure 1 illustrates a sample menu that defines this information. In this example, numbers 5 through 7 define the checking criteria on which the security system is based. These criteria, as shown in Figure 2, can be turned on selectively, as determined by the specific needs of a particular system. The MSIS Security System will validate a user at log-on time based on the flags that are turned on. These flags allow us to discriminately log and terminate violators.

The next component, the user security profile, works hand-in-hand with the security system profile. A user security profile is defined for each user on our system. Like the system security profile, it is stored on disk in encoded form. For each user we selectively define items such as console numbers, time intervals, connect time, system privileges, and dial-up/call-back privileges. A sample user profile is shown in Figure 3. The assigned system privileges (such as superuser and superprocessor) work with the user's PREDITOR profile: both are checked by the security system when the user logs on. If a user's PREDITOR profile has been changed, and the changes are not reflected in the security pro-

MSIS Security System On-Line Information Request

- | | |
|------------------------------|---------------------------------|
| 0. Exit | 6. Manage Termination |
| 1. Shutdown System Now | Flags |
| 2. Enable/Disable the System | 7. Manage Logging Flags |
| 3. Manage System Backup | 8. Manage System Modem List |
| 4. Manage Schedule Down Time | 9. Manage Security Modem List |
| 5. Manage Verification Flags | 10. Manage Normal Working Hours |
| | 11. Manage Violation |

Figure 1

MSIS Security System Process Verification Flags

- | | |
|--------------------------|----|
| 1. Superuser Flag | On |
| 2. Superprocessor Flag | On |
| 3. Change Username Flag | On |
| 4. VCON Flag | On |
| 5. Remote Resource Flag | On |
| 6. Logon Time Flag | On |
| 7. Connection Time Flag | On |
| 8. Console Number Flag | On |
| 9. System Modem Flag | On |
| 10. Security Modem Flag | On |
| 11. Expiration Date Flag | On |

Figure 2

(continued on page 15)

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(from page 12)

file, the user will not be allowed to log on. Sophisticated users have been known to change their PREDITOR profile, but they will not have access to their security profile in this scheme.

```

Department (1)
Superuser (YES)
Superprocess (YES)
Change Username (YES)
Use Virtual Console (YES)
Access Remote Resource (YES)
Use Dial-in Modem (YES)
Use Call-back Modem (YES)
Telephone Number (19999999)
Expiration Date (12/31/1987)
Unlimit Consoles (NO)
Number of Consoles (2)
Console 1 (34)
Console 2 (130)
Unlimit Time Interval (NO)
Number of Time Interval (1)
Time Interval 1 (08:00) to (17:00)
Unlimit Connect Time (YES)
Initial Program (:CLI.PR)
Secondary Program (:CLI.PR)
    
```

Figure 3

Several aspects of the user security profile deserve more explanation. First, the dial-in/call-back privileges are intended to thwart unauthorized attempts to log on with a dial-in number. Each user with the appropriate privileges has a defined call-back number in his or her security profile. After the user initiates a remote log-on, the system performs all the verification procedures, then automatically calls the user at the predefined number. Thus we prevent unauthorized persons who have somehow obtained both a system dial-in number and a valid username/password pair from successfully logging on to the system.

Another interesting feature of the user security profile is the way it limits users to predefined console numbers. A user may be allowed to log on to any console, but if the system manager desires, individual users can be limited to up to eight valid consoles. Although this may not be practical in many environments, there are some useful applications. For example, we restrict our technical staff, who are fully privileged users, to two

consoles—their office console and the secondary system console (in a secured area, of course!). This greatly reduces the risk of an unauthorized person logging on to the system with full privileges.

Another significant item in the user security profile is expiration date. When a user reaches the expiration date defined in the user security profile, he or she is not allowed to log on. In MSIS we find this especially effective when used with some of the other system privileges, such as virtual console (VCON). On our systems, the virtual console privilege is only given to a user when business conditions warrant it, for example, when an employee is traveling. When users are given the VCON privilege for this purpose, the expiration date is set to their return date. Upon returning to Westboro, they won't be able to log on to the system. This automatically alerts us to the fact that the user has VCON, but no longer needs it. The system manager can easily reset the user's profile; this eliminates the need for bookkeeping, and reduces the security risks involved with special privileges.

The next major component of the MSIS Security System is on-line polling. The security system will periodically poll all processes on the system for on-line violations, and terminate any users who are violators. For example, the on-line polling module will automatically terminate any users who have surpassed the connect time or the valid log-on time interval defined in their user profiles.

The last components of this system are automatic logging and report generation. Any violation detected by the security system is logged. In addition, the system manager can choose to do "normal-use" logging. For example, a system manager may want to keep track of all dial-in users, valid or invalid. This could be done through normal-use logging.

Another nice feature of automatic logging is the UPD Scan. The security system initiates a daily scan of the entire UPD directory, recording all users who have special privileges in the current logfile. Also, whenever the security system utilities that control all user and system information are executed, a log entry is made. A daily report can then be run against the logfile, giving a complete list of

the UPD scan results, violations, normal-use entries, and security utility execution. The system manager can easily audit system activity by reviewing this report, thus maintaining tight control over system access.

After all this explanation, you may still be wondering how this system really works. In each user's PREDITOR profile, the initial program is defined to be a program that is part of the security system. Running on the system at all times (you PROC it in the system UP macro) is the main security program. When a user logs on, the initial program will communicate its process identification number (PID) to the main security process via Interprocess Communication (IPCs). The main process will perform all log-on verification and will send back either rejection or verification notice to the user's initial process. If valid, it will then chain to the user's initial program (defined in user security profile). Otherwise, it will reject the user as invalid.

How do we ensure that all users go through the security system? In the daily UPD scan, all users who don't have the correct security program as the initial program in their PREDITOR profile are flagged in the logfile. At most, the exposure is limited to a 24 hour period.

A security system doesn't need to be as extensive as ours. Any part or parts of this system can be written as standalone modules. The sections you decide you need are dependent on the specific security needs and concerns of your installation. The following steps may help you decide what kind of security system you need: (1) define your security needs, (2) pinpoint any specific areas of concern, (3) institute criteria and standards, (4) promote security awareness in your user community, (5) design a "tailored security system," and (6) review and repeat steps 1 through 5.

It's a never-ending process. Good luck!

△

Patricia Johnson is a systems programmer for DG's Marketing and Sales Information Systems department. Contact her at Data General Corporation, Mail Stop C-227, 4400 Computer Drive, Westboro, MA 01580; 617/366-8911.

Close encounters of an unusual sort

An alternative approach to sorted files under Business BASIC

by John Ferry
Special to Focus

At the moment, I'm sitting here contemplating redecorating my office. While the current floor and wallpaper are nice, I'm seriously thinking about replacing it all with rubber and coming to work in a nice new jacket . . . you know, the type with sleeves that tie in the back?

I think most of us who design applications systems have felt this way at one time or another. While management insists on adding new applications and increasing the sophistication of old ones, they can't understand why our Nova 3 with 128 KB in a two-bay cabinet won't support 1,000 on-line users plus another 5,000 dial-up customers ("Why not?" they ask, "It looks big enough!"). In addition, I have users who go berserk if their response time exceeds 4 nanoseconds ("I have work to do; I can't wait for the computer!")

Sometimes I wish I weren't running Business BASIC. This would let me go home at night and sleep soundly knowing, without a doubt, that management would have to buy a nice new MV/4000 or at least an S/140 to do what they want. (Un)fortunately, BBASIC allows you to design some truly off-the-wall schemes to keep everyone happy. So instead of dreaming of fast cars and loose women, I envision indexes without data files and PRINT USING without printing. My ultimate dream (nightmare) is that I'll actually *get* a thousand users running on that Nova 3.

My topic for today is one of those "unusual" solutions to a typical problem, although by BBASIC standards this one is rather tame. It involves the use of temporary indexes to avoid physical sorting of the data file.

Often you need to produce a report list-

ing information in a particular order. A typical hardcopy report is run once a day at the most, and often much less frequently (although there are exceptions). Two conventional ways to handle this requirement are to create and maintain an index in the order needed for the report, or to sort the file to create it. In either case, the solution may be less than ideal for several reasons.

If you can create the report simply by reading an index you already maintain for another purpose, that's great! No problem—proceed to the next article. However, if you're going to create and maintain an index just for this one report, look at the cost. You now have another file to maintain, one that (1) takes up more disk space, on a *permanent* basis, (2) requires in the long haul lots of system overhead to keep it updated with constant KADDs and KDELs, (3) requires an increase in size, complexity, and response time of all programs affecting this file. That's an awfully high price to pay to run this report on a sporadic basis.

The conventional alternative is to sort the file. Before you choose this route, make sure you have a calendar and baseball bat handy. The calendar is for measuring your system's response time, and the bat is for beating back the angry users from your door. Sorts are deadly in on-line systems, especially smaller ones. In addition to being inefficient and slow, they simply monopolize disk I/O moving data that in most cases doesn't really have to be moved at all. A common "solution" is to batch sorts and run them at night. However, this isn't much help if you need the results *today*.

The flexibility of BBASIC provides an unconventional but very workable solution that should keep all parties relatively happy. The key is that under BBASIC, index files can be just as independent as data files. They don't have to be an integral part of another file either physically or logically, and they can be created, modified, and deleted "on the fly" from within a BBASIC program.

While I'll cover the details of how to do this next month, the overall plan of attack is to handle the report in two passes. In the first pass, we'll create and open the temporary file,



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Before you choose to sort the file, make sure you have a calendar and baseball bat handy

and initialize it so we can use the standard "K" statements with it. Then we'll read through the data file sequentially and select those records we want to include. From those selected records we'll extract the field(s) we want to use as a key, and add the key to the temporary index.

When we reach the end of the data file, we begin the second pass, which is to simply read the data file in sequential order using KFINDS and KNEXTs, read the associated data record, and compile and print the report. When this is finished, simply delete the temporary file and *voila!* you have a timely report requiring a minimum of system resources. Not only that, but the best part (at least for me) is that my other users didn't even notice!

In terms of required system resources, this technique works out pretty well. Although KADDs are by no means free in terms of sys-

tem overhead, and this process requires the data file to be read twice, overall it's still a better choice than either a permanent index or a sort. A permanent index in the time between report runs could easily require a hundred times as many KADDs and KDELs in order to keep the index current, and a sort requires entire records to be moved and possibly rewritten many more times than twice.

As far as response time is concerned, while your users may notice a slight degradation in response time while you're doing all those KADDs, it's nothing compared to what a sort does to the system. Also, the minor degradation will be of shorter duration, since the system can perform KADDs much faster than it can sort entire records.

Last and (for those of us with smaller disks) certainly not least, while the temporary

file occupies disk space for a short time, a regular index occupies it permanently. This advantage is multiplied if you maintain permanent indexes for several files, because only one temporary file per user need exist at one time.

Stay tuned, because next month I'll cover the "nuts and bolts" (pardon the pun) of how to set up these files, what to watch out for, and some other uses for the same concept. I'll try to include some comparative benchmark figures on each of the techniques we've discussed. Δ

John Ferry is vice president of Ferry Brothers, Inc., a distributor of nuts and bolts. Contact him at 15300 Industrial Parkway, Cleveland OH 44135; 216/267-6636.

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Laptop lets the celluloid times roll

Film production studio takes DG/One on the road

by Jeanne Sangster
Focus Staff

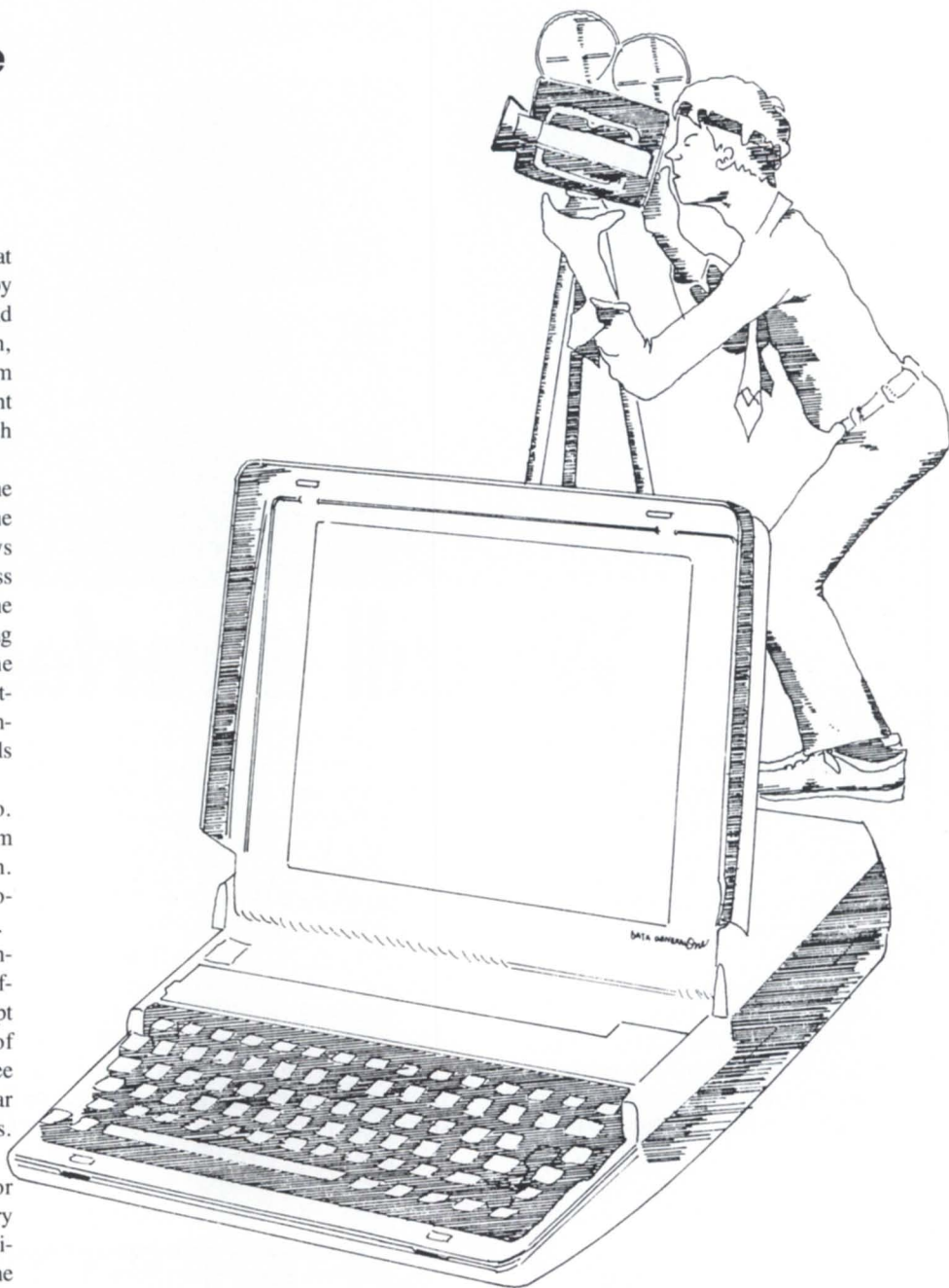
Nestled in the rolling hills of Vermont, at the base of the Green Mountains, is the sleepy town of Putney, population 1,600. Allan and Sally Seymour, a husband and wife team, chose this picturesque setting for their film and video production company, Vermont Studio Inc. They couldn't have gotten much farther from Hollywood.

The fact that a DG/One could find a home amid such quaintness is testimony to the increasing versatility of computers. The days (and nights) of pale hackers in windowless rooms hunched for unhealthy lengths of time over machines only a nerd could love are long gone. The Seymours' DG/One is used in the two-person facility (a converted barn) in Putney, but was purchased primarily to accompany them on their numerous business travels across America.

Vermont Studio Inc. began 18 years ago. In 1976, the Seymours' interest evolved from advertising photography to film production. In 1980 they added the production of videotapes in response to an expanding market.

The studio currently produces documentary, educational, promotional, and point-of-purchase films—everything, in fact, except Hollywood-type features. A large portion of the studio's revenues are generated by three high-power or high-class areas: the nuclear industry, sports, and imported automobiles.

Recent productions include a film for Volkswagen of America recapping the history of the company and explaining the technological development of their new successor to the Rabbit, the Golf (this film won a CINE Golden Eagle for excellence); television spots for Volvo of America; a series of specialty



The search for a portable began when they realized enough of their time was spent on the road to warrant a computer small enough to fit on Sally's lap

driver training programs for the National Academy for Professional Driving in Dallas; and a film exploring the need for and the controversy surrounding nuclear power in New England.

Two other examples of the Seymours' work for the nuclear industry are training films for plant employees, and film shorts for information centers of nuclear power plants. The film shorts provide viewers with a tour of an entire nuclear plant (since new restrictions don't allow for such tours).

Given the company's location in ski country, it's not surprising that skiing filmwork has become a major emphasis, especially promotional and training films. The National Ski Areas Association, just 60 miles from Putney, has responded to rising insurance rates by developing more training films. Vermont Studio also provides promotional films for ski resorts and documentary films on ski racing. The United States Olympic Committee is listed as one of the studio's clients.

The Seymours are also involved in the growing field of videotape fashion, producing presentations for CV Sports, a clothing manufacturer based in Vermont. They have developed point-of-purchase tapes, 5-to-7-minute shorts shown at a shop counter, to provide customers with information on a particular company.

Point-of-purchase films are used most frequently in automobile dealerships, in order to show customers particular aspects of the auto and help them feel closer to the product. The Seymours produce these for the imported auto industry. Clients for television spots include Subaru, Volvo, Porsche, Audi, BMW, and VW.

Although President Allan Seymour handles all the filming and Vice President Sally Seymour the editing, they hire from a pool of independent experts to handle tasks such as sound and lighting when they go on a shoot.

The search for a portable computer began when the Seymours realized enough of their time was spent on the road to warrant the purchase of one small enough to fit on Sally's lap in the car. The term "laptop" is more than just figurative in this case! Given her busy schedule, she will often use time on

the road to work out prices for clients or to do budget calculations. Entering all the company's budget parameters in a computer program has helped her significantly.

The first portable purchased was not a Data General. According to Sally Seymour, soon after the purchase she discovered its 10-line screen "wasn't big enough—I didn't like it at all and I didn't use it."

Last April, the Seymours realized they had an additional need for a portable computer—to have one on-site at shoots to perform word processing for scripting and shooting schedules. They decided to try the DG/One for both budgeting and word processing. According to Sally Seymour, "We love the thing. It's worked out well. We've taken it on the road to California doing a job for Audi. We had a very tight shooting schedule, had trouble with the weather, and had to make a lot of changes in the schedule. We needed to provide the crew with a printed-out schedule so they knew what was going on. The schedule was constantly changing, so the computer was a godsend. Also, when you're shooting something that is a verbatim script a lot of times you'll make word changes right on the spot . . . For legal purposes we have to keep a copy of the verbatim script in its final form, so being able to make the changes very quickly right then and there is great."

In selecting a portable computer, Allan Seymour read a large number of computer magazines and talked with people. He visited a portable computer store in Rochester, New York, and became convinced that the DG/One was the only laptop computer with a screen big enough for his company's needs—"Nobody around here wanted to work with the little teeny screens. Also, Data General doesn't have a shabby name in the industry, so I felt it would be safe to go ahead and do it. I really like the little drives; they're just super. There's a lot of data on them and they're really tough. A guy out in California sent me a diskette and he wrapped it in some paper and mailed it in a white envelope, and it's perfectly okay! You just couldn't do that with a floppy. The screen's still a pain in the neck, but that's the nature of the beast. We'll have to wait for technology to come up with something better."

Learning to use the DG/One was not difficult. The Seymours had already purchased several other computers, including a Zenith Z-100, and were familiar with WordStar for word processing. According to Sally Seymour, "It didn't take any time to get to know it." One adjustment, however, was the keyboard—the location of certain keys is different than the Zenith's, and the DG keyboard is slightly compressed. She had to type a little more slowly for a while until she got used to the position of the keys. Her husband feels this drawback is inherent in any portable computer—"If you're going to look for a machine that small, it will have a small keyboard. You just can't have one without the other."

According to Alan Seymour, "It's really the only machine of its kind that I know of. I like the fact that it's PC-compatible, which is pretty much essential these days. I hate IBM, but we're stuck with it." He hasn't purchased an IBM PC and feels his Zenith Z-100 is "really a far superior machine." He has several printers, including a Diablo 630. So far the DG/One has only been hooked up to an Okidata 192. If he needs to print something out on the 630, he transfers the file onto a 5-inch floppy. He describes his PC-compatible 192 as "quite a nice little machine."

Concerning DG servicepeople, Alan Seymour says he's had "good luck—they always call you back. Before the last trip, something got loose inside the DG/One and was very problematic. I took it up to a dealer in New Hampshire near Dartmouth College who has a techie who's great—he had it for a couple of days, fixed it, and sent it back to me." Seymour feels that a large part of problems requiring service will happen any time a machine is "carted around" on extensive travel.

Speaking of extensive time on the road, it doesn't take too much imagination to picture Jack Kerouac using a portable computer for word processing on his legendary travels, or the traveling author Robert Pirsig strapping one to the back of his bike to write a sequel to *Zen and the Art of Motorcycle Maintenance* titled (what else?) *Zen and the Art of Computer Maintenance*. Δ

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FECKLESS

(fek' lis), adj.

1. ineffective; incompetent; feeble
2. without worth, spirit, or value

by Brian Johnson
Contributing Editor

This month I'm going to expound on one of my favorite after-dinner topics: useless (or commonly thought to be useless) AOS(/VS) commands.

:FECKLESS:BIAS

My favorite is the BIAS command. To refresh your memory, the syntax is "BIAS [max [min]]". Its effect is to tell the AOS(/VS) scheduler the maximum and minimum number of noninteractive processes that should be kept in memory. The BIAS can be examined by any user, but can only be changed by PID 2.

So, what's a "noninteractive" process? Well, AOS(/VS) characterizes a process as "interactive" if it frequently relinquishes control of the CPU before its allocated time slice expires. Processes that frequently consume their entire slice (i.e., those that are CPU-bound) are characterized as "noninteractive."

When AOS(/VS) finds itself short of real memory, it swaps (assumably) inactive processes to free up pages for use by active processes. In general, AOS(/VS) is biased toward interactive processes. This means it will swap a noninteractive process before it swaps an interactive one.

The BIAS command subverts this logic by forcing AOS(/VS) to keep in memory those processes it normally would swap. Unfortunately, it does this at the expense of interactive processes, which get swapped sooner than they normally would have.

Speaking of biases, I have a few myself. I consider active process swapping to be the pits. As far as I'm concerned, applying exotic algorithms to the swapping logic to make it better is like using acupuncture on the victim of a Claymore mine.

The performance of a time-sharing system

degrades so dramatically once swapping starts that your only action should be to eliminate the swapping, not improve how well it is done. This involves either increasing the system memory or decreasing the system load. Given the current cost of a megabyte, the preferred course of action is obvious.

But, I digress.

What kind of system manager would voluntarily opt to make interactive response time even worse so that a few batch jobs could get better service? Only a very sick one.

Footnote: If you're not actively swapping, the BIAS command has no effect.

:FECKLESS:XBIAS

In addition to the CLI's BIAS command there is also an EXEC XBIAS command. Its syntax is "CONTROL @EXEC XBIAS @device [+/-]factor." This command can also be applied to batch streams, but it has no effect unless the /CPU= switch is used when submitting jobs. Few people use this switch, so we'll ignore batch streams for the purpose of this discussion.

EXEC selects the next job to be printed based on two things: the job's QPRIORITY and the time it was submitted. If multiple entries are in the queue, then EXEC picks the one with the highest (i.e., numerically lowest) QPRIORITY. In the usual case, there will be a group of entries at the same priority, and EXEC will pick the oldest job for printing. It decides which job is oldest by taking the time the job was submitted, and adding the estimated pages multiplied by the bias factor. If the bias factor is zero, then estimated pages plays no part.

In the absence of a /PAGES= switch on the QPRINT command, EXEC estimates the pages required for a job by taking the size of

the file and dividing it by an assumed number of characters per page.

In the early days of AOS, EXEC defaulted the bias factor to some positive, nonzero number. Well, apparently a few of you old-timers out there submitted enough STRs to cause DG to change EXEC so the bias factor would default to zero, and the change then carried over into AOS/VS.

The most reasonable explanation I can think of is that people who print a group of program listings at a crack often submit the filenames in alphabetical order, and would like them to come out on the printer in the same order. That way they can throw the printouts into a binder without sorting them.

I like the idea of printing short jobs first; it seems eminently reasonable to me that short print jobs should come out first when several items are in the queue. But I also sympathize with the alphabet freaks.

A simple solution suggests itself: How about adding a /NOXBIAS switch to the QPRINT command that would have the effect of overriding the XBIAS for the specified file(s)? If a user is worried about having his group of printouts interrupted by a higher priority print job (a danger in any case), he could simply specify /QPRIORITY=0 (or whatever his profile specifies as his highest). As long as no one else submits at the same priority at the same time, his jobs will come out in the proper order, uninterrupted by other jobs.

With every scheme there's always a flaw. In the case of this one, EXEC would have to de-commit support for negative XBIAS factors. A negative bias factor would make a job seem "younger" than it actually is. It is used to favor long jobs over short ones. Does anyone know of a case where someone wants long jobs favored? I've never seen one.

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:FECKLESS:SYSINFO

On the surface, SYSINFO doesn't seem too useful. However, I know of two cases where it has solved major performance problems.

When AOS is booted, it determines the amount of physical memory present by testing each possible page until it finds one that doesn't respond. Notice I said "doesn't respond," not "doesn't exist." In the case of AOS/VS, the amount of physical memory is determined during power-up by the SCP. AOS/VS then asks the SCP how much memory is present. How does the SCP figure out how much memory? Take a guess.

An unfortunate side effect of this scheme is that if one of your memory boards is completely dead, the system will only see the memory up to the dead board.

Several times now I've had discussions like this:

Client: My system performance suddenly went in the toilet last Tuesday.

BJ: What happened last Tuesday?

Client: Nuthin'.

BJ: Nuthin'? All of a sudden, performance became stinko?

Client: Well, no, we had a bizarre panic, and after we rebooted it stunk.

BJ: Type SYSINFO and tell me how much memory the system thinks you have.

Client: Wait a sec. . . . It says 2 MB, but I know I have 4 MB. What gives?

BJ: Call field service and tell them to bring a new memory.

People who reboot every day should probably put a SYSINFO command in the UP macro and train their operators to check it when booting. That's because their memories usually die during power-up, as opposed to dying in prime time and causing a nonsense panic.

:FECKLESS: . . .

I've barely scratched the surface, but my WORD_COUNT program tells me it's time to quit. Maybe we'll revisit this topic in a future column. Δ

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Saga of the rings

Mastering the mysteries of the inner rings

by Tim Maness
Contributing Editor

I've tried to rotate the emphasis of these columns between general interest, operations, and programming issues. Today it's the programmers' turn, and the topic is memory management in DG's 32-bit architecture. Since I am especially interested in writing programs that use the "inner rings," I'm going to start with a description of the segments and rings used in the MV implementation of virtual memory management, then follow up with some examples of how to write programs in a high level language to utilize inner rings.

The 4 gigabyte logical address space of MV machines is divided into eight 512 MB "segments." Each segment is an addressable unit of memory that contains program code and data. The segments are independent of one another, so AOS/VS can use each segment for a different function. The segments are protected from each other by a "ring" that surrounds each segment. The ring is a collection of protection mechanisms that safeguard the contents of a segment, with ring 0 protecting segment 0, and so on.

The real benefit of this way of organizing memory is that user programs and AOS/VS share the same logical address space. This means that when you make a system call, it is similar to a subroutine call, and there is no context switching. This is a very simple idea, but very powerful. However, because everyone is using the same logical address space, it is very important to keep the user programs (which are potentially dangerous) from mucking with the system.

The protection is provided by ordering the eight segments hierarchically by their abilities to access and change the contents of the other segments. Segment 0 has the most privileges and segment 7 the least. The protection mechanisms are similarly aligned with ring 0 giving segment 0 the most protection, and ring 7 giving segment 7 the least protection. The usual way of illustrating this is to show a set of eight concentric circles, with

the innermost circle being segment 0, and the outermost circle being segment 7. A segment can only reference or change an address in a segment with a greater or equal number. That is, segment 5 can refer to segments 5, 6, and 7, but not directly to segments 0 through 4. In other words, the rings protect inner segments from outer segments, but inner segments can have their way with outer segments.

Currently, AOS/VS uses the rings as follows: Ring 0 contains the AOS/VS kernel—the part that manages memory, schedules processes, services interrupts, and drives devices. The kernel runs in ring 0 because programs in ring 0 can access all the rings. Ring 1 contains per-user kernel data, such as data on the current working set, currently active system resources, and the page tables themselves. Ring 2 is unused. Ring 3 contains the user interface to AOS/VS, the agent, and the local PMGR. Rings 4 through 7 are user rings. Ring 7 is the main user ring, into which AOS/VS places user programs. Users can load other programs into rings 4 through 6, and then access the routines as needed.

In general, a program has free access to its own ring and all higher numbered (outer) rings. In order for a program running in one ring to access another ring, it must go through a legal "gate." A gate is defined by the inner ring program, so unless an outer segment knows about the gate, the inner segment can't be penetrated. A gate is really nothing more than a special entry point, which in turn points to the starting location of a subroutine.

The terms "segment" and "ring" tend to become somewhat confusing, because they are interrelated and often used interchangeably. Now that we've defined the terms correctly, we'll use the term "ring" to mean both the addressable unit of memory and the protection mechanisms.

Why should anyone except AOS/VS developers be interested in using inner rings? The main reason is to improve software performance. There are a few ways to do this. First, the inner rings can be used for local servers. Local servers are faster than global servers because they can move data between customer and server without interprocess communication system calls or ?MTFC/?MBTC calls. The local server is part of the same logical address space as its customer,

so communication is accomplished with subroutine calls and other MV hardware instructions. The time saved can be significant—microseconds vs. tens of milliseconds.

The inner rings can also be used to provide a "shared library" facility. Multiple processes with the same program file use the same shared memory, but multiple processes with different names do not, even if 90 percent of the code they contain is identical. Separating the common code into another .PR file that each process loads into an inner ring will allow the code to occupy the same memory (since the name of the .PR file running in the inner ring is the same).

The system call used to load a program file into a specified ring is ?RINGLD. Chapter 3 in Volume 1 of the AOS/VS programmer's manual contains a sample program RINGLOAD that uses this system call to load program INRING into an inner ring and then uses the LCALL instruction to call INRING. I typed in the code, assembled it, etc., and it works. But while it was useful in illustrating that ?RINGLD really does work, it didn't help me understand how to get my code running in an inner ring, since my code is written in a high-level language.

The following is a high-level language equivalent of the same example. I'm using Fortran 77, but any high-level language works the same way. The main routine TEST.F77 writes to the screen, then calls two subroutines. Assuming we want to do this in the "normal" way (i.e., everything in ring 7) the routines would look like:

TEST.F77 contains:

```
C TEST.F77
  WRITE (*,*) "RINGLOAD TEST
  PROGRAM"
  CALL SUB1
  CALL SUB2
  END
```

SUB1.F77 contains:

```
C SUB1.F77
  SUBROUTINE SUB1
  WRITE (*,*) "IN SUB1"
  END
```

SUB2.F77 contains:

```
C SUB2.F77
  SUBROUTINE SUB2
  WRITE (*,*) "NOW IN SUB2"
  END
```

The following commands will compile, link and execute the test program:

```
) F77 (TEST SUB1 SUB2)
) F77LINK TEST SUB1 SUB2
) X TEST
RINGLOAD TEST PROGRAM
IN SUB1
NOW IN SUB2
)
```

In order for SUB1 and SUB2 to be in ring 6 and be called by TEST in ring 7 we will link SUB1 and SUB2 into a ring 6 program file, SUBS.PR, and alter TEST.F77 so it ringloads this file. The new TEST.F77 is:

```
C TEST.F77
WRITE (*,*) "RINGLOAD TEST
PROGRAM"
CALL RINGLD ("SUBS.PR",ICC)
CALL SUB1
CALL SUB2
END
```

The RINGLD.F77 routine is used to interface to the ?RINGLD system call:

```
C RINGLD.F77
SUBROUTINE RINGLD (NAME,ICC)
CHARACTER * 256 NAME
```

```
INTEGER ICC
IAC0 = BYTEADDR (NAME)
IAC1 = 0
IAC2 = 0
IRINGLD = 264K
ICC = ISYS (IRINGLD,IAC0,IAC1,
IAC2)
RETURN
END
```

In addition to the code to do the ring load, the legal gates need to be defined. This is done by setting up a gate array containing the entry points the inner ring will allow to be referenced from the outer ring. The gate array for the test program is:

```
GATE__ARRAY.SR:
.TITLE GATE__ARRAY
.EXTL SUB1,SUB2,R.INIT
.ENT I.INIT
I.INIT=R.INIT
.LOC 34
ARRAY
.NREL ARRAY: 2
.GATE SUB1 7S3
.GATE SUB2 7S3
.END
```

Which we assemble:

```
) X MASM GATE__ARRAY
The gate array, SUB1, and SUB2 are then
linked into the program file, which will be
ringloaded into ring 6. The program file is
called SUBS in this example:
```

```
) F77LINK/RING=6/O=SUBS GATE
__ARRAY SUB1 SUB2
```

Since SUB1 and SUB2 are now part of SUBS.PR they won't be included in the list of routines used to make TEST.PR, but TEST still needs to be able to resolve these references. This is accomplished by creating a small assembly language routine called RESOLVE.SR which contains this address information:

```
RESOLVE.SR:
.TITLE RESOLVE
.ENT SUB1, SUB2
.DUSR SUB1=6S3+0 ; RING 6 +
FIRST GATE
.DUSR SUB2=6S3+1 ; RING 6 +
SECOND GATE
.END
```

This routine is assembled and TEST can then be linked and executed:

```
) X MASM RESOLVE
) F77LINK TEST RINGLD RESOLVE
) X TEST
RINGLOAD TEST PROGRAM
IN SUB1
NOW IN SUB2
```

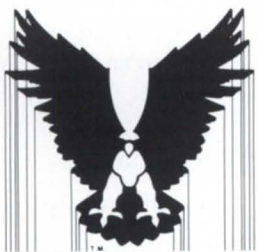
The results look remarkably the same, but in fact the two subroutines are executing in a lower ring. (If you want to check if something is really in ring 6 put a PAUSE statement in SUB2 then you can run PED on another terminal using the ring 6 specific switches, or use the debugger to set a breakpoint after the call to RINGLD.)

Now this seems fairly straightforward, but as with all interesting things, there are a few problems. GATE__ARRAY.SR contains a line (I.INIT=R.INIT) that deserves further explanation. When you create a program from routines written in a high-level language, they assume that the runtime initializer (I.INIT, which is one of the modules in LANG__RT.LB) has run and done the initial allocating of memory for the stack and heap, and other things. A problem occurs because I.INIT was written specifically for ring 7. This problem is solved by telling LINK that I.INIT is really R.INIT, the version of the runtime initializer that is ring independent.

Unfortunately it seems DG doesn't seem to know whether use of the inner rings from high-level languages is a feature they really

(continued on page 49)

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Sleuth

Tracking the source of an error can be a humbling experience

by George Henne
Contributing Editor

It all started one day when my accountant came to me and told me her keyboard wouldn't accept the letters B, J, R, Z, 2, or quote marks ("). "Relax," I said, "It sounds like hardware. Call DG."

A week or so later, it happened again. The keyboard had been replaced, but now it was happening at another terminal. When I realized that every eighth letter was affected, I knew what it had to be. "Replace the IAC!" I told DG.

Soon after the IAC was replaced, the same thing happened to me on my own terminal, and to three of our customers as well. AOS/VS? The PMGR? A new rev of something? But then my accountant noticed that it always seemed to happen after a certain update program was run. Could this problem be caused by software? Not just some system software, but something inside a Business BASIC program?

I should first note the mess this problem causes. We found it could be cleared only by signing off the terminal, then signing back on. Take another look at the letters affected: B, J, R, Z, 2, and ("). Can you sign off without typing "B" as in BYE? Or "R"UN something? Or even just SWAP to something without using a quote sign? One has to sign on with SUPERPROCESS and TERMINATE, or use a control-C sequence if it is enabled.

I had a lead. Somewhere in a job stream of 40 BBASIC programs chained together was something that made these characters go haywire. All I had to do was find where.

It was a time-consuming process. When I eventually found it, I was flabbergasted. The culprit had worked fine for years. Something in a new rev introduced the problem. Here is a simple program that creates the problem. Note that it has nothing to do with terminals at all!

```
0010 OPEN FILE[1,5], "INDEXFILE"
0020 DIM DESC$(18), BUFF$(544), KEYS
    [512]
0030 LET RRD2=0
```

```
0040 LET DESC$=CHR$(1,2), FILL$(0)
0050 LET KEY$=CHR$(1,2), FILL$(32)
0060 K FIND DESC$, BUFF$, KEY$, RRD2
```

Looks pretty innocuous, doesn't it? It's wrong, however, for at least two reasons: (1) keys of 512 bytes are not allowed, and (2) the length of the string or substring used in the third parameter must be the same length as the actual key. In this case, the length should have been 2.

Both these facts are documented in the Business BASIC manuals. Fixing the code is easy: DIM KEY\$ to the correct length, delete the FILL\$(32) in line 50, or refer to KEY\$(1,2) in line 60.

How could I have known about this? How should I know that DG, after all these years, would enforce the rules set forth in the documentation? The point is that DG has every right to modify their software so it works in accordance with the documentation: just because something works doesn't mean you can rely on it, unless the manual says it should work.

Actually, the folks at Research Triangle Park had told me about potential problems from misuse of keys some months ago, but at the time it didn't seem like something we were likely to do wrong. I think I said something like, "Serves them right if someone else does something like that!" It turns out we were guilty a couple of times in the several million lines of code we have out there.

After the subtlety of that problem, it was nice to find a much simpler one that can bomb many BBASIC programs on AOS/VS systems. While awaiting input, just put your finger on a key and hold it there. Or be creative like our users, and lean a book on the keyboard. Eventually, your terminal may beep and abort with the message, "I/O ERROR 22—Insufficient memory to execute program." (If you have a global ON ERR in effect, it will be triggered, with equally upsetting results to the operator.)

Of course, the message is dead wrong. It happens even in console mode, right after you've typed NEW. The error code is returned by AOS/VS: Business BASIC just gives the wrong message for it. The operating system's input buffer has overflowed, causing the error condition.

Can it be prevented? Yes, in some cases. The problem appears to be sensitive to the length of the input field. If you use STMA 4,10,LEN, or PRINT @(-10,LEN) to

specify how long the input field should be, the problem doesn't seem to happen unless LEN is greater than 25 or so. Remember, though, that the length has to be reset before each INPUT statement: otherwise it defaults back to 132 each time.

The other solution is to put an ON ERR condition around the INPUT statement. I'm not very keen on this, because ON ERR constructs are a poor program structure for normal conditions. If you were smart and put your INPUT statements in a common input routine, it shouldn't be too hard to fix.

When I first learned about this, I complained to DG. Here was a case of AOS/VS BBASIC not acting like RDOS BBASIC. Furthermore, the reason we use INPUT USING " ", " " is to prevent the possibility of a user's input causing an error. DG's defense was philosophical: an error condition trapped by the operating system has to be brought to the attention of the user, and not concealed by the language.

I still don't agree with Data General on this point. If you have a strong opinion on this issue, either send DG an STR or let me know. I'll be glad to publish any comments I receive.

A couple of weeks ago, I had a very nice phone call from someone in the Atlanta Support Center. He said he'd been following my STR progress reports with interest. (Make a note: people within DG do read *Focus*!) He was sympathetic with my complaints about how long it takes to get an STR through the system, and made a suggestion that would speed up the process by a couple of weeks.

My local SE had suggested I send my completed STR form to him, so he could forward it on to the STR processing center. This isn't necessary, although you may wish to send your SE a copy. You can send your STRs directly to Data General at: STR Processing Center, 1626 Jeurgin Court, Norcross, GA 30092.

I took advantage of the opportunity presented by the call to complain about the form itself. We'd like to make it easy and type the forms up, but they're too wide for a typewriter. I asked whether it would be acceptable if I made up a similar form that was split into two pages. He didn't sound thrilled with the idea, but mentioned what DG's plans were in that area.

Nothing is definite yet, but in 3 to 4 months they hope to have a dial-up facility for submitting STRs. With a standard 1200 baud

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modem and a DG terminal, you'll be able to call up the Support Center and type the details of your problem directly into the STR processing system. Using XODIAC, they'll be able to beam the STRs up to the development group days or even weeks more quickly.

In last month's issue, I wrote about the new MV/2000 DC. Writing one day after its announcement, I cautioned that some of the details were premature and sketchy. I am happy to report I was wrong about one detail in particular.

My concern was that the MV/2000 DC would be crippled by the lack of intelligent terminal interface boards. This was an understandable concern, since the word "intelligent" wasn't used in any of the initial information releases. Since then, I've received the product brief on the option boards for the machine.

The new interface board is called the Local Bus Interface Controller, or LAC. It has 12 asynchronous lines, two with modem control. All lines support either RS-232C or RS-422. Like the IAC, the LAC has an on-board microEclipse with 128 KB of local memory. Two of these can be installed, giving 24 lines. Also announced was an LSC, which has two synchronous lines and an LLC to allow connection to a local area network such as Ethernet or IEEE 802.3.

My other complaint was the introduction of yet another type of cartridge tape, and no standard tape. The bad news is that the new tape unit is probably here to stay. At least it's cheap. Sooner or later DG will get around to making it available on other DG machines so we can transfer our software.

Today I received new white pages for my price book. I often discover wonderful new things in them. This time I was looking through the options available for the DS/7700, the engineering workstation version of the MV/2000 DC, and found two fascinating new products I'm sure haven't been announced yet.

The first is 6352-Q, described as a 120 MB cartridge tape drive that fits physically inside the MV/2000 DC box. Yes, it's another incompatible tape format, but because of its higher density and presumably higher transfer rate, it at least offers some real potential for replacing standard tape. Don't blame DG completely for all these incompatible cartridge tapes; the technology shows real promise, but there is not yet an emerging industry standard.

The other surprise was 6341-Q, and it was what I was really hoping to find: standard

streaming tape to fit the MV/2000 DC architecture. In many applications, it is still the best and only way to transfer data. All we've gotten from DG so far is rumors that it might be available in the spring. Here's confirmation that it's almost certain to be available soon. Like the tape drive on the MV/4000 DC, it comes with its own minicabinet. Δ

As vice president of MICOM Computer Systems, George Henne has installed a large number of Business BASIC systems during the past 7 years. Send questions or comments to him at 575 Madison Avenue, Suite 1006, New York, NY 10022; 416/445-4823.

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2001: A Date Oddity

The solution to a problem that's coming sooner than you think

by Tim Boyer
Contributing Editor

This column is about the handling of date fields in the next century.

I know, I know. You're 3 months late with that module for payroll, the changes to the tax program have *got* to be in effect by March 1, and the printer is down waiting for parts from California. (Why do repair parts *always* come from California? Now that Doug Kaye's business is in California, does he have to get his from Maine?) You've got all these problems right now, and along comes some turkey talking about the next *century*, for God's sake.

Well, get ready. The year 2000 is closer than the year 1971. 1971 seems like just yesterday, doesn't it? 2000 will seem like just tomorrow. I'll rerun this column in 10 years or so, by which time I guarantee it will be too late. Just stop and think about how many of your programs use a date, and then think about rewriting all of them. Now is not too soon to start.

Maybe you're assuming that by then the problem will be solved by some nice, nonprocedural language anyone can use. Perhaps, but I fully expect to be running ICOBOL into the year 2000. The time, money, and manpower invested in our base of COBOL programs are just too large. Besides, I *like* the language.

Data General has made it almost too easy to stick with ICOBOL. When you go to a new machine, you don't need to do a massive conversion or even recompile. Just change interpreters, and ICOBOL is up and running. Data General has an interpreter for the IBM PC now, and Bruce Ray at Wild Hare Computer Systems has one for the Macintosh and Lisa. I imagine one could be written for any machine. Twenty years from now, I'll probably be running ICOBOL rev 34 on my MV/750000.

If you've written any programs for keeping track of pensions, you know about the date problem already. In our pension plan we have people with birth dates ranging from 1892 to 1967. Retire dates (potential and actual) range from 1950 to 2032. Okay, so you just put in the last two digits of the year and assume that everyone knows that a birth date of 02/22/92 is not 1992, and a person retiring in '14 is not going to be 137 years old. That works fine—until your boss asks for a list sorted by date.

Sure, you can fudge it and get the results in the right order with something like

```
IF BIRTH-YEAR > 70 THEN BIRTH-CENTURY = 18
ELSE BIRTH-CENTURY = 19.
```

But remember, you're going to have to change it every few years, and *nobody* is going to remember all the programs that use this particular line of code. It's only a matter of time until your boss gets a list telling him all of his employees are geriatric patients. Besides, it's a kludge.

Enough lecturing. Let's assume your programs are able to handle the next century—will Data General be ready for it? Well, the machine

you're sitting in front of right now can handle dates up to December 31, 2057. Now that takes guts—designing an operating system in the 1970s that can handle dates well into the next century!

Step into the DG time machine. Boot the system up, and answer the DATE question with 12 31 157. No problem—GTOD will give you back 12/31/157. Now, bring up the runtime system and look at the date on the LOGON screen. Whoops—the year is 07. The decade is not being read correctly. That's the whole point of this article.

The date field is alphanumeric!

Write something that will let you take a look at each digit of the date field, and you will find that in the year 2057, the decade in ACCEPT DATE is the character '?'. In 2001, it's ':'. In other words, 14 years from now, none of your date routines will work.

But what are they doing with this character? Pull open your ASCII character set reference, and you will find that the character after 9 is ':'. Five characters after this is '?'. All they are doing is continuing to count upwards. I call this hexadecimal, DG style. I'm just curious why they stopped with 2057. It seems to me that this scheme would be valid for the next thousand years or so.

I would never have thought of doing it this way, but it makes all *kinds* of sense. You can still express the date using only six characters. Most importantly, it preserves the ASCII collating sequence. When you do an ACCEPT SYSTEM-DATE FROM DATE on December 31, 2001, the field will look like ':11231'. You can compare this to any other date, and the comparison will be valid.

Now, however, comes the fun part—extracting the correct date from this field. The routine I use looks like this:

```
01 CENTURY-FLAG PIC X(1) VALUE "N".
01 SYSTEM-DATE.
03 SYSTEM-YR-DECADE.
05 SYSTEM-DECADE PIC 9(1).
05 CHECK-FOR-2000 REDEFINES SYSTEM-DECADE
PIC 9(2) COMP.
05 SYSTEM-YEAR PIC 9(1).
03 SYSTEM-MONTH PIC 9(2).
03 SYSTEM-DAY PIC 9(2).
ACCEPT SYSTEM-DATE FROM DATE.
IF CHECK-FOR-2000 > 57
```

```
SUBTRACT 10 FROM CHECK-FOR-2000,
MOVE "Y" TO CENTURY-FLAG.
```

The REDEFINES allows you to look at the ASCII value of the character. If this value is greater than 57 (ASCII '9'), the routine subtracts 10, making the value numeric once again, and then sets the CENTURY-FLAG so you can tell that the date is greater than 1999.

Now, you can do anything with this information. My print field for the date looks like this:

```
01 PRINT-RUN-DATE.
03 PRINT-RUN-MONTH PIC Z9.
03 FILLER PIC X(1) VALUE "'".
03 PRINT-RUN-DAY PIC 99.
03 FILLER PIC X(1) VALUE "'".
03 PRINT-RUN-YEAR.
```


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05 PRINT-YEAR PIC 9(2).
05 PRINT-FILLER PIC X(2) VALUE SPACES.
03 PRINT-RUN-CENTURY REDEFINES PRINT-RUN-YEAR.
05 PRINT-CENTURY PIC 9(2).
05 PRINT-CEN-YR PIC 9(2).

In the procedure division, you can use the check code above, and then write:

```
MOVE SYSTEM-MONTH TO PRINT-RUN-MONTH.  
MOVE SYSTEM-DAY TO PRINT-RUN-DAY.  
IF CENTURY-FLAG = "Y"  
MOVE 20 TO PRINT-CENTURY,  
MOVE SYSTEM-YR-DECADE TO PRINT-CEN-YR,  
ELSE MOVE SYSTEM-YR-DECADE TO PRINT-YEAR,  
MOVE SPACES TO PRINT-FILLER.
```

This will give you a date field looking like "12/31/85" or "12/31/2001," depending on the century.

These routines will be very handy in a few years, and you might as well start changing your programs now. However, they have an immediate, practical use—for those of you who don't like planning 14 years in advance. If you are dealing with records where the dates are likely to go into the next century, or back into the last century (personnel or pension programs, for example), the following routines will keep

your dates in the proper collating sequence *and* keep them compatible with DG's date scheme. The entry in WORKING-STORAGE looks like this:

```
01 CENTURY-DATE.  
03 CENTURY-MONTH PIC 9(2).  
03 CENTURY-DAY PIC 9(2).  
03 CENTURY-CENTURY PIC 9(2).  
03 CENTURY-DECADE-YR.  
05 CENTURY-DECADE PIC 9(2) COMP.  
05 CENTURY-YEAR PIC 9(1).
```

```
01 RETIRE-DATE.  
03 RETIRE-YEAR PIC 9(2).  
03 RETIRE-MONTH PIC 9(2).  
03 RETIRE-DAY PIC 9(2).
```

```
77 DATE-ENTRY PIC 9(8).
```

Note that the DATE-ENTRY field is eight characters long instead of the traditional six. In the SCREEN SECTION, you'll want to ACCEPT all eight characters, like so:

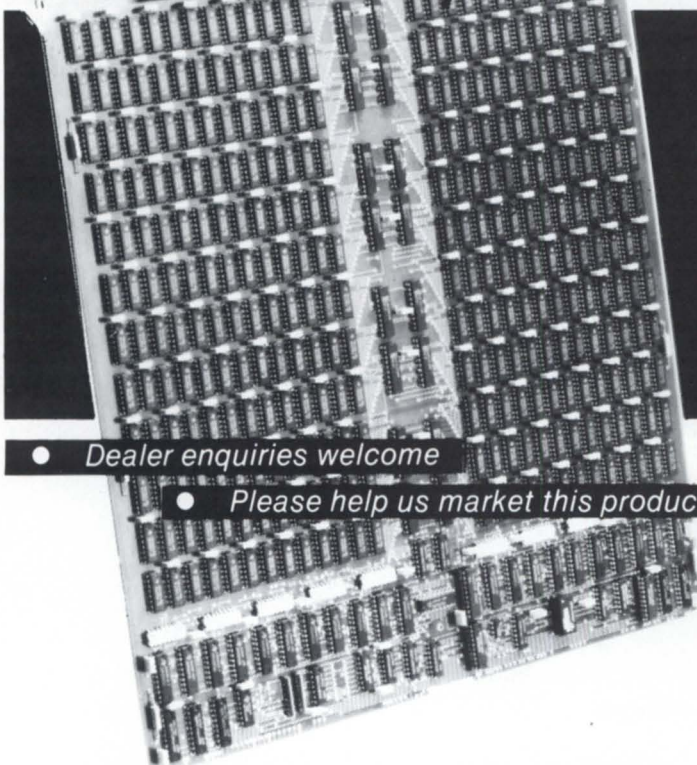
```
01 DATE-ENTRY-SCREEN.  
03 LINE 12 COL 10 PIC 9(8) FROM SPACE TO DATE-ENTRY.
```

Then the procedure is as follows:

```
ACCEPT-DATE-PROCEDURE.
```

```
DISPLAY DATE-ENTRY-SCREEN, ACCEPT DATE-ENTRY-
```

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SCREEN.

```

MOVE DATE-ENTRY TO CENTURY-DATE.
IF DATE-ENTRY > 99999
  MOVE CENTURY-MONTH TO RETIRE-MONTH,
  MOVE CENTURY-DAY TO RETIRE-DAY,
  IF CENTURY-CENTURY = 20
    ADD 10 TO CENTURY-DECADE,
    MOVE CENTURY-DECADE-YR TO RETIRE-YR,
  ELSE IF CENTURY-CENTURY = 18
    SUBTRACT 10 FROM CENTURY-DECADE,
    MOVE CENTURY-DECADE-YR TO RETIRE-YR,
  ELSE PERFORM INVALID-CENTURY,
  GO TO ACCEPT-DATE-PROCEDURE,
ELSE MOVE CENTURY-DAY TO RETIRE-MONTH,
  MOVE CENTURY-CENTURY TO RETIRE-DAY,
  MOVE CENTURY-DECADE-YR TO RETIRE-YR.
    
```

When your operators have a date in the 20th century, they can enter it in the normal fashion—"120185," for example—and the date will be stored in the RETIRE-DATE field in sortable fashion as "851201". If the date is in the next century—December 1, 2012, for example—it is entered as "12012012" and stored, in the proper collating sequence, as ";21201".

Note, however, that this routine can also handle dates in the 19th century. December 1, 1885 is entered as "12011885," and stored as

".51201." This preserves the ASCII sequence downwards, and the date will be sorted in the correct manner. If you keep these routines in a COPY file, it will be an easy matter to change them when the next century hits. Then your operators will be able to enter a two-digit year for the 21st century and a four-digit year for anything else.

I put an error message in if the century is less than the 19th or greater than the 21st. This is only for our application—we have no pensioners older than 185. If you happen to be doing historical research, or writing a science fiction novel in ICOBOL, there's no reason these restrictions have to apply. Just subtract 20 for the 18th century, add 20 for the 22nd century, etc.

Finally, when you go to display the converted date, use a routine like the print example above. Instead of printing the results, put the fields in your SCREEN SECTION and display them.

Imagine, if you will, 10 years from now. Your boss runs in with a copy of *Computerworld*. He's just read the In-Depth section titled "The Coming Date Crisis in Data Processing"—and he wants you to get right on it. Won't it be fun to tell him you took care of *that* problem back in 1986! Δ

Tim Boyer is EDP manager at Denman Rubber Mfg. Co. and president of the Northern Ohio Data General User's Association. He may be reached at P.O. Box 951, Warren, OH 44482; 216/898-2711, or on the NADGUG bulletin board at 415/924-3652.

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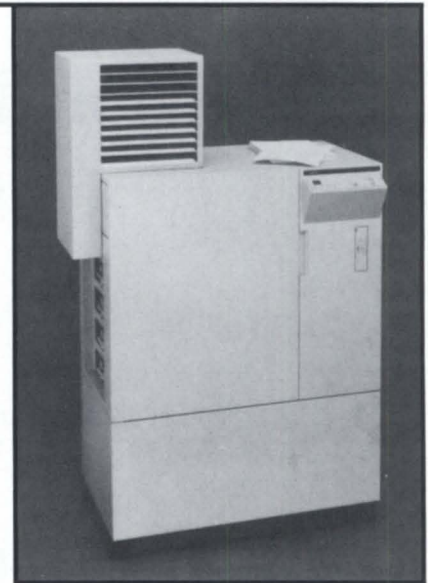
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News from NADGUG and its affiliates

OASIS, the Office Automation Special Interest Group, will sponsor a full-day workshop on CEO in Indianapolis on April 4. The group is planning at least four sessions on topics such as:

- CEO managers' role/control and security
- Multiprocessor environments/information center concepts
- Corporate training and orientation/specialized applications
- User responsibilities

The workshop is open to anyone interested in CEO. Registration is free for OASIS members who have paid their yearly membership

fees. For nonmembers there will be a \$15 workshop fee, which includes a 6-month OASIS membership.

OASIS hopes to offer similar workshops in different regions of the country. If you would like to take part in the panel presentations, or would like more information on the CEO workshop, contact Bobbi Pressman (312/948-1814) or Charlene Kirian (614/764-6435) as soon as possible.

Δ

The NADGUG Executive Board will gather for its pre-conference planning session February 27-28 in Orlando Florida, the site of the 1986 NADGUG annual conference. In addition to NADGUG's officers and committee chairs, all Regional and Special Interest Groups are invited to send representatives. For more information, contact the user group

coordinator at Data General's headquarters, 4400 Computer Drive, Mail Stop C-228, Westboro, MA 01580; 617/366-8911.

Δ

A new Regional Interest Group for the state of Oregon is forming. Dick Ayres, of the Oregon State University College of Veterinary Medicine, says the group will hold its organizational meeting in February—"or as soon as we can." Contact him for more information at Magruder Hall, Corvallis, OR 97331; 503/754-3034.

Ayres also says he is looking for clinical or diagnostic software to customize for his work with the College of Veterinary Medicine. The software would be substantially the same as for human diagnostics—but has to be customized for certain items such as "species." Can anybody help?

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Metropolitan New York will soon have a RIG if Art Zuckerman has his way. Before Christmas, Zuckerman, a Data General sales representative, had contacted customers in Manhattan and sponsored an introductory meeting. About 35 users came to DG's offices at 633 Third Avenue. Zuckerman hopes to expand the membership into the surrounding metropolitan area, and is also looking for users to take over the leadership of the group. For more information, contact Art Zuckerman at 212/883-9100.

Δ

Maria Mata is reconstituting the San Diego RIG. She sponsored an organization and planning meeting for January 8 at the offices of Alta Technology, 4186 Sorrento Valley Boulevard, suite N, San Diego, CA 92121; 619/452-7410. With a large "hidden

market" for Data General systems in the San Diego area, Mata expected more than 30 users to attend. She also sent out a plea for people who would be willing to serve as speakers for future meetings.

Δ

The new Kansas City RIG has already held two meetings, and has a third scheduled for February 13. After an organizational meeting in November, the group invited Joyce Carter, NADGUG's RIG/SIG Committee chairwoman, to speak at their second meeting on December 12. Despite threatening weather and icy roads, 12 users came to hear Carter's advice on starting and maintaining a successful RIG. After the meeting, the group toured the installation at the National Association for Insurance Commissioners, then went out for an Italian dinner.

For more information on the Kansas City

RIG, contact Tom Duell at Eagle Software, Inc., P. O. Box 16, Salina, KS 67402; 913/823-7257.

Δ

HADGUG, the Houston Area Data General Users Group, held its December meeting at the Jungman Branch Library. After a pre-meeting dinner, the group heard a presentation on local area networking products in the Data General environment. The speaker was Larry Duclos of Micom Systems, Inc., and his talk included an overview of both twisted pair and Ethernet LAN products using X.25, statistical multiplexors, and SNA gateway products.

For more information about HADGUG, contact Lee Jones, c/o Gulf Coast Systems, Inc., 730 North Post Oak Road, suite 304, Houston, TX 77024; 713/681-2308.

Δ

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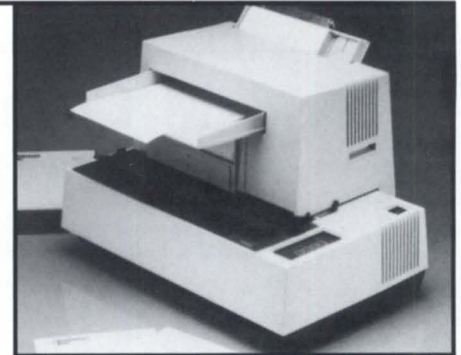
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UK firm offers memory for MV machines

Watford, UK—A new line of compatible memory boards for Data General's MV/4000 and MV/10000 computers is available from Modular Business Computers Ltd. The six-layer printed circuit boards use 256 KB DRAM chips, and are available in modules of 2 MB, 4 MB, and 8 MB.

According to MBC, the memory boards combine low power consumption with superior power and noise tolerance. Power dissipation is rated at 50 watts while operating, and 24 watts in standby mode. The boards also feature fully compatible 7-bit ERCC.

Operating speeds are said to be as fast as 250 nanoseconds for both read and write operations. A typical read would require 400 nanoseconds, and a typical write would need 500 nanoseconds.

The boards receive a 100 hour burn-in test prior to shipment, and carry a 1-year warranty. Δ

Modular Business Computers Ltd., Unit 5a, Hartspring Industrial Park, Hartspring Lane, Watford WD2 8JS, United Kingdom; phone 0923/50101; Telex 949801 MBC.

Eagle puts space management utility in VS Toolbox

Salina, KS—Eagle Software, Inc., has added a utility called "the Manager" to its VS Toolbox. The utility can enable space management on INFOS II indexes and data bases that have space management disabled, without having to rebuild the file.

The Manager joins nine other programs in Eagle's VS Toolbox, a kit of utilities that are designed to improve INFOS file organization,

monitor system performance, enhance system security, and improve AOS/VS file access. Companies that have already purchased the Toolbox will receive the Manager for no additional charge. Trial copies are available. Δ

Eagle Software, Inc., P.O. Box 16, Salina, KS 67402-0016; 913/823-7257.

Cognos updates DG version of PowerHouse

Ottawa—Cognos Corporation has released an enhanced version of its PowerHouse fourth generation language. According to the company, the new rev features significant CPU performance improvements, and multilevel DBAM reporting for existing applications. PowerHouse runs on Data General's MV/ family systems.

With this new release, Cognos can demon-

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strate applications that interface with Data General's Comprehensive Electronic Office (CEO) software. These applications can transfer data to Data General spreadsheet products. A CEOP status line appears on PowerHouse applications and a "soft interrupt" capability permits easy movement between a PowerHouse application screen and the CEO message screen.

The beta version of PowerHouse 4.05 has been tested by companies in the United States, Canada, and the United Kingdom who were users of the earlier version of PowerHouse.

According to Peter K. Wiggins, senior vice president at Kaplan, Smith and Associates, Inc., a savings and loan financial consulting firm in Los Angeles, users were impressed by the processing speed. At the Edmonton, Alberta, headquarters of Brick Warehouse Ltd., a large furniture retailer, the vice president of MIS, Dave Upright, says users were pleased with the compatibility with CFO, Data General's INFOS-based financial

software package.

Cognos, a Data General Qualified Software Vendor, reports that PowerHouse has been installed at 3,600 sites in 46 countries. More than 60 copies of the DG version of PowerHouse have been sold since its introduction in January 1985. Ten third-party software developers have converted to PowerHouse on Data General, and seven U.S. colleges and universities are teaching PowerHouse on MV/ family systems. Δ

Cognos Corporation, 275 Slater Street, 10th Floor, Ottawa, Ontario K1P 5H9, Canada; 613/738-1440.

High-density tapes introduced for DG minis

Chatsworth, CA—Interscience Computer Services, Inc. has released the S210, T350 and



Interscience T350 and T375 tape subsystems

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Circle 4 on reader service card

PRODUCT SPOTLIGHT

T375 high-density tape systems for Data General minicomputers. They are designed to meet the data capture, retrieval, interchange, and backup requirements of DG Nova, Eclipse, and MV/ family computer users.

The S210 is designed to satisfy the demand for high speed, high capacity, and reduced cost in a compact configuration. It offers 50 ips start-stop capability plus a 100 ips streaming mode. Automatic threading is standard; recording formats are ANSI-compatible. It includes tape transport, formatter electronics, channel interface, and resident microdiagnostics in a single self-contained package.

The T350 and T375 series tape subsystems feature tri-density operation (800/1600/6250 bpi) with tape speeds of either 50 ips or 75 ips and full ANSI-compatible start/stop performance. According to Interscience, they are high-performance vacuum column machines that incorporate column geometry, resulting in low power consumption and quiet operation.

"The Interscience products are available at prices ranging from \$10,000 to \$20,000,"

says Interscience President Frank LaChapelle, "which represents savings in excess of 50 percent. . . Interscience also offers a nationwide service network to support these products." Δ

Interscience Computer Services, Inc., 8950 Lurline Ave., Chatsworth, CA 91311; 818/882-5600.

Special Systems offers Time Division Multiplexor

Westboro—Data General's new Model 5095 Time Division Multiplexor, available through the Special Systems Group, allows multiple terminals or devices to transmit simultaneously over a single high-speed communications line. Designed for the Data General communications environment, the Model 5095 is targeted for interactive applications that require remote connections between terminal clusters and a host computer.

Supporting data transmission speeds of up to 9,600 bits per second, the Model 5095 interleaves eight individual lines into a high-speed composite line for serial transmission. Using twisted pair cables, the Model 5095 operates at distances of up to 2,000 feet; an optional fiber optic link can connect units that are up to a mile apart. The Model 5095 supports both local and remote terminal clusters, as well as a mixture of RS-232 and RS-422 interface types.

According to Bob Ritter, communications product manager of the Special Systems Group, multiplexors such as the Model 5095 are cost effective because they can connect terminals and devices more efficiently than the traditional direct terminal-to-computer approach.

Available in both cabinet-mounted and wall-mounted versions, the Model 5095's styling coordinates with other DG cabinetry. Priced at \$995, it is available for delivery in 90 days. Δ

(continued on page 49)

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“I know it’s somewhere . . .”

A simple and workable way to keep track of files in CEO

by Charlene A. Kirian
Contributing Editor

“Now, *where* did I file that?” Is this a question you often confront? Filing systems get very confusing very quickly if you don’t establish a system that’s easy to use and remember.

I remember when I first started filing my documents in Data General’s Comprehensive Electronic Office (CEO). The system automatically gives you a “First Drawer” and “First Folder.” I thought this seemed a simple enough way to file, so I started placing things in the first drawer, created a second folder, a third folder, etc., then a second drawer with more folders. After a couple of weeks, I didn’t have the slightest idea where I had filed a memo from the week before. Was it in the second drawer, third folder, or was it in the first drawer, fifth folder?

I finally had to reevaluate my filing system and come up with a logical way to file things so I could find them. My new system has worked for me and for others. Let me give you a few examples.

When I teach a class of secretaries or administrative assistants, I try to make them understand that CEO filing is similar to a conventional filing system. They have personal cabinets in their office that only they can access. They also have public cabinets that anyone can access. There are drawers in each cabinet. Within each drawer, there are folders; within each folder are documents. I suggest that if they work for several people they should name the drawers in their account by the people they work for. For example, my secretary would have a drawer named “Kirian.” In that drawer she would have folders named “Memos,” “Letters,”

“Reports,” and “Misc.” When a document is created, it is named by subject matter, date, or person to whom it is addressed. The drawer structure would look something like Figure 1.

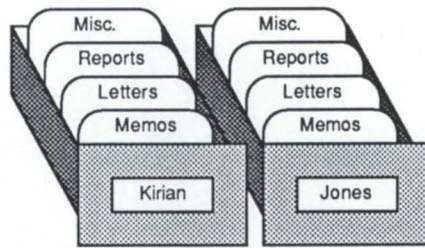


Figure 1

It’s a good idea to have your secretary share ownership of that drawer with your own account, so you can have access to any information in it. Keep in mind that when you edit anything in that drawer, it’s the *original*, not a copy!

If you do a lot of your own editing or creating, another filing structure might work better. Drawers could be named by specific topics or projects. Let’s say you are a project leader. Several people who work under your supervision could be assigned to the same project. Your drawer structure could look like Figure 2.

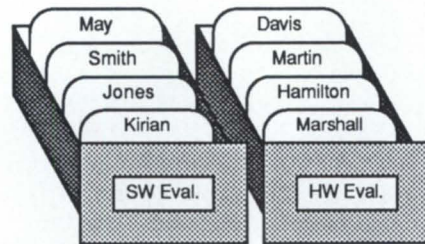


Figure 2

If you are a manager and have several areas of reporting, you might want to set up drawers with names for those topics. For instance, drawers could be named “Budget,” “Projects,” and “Leave of Absence.” Your drawer structure could be similar to Figure 3.

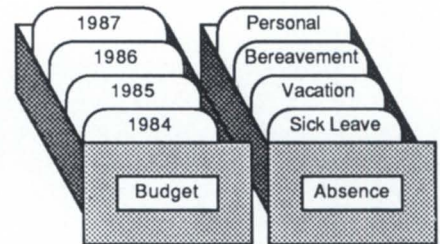


Figure 3

If your organization has many divisions, departments, and sections, the upper levels of management may want to name their drawers by those classifications. We have acronyms for each of our divisions. Our naming structure might look like Figure 4.

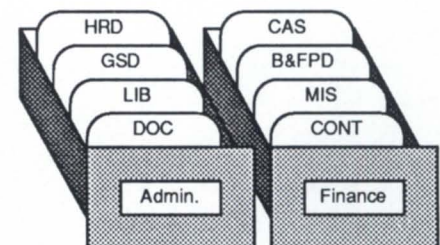


Figure 4

The Public Cabinet can get a little tricky if you’re a multiprocessor installation, since DG hasn’t yet given users the capability of

Documents will be accessed more quickly if they're spread out, rather than bunched together

sharing files across systems. We have dedicated our public cabinets to general information only. If we want everyone to see the same information, one person has to be responsible for items in the public cabinet. We've given that responsibility to the CEO manager. Anyone wanting an item to be placed into the public cabinet sends the document to the CEO manager, who then files the same document on each system by mailing the document to an account set up for that purpose. With this method, all information will be the same on all processors. When a user makes an update to their original, they send that copy to the CEO manager, who replaces the copy in the public cabinet with the new copy. It becomes a bit cumbersome, but has worked well for us.

We have items in the public cabinet such as job postings, calendars of events, furniture keys, and OCLC standards. For example, in the "Job Postings" drawer, folders are set up for each division (i.e., FD, ASD). In each division folder are the job titles available. The same information is on a bulletin board located in the lobby, but this allows a user to have privacy while searching through available positions. In the "Calendar of Events" drawer, folders are created for each year. Documents can then be named by the month. Our drawer structure for the public cabinet is shown in Figure 5.

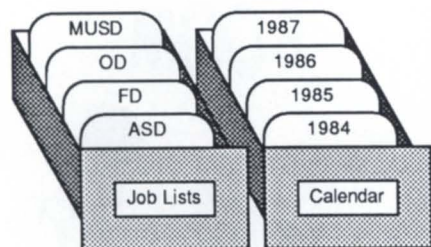


Figure 5

It might also be helpful to know that documents will be accessed more quickly if they're spread out, rather than bunched together in one drawer and one folder. There are limitations on this: the system will only let your account "see" 100 drawers, with 100 folders in each drawer, and 100 documents within each folder. However, if you know the drawer, folder, or document name that is

beyond the 100 limitation, you'll be able to access that particular choice by typing the names at the edit menu.

If you still can't find a document you created, the "Search" facility located in the filing menu is a great help. It will let you search for a document by several criteria, even by the date you last modified. It's a little difficult to understand at first, but once you use it, you'll find it invaluable for finding lost documents. I have created a user-defined command to help me search for all the documents in a specified drawer. The command starts from the main menu:

```
COMMAND: 5 NEWLINE 4 NEWLINE
2 NEWLINE = NEWLINE (drawer
name) EXECUTE
```

This will look for every document in the

specified drawer in your cabinet, and list up to the first 100 documents. If you need further information about this command, it's explained in more detail in the *Getting Started with CEO* manual by Data General.

These are just some of the suggestions I've given users when they first develop their filing systems. If you have some innovative filing systems, let me know. I'll pass your ideas along in a future column. Δ

Charlene A. Kirian is OA training specialist for the Online Computer Library Center, Inc., 6565 Frantz Road, Dublin, OH 43017; 614/764-6435. She also serves as president of NADGUG's OASIS Office Automation Special Interest Subcommittee.

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Circle 1 on reader service card



What's Your Problem?

The troubleshooter takes aim at problems that are more practical than technical

by Geri M. Farman
Focus Staff

Data General users may value the technical information they get from *Focus*, but most of them don't join NADGUG just for another source of technical information. An even big-

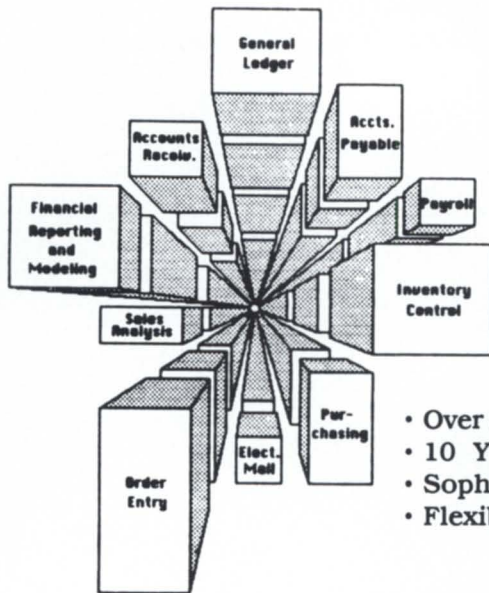
ger attraction for NADGUG's many new members is the user group's reputation for promoting informal communication channels that quickly get to the source of nontechnical problems.

This month sees the start of a much needed column—one specifically designed for users whose problems are more practical than technical. The column's agenda will be set by users who call or write for assistance in locating help for their problems. We expect that many of the questions will revolve around corporate policies or organizational issues at Data General or the other vendors in the DG community.

We at *Focus* encourage you to contact us, describe the problem you're facing, and suggest how the user group or Data General can address it. Our staff will then contact people at NADGUG and DG, and report the results of our initial inquiry in this column.

It often takes a while to find solutions to organizational or policy problems, but *Focus* can get the ball rolling. If a problem remains unsolved, it may become part of a membership survey (to determine the level of interest in the issue), or be included in the agenda for NADGUG's Executive Board. If you are having problems similar to the ones aired here, let us know!

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“Could DG search through old files of BBASIC software licensees? Then the user group could contact them and bring them back to the fold.”

Q. I believe there are thousands of Business BASIC users out there who need to know about the user group, but who can't be reached because their names are lost among old files at Data General. Many of these people bought their systems from OEMs that have either moved to other product lines or are now defunct. As a result, no one knows who these people are, and most of them are completely unaware of how to solve their BBASIC problems. I've talked to some who are still on the original revs!

If DG could search through their old files to find the names of these software licensees, then perhaps the user group could send a mailing to them (or a reply card in *Focus*) to bring them back into the fold. It would be to DG's advantage to do this—most of these people are ripe for upgrades. Plus, if they can't find someone (DG, the user group, consultants) to solve their problems, they'll be so frustrated that they may move to other product lines.

-Robert Quackenbush
QAX International Systems

A. We interviewed several key people about this problem to help assess the level of interest in developing such a BBASIC list, and the obstacles, if any, to developing it.

Mark Strickland, BBASIC Special Interest Group (SIG) chairman, doesn't hold much hope for Data General spending a lot of time searching old records to develop such a list. According to him, BBASIC is generally designed for smaller businesses than DG is presently targeting. They have solved most if not all of the technical problems with the product and will probably enhance it, but not promote it. However, he believes if the list is developed, NADGUG could use it to encourage more BBASIC membership.

George Henne, who writes the BBASIC Business column for *Focus*, believes there are a lot of BBASIC users who are unknown at the present, and that probably 75 percent of them are ripe for upgrades. He could see some merit in developing such a list.

Russell Harmes, product manager, Data General's Small Systems Group, said the problem in developing a list of all people who have had BBASIC license agreements is that it involves researching old records via the MIS department. He could benefit from such a list himself, but the list of names would be confidential information. He didn't see any real problems with NADGUG being able to use such a list to promote user group membership—provided there is assurance that the names can be kept confidential. He said he would explore the possibility of developing such a list in a few weeks when things are less hectic. (We called him just before Christmas, so we know what he means about things being hectic at the time.) We hope to get a follow-up report for next month's column. Δ



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Turbocharger

Microcoding can give a performance boost to MV/ family systems

by Robert F. Hogan
Special to Focus

One of the significant tools for developing better and faster computers is microprogramming. Although the term may seem to imply the programming of microcomputers, it really refers to a technique for implementing a computer's instruction set. Unlike other techniques, microprogramming combines the flexibility of software with the speed of hardwired logic. The Eclipse

MV/10000, which incorporates an instruction set interpreted by microcode, is an example of a microprogrammed system.

In a computer with a hardwired instruction set, circuitry in the CPU generates signals that control the various logic networks. This logic produces a different set of signals for each executable instruction. In a microprogrammed computer system, on the other hand, microcode generates these same signals. One of the main differences is that microcode can be changed easily to accommodate user-specific modifications.

Instruction sets of Data General's MV/ family computer systems are completely microprogrammed. As Data General continues to add new hardware and software features to the MV/ family, similar enhancements are also implemented in the microcode. The

major advantage is that microcode provides a significant cost savings over designing hardwired features, without sacrificing performance levels.

Microcode controls the computer at a primitive level, using hardware to interpret machine language instructions. Each microcoded instruction (or macroinstruction) is implemented by a microroutine (group of macroinstructions). These microroutines reside in the computer's writeable control store (WCS), the local memory (RAM) that stores microcode for a computer. Microroutines interpret instructions in the same way that a machine language program interprets higher level language instructions.

Microcode is typically used for applications such as table look-up routines, data

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See you there.

Since microcoding is a complex process, to use it you must have a solid understanding of your computer's architecture and functions

dictionaries, frequently used mathematical operations, search routines, and graphical displays and calculations. Microcode can also be used for other repetitive operations that require fast execution time.

Since microcode is stored in WCS, it is necessary to reload the microcode into WCS whenever you bring up the computer. This process is similar to that of loading new programs for different applications. Just as you can change programs to enable applications to execute new and more advanced functions, you can use microprogramming to execute new and more advanced functions. For example, microcode enables you to enhance your computer's instruction set to create your own custom-designed machine. Using a microcoded algorithm, you can boost your MV/ family system to achieve greater levels

of performance. The result is not unlike adding a turbocharger to an eight-cylinder engine.

Let's consider some of the advantages of microcode. First, microcode is user-accessible on machines that have WCS. This allows you to write instructions for software routines that are critical to your specific application directly into the control processor of your MV/ family computer system.

Second, microcode routines can be executed at machine cycle rates. Since the control processor executes at a very high speed, microcode routines can be executed faster than the software routines they replace.

Third, several parallel operations can be executed during the same microcycle (the time required to execute one macroinstruction).

This is possible because of the width of an MV/ family microword (104 bits on the MV/10000) compared with an assembly language instruction, which is 32 bits at most.

Finally, one microcoded instruction may incorporate several assembly language instructions. As a result, within the microcycle you can control the instruction processor, microsequencer, address generator, address translation unit, integer arithmetic-logic unit (ALU), and floating point unit (FPU). This contrasts with an assembly or high-level language where you are confined to the sequential execution of each individual instruction.

However, there are trade-offs. Since microcoding is a complex process, to use it you must have a solid understanding of your computer's architecture and functions. It is easier to program a computer with standard

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By microcoding only the most frequently used algorithms, you can achieve a 30 percent or greater increase in overall performance

instruction sets and high-level languages such as Fortran, Pascal, and C.

In using assembly language, you also must be familiar with the intricacies of your computer's architecture. For example, you

must know the number of accumulators it incorporates, and how it accesses memory or handles I/O, interrupts, and mathematical operations. Consider this: for a simple high-level instruction, such as the Pascal instruction READLN (VARIABLE), there are usually at least three assembly language instructions to achieve the same function.

Usually, the instruction count ratio from assembly language to a higher level language compiler is 3:1 (compiled to assembled). With an interpreted language, such as BASIC, the ratio is approximately 24:1 (interpreted to assembled). These ratios also reflect the execution speed; as the ratio increases, the language executes more slowly.

Given the above facts, you might assume that all you need to do to make a program faster is reduce a high-level language program into assembly language. Generally, this is true. Simply take your most critical routines and translate them into assembly language. It is not unusual, in fact, to take 10 percent of your program, translate it into assembly language, and leave the other 90 percent in a high-level language.

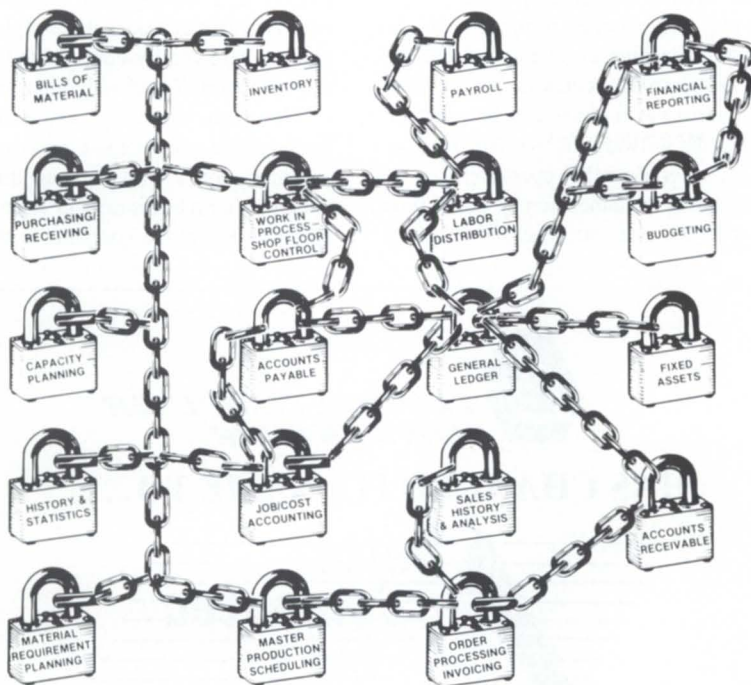
The result can increase performance dramatically, but at times, even translating critical routines to assembly language does not drastically reduce runtime and execution overhead.

In most computers that use hardwired logic to interpret instructions, you cannot exceed these limitations. However, with microcoding you can carry efficiency and speed to a greater level than with assembly language. By identifying the most frequently used algorithms, and microcoding only those functions, you can achieve a 30 percent or greater increase in overall computer performance. All of this extra added performance is possible merely by taking from 2 to 5 percent of your program and translating it into microcode.

Deciding whether to use a microcoded algorithm is similar to deciding whether to convert a critical high-level language routine into an assembly language algorithm. Whenever increased performance is required, microcode is well worth considering.

The example below illustrates how one microcoded instruction is equivalent to a series of assembly language instructions that

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require sequential execution. While not syntactically correct, this example shows the compact operations performed by microcode.

In the assembly language version, these three instructions are executed sequentially and independently:

```
LDA AC0, VARIABLE 1
LDA AC1, VARIABLE 2
SUB AC0, AC1, SNR
```

The microcoded version uses one macro-instruction to accomplish the same thing, and is executed in only one microcycle. As you can see, microprogramming enables you to achieve efficient code as you translate from a high-level language to assembly language: START AY = AG (DES) = = PASS (B(VARIABLE)) WITH BYTE_ ADDRESSING FOR READ_ DOUBLE, CP = ALU (DES) = = MEM_READ, IY = ALU (DES) == B (DES)-A (SRC), IF ALU <> 0 GOTO NOT_ZERO;

Whenever you think you've squeezed the most performance possible from a routine, consider microcode. It can provide your MV/family computer system with that turbocharged extra measure of speed and performance you've been seeking. Δ

As project group leader, Robert F. Hogan develops microcode applications for DG's Special Systems Group Software, which also offers consulting and engineering to implement microcode for specific customer needs. For more information, contact the Special Systems Group, 617/480-7150.

(from page 26)

want to support, because R.INIT is not in rev 3.20 LANG_RT.LB! However, it is present in rev 2.30 LANG_RT.LB, and I've noticed no ill effects from linking inner ring programs using rev 2.30 of the common language library, and linking everything else with rev 3.20. You just have to ignore the SYMBOL_REQUIRE_LANG_RT_3.20 IS UNDEFINED error message. I'm trying to find out why this routine is no longer supplied with the library, and will share any new information I uncover.

I want to thank all the people who have called or written to me recently. I appreciate the feedback very much. I'm still collecting the "gotchas," so be sure to write or call with your nomination for the "Worst Thing that Ever Happened to me While Working on an MV." Δ

Tim Maness is president of DMS Systems, Inc., a software development firm specializing in data base management. He can be reached at 740 East 3900 South, Salt Lake City, UT 84107; 801/268-6671.

(from page 38)

Peripherals announces Refill for system upgrades

Costa Mesa, CA—Peripherals, a California company, has introduced "Refill," a new service for customers having damaged, crashed, or old disk packs/cartridges, or who wish to upgrade a system. It is available to

any Data General user.

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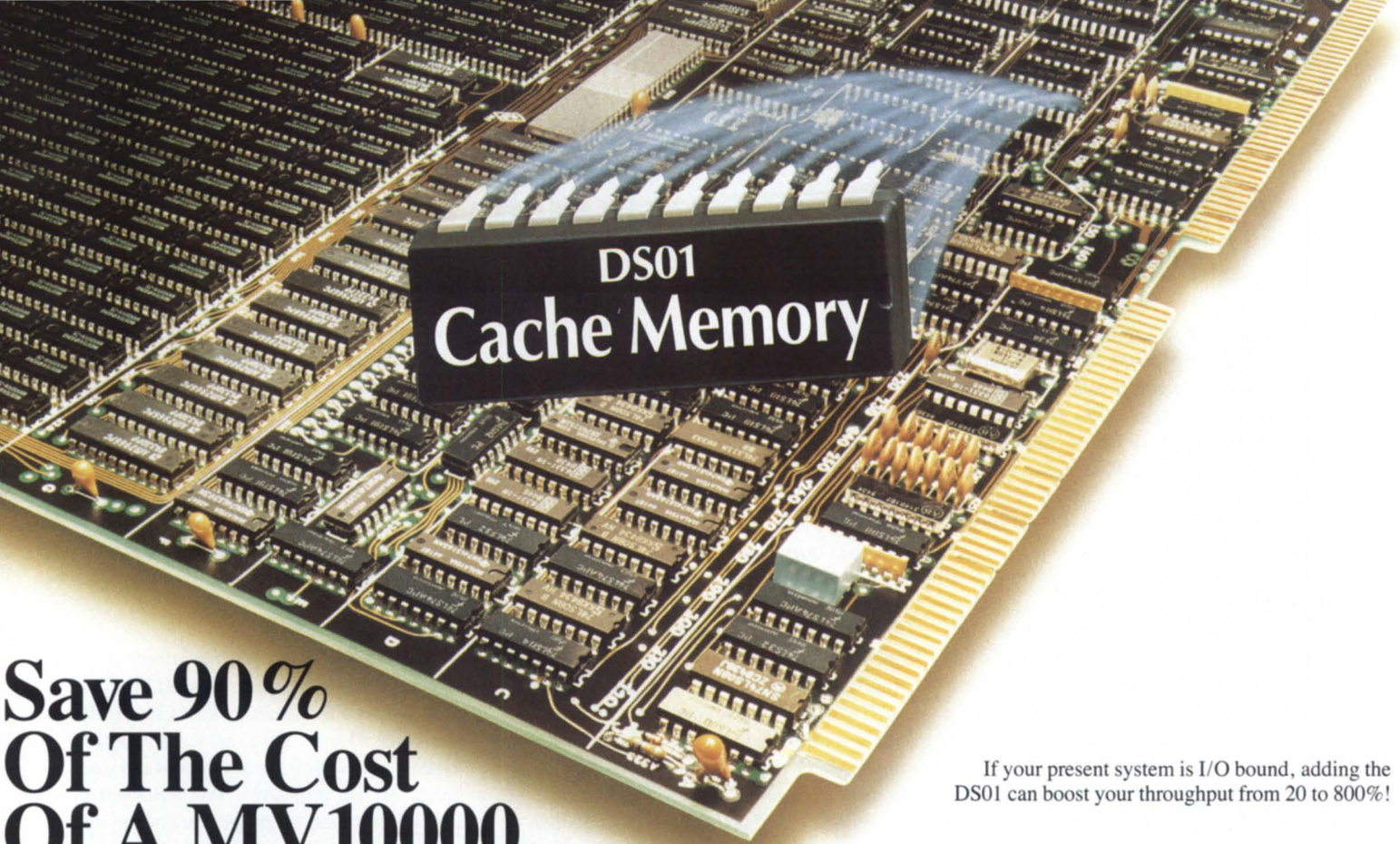
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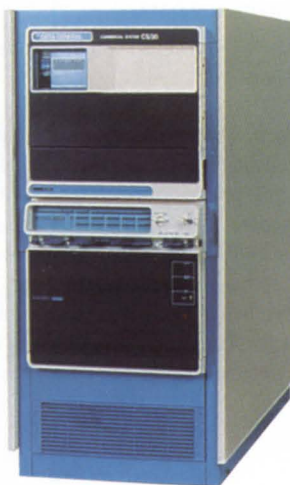
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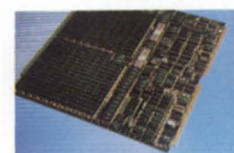
Our customers report that, on the average, adding a DS01 to their I/O-bound computers extends system life by about two years. So if you need more throughput and don't want to spend a lot on a bigger system right now, relax. Spend a little on a DS01. Then take a couple years, put your money in the bank and save up for your next computer system.

DS02 Our DS02 Fixed Head Disc Emulator is popular in the IRIS environment, and among Data General users who want to replace their 4019 fixed head discs. The single board, 15 x 15 DS02 is fully DG 4019 software transparent, includes full ECC and provides 2.5 microsecond access. The DS02 is up to 80 times faster than the 4019, is expandable in 512KB increments of MOS memory up to 1 MB and has switch selectable transfer rates. Battery backup is available.

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DS01

DS02

Tim Boyer got a quick response when he identified two problems in the new rev of ICOBOL in his December column. One of the developers with the languages group at DG's Research Triangle Park facility called within a few days to tell him it was the first they had heard about the problems, and ask if he filed an STR. (He hadn't, but has now.) Apparently the problems are being fixed.

Boyer and fellow Northern Ohio RIG member John Ferry must have been watching a lot of science fiction reruns lately. They titled their respective contributions to this month's *Focus* "2001: A Date Oddity," and "Close encounters of an unusual sort." Both insist it's just a coincidence.

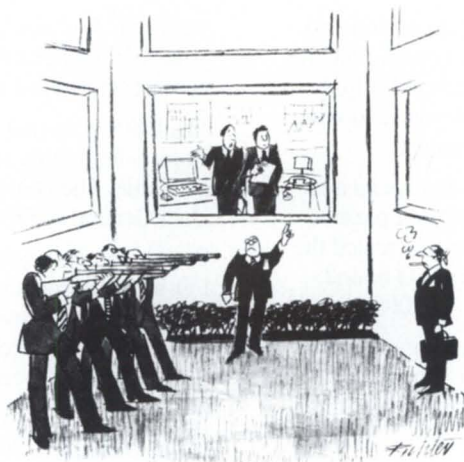
Incidentally, George Henne, the author of BBASIC Business, says the turn-of-the-century date problem that Boyer describes in his "Date Oddity" column may be even worse than Boyer predicts. It seems that, unlike every other year that is divisible by four, the year 2000 will *not* be a leap year. Be sure not to plan anything important for February 29, 2000.

Henne also says he suspects DG's Toronto branch office has begun hiring athletic types in preparation for next summer's softball grudge match with Henne's Micom Systems All-Stars. This sounds more serious than your typical amateur sports rivalry. Howard Cosell hasn't been very busy lately—perhaps he could be persuaded to cover the event.

Harper & Row is publishing a new book by David Bellin, a long-time consultant in the DG community. *The Complete Computer Maintenance Handbook* (224 pages, \$18.95 paperback) includes three chapters on software maintenance, four on hardware maintenance, two on documentation, and two on system enhancements. There are also a number of ready-to-use forms and contracts, and a special chapter on security issues. The book's commercial prospects will probably be improved due to its selection by the McGraw-Hill and MacMillan book clubs. Bellin, a senior consultant for System-Aid Computer Control Inc., also teaches at William Paterson College of New Jersey.

One of DG's spokesmen took the time to define the TIME acronym that DG introduced along with the MV/20000: "As we define it, TIME (for Total Information Management Environment) is the logical integration of the Office of the Future and the Factory of the Future. It includes all the information processing systems in an organization; all the communications links that interconnect these systems on a peer-to-peer and/or hierarchical basis; and all the vertical, horizontal, and occupational applications people need to make their organizations more efficient, more effective, and therefore more productive. In fact, a Total Information Management Environment applies to any industry, department, or job in which the processing of information in a networked environment is applicable."

What they're saying boils down to this: if you've got the money, they've got the TIME.



"Apparently, IBM isn't the safe recommendation anymore."

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When the January issue of *Focus* reported that some very old DG Novas are still doing yeoman service for the McDonald Observatory, it set us to wondering how many of those old standbys are still in service, and what kind of work they're doing. Nothing seems to bring in answers like a contest, so here it is: **The No Boat Anchors On This Bus Contest.** The rules are simple: write a

brief, more or less factual description of what your installation is doing with the Nova you rescued from obscurity, and send it to *Focus* by March 10, 1986. Prizes will be awarded for the oldest machine still in use, the most creative application, and the most unusual installation. Pictures and other documentation are appreciated, but not essential. Prizes will be vintage LP recordings from the year in which the Nova in question was manufactured.

A few of Cognos Corporation's Data General customers recently visited the company's Ottawa headquarters for "Close to the Customer Day." They came at Cognos' expense to talk with the developers and marketers of the company's PowerHouse/DG fourth generation language. Part of the day provided an interesting reversal of the usual customer visit: Cognos personnel listened to the customers talk about how they use the product, and how their applications fit into their total MIS environment. "Meeting with customers is an important part of our product development strategy," said Henry Urion, senior product manager. "We want to hear their ideas on how they hope to see PowerHouse/DG evolve, and how they see our product fitting in with their information needs in the longer term."

Some CEO users were startled to find that revs 2.11 and 2.12 do their screen handling differently than previous revs. It's only a problem if the users are trying to get the best of both worlds by running certain terminal emulation software packages on their personal computers. One large company had more than 100 IBM PCs linked to CEO systems through Persoft's SmarTerm 400 package, and when they brought up the new rev of CEO, the result was "havoc."

Persoft plans to fix the problem with their next revision, and has offered work-arounds for their revs since 3.1. Unfortunately, that didn't help the company in question—they had bought earlier versions of SmarTerm. Until the company can evaluate the new revs of SmarTerm against DG's CEO Connection, they've put the new rev of CEO back on the shelf.

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