THE mini-tasker

DECUS
RT-11 SIG NEWSLETTER

OCTOBER 1978 VOL. 4 NO. 4

Contributions to the newsletter should be sent to:

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(203) 565-4309

Other communications can be sent to:

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58 Rasted Lane
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or

RT-11 SIG
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One Iron Way
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Marlboro,Mass. 01752
(617) 481-9511 Ext. 4141

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## FROM THE EDITOR

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Continuing my effort to make the RT-11 Mini-Tasker and the RT-11 SIG responsive to our needs as RT-11 users, I am suggesting the following:

1. Establishment of an RT-11 SIG Brain Trust consisting of RT-11 SIG members that feel they have expertise in a particular area (Fortran,Basic,Macro,Data Acquisition etc.). These volunteers should be willing to answer user questions, complementing the local DEC software support offices, which, judging from letters and telephone calls I receive, do not meet all of our needs.
2. I have received questions concerning the RT-11 Welcome Wagon. I am not certain if one still exists. However, I would like to receive at least one volunteer representative from each state (and foreign country). This representative should be willing to contact new RT-11 users in his area.
3. To facilitate cross referencing user input in each issue, each user item submitted to the Mini-Tasker will now have an identification

number which refers to the volume in which it originally appeared. All user replies should refer to this identification number.

4. I would like to initiate an RT-11 Spotlight section of each Mini-Tasker. Any user can submit a brief description of his current programming effort, allowing readers with similar experience to exchange ideas. Continuing this goal at the San Francisco Symposium, we plan to start compiling a comprehensive list of all RT-11 users. Hopefully, we will be able to categorize each user by hardware and software. Users will then be able to find other users with similar interests and problems.

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## USER REQUESTS

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TD 4-4-1

ES Industries
8 S. Maple Ave.
Marlton, NJ 08053
(609) 983-3616

September 4, 1978

Mr. John T. Rasted
JR Associates
58 Rasted Lane
Meriden, CT 06450

Dear Mr. Rasted:

Thank you very much for your letters of August 16 and August 25. I am planning to implement the write-lock capability on my RX01 drive as soon as I can devote some time to doing so.

Since I first wrote to you, I have achieved a partial solution to my problems with using an ASR35 teletype as a paper tape reader/punch. I still cannot make it work as PR: under PIP, but I can use an RT-11 BASIC program (copy enclosed) to read a sequential ASCII tape.

Without boring you with too many details, let me make just a few comments about the workings of the system. Although the program makes it appear that one line of data is read and then written, the transfer actually is done in 512-byte blocks. And, curiously, the read part of the operation is 1-2 blocks ahead of the write portion at all times. The first block is read, and then the output file is opened. Block 2 is read, block 1 is written, block 3 is read, block 2 is written, etc. At the end, I have to terminate the final block by repeatedly typing '***END***<CR><LF>' until the block is 512 characters long. Then, and only then, the final 2 blocks are written and the file is closed, The closing of the file apparently is the operation which I have been unable to accomplish under PIP.

I still cannot read a formatted binary tape, since I cannot use PIP and the /B switch. However, I have been able to achieve 99+% of my needs by being able to copy a sequential ASCII file from paper tape to floppy disk.

Thank you again for your help. You have my permission to place the ASR35 portion of my letter in the next newsletter if you so desire. Someone may still give me a clue to using PIP in this application.

Very truly yours,

Harlan E. Clark

Harlan E. Clark, Ph.D.
Programmer/Consultant

RDTAPE.BAS 04-SEP-78 12:55:25

```
1000 PRINT "FILE TO BE WRITTEN";
1010 INPUT A$
1020 PRINT
1030 PRINT "WHEN TAPE IS FINISHED, REPEATEDLY TYPE (AT ASR 35"
1040 PRINT "KEYBOARD) '***END***<CR><LF>' UNTIL FILE IS CLOSED."
1050 PRINT
1060 PRINT "WHEN ASR 35 IS READY (SWITCH AT 'K'), PUSH 'RETURN'";
1070 INPUT Z$
1080 PRINT
1090 OPEN "PR:" FOR INPUT AS FILE #1
1100 OPEN A$ FOR OUTPUT AS FILE #2
1110 INPUT #1:B$
1120 IF LEN(B$)<1 THEN 1110
1130 IF B$="***END***" THEN 1160
1140 PRINT #2:B$
1150 GO TO 1110
1160 CLOSE
1170 END
```

ID 4-4-2

RECEIVED
1978 JUL -6 AM 11:05
DECUS

City Engineer's Department,
TOWN HALL.
MELBOURNE. C.1

Box 1603 M., G.P.O.,
G.P.O., Melbourne, 3001
Victoria, AUSTRALIA.

28th June, 1978.

Chairman,
RT-11 Special Interest Group,
C/o. D.E.C.U.S..,
129 Parker Street PK 3/E55,
Maynard MA 01754,
UNITED STATES OF AMERICA.

Dear Sie,

I have to advise that Council currently operates a (vehicle counting) data acquisition system on a PDP 11/10 mini-computer in the Traffic Engineering Signals Branch, using a RT-11 Version 2C operating system.

The PDP 11/10 mini-computer described above is an 11/10 with 16K words of core memory, with twin floppy disc drive, DSS-11A Special Input Sub-System and LA-36CJ terminal. The operating system is RT-11 Version 2C and it is anticipated this may be upgraded to Version 3 soon.

The special input sub-system returns collected counts via a special sampling Assembly Language Routine to a BASIC Version 1B program. It is known that the Version 2 BASIC (BASIC-11) interface is different from the Version 1B interface. Endeavours to ascertain other local RT-11 Users have only been partly successful. Neither several local users nor the Sydney D.E.C.U.S. Office have up to date records of RT-11 users. It is not known whether any other local users operate a similar system using a DSS-11 input sub-system.

It is therefore requested that a list of RT-11 users with either similar hardware configuration or similar applications be forwarded to this office, together with a further copy of the October 1977 Edition of the Mini-Tasker Newsletter as this copy was not received by this Department.

Your assistance regarding the above would be appreciated.

Yours faithfully,

(S. J. PIKE)
City Engineer.

HRG/RL

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USER INPUT

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TO: RT-11 Teco Users ID 4-4-3

From: David Yost
8464½ Kirkwood Dr.
Hollywood,Ca. 90046
213 852-1089

Dear Teco-11 people:

1. I use a 19.2 Kbaud terminal and TECO prints out much slower than full speed when I do nT. Are you using .TTYOUT calls? If so, would you please use .PRINT or .WRITE calls which will run faster because of reduced system overhead per character?
2. How do I reclaim the right brace as a printing character and not as an escape?
3. Is there a way to get the pointer to stay where it is when a search on the current page fails?
4. The manual I have refers to version 27 and I have version 28, what do I do?
5. Can I get a description of how to make scope mode work with a terminal other than VT-52 or VT-11?
6. It would be nice if there were a match character construction allowing specified sets of characters like (a-f),(afglm12) etc. Please let me know about these.

Sincerely,
David Yost

P.S. Beats the heck out of "EDIT"

MECHANICAL TECHNOLOGY INCORPORATED

968 ALBANY SHAKER ROAD
LATHAM, NEW YORK 12110
[illegible]

August 16, 1978

SIG Editors
Digital Equipment Corporation Users Society
Maynard, MA 01754

Dear Fellow Editors:

I am in the process of putting together the first copy of the Engineering Special Interest Group (ESIG) newsletter (to.be published this Fall). My first goal as editor is to identify the interests of the engineering audiences, but ultimately I must address the broader question of their needs and how this newsletter can best serve them. I invite your readers to submit comments and contributions to the ESIG newsletter.

I firmly believe ther is a need for an ESIG and I ask your support in establishing this newsletter.

Very truly yours,

Walt

Walter V. Dixon
Computer System Engineer

WVD/dg

RT-11 MULTI-TERMINAL SUPPORT

Jon Harris

There is a great deal of confusion over what is contained in RT-11 Version Ø3B as far as multi-terminal support is concerned.

Multi-Terminal Support is a facility that allows specially written application programs to communicate with multiple terminals. It is used by CTS-300 and MU BASIC-11. It does not make RT-11 a multi-user system.

With the advent of less expensive higher capability systems and intelligent terminals, specific applications which use multiple terminals are becoming more prevalant. The multi-terminal capability in RT-11 does a good job of meeting this market need. The following better describes the salient features of multi-terminal on RT-11.

-WHAT DOES MULTI-TERMINAL SUPPORT DO?

It allows a program to send characters to and receive characters from as many as 16 terminals. One of these terminals acts as the background console terminal from which the monitor accepts commands. This is also the terminal that interfaces with background jobs that use the standard terminal service features. This or another terminal can be designated the foreground console terminal, which interfaces with foreground jobs that use the standard terminal service features. The remaining terminals are available for the exclusive use of a requesting program.

A program may issue multi-terminal requests to its console or any terminal owned by the program. It also may issue standard terminal service requests such as .TTYIN and .TTYOUT to its console terminal.

A feature of multi-terminal support allows any terminal to act as the background console terminal. However, it must be connected by a local DL-11. The SET TT CONSOL monitor command is used to switch console terminals.

-WHAT DOES MULTI-TERMINAL SUPPORT NOT DO:

It does not provide multi-user RT-11. There is only one terminal designated as the background console terminal at any particular time, and this is the only terminal from which the monitor will accept commands. Multi-user APPLICATIONS such as MU BASIC and TIME-SHARE DIBOL demonstrate the intended use of multi-terminal support; these are NOT multi-user RT-11.

Multi-terminal support does not extend to the TT handler. The TT handler permits I/O in a device independent fashion to a job's console terminal only.

-A COMPARISON OF FEATURES

Standard terminal service is a set of programmed requests and features that are

used with the console terminal. Multi-terminal service provides a set of programmed requests and features that can be used with all terminals. A monitor with multi-terminal support has both standard and multi-terminal service features.

| FEATURE | STANDARD TERMINAL SERVICE | MULTI-TERMINAL SERVICE |
|---|---|---|
| Ownership of a terminal for the exclusive use of a job | NO | YES |
| Relinquish ownership | NO | YES |
| Get a character from the terminal | YES | YES |
| Output a character to the terminal | YES | YES |
| Print a string to the terminal | YES | YES |
| Use TT handler to do I/O to terminal | YES | NO |
| Re-enable printing after CTRL/O | YES | YES |
| Set terminal characteristics: | | |
| From DCL command level | YES | YES |
| Under program control | NO | YES |
| Obtain terminal characteristics | NO | YES |
| Remote terminals, modem support (DIAL-UP only) | NO | YES |
| Time-out on output | NO | YES |
| Periodically check interrupt enable bits | NO | YES |
| Event flags for changes in terminal status | NO | YES |

-SUMMARY

RT-11 multi-terminal service is a logical extension of portions of the existing console terminal support. As many as 16 terminals can be supported on many different interfaces. Multi-terminal support is not multi-user RT-11. However, its multiple terminal handling abilities are suitable for writing multi-user applications. More information can be obtained by reading the RT-11 documentation set. In particular, see:

RT-11 System Release Notes (AA-5286B-TC)
Sections 3.8, 3.11.1

RT-11 System Generation Manual (AA-5283B-TC)
pp. 3-9, 3-19

RT-11 Systems User's Guide (DEC-11-ORGDA-A-D,ND1)
pp. 4-71, 4-109

RT-11 Advanced Programmer's Guide (AA-5280B-TC)
pp. 1-62, 2-80 to 2-89, 4-94 to 4-98

The RT-11 Software Product Description (SPD 12.1.9) also has some relevant information.

WHAT IS IT? MU BASIC is an extension of the same BASIC used in BASIC-11/RT-11 and BASIC-11/IAS-RSX. It runs on any RT-11 System (11/03 through 11/60) with 28K or more words and supports up to 8 users. It takes advantage of up to 256K Bytes of memory. Its low price for one to eight users is without comparison in microcomputers, desktop calculators, or other mini's. Both DG and HP are quickly dropping out of the Small Multi-User BASIC market. The BASIC language on MU BASIC is highly functional, and will run programs written for BASIC-11/RT-11 and BASIC-11/IAS-RSX.

WHO WANTS IT? MU BASIC fits into a number of markets. The education market especially on the secondary level, finds MU BASIC (usually with an 11T03 system) a nice adjunct to teaching programming in math courses.

In the lab and industrial market, the RT-11 foreground real time capability coexists with MU BASIC and can afford a low price solution for multiple access and analysis of real time data. The extended memory capability of MU BASIC-11/RT-11 gives customers a chance to take advantage of greater than 32K words of memory without concerning themselves with the intricacies of PLAS.

Many OEM's are leaning toward MU BASIC for Data-Entry based applications. MU BASIC affords these people secure multiterminal file access, up to 8 terminals, an easy implementation language (BASIC) and, because of the ease of BASIC, a system which can be customized for each end user site with a minimum of work for the OEM. The speed of MU BASIC is sufficient for most Data-Entry applications.

Care should be taken in representing the performance of MU BASIC, especially on Floppy Disks. The more file accesses are done, the slower the system appears. As a rule of thumb, discourage more than 4 terminals on a Floppy based MU system that requires files access.

WHAT ARE ITS UNIQUE FEATURES? The following are unique, salable MU BASIC features:

One to eight users with equal size memory partitions; no swapping of user partitions.

A variety of program manipulation commands including commands for saving, editing, running and retrieving BASIC programs.

Support for real (single or double precision), integer, and string data type.

Ability to run in either the foreground or background under RT-11 F/B monitor concurrently with another job; supports all RT-11 supported devices (except VT11). MU BASIC runs in background only in systems using the RT-11 XM monitor.

Support for all terminals supported by RT-11.

User identification and file protection scheme to control system access and utilization (optional); public and group libraries for file sharing; privileged user capability.

Resource sharing: All peripheral devices can be used by any user at any terminal; ASSIGN and DEASSIGN commands available to restrict usage of non-public devices.

Limited ability for a user to ASSIGN a terminal (that is currently not in use) as an input or output device.

Sequential data storage using the RT-11 file system. The maximum number of simultaneously open files is limited by available memory and RT-11 channel considerations.

One or two dimensional virtual arrays on disk (integer, real and string) for processing quantities of data too large to fit in available memory or for performing random-access I/O.

Program chaining and overlaying with COMMON to accommodate large programs.

Formatted output with "PRINT USING" statement.

String support, complete with string arrays and functions.

A "CALL" statement which allows easy interfacing of assembly language routines. These routines can be called by name and passed multiple arguments. These routines must be included at link time. These routines are compatible with FORTRAN IV.

Immediate mode execution for "desk calculator" operation and program debugging.

"ON ERROR" statement for error processing.

Privileged user mode to protect BASIC applications programs.

## MU BASIC-11/RT-11 VERSION 2 COMPARISON WITH VERSION 1

DICK STRAUSS

MU BASIC-11 Version 2 is a great deal more functional than Version 1. The purpose of the article is to contrast the two so you can better understand MU BASIC-11 Version 2.

The most significant change in Version 2 is that all of the handling of interrupts and peripherals is through RT-11; therefore, any legal RT-11 Version 03B FB or XM configuration with multiterminal support and with at least 56K bytes of memory will run MU BASIC-11 and all legal terminals for RT-11 are legal for MU BASIC-11.

MU BASIC-11 Version 2 has been made compatible with BASIC-11/RT-11 Version 2. In doing this, there are some language inconsistencies with MU BASIC V1. To help convert, there is a conversion aid shipped with MU BASIC-11 V2.

MU BASIC-11 V2 optionally runs transparently under the XM monitor allowing users significantly larger user partitions (still a maximum of 8 users, 4 on floppy based systems).

The following chart describes additional new features on MU BASIC-11 Version 2.

| CATEGORY | NAME |
|---|---|
| Integer Data Type | - |
| Double Precision Data Type | - |
| Statements | DIM$<br>LINPUT (changed)<br>RESET (changed)<br>ON ERROR<br>PRINT USING (changed) |
| Functions | ABORT<br>CLK$<br>CTRLC<br>RCTRLC<br>RCTRLO<br>TTYSET |
| Commands | COMPILE<br>DEL<br>RESEQ<br>SUB<br>ASSIGN (another terminal as an I/O device) |

The next chart describes changes in features from MU BASIC V1 to MU BASIC-11 Version 2.

| FEATURE | CHANGE |
|---|---|
| String concatenation | In V2, the string concatenation operator can be either the ampersand (&) or the plus sign (+) (in V1, it was the ampersand). |
| Virtual arrays | In V2, virtual arrays are like arrays in memory (except they are not zeroed at run time); they do not have special variable names. Virtual arrays can have one or two subscripts (V1 allowed just one subscript). The string length can have any value between 1 and 255; it does not have to be a power of 2. The default string length is 16 (in V1, it was 32). |
| Terminal width | In V2, the terminal width can be set from 1 to 255 characters. |

All in all, Version 2 is a significantly more useful product than Version 1 and has capabilities far greater than one would expect for such a low priced product.

## HARDWARE HINTS & KINKS

Tom Provost has indicated that the RT-11 Mini-Tasker will continue to serve as the HHK user forum. We welcome all user correspondence concerning any hardware topic. At San Francisco the HHKers will be sharing a "birds of a feather" room with the RT-11 and LSI-11 SIGs. The sessions of interest to HHKers is included in this issue.

## SAN FRANCISCO SYMPOSIUM

John T. Rasted, RT-11 SIG Chairman

The 1978 Fall DECUS Symposium will give the RT-11 SIG member an opportunity to exchange information on state-of-the-art hardware and software techniques.

Presentations by DIGITAL include the RT-11 Product Panel, RT-11 Languages, RT-11 Technical Tutorial, and Interactive Video Terminals Workshop (VT-100 and PDT-11 terminals). User presentations include formal papers, BASIC/RT-11 Modification Tutorial, and User Application Workshop where users freely discuss the problems and solutions concerning their installation.

There will be two SIG meetings. The first will be concerned with guiding new attendees through the maze of presentations, suites, exhibits and informal gatherings; and will end with a business meeting dealing with the SIG newsletter, DECUS Library, Local User Groups, and other non-symposia SIG activities. The second SIG meeting, coming at the end of the symposium, will deal with user reaction to the sessions and will respond to unanswered questions from other meetings.

In addition to the usual software sessions, there will be a number of hardware oriented sessions dealing with issues of interest to a broad range of users from system managers to hardware designers.

Suites will be maintained for users to meet with representatives from DIGITAL groups such as Central Engineering, Field Service, and Software Services.

The RT-11 SIG and LSI SIG will share a room (Teakwood B) during the meeting to use as a SIG operations/gathering spot. PDT people will also be in this location.

Come to the symposium and meet with other users. Establish continuing communication to avoid re-invention of the wheel. Influence future plans of DIGITAL and the RT-11 SIG.

TO ALL STEERING COMMITTEE MEMBERS

There will be a meeting of the RT-11 SIG Steering Committee at 3:00 PM on Sunday November 26th in the Teakwood B Room.

TAPE COPY OPERATIONS

DIGITAL'S Computer Special Systems Group is providing DECUS with a machine capable of media-copy operations. Bring a mastape for swap operations. Contact the RT-11 SIG DECUS Library Coordinator or his representative at, or before, the symposium for additional details.

RT-11 SIG DECUS Library Coordinator:

Eric Morton
Prelco Corporation
170 Lincoln
Lowell, Ma 01851
(617) 458-8763

RT-11 SESSIONS

The following RT-11 sessions and times are scheduled for the Fall DECUS Symposium in San Francisco:

| | | |
|---|---|---|
| RT-11 Symposium Roadmap and SIG Business Meeting | 10:15 - 11:15 AM | Nov 27th |
| RT-11 Product Panel | 2:00 - 4:00 PM | Nov 27th |
| RT-11 Languages Panel | 9:45 - 11:15 AM | Nov 28th |
| PDT Sessions | 2:00 - 6:15 PM | Nov 28th |
| Time Share Terminal Emulator Under RT-11 | 10:15 - 10:45 AM | Nov 29th |
| BASIC/RT-11 Modification Tutorial | 10:45 - 11:45 AM | Nov 29th |
| RT-11 Technical Tutorial | 4:15 - 6:15 PM | Nov 29th |
| RT-11 User Application Panel | 8:00 - 10:00 PM | Nov 29th |
| RT-11 SIG Symposium Wrap-Up Session | 9:45 - 10:45 AM | Nov 30th |
| RT-11 SIG Operations/ gathering spot with DEC technical people will be in Teakwood B Room | OPEN | Nov 27th thru Nov 30th |

# H H K SIG

Tom Provost, Hardware Hints and Kinks SIG Coordinator

The 1978 Fall DECUS Symposium will give the DECUS attendee an opportunity to exchange information on state-of-the-art hardware and interfacing, systems implementation, and systems reliability and maintenance.

Presentations by DIGITAL include hardware engineering panels where engineers from DIGITAL discuss products and plans. They include technical presentations on performance analysis and other areas of research and development. They also include highly interactive sessions on future needs systems support.

User presentations on technical documentation and self-maintenance promise to supplement and enhance the Hardware Hints and Kinks workshops and panel, which in turn will be extended in time. Users will also be presenting sessions on LSI interfacing, CAMAC, and graphics.

Digital Central Engineering and Field Service people will be available in suites for informal discussions. A campground room (Teakwood B) will be shared with RT-11, PDT and LSI.

HHK SESSIONS

| | | |
|---|---|---|
| HHK Roadmap | 9:00-9:30 AM | Nov. 27th |
| HHK Workshop I | 8:00-9:00 PM | Nov. 29th |
| HHK Panel | 9:00-10:00 PM | Nov. 29th |
| HHK Workshop II | 10:00-11:00 PM | Nov. 29th |
| HHK SIG | 9:45-10:15 AM | Nov. 30th |

New attendees will find the welcoming reception on Sunday evening and the roadmap session Monday morning indispensable. Because of the wide range of technical content and application areas, it is essential that the attendee read the minipapers to plan his schedule.

A SIG business meeting will attempt to solicit feedback on the sessions, plan for the Spring Symposium, and provide for the continuation of SIG activities between symposia.

## HOW TO REACH THEM

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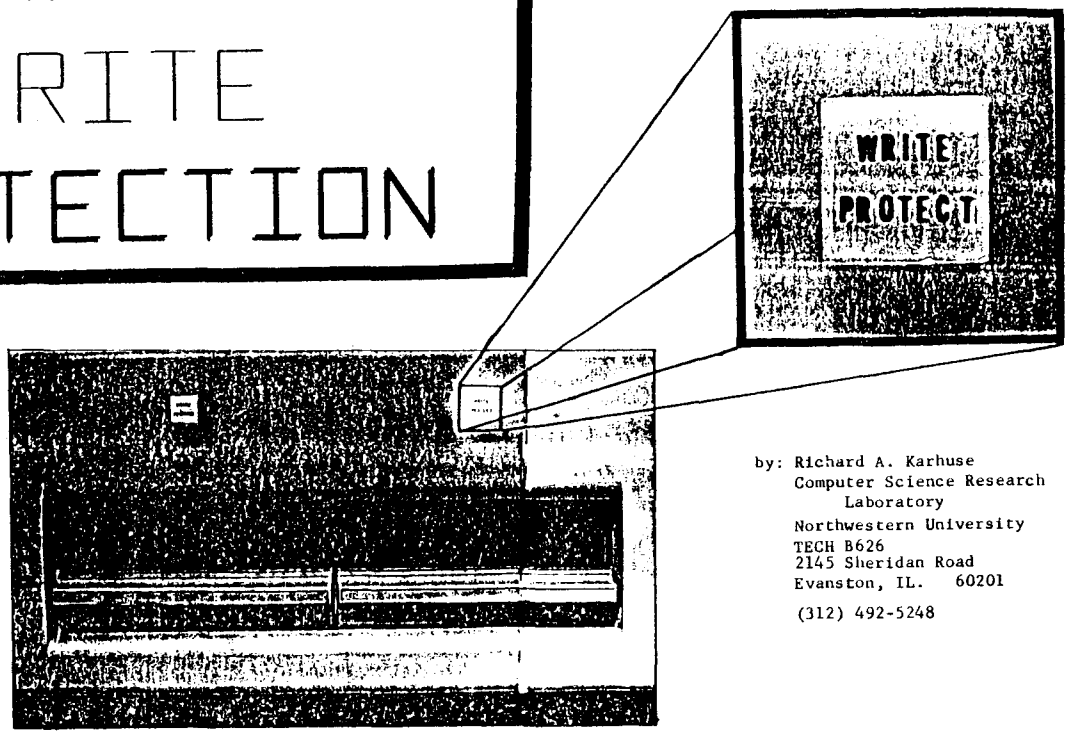
# RXØ1 WRITE PROTECTION




by: Richard A. Karhuse
Computer Science Research Laboratory
Northwestern University
TECH B626
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The Computer Sciences Research Laboratory of Northwestern University purchased one of the first DEC RIØ1 dual floppy disk drives. Shortly after the warranty period expired, so did the floppy disks. DEC in their infinite wisdom wanted a flat $300.ØØ + travel + etc. to fix it. The laboratory felt this to be exorbitant and typically has done all of its own maintenance in-house. In the process of diagnosing the disk drive, we uncovered what appeared to be a drive write-protection circuitry.

Installing write protection into the the RXØ1 floppy disk drive turn out to be simple. DEC has included all the necessary logic and microprogramming for it, but documents it nowhere, except marginally in the prints. DEC has brought all the necessary signals out to a Berg-type connector. It appears DEC had planned on using a floppy drive which would sense a hole in the corner of the floppy diskette. This is the way IBM defines write protect on floppy disks much like the tab on cassettes. Apparently the drives that Digital is using does not have this capability (although we have never verified this fact).

To write protect floppies on the RXØ1, all that is needed is a switch, a little cable, and a Berg connector. Power is provided on the connector if a lighted switch is desired. In this case an additional resistor must be added to the driver board so that sufficient current is supplied to light the lamp.

When the switch is closed (see circuit diagram), DRV WRT PROT is generated. The microcontroller senses this signal whenever a write operation is issued by the host computer, for a given drive (Ø or 1). If the drive is protected, the controller aborts the operation and sets the done, and error flags. The RXES is set to a value of 41Ø (octal) and the ERROR register has a value of 21Ø (octal). All system software tested (OS/8, RTS-8 RT-11) did zero or more retries and then terminated the operation unsucessfully.

Installation Hints

The simpiliest way to write protect a floppy disk is to install a jumper or switch between pins #1 and #3 on the appropriate Berg pins of the M7727 drive electronics board. Any sort of toggle switch will do. We opted for a more esthetically pleasing back-illuminated, push-button switch. In addition to jumpering the above two pins, a six volt lamp and switch is placed between pins #6 and #8 to indicated when the drive is write protected. To obtain the half ampere needed to drive the lamp a 12 ohm resistor was tacked on top of R128 (for drive 0) or R111 (for drive 1).

The labeling "WRITE PROTECT" was obtained rather ingeniously. First, the logo was generated with 18 pt. rub-on letters to a piece of paper. This art-work was reduced several times with a Zerox machine until the correct size was obtained. The logo was then transfered to clear plastic by using a Thermo-Fax machine--the device used to create overhead tranparencies. The plastic logo was then mounted to the button using Scotch PHOTO MOUNT Spray Adhesive (cat. no. 6094). The plastic is cut to the size of the button.

The switches are then mounted on the RX01 face plate. This plate is heavy cast aluminium. Thus a drill press should be used to punch the holes. Masking tape should be place on the outside of the face plate to prevent marring and the hole should be punched from the backside. The hole should be located such that the backside of the switch is just above the back retention plate.

Conclusion

The write protect switches have been use in the laboratory for over six months with no problems and prevented some good floppies from being accidentaly creamed. If there is sufficient (but not overwhelming) demand, the laboratory could provide the write protect switches built and tested for a nominal charge for installations which do not have the specialized equipment nor personnel to build the switches. These users would still have punch the holes in the aluminium and install the switches.

To conclude with a continuation on the history of our drive, we have developed a RX01 micro-controller diagnostic. This diagnostic allows us to single step the RX01 controller and examine various internal signals. More importantly, it allows us to "dump" the micro-controller ROM's. This dump then can be compared (via source compare programs) with a good floppy's ROM to determine which location if any have changed--we have encountered several floppies with this problem. In our case, an "unused-bit" changed state and caused our RX01 to jump internally to non-existant memory. We fixed our problem with about $0.10 of wire by totally disabling this unused bit.

The diagnostic will only be useful for installations which extensively do their own maintenance. It requires 27 bits of parallel input interfaces from the micro-controller to the diagnosing computer. M1703's or DR11's will suffice to bring this data in. However, a cable interface must be built on a flip-chip module. The diagnostic is written in OS/8 FORTRAN II with one SABR level subroutine to read the M1703. It should be fairly easy to transport this diagnostic to a PDP-11.

The diagnostic is not very well documented currently. But, I am willing to work with anyone who really wants to use

it. It goes without saying that any installation who wants to use it must have some other mass storage device other than the floppies because you cannot run the diagnostic off a sick floppy. Our laboratory currently supports: DECtapes, DOS format 9-track magtapes, RK08 disk packs, RK05 disk packs, and paper tape.

PARTS LIST

(per drive)

Lighted Push-Button Switch

Push-on, push-off 5 volt switch

(Cutler-Hammer SB1DE191-1 or equiv.

available from Newark)

Berg Header/Pins

Header 65043-033 2x4 header, 0.10

spacing with four 47712 pins

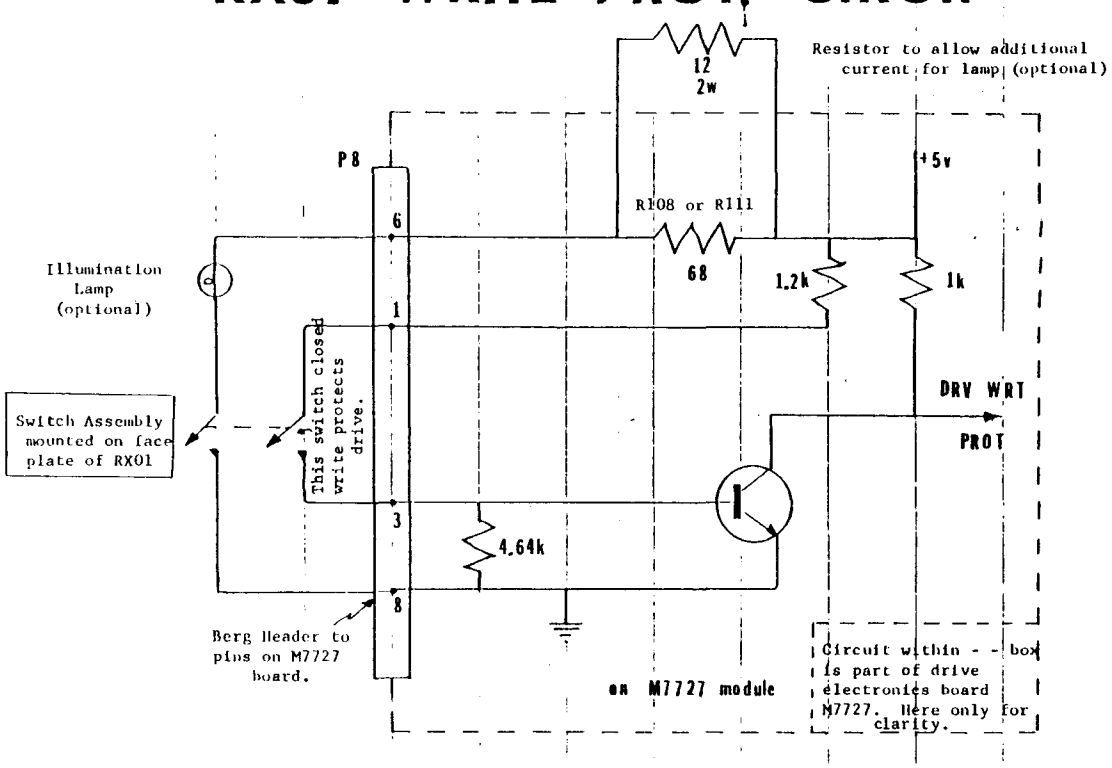
Cable

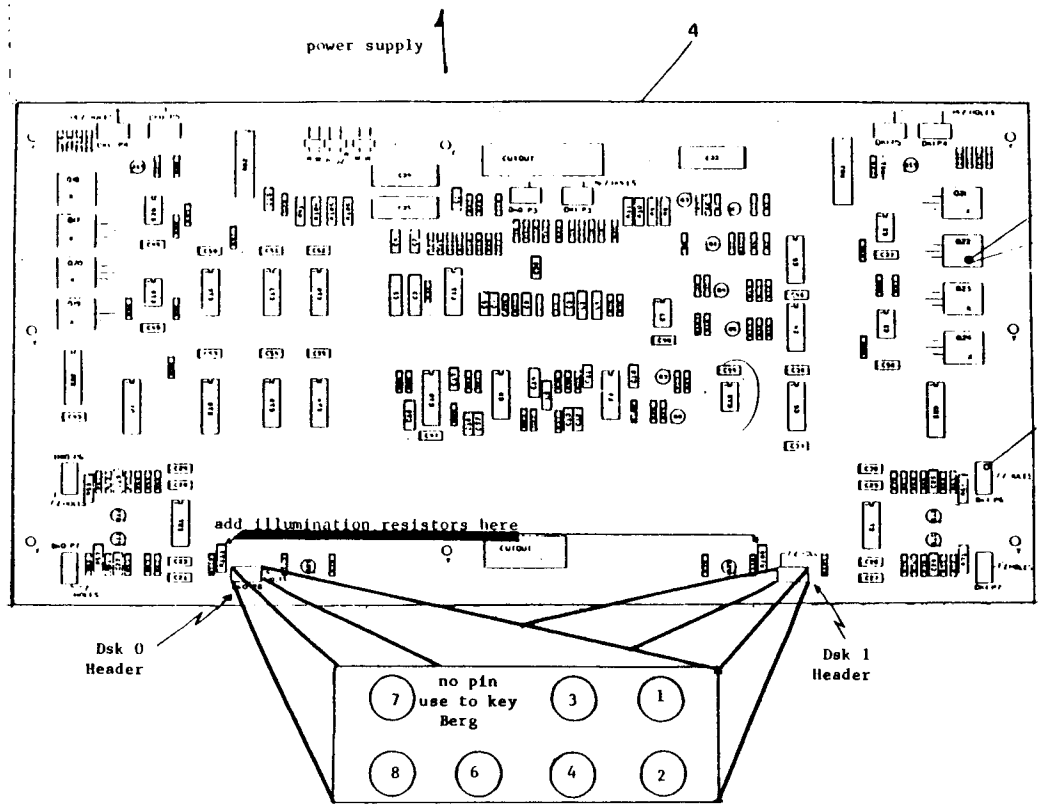
Four conductor approx. 1 foot

Resistor

12 ohm, 2 watt resistor

# RX01 WRITE PROT. CIRCT.






Berg Header Pin numbering

M7727 Component Layout

COMPUTER SOLUTIONS
17922 SKY PARK CIRCLE, SUITE L, IRVINE, CA. 92714
TELEPHONE (714) 751-5040

June 21, 1978

John T. Rasted
JTR Associates
58 Rasted Lane
Meriden, Conn. 06450

Dear Mr. Rasted,

Computer Solutions is a software house which specializes in the LSI-11 series of DEC Microcomputers utilizing RT-11 operating systems. We have presented our standard products at the SCURT meetings and request, if appropriate, that brief write-ups appear in the mini-tasker to inform users and to increase our exposure. I have included a brief description of each package for your perusal and a price sheet.

EZMAIL permits a data base of names, addresses, and information codes to be collected, managed, sorted, and printed on mailing label stock or in report form. This product efficiently manages vendor lists, bidder lists, inquiry lists, membership lists, etc. Hardware requirements are a DEC VT52 and the LA180 printer. Other printers may be substituted at additional cost.

EZEDIT permits full screen text editing utilizing, once again, the DEC VT52 CRT. All functions are initiated by function keys and prompting sequences for simplicity. In addition to the typical editing features, block copy, block move, and global replace are supported. EZEDIT (pronounced Easy Edit) is a replacement for the RT-11 DEC editor. The DEC editor requires that the user have programming experience, whereas, EZEDIT is easy for secretaries, engineers, manufacturers and programmers. EZEDIT is also utilized to create input for Runoff which forms a powerful document preparation facility. Included in the price is a set of nicely engraved key caps for the VT52.

If you would like a more abbreviated version or other formatting considerations then we would be happy to comply. All of our products are available and feature simplicity of usage and installation. If you have further questions, please call collect.

Very truly yours,

W T DeRouchey

W. T. DeRouchey

WTD:kp

Enclosure

Notes:
1. All software products delivered on DEC compatible flexible disk.
2. Source available on request.
3. Prices subject to change without notice.
4. Price includes engraved key caps.

Lawrence University (414) 739-3681 / Post Office Box 599 / Appleton, Wisconsin 54912

21 August 1978

Mr. John T. Rasted
JTR Associates
58 Rasted Lane
Meriden, Connecticut 06450

Dear Mr. Rasted:

Lawrence University announces the availability of a new software package for the PDP-11: Lawrence RUNOFF, which converts source text containing formatting commands into a finished document on a variety of printing devices. Could you please insert the following notice in the "RT-11 Marketplace" section of The Mini-Tasker?

DESCRIPTION

Lawrence RUNOFF for RSTS/E and RT-11. Flexible text and document formatting program coded in MACRO-11 for high speed (65 pages/min.) and low overhead (8K under RT-11). Distinctive features include alternating or centered page numbering, convenient footnote processing, indexing, hyphenation, run-time options, and programmed high-resolution justification via micro-spacing with Diablo-type terminals (e.g., Xerox 1700).

CONTACT

Dr. James S. Evans
Computer Center Publications
Lawrence University
Appleton, Wisconsin 54912

Persons who contact us will promptly receive a two-page description containing prices and an offer of a complimentary copy of the user's guide.

Sincerely,

James S. Evans

James S. Evans
Associate Professor of Chemistry

Editor's note: Runoff is also availible from the DECUS Library

---

SPR'S

---

| NAME | | | | PHONE | | DATE |
|---|---|---|---|---|---|---|
| GEOFFREY R GRINTON | | | | 03 429 1511 | | 12/7/78 |
| COMPANY NAME & ADDRESS | STATE ELECTRICITY COMMISSION OF VICTORIA, HERMAN RESEARCH LAB., HOWARD STREET, RICHMOND, VICTORIA, 3121, AUSTRALIA | | | | | |
| COMPUTER | MEMORY | MASS STORAGE | OTHER OPTIONS | SOFTWARE SPECIALIST | | |
| 11/10 | 24K | RK05 | | | | |
| SYSTEM PROGRAM & VERSION | | MONITOR & VERSION | | DOCUMENT | CODE | PAGE |
| RT11 V3 | | | | | DEC- | 1 |
| ATTACHMENTS: | ☐ TELETYPE PRINTOUT | ☐ OBJECT TAPE | ☐ SOURCE TAPE | ☐ LISTING | ☐ EXAMPLE | |

DETAILS OF QUESTION, SUGGESTION, PROBLEM, OR CORRECTION – PLEASE PROVIDE A COMPLETE DESCRIPTION AND ATTACH PERTINENT SUPPORTING MATERIAL

Problem: No Software Support Manual has been received for RT-11 V3, and hence much necessary information is not available. This is despite the fact that the Advanced Programmer's Guide (for example) makes several references to this document. For someone who does not have a knowledge of RT-11 V2C, and access to its documentation it is considered that efficient use of system resources would be most difficult.

| NAME | PHONE | DATE |
|---|---|---|
| GEOFFREY R GRINTON | 03 429 1511 | 12/7/78 |

COMPANY NAME & ADDRESS: STATE ELECTRICITY COMMISSION OF VICTORIA, HERMAN RESEARCH LAB., HOWARD STREET, RICHMOND, VICTORIA, 3121, AUSTRALIA

| COMPUTER | MEMORY | MASS STORAGE | OTHER OPTIONS | SOFTWARE SPECIALIST |
|---|---|---|---|---|
| 11/10 | 24K | RK05 | | |

| SYSTEM PROGRAM & VERSION | MONITOR & VERSION | DOCUMENT | CODE DEC- | PAGE |
|---|---|---|---|---|
| RT11 V3 | RT-11FB(S) V03-02C | | | 1 |

ATTACHMENTS: ☐ TELETYPE PRINTOUT ☐ OBJECT TAPE ☐ SOURCE TAPE ☐ LISTING ☐ EXAMPLE

DETAILS OF QUESTION, SUGGESTION, PROBLEM, OR CORRECTION – PLEASE PROVIDE A COMPLETE DESCRIPTION AND ATTACH PERTINENT SUPPORTING MATERIAL

Problem: There is no simple method by which an application programmer can establish which terminal (in a multi-terminal system) is the currently active console.

Analysis: One method is to do a .MTGET on each logical unit (all 16 possibilities) and test the appropriate bit. This is obviously inefficient and inelegant.

Solution: Publish information about where the current console number is stored in the resident monitor - it must be there somewhere!

| NAME | PHONE | DATE |
|---|---|---|
| GEOFFREY R GRINTON | 03 429 1511 | 12/7/78 |

COMPANY NAME & ADDRESS: STATE ELECTRICITY COMMISSION OF VICTORIA, HERMAN RESEARCH LAB., HOWARD STREET, RICHMOND, VICTORIA, 3121, AUSTRALIA

| COMPUTER | MEMORY | MASS STORAGE | OTHER OPTIONS | SOFTWARE SPECIALIST |
|---|---|---|---|---|
| 11/10 | 24K | RK05 | | |

| SYSTEM PROGRAM & VERSION | MONITOR & VERSION | DOCUMENT | CODE DEC- | PAGE |
|---|---|---|---|---|
| RT11 V3 | RT-11FB V03-02C | | | 1 |

ATTACHMENTS: ☒ TELETYPE PRINTOUT ☐ OBJECT TAPE ☐ SOURCE TAPE ☒ LISTING ☒ EXAMPLE

DETAILS OF QUESTION, SUGGESTION, PROBLEM, OR CORRECTION – PLEASE PROVIDE A COMPLETE DESCRIPTION AND ATTACH PERTINENT SUPPORTING MATERIAL

PROBLEM WITH SPECIAL MODE OF .TTYIN

When bit 12 of the JSW is set (special mode), <LF> is added whenever <CR> is typed. Although the documentation is not explicit on this point, it is reasonable to expect that only characters typed will be passed to the application program.

The attached listing and printout show the problem.

The same problem occurs when the multi-tty options are used.

| NAME | PHONE | DATE |
|---|---|---|
| GEOFFREY R GRINTON | 03 429 1511 | 12/7/78 |

COMPANY NAME & ADDRESS: STATE ELECTRICITY COMMISSION OF VICTORIA, HERMAN RESEARCH LAB., HOWARD STREET, RICHMOND, VICTORIA, 3121, AUSTRALIA

| COMPUTER | MEMORY | MASS STORAGE | OTHER OPTIONS | SOFTWARE SPECIALIST |
|---|---|---|---|---|
| 11/10 | 24K | RK05 | | |

| SYSTEM PROGRAM & VERSION | MONITOR & VERSION | DOCUMENT | CODE DEC- | PAGE |
|---|---|---|---|---|
| RT11 V3 | RT-11FB(S) V03-02C | | | 1 |

ATTACHMENTS: ☐ TELETYPE PRINTOUT ☐ OBJECT TAPE ☐ SOURCE TAPE ☐ LISTING ☐ EXAMPLE

DETAILS OF QUESTION, SUGGESTION, PROBLEM, OR CORRECTION – PLEASE PROVIDE A COMPLETE DESCRIPTION AND ATTACH PERTINENT SUPPORTING MATERIAL

Problem: Sysgen versions of RT11 monitors do not have the 50 Hz clock bit set in the configuration word, even when 50 Hz support is selected.

Solution: Add appropriate conditional code.

| NAME | PHONE | DATE |
|---|---|---|
| GEOFFREY R GRINTON | 03 429 1511 | 12/7/78 |

COMPANY NAME & ADDRESS: STATE ELECTRICITY COMMISSION OF VICTORIA, HERMAN RESEARCH LAB., HOWARD STREET, RICHMOND, VICTORIA, 3121, AUSTRALIA

| COMPUTER | MEMORY | MASS STORAGE | OTHER OPTIONS | SOFTWARE SPECIALIST |
|---|---|---|---|---|
| 11/10 | 24K | RK05 | | |

| SYSTEM PROGRAM & VERSION | MONITOR & VERSION | DOCUMENT | CODE DEC- | PAGE |
|---|---|---|---|---|
| LIBR V03-05 | RT-11FB V03-02C | | | 1 |

ATTACHMENTS: [X] TELETYPE PRINTOUT [ ] OBJECT TAPE [ ] SOURCE TAPE [ ] LISTING [X] EXAMPLE

DETAILS OF QUESTION, SUGGESTION, PROBLEM, OR CORRECTION – PLEASE PROVIDE A COMPLETE DESCRIPTION AND ATTACH PERTINENT SUPPORTING MATERIAL

/m:n option fails in LIBR.

If a directory size is specified with the /m switch, the value specified is ignored, and a value of 1 is used.

The attached example shows that a library which requires two directory blocks is generated when /m is used, but not when /m:2 is specified.

| NAME | PHONE | DATE |
|---|---|---|
| GEOFFREY R GRINTON | 03 429 1511 | 12/7/78 |

COMPANY NAME & ADDRESS: STATE ELECTRICITY COMMISSION OF VICTORIA, HERMAN RESEARCH LAB., HOWARD STREET, RICHMOND, VICTORIA, 3121, AUSTRALIA

| COMPUTER | MEMORY | MASS STORAGE | OTHER OPTIONS | SOFTWARE SPECIALIST |
|---|---|---|---|---|
| 11/10 | 24K | RK05 | | |

| SYSTEM PROGRAM & VERSION | MONITOR & VERSION | DOCUMENT | CODE DEC- | PAGE |
|---|---|---|---|---|
| BASIC V2-3 | RT-11FB V03-02C | | | 1 |

ATTACHMENTS: [X] TELETYPE PRINTOUT [ ] OBJECT TAPE [ ] SOURCE TAPE [X] LISTING [X] EXAMPLE

DETAILS OF QUESTION, SUGGESTION, PROBLEM, OR CORRECTION – PLEASE PROVIDE A COMPLETE DESCRIPTION AND ATTACH PERTINENT SUPPORTING MATERIAL

SUCVT will not properly convert statements of the form:

```
OPEN 'FILE' AS FILE VF2
```

A dimension is required in order to create the required DIM# statement. Although the BASIC V1B manual does not indicate that the dimension information is optional in statements of the above form, the example on page 5-24 shows a statement of exactly this form.

Suggestion: Add code to SUCVT to detect the missing specification and to ask the user for a value.

The attached output shows the problem.

| NAME | PHONE | DATE |
|---|---|---|
| GEOFFREY R GRINTON | 03 429 1511 | 12/7/78 |

COMPANY NAME & ADDRESS: STATE ELECTRICITY COMMISSION OF VICTORIA, HERMAN RESEARCH LAB., HOWARD STREET, RICHMOND, VICTORIA, 3121, AUSTRALIA

| COMPUTER | MEMORY | MASS STORAGE | OTHER OPTIONS | SOFTWARE SPECIALIST |
|---|---|---|---|---|
| 11/10 | 24K | RK05 | | |

| SYSTEM PROGRAM & VERSION | MONITOR & VERSION | DOCUMENT | CODE DEC- | PAGE |
|---|---|---|---|---|
| LIBR V3-5 | RT-11FB V03-02C | | | 1 |

ATTACHMENTS: [X] TELETYPE PRINTOUT [ ] OBJECT TAPE [ ] SOURCE TAPE [ ] LISTING [X] EXAMPLE

DETAILS OF QUESTION, SUGGESTION, PROBLEM, OR CORRECTION – PLEASE PROVIDE A COMPLETE DESCRIPTION AND ATTACH PERTINENT SUPPORTING MATERIAL

LIBR LOSES DEFAULT EXTENTS

When LIBR is asked to display its version number immediately prior to generating a MACRO library, it loses the default .MAC extents and looks for .OBJ files. The defaults are restored after one use of the CSI.

The attached printout shows examples.

| NAME | PHONE | DATE |
|---|---|---|
| GEOFFREY R GRINTON | 03 429 1511 | 12/7/78 |

COMPANY NAME & ADDRESS: STATE ELECTRICITY COMMISSION OF VICTORIA, HERMAN RESEARCH LAB., HOWARD STREET, RICHMOND, VICTORIA, 3121, AUSTRALIA

| COMPUTER | MEMORY | MASS STORAGE | OTHER OPTIONS | SOFTWARE SPECIALIST |
|---|---|---|---|---|
| 11/10 | 24K | RK05 | | |

| SYSTEM PROGRAM & VERSION | MONITOR & VERSION | DOCUMENT | CODE | PAGE |
|---|---|---|---|---|
| RT11 V3 | RT-11FB V03-02C | | DEC- | 1 |

ATTACHMENTS: [X] TELETYPE PRINTOUT [ ] OBJECT TAPE [ ] SOURCE TAPE [ ] LISTING [X] EXAMPLE

DETAILS OF QUESTION, SUGGESTION, PROBLEM, OR CORRECTION – PLEASE PROVIDE A COMPLETE DESCRIPTION AND ATTACH PERTINENT SUPPORTING MATERIAL

Problem: Escape Sequence Support

1 The documentation is unclear about just what is meant by escape sequence support, and how it should be used (or could be used).

2 If escape sequences are typed while the monitor is sending to the console, the command decoder gets out of step with the typed input, so that the monitor obeys not the current command, but the n'th previous command, where n is the number of escape sequences typed during output.

| NAME | PHONE | DATE |
|---|---|---|
| GEOFFREY R GRINTON | 03 429 1511 | 12/7/78 |

COMPANY NAME & ADDRESS: STATE ELECTRICITY COMMISSION OF VICTORIA, HERMAN RESEARCH LAB., HOWARD STREET, RICHMOND, VICTORIA, 3121, AUSTRALIA

| COMPUTER | MEMORY | MASS STORAGE | OTHER OPTIONS | SOFTWARE SPECIALIST |
|---|---|---|---|---|
| 11/10 | 24K | RK05 | | |

| SYSTEM PROGRAM & VERSION | MONITOR & VERSION | DOCUMENT | CODE | PAGE |
|---|---|---|---|---|
| RT11 V3 | RT-11FB V03-02C | | DEC- | 1 |

ATTACHMENTS: [X] TELETYPE PRINTOUT [ ] OBJECT TAPE [ ] SOURCE TAPE [X] LISTING [X] EXAMPLE

DETAILS OF QUESTION, SUGGESTION, PROBLEM, OR CORRECTION – PLEASE PROVIDE A COMPLETE DESCRIPTION AND ATTACH PERTINENT SUPPORTING MATERIAL

Problem: Input using the TT: handler does not work.

Symptoms: On specifying TT: for input, no prompt appears until one character has been typed. The line typed is generally ignored, and control is returned to the monitor.

Depending on the program being used, the line is ignored (eg MACRO), treated as input to the monitor, or causes a system crash.

| NAME | PHONE | DATE |
|---|---|---|
| GEOFFREY R GRINTON | 03 429 1511 | 12/7/78 |

COMPANY NAME & ADDRESS: STATE ELECTRICITY COMMISSION OF VICTORIA, HERMAN RESEARCH LAB., HOWARD STREET, RICHMOND, VICTORIA, 3121, AUSTRALIA

| COMPUTER | MEMORY | MASS STORAGE | OTHER OPTIONS | SOFTWARE SPECIALIST |
|---|---|---|---|---|
| 11/10 | 24K | RK05 | | |

| SYSTEM PROGRAM & VERSION | MONITOR & VERSION | DOCUMENT | CODE | PAGE |
|---|---|---|---|---|
| RT11 V3 | RT-11FB V03-02C | | DEC- | 1 |

ATTACHMENTS: [X] TELETYPE PRINTOUT [ ] OBJECT TAPE [ ] SOURCE TAPE [ ] LISTING [X] EXAMPLE

DETAILS OF QUESTION, SUGGESTION, PROBLEM, OR CORRECTION – PLEASE PROVIDE A COMPLETE DESCRIPTION AND ATTACH PERTINENT SUPPORTING MATERIAL

Problem: The date is not updated when there is a midnight rollover of the clock, until the TIME is specifically accessed. If this is not appreciated by users the date is incorrect until updated by a program such as MACRO, FORTRAN, etc.

Solution: Include a .GTIM request in the code for .DATE. Further re-coding may be required if system programs do not access the date with .DATE.

| OPERATING SYSTEM | VERSION | SYSTEM PROGRAM OR DOCUMENT TITLE | VERSION OR DOCUMENT PART NO. | DATE |
|---|---|---|---|---|
| RT-11 | 3 | BASIC | 2 | 7-20-78 |

(SEE EXAMPLE IN INSTRUCTIONS)

NAME: Fred Magee
FIRM: Division 1523
Sandia Labs
ADDRESS: Kirtland AFB East
Albuquerque, NM
ZIP: 87185

SUBMITTED BY: Ron Trellue
PHONE: 505-264-2115

DEC OFFICE: Albuquerque

DO YOU HAVE SOURCES? YES ☒ NO ☐

REPORT TYPE
- ☒ SOFTWARE ERROR
- ☐ DOCUMENTATION ERROR
- ☐ INQUIRY
- ☐ FOR YOUR INFORMATION/SUGGESTION

PRIORITY
- ☐ LOW
- ☐ STANDARD
- ☒ HIGH

CAN THE PROBLEM BE REPRODUCED AT WILL? YES ☒ NO ☐

ATTACHMENTS
MAG TAPE ☐ FLOPPY DISKS ☐ LISTING ☒
DECTAPE ☐ OTHER

COULD THIS SPR HAVE BEEN PREVENTED BY BETTER OR MORE DOCUMENTATION? PLEASE EXPLAIN IN PROVIDED SPACE BELOW. YES ☐ NO ☒

| CPU TYPE | SERIAL NO. | MEMORY SIZE | DISTRIBUTION MEDIUM | SYSTEM DEVICE | DO NOT PUBLISH |
|---|---|---|---|---|---|
| 11/34 | AG 10697 | 32 KW | RK05 | RK05 | ☐ |

Problem: The string handling routine $STORE does not work properly. An assembly language routine to manipulate a string was written and tested. The correct character string was not returned from $STORE.

Description: The assembly language routing "TESTRS" was written to test the string handling routines. "TESTRS" calls the "GETSTR" subroutine. "GETSTR" calls $FIND and $ALC which both seem to work properly. The character "B" is introduced to be returned in the original string. However, the call to $STORE does not set up the pointer to the temporary string correctly. The option which does not work is when the modified string is supposed to be returned in the original string.

The BASIC program "STRTST" calls the assembly language routine "TESTRS." Two cases of the program "STRTST" were attempted. The first one was with the string variable A$ not defined. The result was a trap to an address in $STORE. (The line after 10$:). The second case was with A$ defined. This case just returned a space in A$.

Attachments:

| | |
|---|---|
| Attch I | Assembly language routine "TESTRS" |
| Attch II | Insertion of "TESTRS" into BASIC |
| Attch III | BASIC Program "STRTST" - Case 1 A$ defined |
| Attch IV | BASIC Program "STRTST" - Case 2 A$ undefined |
| Attch V | $STORE Routine with modifications indicated |
| Attch VI | $STORE after revisions |

Solution: It was found that the $STORE routine improperly modifies the string reference pointer of the source string with the pointer to the temporary string created by $ALC. In particular, when setting up to call $STORE, RØ has the string reference pointer of the string to be copied (as returned by $ALC). This turns out to be a pointer to the word containing the number of characters in the low-order byte. In $STORE, the following line:

```
10$:  MOV (RØ), (R1)  ;  Point Destination to new string
```

moves indirectly the word containing the number of characters into the string reference pointer for the original string. Unfortunately except for a null string, the string reference pointer should be an address and not the number of characters. This problem was solved by removing the () from around the (RØ) so that the line looks as follows:

```
10$:  MOV RØ, (R1)    ;  Point Destination to new string
```

The second problem which surfaced is the next instruction

```
      MOV #-1, (RØ)   ;  make source null
```

which indeed makes the source null. This, however, is not a nice thing to do when the result is to be returned in the original string (which is supposedly legitimate, see last paragraph page 4-8 of the BASIC-11/RT-11 User's Guide). For a temporary solution, we removed the "make source null" line altogether. The final version of $STORE is listed on page 14. This revision of $STORE now functions properly for calling "TESTRS" with A$ defined or undefined.

| OPERATING SYSTEM | VERSION | SYSTEM PROGRAM OR DOCUMENT TITLE | VERSION OR DOCUMENT PART NO. | DATE |
|---|---|---|---|---|
| RT-11 | 3B | FORTRAN | V2 | 7-18-78 |

(SEE EXAMPLE IN INSTRUCTIONS)

NAME: Fred Magee
FIRM: Sandia Labs
Division 1523
ADDRESS: Kirtland AFB East
Albuquerque, NM
ZIP: 87185

SUBMITTED BY: Ron Trellue
PHONE: 505-264-2115

ATTACHMENTS: MAG TAPE ☐ FLOPPY DISKS ☐ LISTING ☒ DECTAPE ☐ OTHER

DEC OFFICE: Alb.
DO YOU HAVE SOURCES? YES ☒ NO ☐

REPORT TYPE
- ☒ SOFTWARE ERROR
- ☐ DOCUMENTATION ERROR
- ☐ INQUIRY
- ☐ FOR YOUR INFORMATION/SUGGESTION

PRIORITY
- ☐ LOW
- ☒ STANDARD
- ☐ HIGH

CAN THE PROBLEM BE REPRODUCED AT WILL? YES ☒ NO ☐

COULD THIS SPR HAVE BEEN PREVENTED BY BETTER OR MORE DOCUMENTATION? PLEASE EXPLAIN IN PROVIDED SPACE BELOW. YES ☐ NO ☒

| CPU TYPE | SERIAL NO. | MEMORY SIZE | DISTRIBUTION MEDIUM | SYSTEM DEVICE | DO NOT PUBLISH |
|---|---|---|---|---|---|
| 11/34 | AG-11221 | 32KW | Mag tape | RK06 | ☐ |

Problem: FORTRAN compiler fatal error

Configuration: PDP-11/34 with 32K words of memory, 9-track magtape and single RK06. Running under the RT-11 Version 3B single job monitor and Fortran Version 2. The Fortran compiler was sysgened for in-line EIS code.

Situation: Fortran subroutine caused a compiler fatal error with crash dump. The program was recompiled under threaded code and executed properly.

Attachments.

| | |
|---|---|
| Pages 1-2 | Console printout of compiler input string and resulting crash dump. |
| Page 3 | TOM.FOR (main program) |
| Page 4-5 | TOM.LST (main program) |
| Page 6 | FFTT.FOR (subroutine which crashed) |
| Pages 7-9 | FFTT.LST (threaded code correct compilation) |
| Pages 10-11 | TOM.MAP (map for threaded code run) |

| OPERATING SYSTEM | VERSION | SYSTEM PROGRAM OR DOCUMENT TITLE | VERSION OR DOCUMENT PART NO. | DATE |
|---|---|---|---|---|
| RT-11 | 3 | Fortran | 2 | 8-3-78 |

(SEE EXAMPLE IN INSTRUCTIONS)

NAME: Fred Magee
FIRM: Division 1523
Sandia Labs
ADDRESS: Albuquerque, NM
ZIP: 87185

SUBMITTED BY: Ron Trellue
PHONE: 505-264-2115

ATTACHMENTS: MAG TAPE ☐ FLOPPY DISKS ☐ LISTING ☒ DECTAPE ☐ OTHER

DEC OFFICE: Albuquerque
DO YOU HAVE SOURCES? YES ☒ NO ☐

REPORT TYPE
- ☒ SOFTWARE ERROR
- ☐ DOCUMENTATION ERROR
- ☐ INQUIRY
- ☐ FOR YOUR INFORMATION/SUGGESTION

PRIORITY
- ☐ LOW
- ☒ STANDARD
- ☐ HIGH

CAN THE PROBLEM BE REPRODUCED AT WILL? YES ☒ NO ☐

COULD THIS SPR HAVE BEEN PREVENTED BY BETTER OR MORE DOCUMENTATION? PLEASE EXPLAIN IN PROVIDED SPACE BELOW. YES ☐ NO ☒

| CPU TYPE | SERIAL NO. | MEMORY SIZE | DISTRIBUTION MEDIUM | SYSTEM DEVICE | DO NOT PUBLISH |
|---|---|---|---|---|---|
| PDP11/45 | 2087 | 32KW | RK05 | RK05 | ☐ |

Problem: The associative variable does not appear to work on an OPEN statement for a direct access file.

Description: The FORTRAN program LEON.FOR was compiled using a threaded only FORTRAN V2 compiler and a NHD library. A listing of the program is included as attachment I. After each write to disk, the associate variable is printed. A dump of the file also verifies that the associative variable was not updated as specified in the FORTRAN LANGUAGE REFERENCE MANUAL page 5-27.

Solution: A temporary solution is to update the record number yourself as shown in attachment II. This works properly, but it is not taking advantage of the advertised utility of the associative variable.

| OPERATING SYSTEM | VERSION | SYSTEM PROGRAM OR DOCUMENT TITLE | VERSION OR DOCUMENT PART NO. | DATE |
|---|---|---|---|---|
| RT-11 | V03B-00A | Fortran | V02.04 | 28-Jul-78 |

(SEE EXAMPLE IN INSTRUCTIONS)

NAME: Mark Bartelt

FIRM: California Institute of Technology, MS 356-48

ADDRESS: Pasadena, California 91125

DEC OFFICE: El Segundo

DO YOU HAVE SOURCES? YES ☐ NO ☐

REPORT TYPE/PRIORITY

- ☒ PROBLEM ERROR — 5. ☐ 4. ☒ 3. ☐ 2. ☐ 1. ☐
- ☒ SUGGESTED ENHANCEMENT
- ☐ OTHER

SUBMITTED BY: Mark Bartelt PHONE: 213/795-6811 ext 2663

CAN THE PROBLEM BE REPRODUCED AT WILL? YES ☐ NO ☐

ATTACHMENTS: MAG TAPE ☐ FLOPPY DISKS ☐ LISTING ☐ DECTAPE ☐ OTHER ☐

COULD THIS SPR HAVE BEEN PREVENTED BY BETTER OR MORE DOCUMENTATION? PLEASE EXPLAIN IN PROVIDED SPACE BELOW. YES ☐ NO ☐

| CPU TYPE | SERIAL NO. | MEMORY SIZE | DISTRIBUTION MEDIUM | SYSTEM DEVICE | DO NOT PUBLISH |
|---|---|---|---|---|---|
| 11/xx | (Many) | | RK05 | RK05 | ☐ |

Problem: A background job running on a system with EAE is occasionally seen to give erroneous results (randomly) if a foreground job is active, and if both background and foreground jobs are written in Fortran.

Diagnosis: The EAE registers are not context switched. The background job may be interrupted by foreground after loading only one EAE register; when foreground relinquishes control, background loads the other EAE register, but gets an incorrect answer since EAE was used by foreground.

Suggestion: At the very least, you should warn Fortran users that they should issue a .CNTXSW programmed request if their system has EAE. However, this doesn't seem like something that the average Fortran programmer should have to worry about. Rather, it should be handled automatically by the Fortran run-time system, which should issue the .CNTXSW during object-time initialization.

One of the big advantages of the way RT-11 Fortran has been designed is the fact that programs may be moved without change between systems with different arithmetic hardware, simply by relinking (if threaded code is used) or by recompiling and relinking (if inline code is used). Please note that if the burden of issuing the .CNTXSW is placed on the user, instead of having it done by the Fortran OTS, programs will not be transportable between systems with EAE and systems without EAE without requiring that a .CNTXSW be added or removed.

Granted, this might cause problems if the user wanted to issue a .CNTXSW of his own; it would be necessary to know just what kind of context switching the Fortran OTS had requested. Still, anyone who's going to be doing his own context switching could certainly live with this minor difficulty. This, at least, seems preferable to requiring all F/B Fortran users to ensure that the EAE registers are properly context switched.

By the way, does the RT-11 monitor automatically context switch the FP-11 registers? If not, this all would apply as well to the FPU version of the Fortran OTS.

| OPERATING SYSTEM | VERSION | SYSTEM PROGRAM OR DOCUMENT TITLE | VERSION OR DOCUMENT PART NO. | DATE |
|---|---|---|---|---|
| RT-11 | V03B-00A | KMON | | 28-Jul-78 |

(SEE EXAMPLE IN INSTRUCTIONS)

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DO YOU HAVE SOURCES? YES ☐ NO ☐

REPORT TYPE/PRIORITY

- ☒ PROBLEM ERROR — 5. ☐ 4. ☒ 3. ☐ 2. ☐ 1. ☐
- ☐ SUGGESTED ENHANCEMENT
- ☐ OTHER

SUBMITTED BY: Mark Bartelt PHONE: 213/795-6811 ext 2663

CAN THE PROBLEM BE REPRODUCED AT WILL? YES ☒ NO ☐

ATTACHMENTS: MAG TAPE ☐ FLOPPY DISKS ☐ LISTING ☐ DECTAPE ☐ OTHER ☐

COULD THIS SPR HAVE BEEN PREVENTED BY BETTER OR MORE DOCUMENTATION? PLEASE EXPLAIN IN PROVIDED SPACE BELOW. YES ☒ NO ☒

| CPU TYPE | SERIAL NO. | MEMORY SIZE | DISTRIBUTION MEDIUM | SYSTEM DEVICE | DO NOT PUBLISH |
|---|---|---|---|---|---|
| 11/xx | (Many) | | RK05 | RK05 | ☐ |

There is either a problem with the indirect command file processor, or an inadequacy in the documentation which might lead to misinterpretation .....

According to the System User's Guide (p. 4-107), "SET ERROR NONE" allegedly "allows indirect command files and keyboard monitor commands to continue to execute even though they contain significant errors"; however, this doesn't seem to be the case.

Suppose the file X.COM contains

```
FOR PROG1
FOR PROG2
```

and PROG2.FOR exists, but PROG1.FOR does not. If one types "SET ERROR NONE", and then "@X", processing of the indirect command file is aborted after an attempt is made to compile nonexistent file PROG1.FOR. The way I interpret the documentation, one should receive an error message, but processing of the indirect command file should continue, and PROG2 should be compiled. Yes? No?

| OPERATING SYSTEM | VERSION | SYSTEM PROGRAM OR DOCUMENT TITLE | VERSION OR DOCUMENT PART NO. | DATE |
|---|---|---|---|---|
| RT-11 | V03B-00A | Fortran | V02.04 | 28-Jul-78 |

(SEE EXAMPLE IN INSTRUCTIONS)

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REPORT TYPE/PRIORITY
- ☒ PROBLEM ERROR — 5. ☐ 4. ☒ 3. ☐ 2. ☐ 1.
- ☐ SUGGESTED ENHANCEMENT
- ☐ OTHER

SUBMITTED BY: Mark Bartelt PHONE: 213/795-6811 ext 2663

CAN THE PROBLEM BE REPRODUCED AT WILL? YES ☒ NO ☐

ATTACHMENTS: MAG TAPE ☐ FLOPPY DISKS ☐ LISTING ☒ DECTAPE ☐ OTHER ____

COULD THIS SPR HAVE BEEN PREVENTED BY BETTER OR MORE DOCUMENTATION? PLEASE EXPLAIN IN PROVIDED SPACE BELOW. YES ☐ NO ☒

| CPU TYPE | SERIAL NO. | MEMORY SIZE | DISTRIBUTION MEDIUM | SYSTEM DEVICE | DO NOT PUBLISH |
|---|---|---|---|---|---|
| 11/xx | (Many) | | RK05 | RK05 | ☐ |

Compiler bug!

Some statements, such as

```
A = X / ( FLOAT(IABS(M)) * FLOAT(IABS(N)) )
```

do not compile correctly with the inline code option (threaded mode seems ok).

The problems seem to occur in statements of moderate complexity which make use of Fortran functions which are calculated in line, rather than via calls to an external procedure.

I've given this a priority code of 3 since, although the problem can be gotten around by replacing a statement of this type with a number of simpler statements which give the same result, this will require an enormous amount of reprogramming in our application. We could, of course, temporarily recompile everything with the threaded code option, but we'd rather not have to live with the significantly longer execution times which would result.

| OPERATING SYSTEM | VERSION | SYSTEM PROGRAM OR DOCUMENT TITLE | VERSION OR DOCUMENT PART NO. | DATE |
|---|---|---|---|---|
| RT-11 | 2C,3,3B | MT.SYS | | 5-JUL-78 |

(SEE EXAMPLE IN INSTRUCTIONS)

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DEC OFFICE: El Segundo
DO YOU HAVE SOURCES? YES ☐ NO ☒

REPORT TYPE/PRIORITY
- ☒ PROBLEM ERROR — 5. ☐ 4. ☐ 3. ☒ 2. ☐ 1.
- ☐ SUGGESTED ENHANCEMENT
- ☐ OTHER

SUBMITTED BY: Mark Bartelt 213/795-6811 x2663

CAN THE PROBLEM BE REPRODUCED AT WILL? YES ☒ NO ☐

ATTACHMENTS: MAG TAPE ☐ FLOPPY DISKS ☐ LISTING ☐ DECTAPE ☐ OTHER ____

COULD THIS SPR HAVE BEEN PREVENTED BY BETTER OR MORE DOCUMENTATION? PLEASE EXPLAIN IN PROVIDED SPACE BELOW. YES ☐ NO ☒

| CPU TYPE | SERIAL NO. | MEMORY SIZE | DISTRIBUTION MEDIUM | SYSTEM DEVICE | DO NOT PUBLISH |
|---|---|---|---|---|---|
| 11/xx | (many) | | RK05 | RK05 | ☐ |

**Problem: It is not possible to properly copy files to mantape (TM11/TU10) with PIP (e.g. MT0:*.*/Z=SY:*.TXT) on an 11/60; identical operations work fine on other systems (11/10, 11/34, etc.). Magtape diagnostics show no hardware errors. RSX-11M also copies files to/from tape correctly, thus providing additional verification of hardware OKness.**

**Symptoms include: (1) Bombing out with directory I/O errors; (2) Copy operations seem to complete with no errors; however, reading tape gives garbage file name and/or file length and/or creation date, and contents of files are junk.**

**Possible diagnosis: Although the PDP-11 peripherals handbook claims that CUR in MTC (which also causes the interrupt) indicates that the controller is ready to accept another command, this is not quite absolutely true -- it is ready to accept another command only for another unit, unless TUR in MTS is also on. TUR comes true at some time after CUR. It may be that in slower machines the amount of time necessary for the next I/O queue element to be passed to the MT handler is longer than the time lag between CUR and TUR, but that on a faster CPU, things happen quickly enough that the handler is attempting to initiate another operation before TUR comes true.**

**Suggestion: It's probably a bad idea to loop at interrupt level, waiting for TUR to come true. Perhaps the handler should, before actually setting the "go" bit in MTC, select the requested drive, and wait for TUR to come true if it isn't already.**

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