RSX-11/IAS SIG DECUS

# THE MULTI-TASKER

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## The Newsletter of the RSX-11/IAS Special Interest Group

Contributions should be sent to: Editor, The Multi-Tasker, c/o DECUS, One Iron Way, MR2-3/E55, Marlboro, MA 01752

European members should send contributions to: Colin A. Mercer, Tennant Post, High Street, FAREHAM, PO16 7BQ, Hants, England

Members in Australia or New Zealand should send contributions to: Clive Edington, CSIRO, Computing Research 314 Albert St., East Melbourne, VIC 3002, Australia

Letters and articles for publication are requested from members of the SIG. They may include helpful hints, inquiries to other users, reports on SIG business, summaries of SPR's submitted to Digital or other information for the members of RSX-11/IAS SIG.

All contributions should be "camera-ready copy" e.g. sharp black type in a 160x240 mm area (8 1/2" x 11" paper with 1" margins) and should not include xerox copies. If you use RUNOFF to prepare your contribution the following parameters have been found to be satisfactory:

.PAPER SIZE 60,80 .LEFT MARGIN 8 .RIGHT MARGIN 72 .SPACING 1

These parameters assume output on a lineprinter with a pitch of 10 char/inch. Adjust the parameters to maintain the same margins if another pitch is used.

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# FROM THE EDITOR

This is the largest issue of the Multi-Tasker I have published. However, I deserve very little credit for it. Applause should go to the authors for their very good submissions. Special thanks to Robert Stodola, Bill Cael, and Bill Wood for the transcript of the IAS Question and Answer Session and Bob Denny for his one-man marathon transcription of the RSX-11M Question and Answer Session. These people worked long hours after the Miami Symposium so these transcripts would make the next issue of the Multi-Tasker. In addition, the articles will be published in the Spring 1981, Miami Symposium Proceedings. The SIG will try to continue and expand this effort at future symposia so transcripts of all sessions can be published immediately. If you can volunteer to transcribe a session for Los Angeles please contact me. We are interested in including the SIG General sessions, RSX-11M and IAS Product Panels, Menu session, the planned field test reports for RSX-11M V4.0 and Fortran '77, and Customer Services Question and Answer session.

Please pay special attention to the following articles on the upcoming SIG election and the resolution on SPR's which was passed at the Miami Symposium. The extra long "Help Yourself" column comes from the Miami campground. When cleaning up the campground on the last day, I pulled the notices off of the walls and used them as material for this issue. Frank Borger's article on "Wonderful Hardware Problems" and Jim Downward's report on the "RSX-11M System Tuning Workshop" also came from the campground. Finally, Richard Kirkman from England has submitted an excellent technical article on how to quite easily implement a stand-alone RSX-11M system for performing backup's and other jobs.

The last article is the start of what I intend to be a regular six-month feature. Whenever someone new starts at my site, I always have to scramble around to dig up a DECUS membership form. Therefore, the last issue of every volume will carry blank forms. Included in this issue is a DECUS membership form, an update form for current members, a DevIAS membership application, a DECUS library submission form, and a Menu submission. See the "Forms, Forms, Forms" article for more details.

Another person deserves special thanks for this issue. When I became Multi-Tasker editor, one of my long-range goals was to publish the entire issue using letter-quality printers, headlines, and standard formatting. This required typing all submissions into Runoff format on my machine. Fortunately, because my wife volunteered to do this, we implemented these goals way ahead of schedule. In the last six months, Esther has rapidly learned enough TECO and Runoff that she is in effect the Multi-Tasker editor. So do not complement me if you like the new format, Esther deserves all the kudos.

Ralph Stamerjohn
Multi-Tasker Editor (Pseudo)

Esther Stamerjohn
Multi-Tasker Editor (Real)

# CHAIRMAN'S CORNER

The Miami Symposium was a resounding success! The only sour note was the lunches, which we could not do anything about anyway (except not to eat them). Concerns about the mechanics of using a convention center instead of a hotel and having to rely on shuttle buses turned out to be unfounded, as everything worked out suprisingly well.

As for the sessions themselves, it was an above average Symposium. Users again had their feelings known in the F4P Workshop - complete with sign carrying demonstrators. Yes Digital, we DO want a Fortran symbolic debugger!!

A disappointing, but expected, annoucement was that IAS support will continue for only two more years (until June 1983). The SIG formed as IAS Working Group that will be addressing follow-on support of IAS. A similar working group was formed for earlier versions of RSX-11M that are no longer supported.

The "star" of the Symposium was the Software Clinic. Everything for it was well planned and laid out, and most of the people needing help were able to get their problems addressed on a one-to-one basis. Needless to say, the Software Clinic will be repeated for the Fall Symposium in Los Angeles.

One change we will be making for the Fall is to emphasize short, 30 minute tutorials on specific subjects, rather than having several 1-2 hour ones on more general subjects. So be sure to put the date of the Fall Symposium (December 7th to 11th) on your calendars.

Later this year SIG elections will be held, a real election this time. Details of the election and its nominations are described in the next article.

Speaking of elections, the results of the DECUS Board elections are final and June Baker, our SIG's own Symposia Coordinator, was elected DECUS Symposia Coordinator by a large margic (over two-thirds of the vote cast). Unfortunately, June will not be able to continue as the SIG's Symposia Coordinator. The SIG Executive Committee discussed this and we came to the consensus that, due to previous scheduling experience, I should assume Symposia scheduling and coordinating activites for the remainder of June's term. In order that the functions of Chairman get proper attention, George Hamma, currently the SIG's Planning Coordinator, will be handling many of the Chairman's activities and will, in many cases, be acting as Chairman. We will continue this way until the end of the year when the results of the upcoming SIG election take effect.

Ray French
RSX/IAS SIG Chairman



# RSX/IAS SIG ELECTION

As mentioned in a previous issue, the RSX/IAS SIG Operating Procedures call for an election of the SIG Executive Committee once every two years. Nominations are now open for the next election. The current Executive Committee has submitted a slate of seven names as required by the Operating Procedures. In addition, at the Miami Symposium, five other nominations were received. If you are interested in running for the Executive Committee, all that is required is a letter stating your intentions and the signature of five RSX/IAS SIG Installation or Associate members. Send the letter to the following address:

Ray French
RSX/IAS SIG Chairman
DECUS, MR2-3/E55
One Iron Way
Marlboro, MA, 01752

Nominations will close September 1, 1981 and the voting will be conducted shortly thereafter. Voting will be by direct mail to all Installation Delegates of the RSX/IAS SIG within DECUS/US and DECUS/Canada. Therefore, if your site does not currently have an Installation Delegate, it is important that you contact the DECUS office in order to be able to vote in this important election.

# SPR RESOLUTION

At the Spring 1981 Symposium in Miami, the RSX/IAS Special Interest Group discussed at great length and then passed a resolution calling for Digital to publish all raw and answered Software Performance Reports in the Software Dispatch. The text of the final resolution is below:

> Given Digital Equipment Corporation's current policy of publishing only selected RSX/IAS SPR's and their responses, customers paying for this service are not promptly informed of possible errors, or their fixes. This results in degraded or incorrect system performance, or a duplication of effort to detect and fix problems.
>
> Be it therefore resolved that Digital publish in each and every SPR for RSX, IAS, and associated layered products in the Software Dispatch as follows: all valid SPR's received by Digital on or before the tenth of each month, and not previously published, shall be published in the next month's Software Dispatch. Valid SPR's are those to which Digital is under contractual obligation to respond to. This resolution does not require publication of those SPR's for which non-publication has been requested by the submittor.

Be it further resolved that Digital publish each and every SPR response for RSX, IAS, and associated layered products as follows: all SPR responses mailed to a customer on or before the tenth of the month shall be published in the next month's Software Dispatch.

The SIG membership realizes that additional cost may be incurred to support this additional service.

The resolution was discussed in great detail, however, the voting at the SIG closing session was overwhelming in support of it. In the discussion the following points were made in favor of the resolution.

* By not publishing promptly unanswered SPR's, customers who encounter the same problem duplicate the effort of others in documenting and submitting SPR's. Also, without this information, sites may be unaware of potential problem areas in their applications.

* By not publishing all SPR responses, many fixes to problems are not circulated to the general user community.

* In general, sites felt that the more information they have on problems and fixes for RSX and IAS, the better they can maintain their systems and resolve problems.

Also, many valid problem areas were pointed out in the discussion.

* The volume of SPR's received monthly is quite large. If all unanswered SPR's are published, the Software Dispatch will grow in size tremendously.

* Unanswered SPR's may contain misleading information or actually be a user problem that is not obvious. Publication of these has a potential danger of misleading other sites, particularly new users.

* The additional publication costs will almost certainly raise the price of the Software Maintenance Services.

The resolution process is very rarely used by the SIG and only when it feels it has no other method of resolving an issue. At this time, Digital is examining the resolution and preparing a response for the Fall 1981 Symposium. Any more information will be published in the Multi-Tasker. We also invite further user comments on this issue for the "Speak Out" column.

# HINTS AND THINGS

"Hints and Things" is a monthly potpouri of helpful tidbits and rumors. Readers are encouraged to submit items to this column. Any input about any way to make life easier on RSX/IAS is needed. Please beware that items in this column have not been checked for accuracy.



## RUNNING RSX-11D V6.2 ON A PDP-11/44

This hint is from Gregg Giesler, Los Alamos Scientific Laboratory, P.O. Box 1663, Los Alamos, New Mexico, 87545. Phone (505) 667-7235.

Running RSX-11D V6.2 on a PDP-11/44 is relatively easy. One change has to be made to SAV, and it must be done using another model CPU. The following changes should be made starting at line 1053 (location 3444):

```
      1053   003444  001050          BNE     ADJMEM
      1054   003446  016700  177760  MOV     SSZR,R0         ;Get size
      1055   003452  005200          INC     R0
becomes
      1053   003444  001050          BNE     ADJMEM
      1054   003446  012700  007577  MOV     #7577,R0        ;124K mem
      1055   003452  005200          INC     R0
```

What this does is load memory size directly rather than from the size register on the PDP-11/70 when the UMRs are found. This patch has run on a PDP-11/44 for the last 6 months, as well as on a 11/40, 11/34, and 11/70, with no problems. I have tried running this on a machine with more than 124 KW of memory, since I really have 256 KW, but have been unsuccessful so far. I am continuing to try to solve this problem. Note, you may find a 173306 in location 3450. I don't know what its source is, but it does not make any difference to the patch.

This patch does not handle the problem of Massbus peripheral with RH-11 controllers on a Unibus in 22-bit mode. The device handlers will only run with the CPU in 18-bit mode on a Unibus or 22-bit on a Massbus. This will be solved in IAS V3.1.

## BRANCH-ON-SELF

This article was abstracted from the CDA seminar taught at the Miami Symposium and comes from the editor's own book of tricks.

The branch-on-self instruction (777) is a useful, poor-man's debugging tool. When executed, the executive or a program will patiently loop on itself. This provides a quick and dirty way to stop the execution of something, examine various values, and continue execution.

Branch-on-self is most useful when you can reproduce a problem and need to trace back to the source. Its biggest use comes when ODT cannot be linked into the program because of size or linking ODT moves or changes the problem. For example, you have a program which aborts because a certain location has a bad value but you do not know who sets the value bad. Unfortunately, the program is always 32 KW in size and cannot be overlaid anymore. By using the OPEN command and branch-on-self, you can easily trace the program by the following steps:

1. Fix the program in core.

2. Set a branch-on-self at an appropriate point.

3. Run the program and cause the problem to reproduce.

4. When the branch-on-self is executed (check with ATL), examine the location which is going bad. If it is bad, you have narrowed the problem to the code executed before the patch.

5. Set the next 777 at the appropriate point.

6. Restore the original contents of the previous patch. The program will resume execution and loop when it hits the new patch.

7. Loop through steps 4, 5, and 6.

Some notes about this technique. If working on a program, make sure its priority is less than MCR. Otherwise, you will lock-up your system. If other users are on the system, you should set the priority low enough to not lock them out of the CPU. Also, if using branch-on-self for executive, driver, or system state code, you will have to use the console to do the examines and deposits.

## 24K RSX-11M EXECUTIVE

The following describes a major modification to RSX-11M the editor made to add pool. If you would like a listing of the patches, please write the editor: Ralph Stamerjohn, Monsanto, MS T1A, 800 N. Lindbergh, St. Louis, Missouri, 63166. Please note that RSX-11M V4.0 will have a supported version of the directive common and if you can wait for it, you may be advised to do so.

At Monsanto, one of the data systems we are developing ran out of pool. The system is based on large PDP-11/70's and even after stripping everything possible from the executive, pool still remained the limiting factor in the system. The pool problem was resolved by restructuring the executive to 24 KW's. This article outlines the approach taken.

The basic concept is to move code from the executive to addresses 120000- 140000 (20 - 24 K) and have the executive map the code when it is needed. The space saved in the first 20 KW can be used as pool. Generally, the directive processing modules and crash dump support are candidates to be moved to the new region. Modules which cannot be moved include any data areas (SYSCM, SYSTB), and any routines referenced directly from privileged tasks (IOSUB, REQSB, etc.)

The first step was to task-build all the priveleged tasks and device drivers in the system. Before the task build, the reference to LB:[1,54]RSX11M.STB was removed from the task-build command files. The resulting list of undefined references is code which must remain in the 20 KW region and cannot be moved.

Next, a list of those routines which are not referenced from privileged tasks or drivers was compiled. A cross-reference of the executive was studied to see where the routines were called from inside the executive. This determined where the necessary mapping would have to be made.



It was determined that mapping the 20 - 24 KW region would be needed in three places for our configuration. First, the directive dispatcher (DRDSP) was modified so the entries $EMTRP and $TRTRP would map the region and jump into it. The mapping is accomplished by a "MOV #1200,KISAR5" instruction. Second, the crash module was modified in the same manner to jump to the crash dump code. The crash stack and variables were left in low core so CDA would continue to work. Finally, the exit task code (DREIF) references some of the routines we wished to move so parts of it were patched to map the region.

The cross-reference listing was also studied to see where all references to "KISAR5" were made. Because this APR was to be used for the moved code, any other use of it would have to save and restore the value. This resulted in some patches to SYSXT and DREIF.

The moving of the code was accomplished by using the .PSECT assembler directive. Any code to be moved was placed in the PSECT "...TOP". The PSECT use by INITL for the pool was renamed to "...POL" so the sections would be correctly ordered. The executive was task-built once and the map studied to see how far "...POL" needed to be extended to place "...TOP" at 120000. The EXTSCT command was added to the build file and the executive rebuilt. If the ...POL was extended correctly, the moved code was properly positioned in the 20 - 24 K region and are references in the low area were resolved correctly.

Only one other problem was encountered. SAV did not properly setup the mapping registers when is restarted the system. A patch was added to correct this problem. When the system is VMR'ed, a partition is placed around the 20 - 24 k region purely for esthetics.

This approach has been runnning flawlessly for 6 months. We gained 3.4 KW of pool which was sufficient to make pool no longer the bottleneck in the system. Note, the approach was considered only as a last resort and only used after optimizing all other pool usage. If possible, we would have gone to RSX-11M Plus but budget and other considerations prevented this.

The SLP files used at Monsanto are available in listing form by writing me. Note, the files only apply the patches necessary for the 24K executive and must be merged with other Digital patches to the executive.

# SOFTWARE PERFORMANCE REPORTS

This section contains SPR's submitted to the Multi-Tasker by users. SPR's should always be sent to DIGITAL. However, if you feel that a report should be published in the Multi-Tasker, you may send a duplicate copy to the editor at the addresses listed on the cover. Publication of an SPR in the Multi-Tasker does not imply endorsement by the SIG. Implementation of suggested fixes must be at the reader's own risk. The SPR's published in this column may be abstracts of the original submission and have not been checked for accuracy.

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The following SPR on RSX-11M V3.2, modules CONTRL and PNTMRK, was submitted by David M. Kristol, (Mass. Computer Associates, 26 Princess St., Wakefield, MA., 01880).

PROBLEM: Two modules, CNTRL and PNTMRK, which are part of FCS are always patched even though the patches are supposed to be optional.

ANALYSIS: This problem has a long history, although I only discovered it recently. Autopatch B replaced these SYSLIB modules, too. The Auto-B documentation mentions that these patches would appear in a future Software Dispatch. In Auto-C, the patches are still applied, but no comment of their origin is made anywhere in the documentation. The same thing happens in Auto-D.

In fact, the Software Dispatch article did not appear until March, 1981 (p.29). At that time the patches were described as optional (I guess - the notation in the article is O, rather than F, for feature patch). (By the way, nowhere in the beginning of the Software Dispatch is there any comment about what the various letter designations mean).

The problem first turned up when an associate tried to rebuild our FCSRES from the patched SYSLIB and discovered that it no longer fit. It took quite a bit of digging to find which modules had been patched.

SOLUTION: Fix Autopatch so the patch is not applied unconditionally, and do a better management job so optional patches do not get applied.

# HELP YOURSELF

"Help Yourself" is a place for you to get your tough questions answered. Each month, questions from readers will be published. If you have a question, send a letter to the Multi-Tasker at one of the addresses listed on the cover.

We would also like to publish the answers to questions. If you can help someone, send a letter to the Multi-Tasker or call Ralph Stamerjohn at (314) 694-4252. Your answer will be sent directly to the person in need and published in the next edition of the Multi-Tasker.

## ANSWERS TO PREVIOUS QUESTIONS

### BOOTING RT-11 FROM RSX-11M

Steve Simek of Digital at Chapel Hill, North Carolina and Eliezer May of Tadiran in Israel both responded to Barry Gray's request for help on booting RT-11 from RSX-11M and vice versa.



For booting RSX-11M from RT-11, you use the BOOT/FOREIGN command of RT-11. This will work for most common devices supported by RT-11. To boot RT-11 from RSX-11M, Eliezer sent the following simple program. The program copies a bootstrap to low memory and executes the bootstrap. The sample program has a RX01 bootstrap, however, it is fairly simple to code a bootstrap for other devices or dig one up from the hardware or software manuals.

```
        .TITLE  BOOTDX
;
; Author:       Eliezer May, Tadiran Electronics. P.O. Box 267, Holon, Israel
;
; Objective:    Program for booting from floppy
;
; Technique:    Privilege task moves a physical boot to low core, disables
;               memory management, issues a reset to disable any active
;               devices, and executes the bootstrap.
;
; Warning:      Do NOT have active users on the system when preforming the boot.
;
; Comment:      By replacing the boot code for the floppy (RX01) with another
;               bootstrap, the program can boot other devices.
;
; Define symbols.
;
SR0     = 177572                        ;Define Memory Management registers
PS      = 177776                        ;Define Processor Status  register
UIPDR0  = 177600                        ;User Page Descriptor #0
UIPAR0  = 177640                        ;User Page Address    #0
KIPDR0  = 172300                        ;Kernal Page Descriptor #0
KIPAR0  = 172340                        ;Kernal Page Address    #0
;
; Start of code (note, code starts at 120000 because of privilege program).
;
START:  MOV     #340,@#PS               ;Disable interrupts
        CLR     @#UIPAR0                ;Map low 4k for user
        MOV     #77506,@#UIPDR0         ; and enable
        CLR     @#KIPAR0                ;Map low 4k for system
        MOV     #77506,@#KIPDR0         ; and enable
        MOV     #BOOT,R1                ;Point to boot code
        MOV     #1000,R2                ;Point to address 1000
LOOP:   MOV     (R1)+,(R2)+             ;Copy boot code
        CMP     R1,#ENDBOOT             ;Are we finished?
        BLOS    LOOP                    ; if not, continue
        JMP     @#1000                  ;When done, excute boot
;
; Floppy boot - taken from RT-11 instruction card.
;
BOOT:   RESET                           ;Perform a reset for safety
        CLR     @#SR0                   ;Disable memory management
        CLR     @#PS                    ;Clear out processor status
;
; Actual hardware boot.
;
        .WORD   012702,100247,012701,177170,130211,001776
```

```
        .WORD   112703,000007,010100,010220,000402,012710
        .WORD   012710,000001,006203,103402,112711,111023
        .WORD   030211,001776,100756,103766,105711,100771
        .WORD   005000,022710,000240,001347,122702,000247
        .WORD   005500,005007
ENDBOOT:

        .END    START
```

### 6502 CROSS ASSEMBLER

Augus Bond, IV from Keithley Instruments had an answer for Paul Sahood's request for a 6502 cross assembler. Angus uses Microtec's cross-assemblers for 6800 and 6809 development under RSX-11M and RT-11 and has nothing but high praises for the products. He notes that Microtec has a wide variety of cross assemblers, including one for the 6502. For more information, contact Microtec at P.O. Box 60337, Sunnyvale, California, 94088. Phone (408) 733-2919.

## THIS MONTH'S QUESTIONS

### KMC11 DRIVERS

I am looking for device drivers for the KMC11 to run under RSX-11M or RSX-11M PLUS using the COMM IOP-DZ or COMM IOP-DUP packages.

S. Gale, The Computer Communications Group, Bell Canada, 160 Elgin Street, Room 955, Ottawa, Ontario, K1G 3J4, Canada. Phone (613) 239-2972. TWX 610-562-1922.

### PDP-11 PHOTO-TYPESETTER

We are looking for a photo-typesetter or similar equipment which we could drive on-line from a PDP-11/60. The difficulty is that we need to place lines and text within 1/100th of an inch (.01mm a good alternative) over an A4 area. The only equipment we've come across so far is either not sufficiently accurate or cannot be sensibly used in conjunction with an external processor. Anyone with experience of such a device?

W.R. Hudson, Data & Research Services Ltd., 14-16 Burners Lane, Kiln Farm Industrial Estate, Milton Keynes, England, MK11 3HB.

### RSX IBM-SNA PROTOCOL EMULATOR

Is there anyone who is using the RSX IBM-SNA protocol emulator? We are interested in exchanging information with you on this product.

Mike Meehan, Metro Dade County Data Processing Department, Miami, Florida.



### RX02/IBM COMPATIBLE FLOPPIES

Does anyone have a driver or other software that will permit a PDP-11 to write RX02 floppies which are IBM (CP/M) compatible?

James Dunn, Simmons Precision, Paenton Road, Vergennes, Vermont, 05491. Phone (802) 877-2911 X525.

### UMC-Z80

Is anyone using ACC's UMC-Z80 for terminal I/O, host-host I/O, etc.?

Art Kocsis, McDonnell Douglas, P.O. Box 200, MS 35-44, Long Beach, California, 90846, Phone (213) 593-2807.

### LSI 11/23 CROSS ASSEMBLER

Does anyone have a cross-assembler to run on LSI 11/23 for Technical Design Labs Z80 assembly language?

Bob Feldman, ITHACO, Inc., 735 W. Clinton St., Ithaca, New York, 14850.

### GRAPHICS DATABASES

Does anyone have any graphics databases (digitized maps, character fonts, images, etc.) that they want to share or trade? Also we are looking for other users of AED color graphic CRT terminals to share software experiences.

Art Kocsis, McDonnell Douglas, P.O. Box 200, MS 35-44, Long Beach, California, 90846. Phone (213) 593-2807.

### DATA TRANSLATION DT17-11 DEVICE DRIVER

Does anyone have a device driver for a Data Translation DT17-11?

Ray Kaplan, Department of Electrical Engineering, University of Arizona, Tucson, Arizona, 85721.

### DV11 DEVICE DRIVER

Does anyone have a DV11 device driver for RSX-11M or IAS? We would also want the macro source for the driver.

Martin R. Mueller, Informatics Inc., 1508 Kennedy Drive, Suite 215, Bellevue, Nebraska 68005, Phone (402) 291-8300.

## CABLE/TELEX SYSTEM

Does anyone have a Cable System or interfaces to International Telex (Cable) Carriers for a PDP-11/70 running RSX-11M V3.2?

Fred Jacobowitz, Federal Reserve Bank of New York, 33 Maiden Lane, New York, New York, 10045.

## COMMUNICATION WITH B7700 FROM 11/70

Has anyone ever talked to a B7700 configured as a RJE (to talk to IBM) from an PDP-11/70 running RSX-11M or RSX-11M PLUS?

Fred Jacobowitz, Federal Reserve Bank of New York, 33 Maiden Lane, New York, New York, 10045.

## TASK TO TASK COMMUNICATION

Does anyone have a simple interface, 11/70 to 11/70 for task-to-task communications under RSX-11M or RSX-11M PLUS?

Fred Jacobowitz, Federal Reserve Bank of New York, 33 Maiden Lane, New York, New York, 10045.

## XEROX 850 OR IBM SYSTEM 6 FORMATS

Does anyone have or use Xerox 850 or IBM System 6 formats? I need them to write a Xerox 5700 REFORMATTER (XER/IBM will not release them directly).

J. Bradley Flippin, Raytheon Service Company, Century Building, 2341 Jefferson Davis Highway, Arlington, Virginia 22202. Phone (703) 685-2239.

## TSO (IBM) AND RSX-11M COMMUNICATIONS

Does anyone have communications software to the handle the link between TSO (IBM) and RSX-11M?

Anh Tuan Truong, Department Gerne Electrique, Faculti des Sciences Appliques, Universite de Sherbrooke, Sherbrooke, Quebec, Canada J1K 2R1. Phone (819) 565-4403.

## TASK BUILDER PROBLEM

We are encountering a problem using the Task Builder, that we are currently unable to resolve. The problem has not been "SPR'd" by us as yet, and I am not aware that any other user has done so yet.



The problem is as follows. We have an 8K byte (4K/W) resident common region that we are trying to link into our program. We are using the following commands:

```
>TKB
TKB>FILMAN,FILMAN/SP=FILMAN
TKB>/
ENTER OPTIONS:
RESCOM=CMREG1/RW:7
TKB>//
```

Results in the following error being issued.

```
TKB -- *DIAG* - SEGMENT FILMAN HAS ADDRESS OVERFLOW, ALLOCATION DELETED
```

This error occurs when the following two conditions are met. First, the RESCOM regions must be 8KB long, and you must use APR 7 (seven). Changing any of these two variables (making the RESCOM smaller using APR 7, or using the same size RESCOM but a different APR (like 6 for example)) eliminates the error. This appears to be a bug in TKB, but I would like to get some other user's opinion before "SPR'ing" this problem.

Wayne L. Guerrini, CMI Corporation, Computer Controls Division, P.O. Box 1985, Oklahoma City, Oklahoma 73101. Phone (405) 787-6020 x3454.

## BIT-SLICED CROSS ASSEMBLER

We are looking for a cross assembler that supports bit slice micro programming. We are currently running on a PDP 11/34 under RSX-11M version 3.2. If anyone knows of one or has one, we would like to hear from you.

Dennis Thun, Plessey Peripheral Systems, 1691 Browning Irvine, California, 92714. Phone (714) 557-9811. Ext 233.

## SPAWNING TASKS

We are looking for a way of spawning any task (not necessarily installed) from a background task. The problem is spawn requires a terminal to be logged in which is not always true in our system. Since we have a small system leaving a terminal logged in is not viable.

Jeffrey C. Welch, Purdue University, Laboratory for Applications of Remote Sensing, 1291 Cumberland Ave., West Lafayette, Indiana 47906. Phone (317) 749-2052.

## DUAL-PORTED DISK DRIVES

We have two Digital computers capable of running RSX11M-PLUS. We would like to operate them so that they are connected to a common (dual-ported) Files-11 disk drive, but Digital doesn't support this configuration. Outside of drastic measures (i.e. running UNIX, other vendors, etc.) can anyone make some valid suggestions, or transmit a known solution to this problem?

M.L. Wood, General Electric Co., P.O. Box 414, Mail Stop: ED-868, Milwaukee, Wisconsin 53201. Phone (414) 355-1752.

### WORD PROCESSING WITH EDI OR EDT

I am trying to locate software which would operate on RSX-11M which would allow the editors EDT or EDI to be used in a word processing fashion. This could possibly be a two-step process.

* Edit program with EDI or EDT including word-processing keys
* Word processing program print out edited copy

If you have any information, call or write.

Don Kredier, Specialist Computer Applications, General Electric Company, Coshocton, Ohio 43812. Phone (614) 622-5310. Ext 463.

### COPYING ADVENTURE AND DUNGEON

I am having a problem which may be unique to me or I don't know what I am doing, but I think other RSX-11M users are experiencing the same frustrations.

I recently purchased from DECUS a copy of ADVENTURE and DUNGEON. These games are distributed on 600' magtape and according to the format slip, are written in RT ANSI format. My problem is that I can't copy these tapes to my RM03 disk in such a way that my FORTRAN IV PLUS compiler can read the source without getting an error message saying that the source record is too large. The game data files are in a worse state after using PIP. I think I have tried all possible combination of FLX, especially the suggestion by one of the RSX wizards at the campground of the recent DECUS SYMPOSIUM.

Is there anyone out there who knows how to do this without having to go to an RT user site and copy to their disks the games, using RT PIP, and then copying back to tape using FLX, in DOS format, in order that my RSX system may properly read these files?

George Velez, Revlon Research Center, 945 Zerega Avenue, Bronx, New York 10473.

### OLD MAGIC SESSIONS

I am trying to compile a history of the RSX-11M Magic sessions. I have recorded some parts of some sessions but my tapes are of poor quality and I often forgot to change the tapes when they ran out. If you recorded any of the Magic sessions, I would be interested in coping your tapes and returning them to you. In particular, I have no copies at all of the San Francisco, Fall 1978; New Orleans, Spring 1979; and San Diego, Fall 1979 sessions. Please contact me if you can help reconstruct some of these past sessions.

Ralph Stamerjohn, Monsanto, Zone T1A, 800 N. Lindbergh, St. Louis, Missouri, 63166. Phone (314) 694-4252.



# WONDERFUL HARDWARE PROBLEMS

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Although we see our share of the normal hardware problems, (blown fuses, head crashes, interface failures, etc.) I think we have had more than our share of the "weirdos". They're the ones that take forever to find, (the diagnostics never find them, or if they do, it's always the one you didn't run because "that can't possibly be involved.") Presented is a sampling of ones we've seen.

1. FPP Demonstrates large values of 1.

```
SETD                    ;set double precision
SETL                    ;set long integer mode
LDCLD   A,AC0           ;convert value in A (A=1)
LDCLD   B,AC1           ;convert value in B (B=-1)
MULD    AC0,AC1         ;multilpy 1 X -1
STCDL   AC0,C           ;convert answer to long integer
```

   Unfortunately, the answer kept coming out -2. This wouldn't have been so bad, but it only appeared in FORTRAN 4-PLUS programs doing double precision integer calculations.

2. The 4-word FPP Status Register

```
MOV     #1576,SP        ;set SP to 1576
LDFPS   (SP)+           ;pop stack to FPS status
```

   Unfortunately, the stack pointer now equals 1606! This does wonders for the KERNAL STACK when the system is doing context switching. It took us quite a while to figure out that only tasks that said they use the FPP would bomb things. Crash Dump Analyzer told us the reason for the crash was:

   "SST EXECUTED IN KERNAL MODE"

3. The simultaneous 32-bit - 8-bit instruction (ASHCan).

```
CLR     R1              ;clear lower register
MOV     #1,R0           ;put a 1 in upper register
ASHC    #-1,R0          ;shift right (32 bit mode)
```

   Unfortunately, R1 now contains 100200. Any bit shifted into the odd register ended up in the upper bit of BOTH bytes.

   Again, diagnostic programs worked fine, etc. IAS handlers use the ASHC instruction to calculate the actual core address to start the transfer,

so once our system disk handler started executing after a re-boot, our system went down the tubes.

4. The drop us a line problem.

   1. All of a sudden, our TU10 kept giving us total gibberish. Dumps of files transferred from the tape showed every other byte was a 0, but the tape drive couldn't see any errors.

   2. While we were madly scoping the tape drive, Harvey came up and said: "The plots are coming out weird on the electrostatic printer plotter. The graphics are there, but all of the labels on the plots are gone."

   3. Finally the light dawned. Both devices used byte mode DMA transfers. Subsequent investigation found UNIBUS line C0, (the one used to indicate byte mode transfers,) broken on the BUS betwen the CPU and the peripherals in question.

5. The "I'm sorry I Interrupted you" interface.

   When we were young and foolish, we decided that the sample code provided by the manufacturer of our BRAND-X printer-plotter interface could be improved significantly. Some improvement, our code kept crashing the system. (Since the system just halted, no crash dumps could be produced.) After laborious hardware debugging we detected a curious malady unique to the interface in question.

   1. Use our "improved" code to set up the interface.

   2. Set the interface to INTERRUPT on "DONE".

   3. The interface would start the interrupt sequence, and then change its mind, dropping the BUS REQUEST 4 line it had just asserted.

   4. The CPU however, would have none of this, and dutifully looked on the address lines for the forthcoming INTERRUPT VECTOR ADDRESS.

   5. The end result was an INTERRUPT with a VECTOR ADDRESS of ZERO.

   6. Interestingly enough, although ERROR LOGGING reports list an entry of "TRAPS THROUGH LOCATION 0", IAS currently has no code to handle such obvious hardware malfunctions.

6. When the LOAD ADDRESS switch doesn't work, you've got problems.

   The three-AM call came, "The system halted, and now I can't re-boot." When I got to work, I discovered the CPU totally dead in the water. Interestingly enough, if you powered down and back up again, and then pounded on the LOAD ADDRESS switch several times, the CPU would finally go into a continuous LOAD ADDRESS state. (If you changed the switch register, said change would immediately appear in the address lights, even without hitting LOAD ADDRESS again.) It finally turned out that



any of the control switches, EXAMINE, CONTINUE, etc. evidenced the same problem. I finally traced down what the CPU micro-code was doing. In essence, the micro-code does the following:

   1. Detect hardware flip-flop that was set by the operator hitting any of the control keys.

   2. Perform the required function, (such as load the contents of the switch register into the console address register.)

   3. Clear the hardware flip-flop that was set when the operator hit the LOAD address switch.

   4. Check if any more switches have been toggled. (Go back to 1, above.)

   Turns out that an IC with a shorted input was pulling down the line that was supposed to clear the above mentioned hardware flag. The fun part of this whole job was figuring out the 3-instruction loop that the CPU microcode was in by scoping the MICROCODE ADDRESS lines on the CPU boards.

7. I can't load a tape on the tape drive.

   Harvey came up and said, "when I try to load a tape, the tape never feeds into the one vacuum column." Sure enough, something was wrong. after Hans and I worked a couple of hours, Hans finally spotted the problem. The tape on the supply reel was wound INSIDE-OUT and BACKWARDS. After questioning Harvey again, he told us the crucial information he had neglected to tell us earlier, and we were able to ascertain the procedure he used to produce the screw tape:

   1. Load the tape, but put a half-twist between the supply reel and the head area, so the BOT and EOT markers are on the wrong side.

   2. Set the tape to look for BOT and WALK AWAY FOR A CUP OF COFFEE.

   3. When you return, find all the tape on the take-up reel, since the hardware couldn't see the BOT and EOT markers. (At this time, the half-twist between the supply reel and the heads is gone.)

   4. Rewind some tape back onto the supply reel, (it's inside out now,) and to make matters worse, wind it backwards, because you think you're working with your home movie projector.

   5. Try to load the tape. This won't work because the tape is wound backwards on the supply reel.

   6. Keep trying steps 4 & 5 above, until you have rewound 2400 feet of tape (BY HAND).

   7. Then tell us the tape drive doesn't work, but never mention that you had other problems, and leave the screwed-up tape on the drive.

# RSX-11M SYSTEM TUNING WORKSHOP

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**ABSTRACT**

Anyone who is responsible for an RSX11M system invariably wonders if it is possible to get improved performance out of existing hardware or wonders what hardware/software is really needed to do the job adequately. At the past two DECUS meetings, a wide collection of topics at this workshop showed that there were many ways to improve system performance. At this meeting, new topics will be covered with an emphasis on understanding the limitations imposed by the system hardware and analyzing system performance. Topics to be discussed by the panelists will include:

* Thrashing in an RSX11M system. What to do.
* Using solid state disk emulators as the swapping device. Performance improvment.
* Performance measurement techniques.
* Capacity planning.
* Big Buffering. How to use it. Possible benefits.
* DECNET-11M optimization. What performance can be expected for real environments.

**WHAT IS PERFORMANCE MEASUREMENT?**

Most of us here work with PDP11 Computer System costing of anywhere from $30k to $200k or more. If I were to ask any one of you how your car performed, you probably could easily tell me how many miles/gallon it gets, how fast it accelerates, or what its top speed is. What would you answer if I asked the same question about your very much more expensive computer? How many of us ever really think about how our systems perform, until the performance has become a problem?

I believe many RSX11M users should now be devoting some effort to analyzing the performance of their systems. Will a system's performance and capacity be sufficient for its lifetime, or will it become inadequate at some forseeable



time in the future? Users should make plans before system performance becomes a serious problem. As a system reaches its performance or capacity limit, a number of options for solving or at least aleviating the problems must be considered. These options include optimizing system performance, scheduling system use, purchasing new peripherals, or purchasing a larger system. While optimizing the performance of ones current system is often a very cost-effective step, it can also be just a stop-gap-measure. If the experience of the RSX community is similar to our experience, the lifetime of a given system would be something like the following.

First, a system is bought based on a fuzzy understanding of the job which needs to be done. Soon it is found that the system has too few terminals, disk space or memory, so more is added. The added capability not only solves the initial problem but allows new applications and uses for the system to become practical. The applications again push the system to the limit and again more peripherals are bought: faster disks, more terminals, more memory, or a CACHE memory. Finally, as the system performance becomes intolerably bad, you start trying to procure another system and discover that neither you nor DEC know what system you really need to satisfy both present and future expansion needs.

Specifying the performance of a system is hard. There are many different hardware configurations, and the uses of similar systems can be radically different. To specify the performance of a system, or quantify its adequacy for a proposed task, we need performance benchmarks. Ideally, these benchmarks should be tailorable to reflect the typical use of system, transportable between processors and operating systems, not require special hardware and be capable of providing a multi-user workload simulation. To do this we must first be able to quantify what a system does and somehow extract from the data a nominal unit workload. If we choose our unit workload correctly we can approximate the entire use of our system as a collection of these workloads. Next, we would develop a simulated load to approximate the unit workload on a system and measure the system's throughput as a function of load. These measurements can be used as benchmarks for tuning our system or used to justify additional hardware if appropriate.

It is important to plan for future needs in advance. As a system matures its uses expand often beyond its capabilities. Because a new, larger capacity system can cost a significant amount of money and there is typically a long interval from order to delivery, a mistake in selecting the correct system can be a disaster. With this in mind, it is important to do Capacity Planning while your current system is still adequate. Given the current performance of your system and the anticipated needs, evaluate and select the growth path appropriate for your needs.

DEC sales persons generally are not much help with this. They neither have tools or adequate performance to aid a user in selecting a correct upgrade path. Should the user just procure a higher performance peripheral, split work between two identical processors, procure an 11/44, procure an 11/70, migrate to a VAX, or perhaps install a DECnet network to share resources? All too often decisions are based on guesswork, availabilty of hardware from DEC, the 'In vogue' processor, or tips from friends.

Performance measurement and system accounting tools are very high on the RSX SIG Menu for RSX11M, but they are not a high DEC priority and are apparently not in the RSX11M V4 development cycle. Some tools are in RSX11M-PLUS. This poses a

serious problem since most users now considering system upgrades are users of RSX11M. More and more often, both management and the government are requiring a well thought-out plan for growth. Procuring too small a system and then tacking on peripheral after peripheral in an unceasing quest to meet growth needs is often not cost-effective. Blindly upgrading to another processor, network, or operating system can be a disaster if the new system's performance goals are not met.

As an alternative to blind migration from one processor to the next, I would like both you and DEC to seriously consider the urgent need for an RSX11M system to have accounting, performance measurement, and system workload profiling tools. Workload simulations need to be developed and supplied with which users can compare their current system's performance with that of a new proposed system. This is not a frivolous request. Whether or not RSX11M is a 'timesharing system,' or whether or not RSX11M-PLUS has such features, or the vagaries of software marketing strategies are all non-issues for me. The bottom line for me as a customer is that I need tools to help make decisions on system expansion.

In the absence of any DEC supported tools, the RSX11M accounting group has developed some accounting and performance measurement tools which are available on the RSX SIG tapes. Based on the number of calls I get each week from users, around 200 or more installations are using all or part of the package, apparently with success. Other system accounting and performance measurement packages are available from commercial vendors. Documentation on the various accounting and performance tools developed by the accounting working group can be found in the campgrounds. A lot of work still needs to be done however. Based on the release cycle of RSX11M over the past several years, DEC will not have any suitable system accounting, performance measurement and analysis tools for at least 3 years. If the user community needs such tools, we will have to develop them ourselves. Such tools would include:

1. Report programs to profile system and terminal activity over a period of time.

2. Task accounting for all tasks in system.

3. Program to extract a system use profile from task accounting data.

4. Multi-terminal virtual terminal package.

5. Standard, tailorable, synthetic workloads for use as benchmarks.

## SYSTEM TRASHING

Thrashing occurs when a system has to switch between several processors repatitively. If the time spent switching becomes comparable to the time spent servicing the various processors, a system is said to be thrashing. For example, if a device interrupt rate becomes high enough, the time the executive spends servicing interrupts could become comparable with the time the system spends executing tasks. Such a system would be thrashing between users tasks and the interrupt service routine.



RSX11M is very prone to thrash when the demand for resources (memory, disk access, etc.) exceeds the available supply. Under normal system load conditions, the time to complete any task will increase as the number of active tasks in the system increases. Once thrashing sets in, however, system throughput degrades catastrophically. The system becomes incredibly busy. The console lights rotate at maximum speed and the disk-drive seems ready to exit, if at all.

There is no easy way to measure whether or not your system is thrashing unless you have implemented a system accounting package. However, I believe you will quickly know when your system starts to thrash. Your system will start grinding along under a heavy workload, slowly to be sure, then just one more job is added. Almost immediately interactive users will note that the system has gone out to lunch and they will probably quickly let you know.

To a certain extent there is nothing that can be done about this. RSX11M's design is such, that the system always tries to run the highest priority task requiring system resources. The Round Robin scheduler and disk swapping just make RSX11M a bit more convenient an environment for use in program development. The system just has no way of knowing that it is thrashing, knowing that a given task is using too much of system resources, or knowing that the terminal response time has become impossibly slow. Of course, such features could probably be added but doing so would degrade the performance of the operating system as a whole.

Thrashing on an RSX11M system is almost always related to disk activity. This situation occurs primarily under two circumstances. The most frequent circumstance is to have more tasks trying to use the system than available memory. The Shuffler starts up, swapping sets in, and the LOADER repeatedly swaps task images between the checkpoint file and memory. The swap time depends on the task size and type of swapping device used. If the swap time becomes comparable with the Round Robin interval, the partition generally gets rescheduled soon after each swap and another checkpoint may almost immediately get requested. A second way to cause disk contention is for a collection of I/O bound tasks to be doing single block reads and writes to very different locations on the disk. The long intertrack head seek time per I/O request throttles throughput for the entire collection of tasks.

If the problem is caused by excessive swapping, and one can not add additional main memory, the easiest solution is to remove the SHUFFLER to cut down on unnecessary swapping, lengthen the round robin and executive swap interval, and to use a dedicated swapping device for the checkpoint file. Moving the checkpoint file to another disk will generally significantly, improve system throughput. If the disk thrashing is not caused by swapping, procuring a separate drive and controller will help. Unfortunately, one really needs a 22-bit machine to benefit from this solution, since one will need to mount the second disk with its own ACP and this takes a chunk of memory. RSX11M-PLUS allows overlapped disk seeks and this helps cut down disk thrashing further. The RSX11M user, however, does not have this choice.

If an application system is thrashing severely due to disk head contention by many tasks, the intrepid RSX Wizzard could modify the Executive to insert QIO requests for disk access into the disk queue, not in first in/first out order, but rather in order of the disk blocks requested. Doing so would minimize the amount of time doing track to track seeks. A somewhat easier approach is to use

Big Buffering so that each disk QIO reads or writes many blocks. This will decrease the total number of QIO's in the system, and decrease the amount of time spent waiting for the disk head to reach the proper track. Another technique which sometimes helps is to use the RMS block placement facility to place constantly referenced files on adjoining disk blocks. For example, we have observed about 5% improvement in TKB performance on a system doing many simultaneous taskbuilds if the object libraries are placed physically close to the disks index file.

It is the system manager's job to try and tailor the system so that thrashing is minimized. Building tasks with an FCS resident library to reduce memory requirements or installing a CACHE memory reduces memory contention problems, speeds throughput and reduces thrashing. A lot was said about this subject at the last DECUS and you can read all about it in the January Issue of the Multi-Tasker. Running editors and interactive tasks at higher than the default priority of 50, also helps improve terminal responsiveness on a loaded system. Users need to be made aware that number crunchers should be run with a lower than default priority to allow normal development work to proceed. This is particularly true if you have users who have tasks which run for a long time.

## THE SHUFFLER

The Shuffler (SHF...) is often a prime cause of unnecessary thrashing. The Shuffler was designed back in the dark ages before dynamic disk checkpointing existed and when system controlled partitions were generally small. It was designed to handle transient, infrequent memory allocation failures on small systems, not chronic memory shortage conditions. Since most tasks were either not checkpointable or could only checkpoint back onto their own task image, the Shuffler was designed to compact memory by doing memory-to-memory moves. The Shuffler is phenomenally dumb. Each time there is a memory allocation failure, it is requested. It starts out with absolutely no information as to why it was requested. It scans the PCB list and finds the first system controlled partition. This may be a partition different from that with the task trying to get into core. SHF... checks the partition wait queue, and if there are any tasks waiting to get in, it makes two passes trying to compact memory to make room for the task waiting to get into that partition. When it finishes with the first system controlled partition, it continues its scan looking at the next system controlled partition. Eventually, if it hasn't already, it will get to the partition whose task initiated the memory allocation failure and go through the same two pass procedures trying to compact enough space to bring in the waiting task.

SHF... becomes a major cause of thrashing if a system is suffering chronically from many memory allocation failures or if the main system controlled partition (GEN) is very large (i.e. PDP 11/44 or 11/70). SHF can wind up being called constantly and most of the systems resources get devoted to shuffling tasks around core at the expense of everything else. For the two cases, SHF thrashes the system for slightly different reasons. For a chronically overloaded system, SHF can get requested constantly because the next task needing to run almost never has the required memory. Typically, this will happen on a smaller system with a GEN partition <80K in size. For a large 11/70, SHF does not have to be requested nearly as often to bring the system to a standstill. Because GEN is so much larger, SHF's scan through GEN checkpointing and shuffling tasks down in memory can take a very long time. Since SHF runs at the system state, nothing else can get done while it is active.



Our studies show that for a system supporting executive disk swapping, round robin scheduling and dynamic checkpointing, there is very little reason to use the SHUFFLER if all tasks running in GEN are checkpointable. The one thing we have found SHF... useful for is that by counting the number of times it is requested during the day, we get profile of when the system use is producing the most memory contention. For those users who must have the Shuffler, and who are suffering from it thrashing the system, it is possible to make a rather minor patch to the executive to limit the number of times SHF... can run per executive swap interval. We have done this on our system and it improves performance 10-15% under very heavy loading conditions.

## VIDEO EDITORS

We have found using video editors (KED,ED2) to be a tremendous aid in improving program efficiency. Using a video editor, I can do significantly more work/hour than I ever could using EDI. However, video editors are also a cause of much thrashing and performance degradation. VIECO is large and inefficient. Even a single copy of it running will significantly degrade system performance. It is not a good task to have it running frequently in a multi-user RSX11M system. The new version of EDT targeted for RSX11M and just released on RSX11M-PLUS Auto-patch is much more efficient but is 22-32.K in size. Two copies of EDT would just about use up our entire GEN partition. KED is about the smallest of the video editors, not quite as fast as EDT Version 2, but it has a serious problem. An inactive copy of KED which is checkpointed will come back into the system every 1 second. If KED is in use by many terminals at the same time on a small system, unnecessary checkpointing may become a severe problem.

I SPR'ed this problem and found that it was caused by KED constantly posting a marktime of 1 sec for its WORKING message. The fix which was supplied was to totally disable the WORKING message. The SPR answer was marked 'Do Not Publish' but I will be glad to send copies to interested users.

## SOLID STATE DISK EMULATORS

Unfortunately, the preceding suggestions for minimizing thrashing are useless if the system chronically has more active tasks than available memory, or if many video editors are in constant use. Our system falls into both categories and we cannot add additional main memory since we have a PDP 11/45. We run for large stretches of time with 20-60K of active tasks checkpointed out of core. Having the system go into "MUMBLE MODE" was the rule despite the various performance enhancements we had added.

If a system must do a substantial amount of checkpointing, it is still possible to decrease its impact on the system by minimizing the actual time spent by LDR doing checkpoint reads and writes. To do this we procured a solid state disk emulator. It emulates an RS03 fixed head disk except that the transfer rate to and from the emulator occurs at memory-to-memory transfer speeds rather than memory-to-disk-speeds. Data is stored in ECC semiconductor memory rather than on a magnetic surface. Since there is no rotational latency to worry about, 32K tasks can be swapped in and out of the system in a fraction of the time it would have taken to checkpoint to the system device.

Using the disk emulator has solved our initial thrashing problem. We used our load simulator to measure system throughput as a function of the number of terminal loads. Prior to using the disk emulator, the graph clearly shows the

rapid onset of thrashing when the number of loads become greater than 3. Using the disk emulator, the performance degradation as the number of loads increases is more gradual and approximates closely the behavior one would expect as each job gets proportionately less time as another job is added to the system. The net effect of using the disk emulator is for our system to perform nearly as well as if we had a much larger amount of physical main memory.

Another significant feature of using the disk emulator is that besides using it for checkpointing, we have placed the system library and our F4POTS library on it. This has resulted in an improvement in speed of Fortran taskbuids of 30-40%. Even larger benefits can be obtained by procuring additional disk emulator memory and placing the Fortran and taskbuilder scratch files on it as well.

The one problem we have encountered with using the device is that users have noticed that the system does not get as easily tied in knots as it did before. As a consequence, they try to do more. In time, I suspect that we will again be "up against the wall." By then, perhaps we will be ready to migrate to another system.

# RSX-11M MAGIC SESSION

Jim McGlinchey
Chief Wizard

The advertised purpose of the RSX-11M Magic Session is to provide a forum for the RSX wizards to present their latest incantations. The session is loosely structured, with no formal presentations; the idea is to have a relaxed atmosphere where newcomers will be comfortable and the established wizards will be able to think out loud.

The session is driven by the audience. The audience submits items hastily written on small slips of paper then placed in one of four boxes in the front of the room. The boxes are marked "EUREKA", "BLUE SKY", "HELP", AND "WAR STORIES". The Chief Wizard then picks items at random from any one of the boxes. The session continues in like fashion until all boxes are empty, or no one is left, whichever comes first.

The RSX Magic Session at this DECUS was held on Monday night, the first night of DECUS week. This scheduling turned out to be surprisingly good; the wizards attending were fresh of mind, and the audience was not yet blitzed. The 600-person audience consisted mostly of people attending their first DECUS Symposium, as determined by a hastily taken survey. Scheduling the Magic Session on Monday gave these people an immediate sense of the style of the RSX SIG.

The Magic Session has a new Chairman (Chief Wizard?), namely me. After a short introduction, a semi-formal (nothing's ever formal in the Magic Session) ceremony was held to pass on the Chief Wizardship. Ralph Stamerjohn officially retired as Chief Wizard; he was awarded the title wizard Emeritus with suitable



ceremony (and T-shirt).

All the established traditions for the RSX Magic Session were honored. People who have attended a Magic Session know what I'm talking about; others will have to find out for themselves.

In the wizardry department, Joe Sventek presented a way to create multi- user programs. Robert Bismuth presented a way of using ASTs for intertask communication, along with a creative way of hiding source code (he deletes the directory). Debuggers, both malignant and benign, were items of serious interest, and were discussed at some length at this session.

In the "HELP" category, we were able to solve a goodly assortment of sticky systems problems on the spot, sending people away with at least a few new things to try towards a solution to their problem.

The "BLUESKY" topics were best presented long about midnight, as the group waxed philosophical, attributable to the effect of the aforementioned traditions. The philosophy, as usual, revolved around operating systems.

The "WAR STORIES" yielded a few new ones, particularly Legare Coleman's story about lift truck-induced RM03 soft errors. Some war stories are always good in their retelling, and it seems that we've established an 'oldies but goodies' set of war stories that seem to get told at each Magic Session.

In summary, the Magic Session at this DECUS was a lot of fun, several people got the help they needed, the War Stories got told, and the RSX Wizards presented a lot of new and good stuff. My thanks to all who participated, and my invitation goes out to all to attend the next one in Los Angeles - I have some new tricks up my Chief Wizard's sleeve.

# STANDALONE RSX-11M SYSTEMS

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While most people with RSX11M are aware that there is a related system for memory only systems (RSX11S), few are aware that with a little attention to detail they can produce their own memory resident systems, tailored to their hardware requirements. For example:

* As standalone data logging systems, incase of hardware malfunction.
* As standalone systems allowing the use of BRU, DSC, etc, patched up to the current online level.
* As systems for investigating disk recovery after disk corruption on single drive systems.

* As systems for backup incorporating foreign devices at no extra cost, and with all facilities, such as using your terminal, not the central console for the operations!.

There is no need, since you will be running on the same hardware, to perform a new sysgen. This itself not only speeds up the operation, but makes it much more secure than using a different system, since you cannot accidently run a task linked to the wrong executive symbol tables.

The main points to bear in mind are that all tasks must be entirely flat linked, so that all items will be brought into memory by a VMR FIX command, and deciding how much command handling is needed.

Command handling may be performed in one of 3 ways.

* Reassemble MCR (in directory [12,10]) with a copy of RSXMC which has the symbol M$$OVR deleted (you cannot just change the ODL file since it used manual load overlays). Then flatten the ODL file and retaskbuild. The result is a larger but slightly faster MCR... compatible with the one in the normal system. This option gives you full access to the internal MCR commands (REM FIX..), as well as correct task dispatching on RSX11M systems. If you are using an RSX11M Plus system extra problems occur because the system is not allowed to run tasks called ...XXX and cannot get RUN (in ...MCR) to run other tasks.

* Use the VMR "RUN tasknm/RSI=1T" command. This gives you a prompt from the program as soon as the system is booted. In this case all terminals should be slaved. This method is suitable for single program standalone systems only, since it provides no means for calling in another program. The option "/RSI=1T" should be used to prevent problems due to typing "^Z" to this system, which would then leave you without any command handling.

* Write a simple command handler of your own which performs SPWN$ commands to start installed tasks. This itself can be started from VMR with RUN tasknm, and can wait for the spawned task to exit before prompting for another task. This is recommended for RSX11M Plus where the tasks may then be run having been installed with names other than ...XXX.

Also on the subject of command handling note:

* Unless MCR is being used (the standard CLI, I have not tried a DCL based standalone system, it would need both DCL and MCR) ALL the terminals in the system should be slaved.

* If you ever spawn INS to run a task from a disk then you must have some task installed with the name MCR... and the taskbuilder attribute /-SE. Every time INS gives an error message instead of operating as hoped, it sets T3.MCR and causes a message requesting a prompt to be sent to its CLI.



* If you should need the various MCR functions (SET ASN, etc.) without a standard MCR, you can install copies of ...MCR with all of these names. The important thing is the name at the start of the command line.

## STAGE 1

Determine the minimum set of tasks needed to perform the operations that you need, remember that all of them must be fixed in memory.

For a disk backup system, you might require the following.

| | | |
|---|---|---|
| Operating System | 20kw | |
| Command Handler | 4kw | |
| BRU | 32kw | Disk backup utility #1 |
| DSC | 16kw | Disk backup utility #2 |
| BAD | 10kw | Disk block examination/check |
| INI | 8kw | Disk intiallization |
| MOU | 8kw | Mount utility |
| BOO | 8kw | Boot disk file |
| F11ACP | 8kw | Disk ACP |

This gives a system with the ability to bad block scan, initialize and copy to disk, followed by software booting the disk. Compare this with DSCS8 or BADSYS.

Determine the minimum sizes required for all the programs, some may need rebuilding with the overlay descriptors changed to linear lists, while others may benefit from being installed with /INC=0 or a specific increment.

Examples:

* The DSCBLD.ODL files build DSC with overlays, all overlays must be removed for a standalone system. Replace -*(A,B,C) by -A-B-C.

* The core resident FCP is built with a COTREE, this must be removed since the cotree is not loaded until referenced. Replace .ROOT A,B by .ROOT A-B.

* DSC, BAD will benefit from /INC=large number.

* INS, BOO, MOU will benefit from /INC=0 since they are much smaller than the size they are usually built to.

## STAGE 2

Build all these programs, many of them can be the ones used in the normal system (BRU, MOU, INS are all flat naturally).

Work out a partition layout for the partitions and set aside a directory for the standalone system. Copy RSX11M.TSK, RSX11M.STB and all the tasks wanted to that directory (mainly to avoid "task installed in more than one system" errors). Create RSX11M.SYS of the maximum size for your memory.

If you do not have the maps for the tasks you have built, they can be installed, fixed in memory, or even run without bad effects on your normal system, and so PAR can be used (at the worst) to get the actual sizes.

Then call VMR and proceed as normal to the stage when the device drivers have been loaded into their own partition. Then for each task you require in the memory only system (with name XXX) perform the following.

```
SET /PAR=XXXPAR:*:size:SYS                      ;RSX-11M Plus
SET /MAIN=XXXPAR:*:size:TASK                    ;RSX-11M
INS XXX/TASK=XXX/PAR=XXXPAR/CKP=NO(/INC=nnn)
FIX XXX
```

In RSX-11M Plus it is possible to ignore the task sizes and let SET /TOP=PAR:-* handle the sizes required. Some tasks must be installed with specific increments, others can be made smaller by using an increment of 0. Most tasks should be installed with simple names such as XXX, however specific names are needed for TKTN, MCR... (HRC... in M+).

Unless you are using a flattened copy of MCR... you must set all the terminals in your system slave, to prevent command lines being queued to the non existant CLI. If you are not using flattened MCR..., then some task must be started using VMR, or nothing at all will happen on booting.

## STAGE 3

The critical stage, testing. Using VMR's save command dump the system image to a bootable media, and then using the hardware bootstrap, boot the created system (this won't work using an M+ image, an M+ image may only be used by software booting it off the disk it was created from).

The system should respond just like any other virgin system (e.g. RSX11M V3.2 BL26 124kw) and then if you have told VMR to run a program, that program's prompt should appear.

## SAMPLE COMMAND PROGRAM

The following is a simple command program that may be used for stand-alone systems.

```
        .TITLE  COMMAND
        .IDENT  /V2/
;
; A version of the trivial command decoder program for a stand-alone
; RSX11M-Plus system.
;
; This program is taskbuilt /-SE & installed as MCR... for the benefit
; of ...INS which may otherwise attempt to start MCR and otherwise
; crash the system.
;
; It is started with VMR RUN command.
;
```



```
; It runs programs with names XXX when given commands such as XXX rest
; of line.
;
;       Richard J. D. Kirkman.  ATMOS Oxford.   April 1981.
;
        .MCALL  DIR$,QIOW$,ALUN$,SPWN$,WTSE$S
        .ENABL  LC
;
; Program loop
;
START:  DIR$    #ALUN                   ;use specified terminal (Not our TI:)
LOOP:   DIR$    #RPR                    ;read a command line
        CMPB    IOSTS,#IS.SUC           ;success?
        BNE     LOOP                    ; - No - get another (no exit on ^z)
        MOV     IOSTS+2,SPWN+5.PWCL     ;set command line length
        MOV     #INBUF,R0               ;get the command line,
        CALL    #CAT5                   ;make the first chars into RAD50
        BCC     1$                      ; - successfully
        MOV     #QIOE,R0                ;point to error dpb
        MOV     #ERR1,Q.IOPL(R0)        ;set text address
        MOV     #ERR1L,Q.IOPL+2(R0)     ; and length
        DIR$    R0                      ;and print it
        BR      LOOP                    ; and get next command

1$:     DIR$    #SPWN                   ;ok- now start the task requested
        BCC     2$                      ;if its started , then wait for it
        MOV     #QIOE,R0                ;show this error
        MOV     #ERR2,Q.IOPL(R0)        ;set text address
        MOV     #ERR2L,Q.IOPL+2(R0)     ; and length
        DIR$    R0                      ;and print it
        BR      LOOP                    ; and get next command

2$:     WTSE$S  #2                      ;wait for the task to complete
        BR      LOOP                    ;and ask for more commands
;
; data
;
ALUN:   ALUN$   1,TT,0                  ;assign TT0 always
QIOE:   QIOW$   IO.WLB,1,1,,,,<0,0,40>  ;DPB for error messages
RPR:    QIOW$   IO.RPR,1,1,,IOSTS,,<INBUF,80.,,PRMPT,PRMPTL,0>
SPWN:   SPWN$   XXX,,,,,2,,,INBUF,80.,0 ;spawn requested task
;
INBUF:  .BLKB   80.
IOSTS:  .BLKW   2
PRMPT:  .ASCII  <15><12>"CMD>"
PRMPTL=.-PRMTP
ERR1:   .ASCII  "CMD -- Syntax error"
ERR1L=.-ERR1
ERR2:   .ASCII  "CMD -- Task not in system"
ERR2L=.-ERR2
        .EVEN
        .END    START
```

# IAS QUESTION AND ANSWER SESSION

Robert Stodola
Bill Cael
Bill Wood
Institute for Cancer Research

ABSTRACT

This is a transcript of the IAS Question and Answer Session, held on Monday, May 18, 1981 at the Spring 1981 DECUS Symposium in Miami Beach, Florida.

---

N: Paul D. Clayton -- Republic Management Systems

Q: Does the IAS operating system use a GTIM$ call? This impacts the area of setting the system clock back for whatever reason.

A: For IAS V3.1 you should be able to do this with no impact.

---

N: Greg Milne -- ACNSG

Q: I am I/O bound with 2 RP06 drives. What areas should I look at first?

A: Use Tuning and Performance Guide. Form groups in increasing performance benefit:

1. Seperate ACP for each drive.
2. Seperate channels/controllers.
3. Use disk emulator (bulk storage).

---

N: Rodger S. Miles -- Telemed Cardio-Pulmonary Systems

Q: F11ACP is overlayed differently in IAS V3.0 then in RSX11D V6.2. This makes things, notably directories, more inefficient. Can we use the old ODL file without bad things happening? Can PLAS ACP or the "core only" version be used?

A: We think there were enough changes to make the RSX11D ODL file unusable. The PLAS ACP is available in the unsupported UIC. The core only ACP is usable.



---

N: Greg Milne -- ACNSG

Q: How does IAS queue requests for printing when the user has set printing deferred?

A: Answer deferred for the session on IAS queue management.

---

N: Tom Hunter -- Department of Energy

Q: Aborting a print job of many concatenated files is next to impossible. "SP/ABO" just aborts the current file. Has this been fixed for IAS V3.1?

A: No, there is currently no easy way to do this.

---

N: Larry W. Ebinger -- Sandia National Labs

Q: We have an application where we fill a large contiguous file with 128 each 16k bytes of data. When this file is copied into 128 individual files it takes about 2 minutes (PDP 11/50, RP06). When two tasks (in different UIC's) are run together it takes about 28 minutes. Why so long? Disk seek time does not account for it.

A: We don't know. Try using F11ACT on the DECUS SIG tape, it may show you the answer.

---

N: Tom Mathieu -- Battelle NW

Q: Do procedures in the 3.0 tuning guide apply the IAS V3.1? Will our current timesharing parameters apply?

A: Yes. Yes.

---

N: Steve Gonter -- Carleton Financial

Q: Why does the DUMP utility refuse to dump blocks larger than 512 bytes?

A: Install DUMP with the "/INC" switch. This will give it more buffer room.

---

N: William F. Cael -- Institute For Cancer Research

Q: Can PIP be changed to not update the file revision date on a truncate operation which does not release any storage? This is a real problem for incremental BRU backups.

A: No.

---

N: Stephen Keith -- American College of Radiology

Q: Mounting an RM05 seems to take considerably longer than a small disk. Is this reasonable?

A: Yes. More time is spent trying to locate the home block and reading the allocation bitmap.

---

N: Ken Guralnik -- E.G.&G.

Q: Are there plans for an IAS system logic manual?

A: Possibly but it could cost around $300. A show of hands as to users who would purchase it was almost unanimous.

---

N: Tom Mathieu -- Battelle NW

Q: Task accounting from RSX11D was released with but not supported by IAS V3.0. Will this be the case on V3.1?

A: Yes.

---

N: Tom Mathieu -- Battelle NW

Q: Is it possible to direct output from a batch job to a given printer?

A: No.

---

N: Frank R. Borger -- Michael Reese Hospital

Q: A user program opens 4 files in random access mode, the files are well fragmented all over the disk. The program is running in the batch level and it really slows down interactive disk jobs. Any tuning hints?

A: It is not easy to make any major improvements. Look at optimized seek changes in the V3.1 handlers.

---

N: Larry W. Ebinger -- Sandia National Labs

Q: IAS V3.1 manual set book 3 should be split into two binders. There is too much stuff for one binder.



A: Acknowledged

---

N: Larry W. Ebinger -- Sandia National Labs

Q: How do I find the file name and directory of a file given the file id?

A: Use the RSX/IAS SIG tape program LBN or BLOCK (fall 80).

---

N: Stephen Keith -- American College of Radiology

Q: System accounts are not able to modify print queue entries which they do not own.

A: Yes, only [1,1] may modify such entries.

---

N: W.T. Howatt -- Atomic Energy of Canada

Q: What does the IAS V3.1 IOX utility do for system management? Can it be run with users on the system?

A: Any device errors found are recorded by the ERRLOG task. Can be run with users on the system if they are not on the device being exercised.

---

N: W.T. Howatt -- Atomic Energy of Canada

Q: The system UIC's are often defined as being less than [10,x]. It appears that they are less than or equal [10,x].

A: For the file system it is less than or equal to. For the rest of the system it is less than.

---

N: Tom Hunter -- Department of Energy

Q: I use bulk memory as a RF11. Will the handler still be in V3.1 and are there any problems redirecting WK: to it?

A: The RF11 handler is in V3.1 and should handle the WK: redirection.

---

N: Todd O'Connell -- Inco Inc.

Q: The task builder is able to build priveledged task from a non-priveledged account.

A: IAS was not meant to be a secure system. There are many other holes in the system.

---

N: Frank R. Borger -- Michael Reese Hospital

Q: A Fortran IV Plus program that uses I*4 variables compiles with the message 'No Floating Point Instructions Generated'. But runtime library uses FPP to do calculations. If you use /-FP switch, program bombs.

A: Use /-FP switch and link to F4PEIS.OBJ which is on F4P distribution. This will use the CPU for all arithmetic operations eliminating FPP.

---

N: Frank R. Borger -- Michael Reese Hospital

Q: What is the difference between the 11/44 and 11/70 disk handlers?

A: On 11/44 - no mass buss, have to map using Unibus mapping registers.

---

N: Paul D. Clayton -- Republic Management Systems

Q: Why does it take two APR's to map virtual arrays?

A: The restriction is due to F4P Ver 3.0 not IAS.

---

N: Robert F. Curley -- University of Pennsylvania

Q: Could you please publish a list of system UFDs and their uses.

A: It was done in the software dispatch review.

---

N: Tom Hunter -- Department of Energy

Q: My site is having problems with DECNET checksums on patches affecting network shutdown. These are about 5 months old. I need better quality than this. Can you help?

A: DECNET patches are from another group. IAS system patches are carefully checked and shouldn't have this problem.

---

N: Thomas J. Edwards -- Software AG of NA

Q: Concerning memory resident overlays: under M+, can attach and detach from region if no ongoing I/O in region. Under M, can remap if no I/O in region.



Under IAS, you cannot have any ongoing I/O if you want to remap.

A: Should not be the case. Ray French has published a patch for this.

---

N: Eric A. Johnson -- The Jackson Laboratory

Q: It was mentioned in the product panel session that an informal IAS to VMS conversion document exists within DEC and will somehow be released to the user community. What is the timeframe for the release of this document?

A: Release of the document is pending review by the authors, probably in three or four months. At the moment it is a DEC internal book.

---

N: Paul D. Clayton -- Republic Management Systems

Q: Does RMS-11 maintain an internal copy of the FAB and RAB?

A: Yes, they are within the buffer space of RMS-11.

---

N: Larry W. Ebinger -- Sandia National Labs

Q: The librarian (LBR) has been enhanced to allow general files. However, only 6 characters are allowed for a tag within the actual library file. Since FILES11 uses 9+3 we cannot always use the proper names. Will it please be fixed? (Our installation did this to an older version of LBR.)

A: For the sake of compatibility, the limit will remain at 6 characters.

---

N: Ken Guralnik -- E.G.&G.

Q: The problems, big or small, encountered during the generation of V3.1 systems, and their solutions, should be offered by each user.

A: None that anyone would admit to!

---

N: W.T. Howatt -- Atomic Energy of Canada

Q: DSC appears to corrupt the disk emulated RP02 (bitmap?). We run BAD and VFY indicates disk structure is OK at each stage of the disk-to-disk compress. The first few days of operation after the DSC turns up about a dozen files that have been corrupted by new files created after the DSC. PIP gives "READ ATRIBUTES ERROR - ID SEQUENCE NUMBER CHECK" error message when directory listed. This happens about once in every 6 DSCs.

A: No one else had this problem. Is the software up to patch level?

---

N: D.B. Parker -- Bell Northern Research

Q: Are the patches provided through Autopatch equivalent to those from Software Dispatch?

A: No. Where they differ, the Dispatch will make it clear what you're missing. Aside - Product manager wants Autopatch to come with B.P.U.S. Object modules may be the only area of concern, when massive changes are done.

---

N: Eric A. Johnson -- The Jackson Laboratory

Q: Will a stock IAS 3.1 system run on an 11/24?

A: Maybe - we know of no significant difference between the 11/24 and 11/44. However, it will never be supported. It has been run on an 11/23 though. The report of this has been written up in the Multi-Tasker and DevIAS newsletters.

---

N: Darrell Thomas -- Lovelace BERI

Q: Terminal handler: 1 - DL and 7 DZ, > 57 lines. IAS V3.0 task builds with 56 lines. IAS V3.1 task builds with 52 lines. How do I get more lines?

A: Eliminate some of the "bells and whistles". There is a report in the Dispatch about the task space used by each "bell and whistle".

---

N: Robert K. Stodola -- The Institute For Cancer Research

Q: Any differences in the V3.0 and V3.1 RP06 handler?

A: Yes. ECC rewritten, support for 11/44 added, elevator service corrected. The "structure" has not been changed significantly.

---

N: Paul McFerrin -- Bell Laboratories

Q: 1) We have non-DEC disk and have modified DSC for it to work on restore from tape. Can we use our modified DSC on V3.1?
2) Are V3.0 DSC magtape volumes upward compatible to V3.1 DSC?
3) We have Autopatch under "self maintenance". If policy changes result in Autopatch being included in self maintenance, will we receive credit?

A: 1) Yes, but we will not have the bug fixes and support of 65K files.
2) Yes, but not downward.
3) Yes.



---

N: D.B. Parker -- Bell Northern Research

Q: Could there be an Autopatch for sources (or an updated "source update" around June 1983)?

A: Maybe in the fall depending on decisions on how to continue IAS support.

---

N: Tom Hunter -- Department of Energy

Q: We have 3 printers, LP0: is used the most, upon an LP0: failure we redirected CL0: to LP1: and no queueing functions seemed to work. Should the spooler be specifically sensitive to LP0:?

A: Possible answer is to use OPR/RE to force recreate of SPRQUEUE.SYS after it's deletion.

---

N: Todd O'Connell -- Inco Inc.

Q: Why would the BAD utility report no bad blocks while VFY will find bad blocks? Also how would we add these bad blocks (and blocks that may go bad later) to the bad block file? This problem is further complicated by the fact that time limitations do not allow us to remove the information from the disk and then re-initialize the disk with BAD=MAN. Since the bad block pointer files created by VFY are allocated as zero blocks long, they cannot be simply appended.

A: 1) Different block check algorithms.
2) The home block would have to be modified so that the disk is mounted DCF. A program would have to be written to force the allocation for the bad block files to be one block and then append them.

---

N: D.B. Parker -- Bell Northern Research

Q: Does any utility besides PRE create a bootable tape (in image mode)? Does IAS (preserve specifically) support TU77 and TU16 tape drives? The problems are with a) changing densities for boot block, and b) 2nd volume.

A: No. No.

---

N: Stephen B. Keith -- American College of Radiology

Q: The documentation in the PARAMS.MAC file for the escape sequence support options is not clear, especially with respect to translation of VT52 vs. ANSI codes.

A: This will be reviewed, and hopefully clarified in a Software Dispatch Article.

---

N: Paul McFerrin -- Bell Laboratories

Q: There is a bug in the V3.0 scheduler in that the ATL nodes for the TS scheduler are still linked at priority 100 after issueing UTL/EN/TP:65.

A: A patch to SCOM is needed to alter TS priority. We will consider documenting this.

---

N: Paul McFerrin -- Bell Laboratories

Q: A user deleting many queue entries will result in using up all the nodes.

A: We are aware of this. No solution.

---

N: Larry W. Ebinger -- Sandia National Lab

Q: What is the relationship between IAS and "DEC Standard RUNOFF?"

A: DSR is being developed as announced in Fall, '80. No further update has been received.

---

N: D.B. Parker -- Bell Northern Research

Q: Is there a psuedo device directed to the booted device?

A: No. When booting the system, a real device is used, then, at the last moment the device is set to SY0:

---

N: Mark Wiederspahn -- UTMB

Q: The "mailbox" handler (MB) copies data from one task address space to another after a "send" of write QIO is connected to a read QIO. Can a deadlock occur when the first QIO is pending, but the system won't dequeue the second due to shuffling or checkpointing about to occur? Does the exec make any assumptions about the duration of I/O in a segment which is locked for I/O?

A: No known problem.

---

N: Ken Guralnik -- E.G.&G.



Q: When rebuilding tasks (especially that use FCS) to run under V3.1 that contain little stack space (ie STACK=32), programs that ran fine on V3.0 do wierd things. Some die with odd addresses, some with segment faults, etc. A fix is to increase stack size. Beware!

A: No comment.

---

N: Stephen B. Keith -- American College of Radiology

Q: The RMS overlay files for SORT and DATATRIEVE are distributed specifying synchronous I/O. Is this intentional?

A: Not known.... We would like to hear from anyone using asynchronous I/O.

---

N: Ken Guralnik -- E.G.&G.

Q: Each of our user's has multiple UIC's in which to store files. The system has many UIC's also. Protection from illegal login's would be nice without having passwords for each and every account. (Running a multiuser system only).

A: Try using PDS login files with handwritten 'HELLO', 'BYE' using the PDSUPF file in [1,100].

---

N: Tom Hunter -- Department of Energy

Q: Do subtasked jobs run under [1,1] or the parent UIC? It used to be [1,1] which caused a security problem.

A: It now runs under the parent UIC.

---

N: Tom Hunter -- Department of Energy

Q: Why is the summary message area of ERRLOG rarely updated (eg. Power failures,etc.)?

A: No action possible due to product maturity. Blanks had been left for future releases.

---

N: Robert K. Stodola -- The Institute for Cancer Research

Q: How long will V3.0 be supported?

A: At least six months after last V3.1 update shipped.

---

N: Tom Hunter -- Department of Energy

Q: Was there to be a new SHOW MEMORY that didn't make it?

A: Yes, its not possible to consider it now. An alternative is one from the DECUS tape.

---

N: Tom Hunter -- Department of Energy

Q: I'd like to zap the code that decrements the number of logged in users on an account so that I can measure the number of login's for accounting reasons. Can you give me a patch?

A: Yes <answered off line>.

---

N: J.W. Drummond -- Ontario Hydro

Q: The .WAIT command in ...AT. won't wait for a non-installed task.

A: First .WAIT for ...INS, then .WAIT for task.

---

N: J.W. Drummond -- Ontario Hydro

Q: Is PL90 support viable for IAS?

A: Not in many areas. One option being considered will be a telephone support staff which can be available on a short contract basis.

---

N: J.W. Drummond -- Ontario Hydro

Q: IAS Master Index for V3.0 was never in the documentation kit. Will this happen for IAS V3.1?

A: No, doing so would delay release of entire kit. It will be backshipped if needed.

---

N: Richard Wood -- Eastman Kodak Co.

Q: Someone will abort a task, but it does not abort. Another abort command produces "Task loading or exiting". Has something been written about this? If so, where? What may cause this to happen? What can be done about it other than reboot?



A: May be a problem with user written handlers. Cannot answer without additional information. DEVIAS newsletter has a program that may help. Task could be locked in IR4 state.

---

N: J.W. Drummond -- Ontario Hydro

Q: Please put checksums in source patches.

A: Agreed. SLIPPER now has checksum capability for this.

---

N: Stephen B. Keith -- American College of Radiology

Q: A timesharing terminal executing a PDS MOUnt of a disk will occasionally not return from the mount. ...MOU remains an active task (state unknown).

A: Problem not known. Send SPR.

---

N: Mark Wiederspahn -- UTMB

Q: What does bit in PUD which is set for pseudo devices do?

A: Set implies no need to look at characteristics.

# RSX-11M/M PLUS QUESTION AND ANSWER SESSION

Bob Denny
Creative Systems Design

ABSTRACT

This is a transcript of the RSX-11M/M Plus Question and Answer Session, held on Monday, May 18, 1981 at the Spring 1981 DECUS Symposium in Miami Beach, Florida.

The RSX Q&A session has traditionally been the only opportunity for users to interact with the RSX developers from DIGITAL, and get their questions answered. The Spring Symposium brought a new dimension to the question and answer process, with the introduction of the Software Clinic. The result was that the Q&A session was shorter than usual while nearly the same number of questions were handled as were in the preceding Fall session. The user-specific questions were handled for the most part in the software clinic.

The following proceedings are not an exact transcript; they represent the content of each question and answer. The extremely short deadline for publication in the Symposium Proceedings made this approach necessary.

Panel Members

| | | |
|---|---|---|
| Bernie Alimonte | DIGITAL | RSX-11M SYSGEN, Utilities |
| Bob Denny | CSD | Chairman |
| Dale Donchin | DIGITAL | Terminal Driver, BRU, Executive |
| Janet Egan | DIGITAL | RSX-11M/M+ Documentation |
| Charlie Franks | DIGITAL | BAD, FMT, Device Drivers |
| John Franzini | DIGITAL | RSX-11M+ SYSGEN, PMD, CDA |
| Jim Kauffman | DIGITAL | RSX-11M/M+ MCR, SAV, BOO, Q-Manager |
| Tony Lekas | DIGITAL | Device Drivers |
| Steve Paavola | DIGITAL | RSX-11M/M+ Product Manager |

---

N: Bill Kyle -- E.I. DuPont (M)

Q: Why are some of the 'unsupported' features in IND (indirect file processor) such as '.PARSE', '.OPENR' not documented for RSX-11M?

A: These features are RSX-11M PLUS specific. DEC will not document any unsupported feature.

---

N: Dave Kristol -- Mass. Computer Associates (M)

Q: If I have a task, say TECO, running as the first task in the GEN partition, and I type a control-S to stop listing text, the checkpointer marks my TECO as having long outstanding I/O. If some other task which was checkpointed becomes eligible for running, and there is not enough memory for it, the checkpointer does not look beyond the first task having long outstanding I/O for a candidate to checkpoint out to make room. This effectively locks out perfectly eligible tasks, while locking in others which should be checkpointed to make room. The effect sometimes is that the system seems to stop doing any work when the control-S is typed. Comments?

A: DEC is aware of the problem, it is being studied. One proposed solution had undesirable side effects. We plan to have it solved in Version 4 of RSX-11M.

---

N: P. Balkus -- Gearad (M)

Q: Is it possible to do disk shadowing under RSX-11M V3.2? If not, will it be supported in V4?

A: We are not planning to support this in RSX-11M.

---



N: Burt Harris -- APL (M)

Q: Why is FCS multi-buffering not supported under RSX-11M? The documentation is not clear on this subject.

A: No answer given in session.

---

N: Tom Brentlinger -- McDonnell Douglas (M+)

Q: Why does my RSX-11M+ system hang up when a user of EDT or SOS from a remote terminal drops the line? If the task is aborted from a privileged terminal, the system starts to function normally again.

A: If the terminal is attached, as would be the case with an editor, BYE cannot put out it's message, and the system hangs. Will look at this when we get back.

---

N: Ken Johnson -- Monsanto (M)

Q: We have a modified FCS at our site. Will you consider documenting the nature of any changes to FCS in Version 4 of RSX-11M?

A: When the product is released, the changes will be described.

---

N: Taft Metcalf -- Schlumberger (M)

Q: Our console terminal occasionally "goes to sleep", as if it had been slaved. It seems to be related to using DECNET RMT. Using RMT from other terminals seems to do it. What should I look for in diagnosing the problem?

A: Sounds like the DL-11's interrupt enable bit was turned off by accident. Some older DL-11's had a problem with the interrupt enable bit turning off spuriously with static on the serial line. Try swapping DL's.Also look in U.CLI in the terminal's UCB to see if it was clobbered. Submit an SPR with a crash dump.

---

N: James Dunn -- Simmonds Precision (M)

Q: Could DEC outline the effects and tradeoffs of varying some of the SYSGEN executive parameters such as round robin and swapping intervals? [much discussion ...]

A: We will look at including suggestions in the V4 documentation.

---

N: Roger Jenkins -- Wycliffe Bible Translators (M)

Q: We have a lot of error messages while doing BRU with verify, disk to tape, eventually getting a "verify lost" message. Is the copy bad? Is it just a verify failure?

A: If the disk is write enabled, files may have changed, been added and/or deleted between the transfer and the verify. The "lost" message probably resulted from too many verify errors. There is a threshold beyond which you will get the "lost" message.

---

N: Micheal Antin -- Polaroid (M+)

Q: How can you dismount a disk on which tasks are still checkpointed? Specifically, DCL gets out in the checkpoint file and cannot be brought back in so that the checkpoint file can be deallocated, and the disk then dismounted. What can we do?

A: This is a known problem. We will have a fix in the next release.

---

N: Fred Spitler -- Delco Products (M)

Q: Can we get the details of the interface between QMG... and the "PRI" portion of the QMGCLI? We wish to write our own PRINT command interpreter.

A: The information is available only by interpreting the source code for the QMGCLI. There is also some information on the FALL 1980 RSX SIG tape.

---

N: James Downward -- KMS Fusion (M)

Q: Will you consider making selected sources available? We don't want to incur the large cost of a full source license just to get sources for, say, QMG/LPP.

A: We will look into a "favorite sources" tape, with a limited source license. It's a good idea. [a poll was taken to determine informally which sources were most popular].

---

N: Mike Fauber -- Delco Products (M)

Q: Is there a way to cause BRU to backup only the latest version of a file, i.e., version ";0"?

A: We will look into permitting the use of ";0" and ";-1" in version 4.

---

N: Jayne Henderson -- Garrett Turbine Engine (S)



Q: I need TU58 support for SIP on RSX-11S. Is there any way I can get this now? If not, will it be in the next release?

A: There is no work being done to put TU58 into SIP even for the next release. There is not enough room in SIP for this support.

---

N: P. Balkus -- Genrad (M)

Q: EDT version 2 looks for EDTINI.EDT in default UIC on device SY:. Would it be reasonable to ask for EDT to look in LB:[1,1] if it is not found in SY:[defuic]? We don't want to keep a lot of copies of the same file.

A: EDT group has been asked for this by a field test site. May be in EDT supplied with Version 4. There are some logistics problems with this.

---

N: W. David Foubister -- Eastman Whipstock (M)

Q: Would it be possible to extend the ".ONERR" directive in IND to trap branches to non-existent labels?

A: We have been asked for this. We want to include this, and we are looking at this for the next release.

---

At this point, Steve Paavola presented a design decision question for user feedback. In version 4 of RSX-11M, multiple and user written command line interpreters will be supported as an option. DCL will be a second command line interpreter (CLI). The question was whether to put 2K words of special CLI support directive code in the exec, or to put it in each CLI, requiring the CLI to then be privileged. There was a great deal of discussion on this, and then a straw poll was taken. Unfortunately, the vote was too close to show a clear preference on the part of the users.

---

N: Robert R. Lott -- E.I. DuPont (S)

Q: RMDEMO as well as application CRT tasks using separate DZ-11 modules somtimes stop updating the screen.This is under RSX-11M on an 11/44. I have discussed this problem with Dale Donchin at the software clinic, and he has given me soime suggestions on isolating the problem. Has anyone else experienced a similar problem?

A: No.

---

N: Mike Fraser -- AFRRI (M+)

Q: "HEL" has support for a flags word in the system account file. Currently, 2

bits are being used, one to force a terminal to log on slaved, and the other to force invocation of LB:[1,10]LOGIN.CMD. Would you reserve the high byte for user-specific flags? Also, we would like to specify a logical device for user default login device, whether or not it is assigned to a physical device at the time. This would make it possible to reassign a whole class of users to a new device dynamically with a global assign.

A: A lot of this is changing with the addition of multi-CLI support. But we will look into reserving some bits for user specific uses. We will take the second suggestion back to the person supporting ACNT.

---

N: Rodger S. Miles -- Telemed (M)

Q: I have a DZ-11 and i sometimes need lines for a special application for which I would like to write a driver, and sometimes for DECNET. I would like to create a loadable driver and somehow disable the terminal driver's use of a particular line. Can this be done?

A: It is a dangerous hack to change the data base while running. Dale Donchin offered to explore alternate ways to implement this.

---

N: Ed Brownlee -- General Electric (M)

Q: I have a program which does occasional "read pass all" reads, while maintaining X-ON/X-OFF sync with a serial peripheral device. Sometimes the X-ON gets 'eaten' by the "read pass all", resulting in a loss of sync. Is there any way to force the terminal driver to forget that it received an X-OFF?

A: Use the "set multiple characteristics" (SF.SMC) QIO request.

---

N: Burt Harris -- APL (M)

Q: Loadable drivers selected during SYSGEN have a resident data base. This makes it difficult to add support for new DEC devices that we add to our system without going through another SYSGEN. Doesn't this defeat some of the utility of loadable driver support? Also, we want to unload the data base when the driver is not needed, in order to recapture pool.

A: The issue of loadable data bases is low priority, and will not be supported in version 4. Unloading a driver data base at run time is a complicated process. There are many pointers to driver data base structures scattered throughout the system. The chances of causing a crash are great.

C: [Editor's comment]. We do a dummy SYSGEN phase 1 to include the new device. Then we take the file SYSTB.MAC produced by the SYSGEN-1 and extract the new device's data base with the editor, fix the pointers to make it loadable and install it just like a user written loadable driver. No real SYSGEN needed. The whole process takes about 30 minutes.



---

N: Dave Kristol -- Mass. Computer Associates (M)

Q: Would Steve Paavola please comment on the status of Digital Standard Runoff and SOS?

A: No immediate plans to release either program on RSX-11M/M+.

---

N: Brian Lomasky -- Faria Corporation (M)

Q: I am running a BASIC PLUS 2 task which uses FMS-11. Sometimes when I type control-C and then ABO, it will freeze the terminal for ALL further use. I can only continue by re-booting the system.

A: Not enough information, submit an SPR and crash dump.

---

N: Dale A. Demott -- Caterpillar Tractor (M)

Q: At the time of a checkpoint space allocation failure, a message is printed on the console terminal to that effect. Under certain circumstances on a single terminal system, this has the effect of stealing the terminal from everything, including MCR. The only way out is to re-boot the system. Can this "feature" be changed to work like a "device not ready" message to avoid this condition?

A: DEC is aware of the problem. It will be fixed in the next release.

---

N: Glenn C. Johnson -- FermiLab (M)

Q: I ran BAD on an RL02 pack. Two bad blocks were found. Then I used DSC to restore from tape to disk. DSC saig there was "no bad block information found". The tape was created from an RL01 pack. What happened?

A: We don't know. Submit an SPR. This should have worked.

C: [user comment] We have a similar problem on a Memorex 200 disk. We do an INI, then BAD, then INI again, and it seems to work the second time.

---

N: D. Bruce McIndoe -- Computer Sciences Corporation (M)

Q: When you do not select multi-user protection at SYSGEN time, what happens to HELP? Also, can we use the multi-user MCR anyway?

A: HELP is part of the "HEL" task (Hello), which is part of the multi-user package, along with BYE. We'll have to look into supporting HELP without multi-user protection. User comment that MU-MCR can be used in any case.

---

N: unknown

Q: Is there any way to increase the number of levels of nested indirect command files supported by IND?

A: It is possible to change this. There is a location in one of the modules (difficult to hear speaker at this point), INDINP, that can be ZAP'ed to change this. There is an outstanding patch for this.

---

N: Christine Moe -- Stanford University (M)

Q: LOAd and UNLoad privileged tasks have in them disabled conditional code for driver entry (??, ed.) when a driver is loaded/unloaded. Why is it disabled? Also, besides the "UCB question", what is it that makes it dangerous to unload the data base?

A: Second question first. I can't think of anything else besides the proliferation of UCB pointers that makes it dangerous, but that is adequate. Besides installed tasks, MCR command lines queued to MCR point to the terminal's UCB, etc. We might consider doing it with VMR though. No answer to first question.

---

N: Larry Baker -- U.S. Geological Survey (M+)

Q: That is the status of alternate magtape ACP's such as one for IBM SL and NL tapes? There was high interest in this a year or so ago. Alternately, would you document the MTAACP interface in the V4 System Logic Manual?

A: There is support being planned for IBM tape support in the MTAACP. The only thing that we know about the System Logic Manual is that there is going to be one.

---

N: Bobby Frizzell -- Dallas Power and Light (M)

Q: BRU verify fails on tape 2; contiguous blocks on the disk are small. If I DSC and recover, making larger contiguous blocks, then BRU works. I applied the April, 1981 patch but got an undefined symbol at TKB time. Rumor has it that the solution is secretly contained on Autopatch "D" tape. Is this true?

A: Autopatch "D" has an unpublished patch that defines that symbol. Auto-D should be applied prior to the April patch.

---

N: J.B. Flippen -- Rayethon (M)



Q: When the system gets heavily loaded, the indirect file processor seems to stop. ATL shows it at running priority 10, even though it was installed at priority 50. It restarts only when system idle time becomes available. What is happening?

A: As distributed, IND drops it's priority to 10 while waiting for tasks it is controlling. There is a provision for enabling task spawning support in IND by editing the taskbuild command file to comment out a GBLPAT. If your system has stop bit support and spawning, you should follow the directions in the Release Notes to enable IND's use of those features.

---

N: unknown

Q: Is there any way to increase the block size that BRU uses on tapes?

A: No. The selected size was a careful tradeoff between tape utilization and resilience to errors within a block. Making block size user tailorable would result in many formats and incompatibilities.

C: [user comment] TS-11 support is evidently not tested in M+ and some utilities. The extent of this non-support should be documented in brochures and made clear to sales persons. "MS:" seems to be unknown to many software components.

---

N: Mary Jane Stahl -- Mitre Corporation (M+)

Q: Why was so important a utility as BRU allowed to be released with so many bugs and such poor documentation? [applause] How can I tell between BRU problems and magtape hardware problems?

A: None.

---

N: Fred Spitler -- Delco Products (M)

Q: Is it possible to connect a FORTRAN IV PLUS resident library to the DEC 5.5K memory-resident overlaid FCS resident library?

A: (DEC) We're looking at ways to provide task size savings in RSX-11M V4.

---

N: James Downward -- KMS Fusion (M)

Q: I would like virtual terminal support in RSX-11M. Even if it is a restricted version of the support on RSX-11M+, such as a SYSGEN option for 'n' total virtual terminals, to be allocated among the users. Any chance? [poll] Audience asked for votes on this. Support was overwhelming.

---

N: Don Rubin -- SET Inc. (M)

Q: I would like to restore files from a BRU tape to arbitrary directories. Do you plan to add this to BRU?

A: Bru was designed as a backup and restore utility rather than a copy utility. However, this has been requested so often, we are looking into it for Version 4.

---

N: Roger Jenkins -- Wycliffe Bible Translators (M)

Q: When SORT is invoked by a user whose default disk is not the system (LB: ?? ed.) disk, it still uses the 'system' disk as it's default.

A: (user) Sort is installed with the LUNS pointing to LB:. Reinstall it with the LUN's pointing to SY:.

A: (DEC) Send in an SPR to the SORT group.

---

N: T.M. Brentlinger -- McDonnell-Douglas (M+)

Q: Editors such as KED use escape sequences. Could you provide the hooks for user defined escape sequences?

A: Take it up with the KED/FMS group, they are here at the Symposium.

---

N: Jayne Henderson -- Garrett Turbine Engine (M,S)

Q: What is the maximum baud rate for the TU58 on an 11/44 under RSX-11M? How about on an 11/23 under RSX-11S?

A: The published baud rate limit for the TU58 is 9600. There is however, a combined hardware/software problem with TU58's, stemming from the low hardware priority (PR4) and the high overhead in servicing character by character I/O. There will probably be a patch to the driver and a hardware ECO to improve the situation.

---

N: Kenneth Robinson -- AMAX Copper (M+)

Q: How may I get foreign commands into DCL (M+) at this time?

A: No easy way with the current DCL. The new DCL will make it much easier to do this.

---

N: Mark C. Weston -- City of Gainesville (M+)



Q: Under RSX-11M+, how do you set MCR as the default mode under BATCH? The manual says "SET TERMINAL MCR" will work, but it does not.

A: Say "$MCR SET /MCR=TI:".

---

N: W. David Foubister -- Eastman Whipstock (M)

Q: Listings in the batch log don't get a carriage return after each line. Are you aware of this?

A: We know about this. There is a patch coming for this, and it will be fixed in the next release.

---

N: unknown

Q: Is the MCR 'catch-all' task going to be used by DEC? If not, I want to use it.

A: There are no plans to use it for new functionality, we do intend to include an example catch-all task in the documentation to illustrate it's application.

C: [user suggestion] I would like to suggest that users of the catch-all task adopt the convention of having catch-all's call other catch-all's to implement a layered convention. Use task names "...CA.", "...CA1", "...CA2", etc.

A: You can certainly have catch-all's spawn other catch-alls and so on.

---

N: James Downward -- KMS Fusion (M)

Q: Documentation note. Users who use VMR to create new systems or install tasks must have their ACNT file entry show LB: as their default device, else the tasks will be installed from the physical device, rather than LB:. This will cause failure of the new system on boot.

A: No comments. (ed. I have never had to do this, and all SYSGENS I have ever done were on-line, with me being logged on. The important point is that SY: and LB: must be assigned to the target disk when VMR is run to create the new target system.)

---

N: Bo Hazard -- APC (M)

Q: I have a privileged task which references the symbol U.LUIC in the terminal UCB. It is undefined when assembled with EXEMC and RSXMC, showing up at task build time.

A: It should not be a problem. The symbol is defined in UCBDF$ macro in EXEMC. Say "UCBDF$,,TTDEF".

---

N: Bo Hazard -- APC (M)

Q: Do you plan to support 'no log out' option for remote lines with terminals slaved, and/or auto-baud support in Version 4?

A: No support planned for the first thing. We are working very hard to come up with a reliable auto-baud algorithm.

C: [user comment] Greg Thompson's files on the RSX SIG tape contains a routine to do auto-baud with control-Z, and it works very reliably.

---

N: Bill Norton -- Harnischfeger Corporation (M)

Q: If an LA-180 terminal is off when the system is booted, then it is turned on later, only break-through writes will work. Why?

A: Really a hardware problem in the LA-180. It sends out a control-S (X-OFF) when the power is turned on. This freezes output to the terminal. As we discussed before, use the SF.SMC QIO request to cancel the control-S state.

C: [user comment] I wish that the hardware folks would make a habit of issuing a control-Q whenever power is turned on. We have a Dataproducts printer that does this, and it is really nice to be able to turn power off and on and have the control-S state cleared.

---

N: unknown

Q: How can I determine the name of a task if it is not installed? I want to monitor resource usage by task name.

A: A task that is not installed has no task name as far as the system is concerned. Not likely to change.

---

N: L.M. Fraser -- AFRRI (M+)

Q: BRU won't back up a large contiguous file going disk to disk. Message given is "Cant restore file contiguously", but the file is marked as "C", yet mapping is not "C". Bad blocks on the target disk in the area of the restoration seem to be involved. Any thoughts?

A: A lot of discussion. There are problems with restoration of large contiguous files, we are working on them.

---



N: G.T. Metcalf -- Schlumberger (M)

Q: Have an application which uses the FDX feature of the full duplex terminal driver. The task keeps a keyboard read pending so that commands may be entered at any time. If the task is made non-checkpointable, it operates normally. If it is made checkpointable, it fails to process any but the first read request. RMD shows that the task is not checkpointed.

A: Need more information. Submit an SPR.

---

N: Phillip Porter -- Platte River Power Authority (M)

Q: Is it possible or planned to make FLX read ODS-2 files (as used on VAX)? I would like to use a PDP-11 to backup critical functions of my VAX and need a method of transfering files from a ODS-2 structure to a ODS-1 structure.

A: No current plans to do this.

---

N: Rodger S. Miles -- Telemed (M)

Q: Will I have any problems using the IAS FCS library so I can get multi-buffering on RSX-11M?

A: We don't know! Ask one of the IAS people. (The IAS people were asked and suggested that the RSX people be asked).

---

N: Mike Fraser -- AFRRI (M+)

Q: Could IND be given the ability to determine if a specific device is mounted or can you suggest a way that the information can be obtained, other than writing a privilege task to return the information using the EXSTAT variable?

A: Use the CON "ESTAT" command and check the exit status. Digital will document this in the software dispatch.

---

N: Bill Norton -- Harnischfeger Corporation (M+)

Q: How about publishing in the autopatch documentation information on unpublished patches, including a description of what problem the patch addresses. This would allow us to decide whether or not to manually attempt the patch.

A: Will be considered.

---

N: Larry Baker -- U.S. Geological Survey (M+)

Q: When the IND .PAUSE directive is issued from a batch job, the batch processor hangs-up forever. Could IND trap this special condition for TI:=VTn: and treat it as a no-op?

A: We will look into it.

---

N: Francis Hallahan -- Ford Aerospace (M)

Q: We have a 3 disk system (RM03's), with the system on DR0: and the users on DR1:. We would like to have the psuedo devices LB: and SY: directed to DR0: and DR1: respectively. When we reboot our system, SAV explicitly issues a redirect to the boot device for both LB: and SY:, then mounts the disk. How can we redirect SY: automatically.

A: The redirect can be done from a command file on the third disk or a global assign for SY: done. There is little overhead in global assigns as the logical assgnment occurs when a lun is assigned and not for every QIO.

---

N: James Dunn -- Simmons Precision (M)

Q: Could Digital modify BYE to make use of a LOGOUT.CMD file?

A: We will look at it RSX-11M but do not think so for reasons that were learned with RSX-11M+. One suggestion is to use the user subroutine hook in BYE to do your special processing.

---

N: Fred Spitler -- Delco Products (M)

Q: Is there a way to inhibit on a per terminal basis the "BEL" character echoed for keystrokes after the typeahead buffer is full? We want this for non-terminal communications.

A: Offline answer was by zapping TTDRV, however, patch applies to all terminals.

---

N: James Downward -- KMS Fusion (M)

Q: Could you add features to allow a task to determine if TI: is privileged or if another task is active on current TI:

A: In V4.0.

---

N: Mark C. Weston -- City of Gainsville (M+)



Q: Could you explain the undocumented message "Task May Not Be Run"?

A: We will have to look into it.

---

N: Kenneth Robinson -- AMAX Copper (M+)

Q: We had a problem when we had to run as a 3 disk system instead of the normal 4 disk.s I psuedo deviced DB1: to DB0: and this worked fine until I wanted to put DB1: back on-line. So I assigned a new psuedo device (NW1:) to the physical DB1:. When I did this, PIP NW1:/LI worked fine, but a PIP TI:=NW1:file went to DB0:. Why?

A: Send in a SPR.

---

N: David Brillhart -- Scott Paper (M)

Q: Is there a patch to the system clock to recognize that not all months have 31 days.

A: Will look into this.

---

N: David Kristol -- Mass. Computer Associates (M)

Q: For RSX-11M V4.0 what will be the status of 1) the half-duplux terminal driver, 2) RK06/07 distribution kits?

A: The half-duplux terminal driver will be supported at least through version 4.0. The RK06 kit will be two packs, but the entire sysgen procedure will run on one pack.

---

N: James Downward -- KMS Fusion (M)

Q: Two suggestions for MCR, 1) send all input not processed by MCR to ..CA. (including lines resulting in SET syntax errors), 2) ignore leading spaces in MCR command lines.

A: Will look into these.

---

N: Tom Brentlinger -- McDonnell-Douglas (M+)

Q: Often, when we sit at the console terminal and jar the terminal, the system sometimes crashes. Remote diagnostics has found no problem. The problem occurs on both a DECwriter II and III. Can you explain this?

A: No fixed answer, other sites have had problems with static effecting the

interrupt enabled but this should not crash your system. Just adding static eliminators on the chance it may help.

---

N: Burt Harris -- APL (M)

Q: In reading the RSX-11M sources, I have seen many references to SCS-11. What is it?

A: SCS stands for Small Computer System. The implementation of SCS-11 was aborted.

---

N: Don Rubin -- SET Inc. (M)

Q: I am tired of getting the message "Not Enough APR's for Task Image" when tring to install and increment a task. Could you add a switch to INS that makes the task a set size (INS xxx/INC=22K)?

A: In version 4.0.

---

N: Bruce Booth -- Simpson-Sears (M)

Q: Two questions about BRU. First, when doing a disk-to-disk copy, BRU truncates the checkpoint file CORIMG.SYS. Also, it would be nice if this could be placed near the index file. Second, BRU's handling of directories could use some work. BRU does not recreate all directories on an incremental restore if the directories have no files, even if the directories are needed on the system. Also BRU does not create directories when it when it discovers it needs them on incremental restores using /NOINIT or /MOUNT.

A: To the first, this seems like a good suggestion and we will look into it. In answer to the second, we did not wish to put all the functionality from other tasks such as PIP and UFD into BRU. We will check into the dropping of directories in a [300,*] type copy or a /EXCLUDE [300,*].

---

N: Jim Dunn -- Simmonds Precision (M)

Q: Would Digital consider making it possible to write an IBM compatible diskette much as RT-11 does? We use the systems for devloping micro systems and would like to be able to transfer software and data using floppies.

A: We will consider for the future.

---

N: Fred Spitler -- Delco Products (M)



Q: Tasks hang in abort with I/O count of zero and ATL shows status of TIO and RDN. If I turn off TIO bit and then RDN bit, task aborts OK. No system problems occur subsequently. It may be related to task being checkpointed when ABO is performed.

A: We would like a crash dump when the system is in this state.

---

N: Mike Fraser -- AFRRI (M+)

Q: In transmitting serial data into a DZ line at 300 baud, eventually the typeahead buffer overflows (withing 300-400 characters). There are at least 3-4 reads outstanding. If the terminal is set to NOECHO, many thousands of characters can be transmitted with no errors.

A: Do not send anything after a CR until you see the LF echoed.

---

N: George Velez -- Revlon (M)

Q: Will RSX-11M V4.0 support the RM05.

A: Yes.

---

N: Rodger S. Miles -- Telemed (M)

Q: Can you give details on Mount and why it takes so long.

A: Mount reads thought the bitmap file to count and verify the free space on the disk.

# FORMS, FORMS, FORMS

Ralph Stamerjohn
Multi-Tasker Editor

Following this article are blank forms for various DECUS and RSX/IAS SIG purposes. Please save these forms and make however many copies you need. The forms will be a twice-a-year feature of the Multi-Tasker and will be repeated the last issue of each volume (volume numbers change every January and July issue). In this issue are blank forms for DECUS membership, changing current membership enrollment, DeVIAS membership application, DECUS library submissions, and RSX/IAS SIG membership. If you use a form, please return it to the specified address and not to the Multi-Tasker editor.

The DECUS membership form is for new members. Please use this to enroll others at your site or yourself if you do not get the Multi-Tasker directly and must depend on a circulation list. If you are a current member and wish to join other SIG's, please use the second form. Note, almost all of the other SIG's publish newsletters. If you have an interest in another area, you will find their newsletters and activities very useful to you. In next month's issue, I will have an article summarizing the activities of the other SIG's.

DeVIAS is a world-wide Local User's Group. It is for IAS sites only. While meetings are held in the Philadelphia area, DeVIAS publishes a very good newsletter for IAS specific topics.

The DECUS library submission form is for submitting your software to the DECUS library so others can use it. One unfortunate aspect of the success of the RSX/IAS SIG tape copy is the submissions from our users to the DECUS library have fell off. This is regretable because the library provides a valuable service, especially because well-written catalogs are provide so you do not have to hunt through hundreds of feet of magtape to find one item. I will be submitting the virtual disk and ACP manuals to the library and will write an article on any tricks I learned in perparing a library submission.

Finally, the RSX/IAS SIG has a very active project under the direction of Jim McGlinchey and Legare Coleman to gather user input for new features in Digital's products and prioritize this input. The process is called the Menu and a form for submitting your input is included in this section.