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.

RSX-11/IAS SIG

June Baker, RSX/IAS SIG Symposia Coordinator

For our return to San Diego this Fall we've succeeded in scheduling a complete four-day symposium. Since there are so many parallel sessions during the week we recommend that at least two people from a company attend, if possible, in order to pool your resources.

As usual, the RSX/IAS SIG has arranged a program with strong emphasis on technical subjects relating to our Operating Systems. DIGITAL will present product panels on RSX-11M and M Plus and IAS; sufficient time will be available for questions from the attendees. Two sessions in particular are geared toward the less experienced user--Questions and Answers for the Novice and RSX-11M Beginners SYSGEN. A terminal and large screen will be in the room so that you may observe a SYSGEN as well as hear about it. Our MAGIC sessions are available for those of you interested in OS internals and will run late, late, late, as usual. The IAS and RSX-11M and M Plus Questions and Answers are invaluable for getting answers to your Operating System or language questions. We are experimenting with a Software Clinic where you will be able to have one-on-one discussions with DIGITAL developers and experienced users. If this session is successful we hope to enlarge it at the following symposium.

New sessions are Queue Manager and Despooler, RSX-11M Pool Clinic, a Files-11 Tutorial, and a Magtape Session. Other technical sessions include IAS V3.1 Field Test Report, IAS Crash Dump Analysis and RSX-11M V3.2 System Tuning and Performance Measurement.

There will be SIG business meetings and a Menu Session. The best of the SIG tape programs will be discussed in a separate meeting. Having any problems with your SPRs? Come to a special RSX/IAS Customer Services Panel and ask DIGITAL all about it! The SIG is sponsoring a session called "How to Solve the Operating System Labyrinth" to help people sort out the various DIGITAL Operating Systems to make a logical choice for their applications.

We're sponsoring a Structured FORTRAN Workshop, as well as several other FORTRAN sessions. There will be many other language, data services, network and hardware sessions for you to attend.

A campground will be available, as usual, for informal meetings, message center, user-DIGITAL interface and a place to crash. The first IAS-only LUG will meet in a Birds-of-a-Feather room to exchange information and names.

The SIG is sponsoring three pre-symposium seminars: Two for RSX-11M and one for IAS. These seminars have been popular in the past and are sure to be filled early, so make your reservations as soon as possible. In addition, please note the other seminars which are being offered for the day preceeding the symposium.

We hope you're motivated to come to the Fall Symposium in San Diego. We're all looking forward to seeing you there!

---

digital   **August 28, 1980**

Digital is initiating a new and on-going series of technical and managerial seminars that should be of interest to your SIG members. The initial three technical seminars scheduled for the Fall and Winter include:

Title	Subjects	Interest
RSTS/E	Performance Evaluation and Optimization	Primarily RSTS/E Users
Networking	Design and Implementation of Computer Communication Networks	Users of All Operating Systems
Real-Time Applications	A Design Seminar	Primarily RSX and RT Users

The Management Seminars potentially should be of interest to all users.

Special one-day seminars on these topics are scheduled for DECUS San Diego. The seminars described in the attached are three days in length. For users who wish to take the full three-day session, these will be of particular interest. If you feel that your readers would be interested in any of these seminars, you may put the appropriate descriptions in your next Newsletter.

For more information regarding prices, a four-page brochure on each seminar, possible seminars on customer's own site, etc., please suggest that your members call:

Seminar Registrar
29 Hudson Road
Sudbury, MA 01776
Tel: (617) 493-2858

We trust that this information is of interest to you and your readership.

Sincerely,

Judy Arsenault   J.E. Richardson
SUG Coordinator   Manager
DECUS   Technical Seminar Programs

DIGITAL EQUIPMENT CORPORATION, BEDFORD RESEARCH PARK, 12 CROSBY DRIVE, BEDFORD, MA 01730
(617) 275-5000

NETWORKING: A PRACTICAL APPROACH TO THE DESIGN AND IMPLEMENTATION OF COMPUTER
             COMMUNICATION NETWORKS

The need to access distributed information in a timely manner has stimulated developments in computer communication networks. Computer networking will be one of the key components in the distributed computing systems of the 80's. This 3-day seminar presents a practical approach to network architectures, their structures, and components. Using examples and problems from existing network architectures and case studies, we will examine concepts and explore cost/performance trade-offs in the design and implementation of a network.

Who Should Attend

Managers, Analysts, Engineers, Programmers

Faculty Leader

Stuart Wecker is a member of the Corporate Research Group at Digital Equipment Corporation. His approach and much of his material is based on his experiences in the design and implementation of the DECnet architecture.

Places and Dates	Boston	Washington, D. C.
	October 20-22, 1980	December 2-4, 1980
	Sheraton Tara Hotel	Ramada Inn
	Framingham, Massachusetts	Lanham, Maryland

REAL-TIME APPLICATIONS: A SYSTEMS DESIGN SEMINAR

This 3-day seminar provides an introduction to the critical issues relating to the development of a Real-Time Computer Systems. The seminar includes:
- Characteristics of the Real-Time System Implementation
- The process of Real-Time System Implementation
  - System Definition
  - System Design
  - System Development
  - System Installation
- Evaluation of available alternatives
  - Process and computer hardware
  - Operating systems and languages

Who Should Attend

- Systems Analysts and Senior Programmers who are becoming more involved in design of real-time systems

- Real-time systems analysts wishing to consolidate their experience with real-time systems design

- Engineers wishing to improve their total understanding of real-time computer systems

- Anyone currently involved with the RSX-11 or RT-11 operating systems who wishes to improve understanding of real-time systems

Place and Date   Boston
                         December 15-17, 1980
                         Sheraton Rolling Green
                         North Andover, Massachusetts

LAWRENCE LIVERMORE LABORATORY

Sir:

The following procedure may be used to include ODT in a task so that it will be present, but will not run when the task is initiated. (i.e. The 'ODT:xxxxxx' will not be printed and 'G' is not needed). This allows the patching of a task with 'BPT's inserted over 'NO-OP's left for this purpose. It also means that should the task fail, it will break into ODT to allow examination of the fialure.

This may be done in two ways. The first is to ZAP the task. If you wish to build in ODT permanently on all future task builds, the changes may be built in through the use of global patches in the task build command file.

ZAP

1. Set $OR to the base of $$$ODT via x:yyyyy;OR where 'x' is the disk block number of the segment and 'yyyyy' is the address of $$$ODT.

2. Put the task virtual starting address into 0,322 The virtual starting address may be obtained from the task map. It is in the header area, marked 'PRG XFR ADDRESS: xxxxxx'.

3. Load '7' or one greater than the 'UNITS' option, if one is specified to the task builder, into 0,346

4. Load '1' into 0,102

TASK BUILD

Insert the following into the task build command file:

```
SYMPAT='seg-nam':.ODTL1+62:'start-sym'
GBLPAT='seg-nam':.ODTL1+106:'lun'
GBLPAT='seg-nam':.ODTL1-136:1
```

where 'seg-nam' is the segment name of the segment containing ODTRSX (usually the ROOT SEGMENT), 'start-sym' is the global symbol of the first executable line in the program, and 'lun' is the ODT console LUN. The LUN is '7' if no 'UNITS' declaration is made. Otherwise, it is the value of 'UNITS' plus one. also remember that 'UNITS' is decimal while 'lun' is octal.

Relocation registers and breakpoints may also be pre-entered in this fashion. The addresses of these or any ODT register may be obtained by running 'ODT'. Simply type the desired register followed by '=' (e.g. '$OR=' or '$2B=').

Sincerely,

R. Kevin Oberman
Tech Specialist
Image Processing Research Group
L-156

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---

2 notes supplied by Richard Kirkman

```
;
; Fortran IV Plus Version 3 Runtime system error.
;
; The attempt to open a file with buffercount =-1 (block i/o only)
; fails with error 37, record size mismatch. It worked in the
; previous release of Fortran IV plus.
;       The problem is the alteration of checking for a big enough
; buffer for the records to be read in module OPEN in FCS11M.OBJ
; In version 2.5 this was only checked for Direct access files,
; Now it is checked for all files. This is totally wrong if the file
; is not opened for record i/o. There is a work around to avoid
; patching the module. It consists of declaring the MAXBUF= keyword
; at taskbuild; it must be set big enough for the recordsize of files
; even if not opened for record i/o.
;       Below is the correction to the module instead. It simply
; returns success for the checks instead of checking the buffersize
; if the file is opened for block i/o.
;
        .TITLE  $OPEN
        .IDENT  /F4P038/
;
; MODIFICATIONS
;
;       8-JUL-80        CORRECT TO STOP RECORD BUFFER SIZE CHECKS
;                       WHEN FILE OPENED FOR BLOCK I/O ONLY !!
;                       RJDK
;
        .PSECT  $$OTSI,RW,I,CON,LCL
P:
.=P+456
        CALL    PATCH
.=P+730
EXIT:                   ;LABEL FOR SUCCESS EXIT (BYPASS CHECKS)
.=P
        .PSECT  $$PAT
PATCH:  BIS     #200,(R1)       ;SET FILE OPEN(DISPLACED INSTR)
        BITB    #FD.RWM,F.FACC(R0) ;OPEN FOR BLOCK I.O?
        BEQ     1$              ;NO - RETURN IS OK
        MOV     #EXIT,(SP)
1$:     RTS     PC
        .END
;
;
; The checksum for the distributed module is 156555
; for the patch file it is 16707
;
```

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SYSTEM CRASHES USING VMLIB / ERROR IN GPRT$ / GREG$

The system will crash if an RSX11M v3.2 or RSX11M-Plus task
is built mapped to the exec and calls $INIDM from VMLIB. The
fault is in the GPRT$ or GREG$ (equivalent) directive which
returns the starting address of the partition in the DSW. In
an unmapped system this works correctly, but if mapped the
directive always returns $DSW=0 regardless of the exec mapping.
The INIDM routine then calculates the start of free memory as either
exec code space or pool space depending on your system and proceeds
to corrupt this area.
If your task must use $INIDM write a simple functionally equivalent
routine to initialise the free memory listhead, e.g.
;
;   Routine to initialise dynamic memory as we are
;   Uses GTSK$ to obtain size of partition
;   uses .LIMIT to obtain program base and end.
;
        .MCALL DIR$, QTSK$
;
P.LIM: .LIMIT   ;get taskbuild areas
QTSK: QTSK$ BUF
BUF: .BLKW   20   ;area for data
;
$INIDM::   ;Ref label
        JSR   R5,$SAVRQ   ;SAve r3-r5
        MOV   R0,R5   ;Save listhead pointer
        DIR$ #QTSK   ;get # bytes avail into buf+32
        MOV   P.LIM,R0   ;Get program base
        BIC   #17777,R0   ;Nill low bits (apr base)
        MOV   R0,R1   ;copy for end limit
        ADD   BUF+32,r1   ;Make program end limit
        MOV   R1,R2   ;copy end limit for length
        MOV   P.LIM+2,r4   ;get program end
        ADD   #3,r4   ;make multiple of 4
        BIC   #3,r4
        SUB   r4,r2   ;# bytes avail
        BIC   #3,r2   ;as mult of 4 in r2
        ;   ; r4 is start of buffer
        MOV   r4,(R5)   ;setup listhead addr
        CLR   (r4)+   ;and on ptr of this
        MOV   r2,(r4)
        RTS   PC

        ****
(Note this is not a translation of $INIDM, it does not call
  $EXTSK to release memory, it however has been written to give
  program compatible outputs for a privileged task calling $RQCB
  and $RLCB)
(I have not assertained the necessary corrections to DRQPP.MAC
  to avoid these problems)

We have a PDP 11/70, 256KW, RM03's running under RSX-11M V3.2.
Included in this system are a number of Aydin Controls 5215 and 5217
color display controllers interfaced through DR11 B's and a DH-11
respectively. We have solved a number of problems in interfacing
these controllers to RSX-11M but are not satisfied with the software
cleanliness of these solutions, particularly data input.

We would be interested in comparing notes with anyone that is implementing
or has implemented similar hardware under RSX-11M.

Sincerely,

HARMON ELECTRONICS

Jerome S. Beshoner, Asst. Mgr.
Computer Systems Development

COMPUTER SCIENCES CORPORATION
APPLIED TECHNOLOGY DIVISION   (703) 533-8877
5565 ARLINGTON BOULEVARD · FALLS CHURCH, VIRGINIA 22046

September 4, 1980

Please enclose this letter in a future copy of the Multi-Tasker.

We are a RSX-D 6.2 site interested in using SORT-11 from FORTRAN programs.
Since the DEC manuals give few examples, I would appriciate hearing from
anyone who has successfully developed FORTRAN-callable sorts. My phone
number is 313-226-7811 or FTS 8-226-7811.

Respectfully,

Randolph P. Brown
Site Supervisor
EPA Large Lakes Research Station
9311 Groh Road
Grosse Ile, MI   48138

VOEST-ALPINE

Voest-Alpine AG, Postfach 2, A-4010 Linz, Austria

Please include the following request for information in your next publication of the Multitasker:

We need software for task-to-task communication via a synchronous line between a PDP11/34 or LSI11/23 with RSX-11 M or S and a HP 3000 computer using HP's Modified Bisync and/or HP's DS/3000 Message Control Protocol.

We need this software to connect a HP 3000 computer to our data network which consists of several network nodes with RSX-11 and DECnet and various foreign computers (eg. IBM, SIEMENS).

If anyone has written software which implements one of these protocols, we shall be pleased to hear from him.

Yours sincerely

VOEST-ALPINE AG

i.V.　　　　　i.A.
Dipl.-Ing. Zich　Dr. Oberparleiter

HOST

August 27, 1980

HOST INTERNATIONAL, INC PICO AT 34TH STREET, SANTA MONICA, CALIFORNIA 90406 · (213) 450-7566

We are running a full timesharing IAS V3.0 system on a PDP 11/70 with an RP04, RP06 and 2 DH11's. The system is used for telecommunications in gathering financial data and reporting back to a nationwide group of branches. One of our DH's is used for GTE TELENET and the other supports local users and program development. We run our own CLI for our branch users.

Recently we received response from two SPR's which may be of interest to other users of IAS. Both fixes worked on our system. The response to the first SPR was very interesting. Although the SPR clearly said, "IAS V3.0", DEC's response was for an RSX-11M V3.2 system. The problem was in PAT. DEC told us to "rebuild PAT using SYSGEN 3, which is documented in the RSX-11M System Generation and Management Guide." Fortunately, we knew better!

The correct procedure to rebuild PAT in IAS is:

MCR> TKB @[11,15]PATBLD

OR

PDS> LINK/BASIC [11,15]PATBLD

Install [11,1]PAT before applying patches from indirect command files.

Yours truly,

Bob Freepartner,
Systems Programmer

SPR #11-29183

PROBLEM: PAT is used in an MCR indirect command file to apply patches, but exit status cannot be used to handle *DIAG* errors because PAT exits with "WARNING* status even when no error has occured.

DEC'S RESPONSE:

SUBJECT: SPR NUMBER 11-29183

	System	
System	Version	Component
SOFTWARE: RSX 11M	3.2	UTILITIES

PROBLEM
STATEMENT

PAT does not return an exit status, but always returns a 0 exit status. Provisions for exit status are desired.

RESPONSE

Your observation is correct; PAT always returns an exit status of 0.

This problem can be corrected by updating the PAT ojbective module PATBL in PAT.OLB with the following patch.

```
        .TITLE  PATBL
        .IDENT  /Ø2A/

; COPYRIGHT (C) 198Ø
; DIGITAL EQUIPMENT CORP., MAYNARD, MASS.
;
; MODIFICATIONS:
;
;       Ø2A -- PROVIDE EXIT STATUS WORD THAT IS NOT CLEARED
;
        .PSECT  PATCHA

$EXSTS::.BLKW     1                ;EXIT STATUS WORD THAT IS NOT CLEARED

        .END
```

Create and assemble the source patch file PATBL.PAT. Then extract the object
module PATBL from the distribution version of PAT.OLB. Apply patch to PATBL.OBJ
and replace this patched object module into a separate copy of the library that will
accumulate all the patches for PAT. This is all done as follows.

```
MAC PATBL.POB;1=PATBL.PAT
LBR PATBL.OBJ;1=PAT/EX:PATBL
PAT PATBL.OBJ;2=PATBL.OBJ;1/CS:627Ø2,PATBL.POB;1/CS:4624
LBR PAT/RP=PATBL.OBJ;2
```

Following this rebuild PAT using SYSGEN3, which is documented in the RSX-11M System
Generation and Management Guide.

SPR #11-31470

PROBLEM: System hangs, no response to control-C with 7 users running tasks which
          do single character input QIO's to the terminal handler.

DEC'S RESPONSE:

SUBJECT: SPR #11-3147Ø

SOFTWARE: IAS V3.Ø

STATEMENT

Tasks using single character QIO's to the terminal handler may cause the system
to hang.

RESPONSE

Thank you for reporting your problems with the system.

The IAS timesharing algorithm for V3.Ø differs from that used in V2.Ø by the addition
of an interactive level - level one. Tasks are demoted from level one when entering
any kind of wait state. Tasks are promoted to level one only on completion of
terminal I/O or upon input of CNTRL/C. Thus only new tasks and truly interactive
tasks run in level one.

The tasks in your system using single character QIO's on the terminal handler will
be promoted to level one on completion of each I/O operation. The system will then
lock up trying to give service to these tasks in level one which appear to be
highly interactive.

This problem can be overcome by setting the size of the promotion table to zero
using the command

   UTL /PT:Ø

This can be edited into your system generation command file SYSBLD.CMD. Or the
system can be changed by issuing the following commands before bringing up time-
sharing:
   UTL /DI
   UTL /PT:Ø
   UTL /EN

This effectively limits the use of level one to new tasks only. All the tasks
running on the system will then compete for use of system resources as on V2.Ø.

A. S. THOMAS, INC.

ENGINEERING - RESEARCH - ANALYSIS

355 PROVIDENCE HIGHWAY
WESTWOOD, MASS. 02090

AREA CODE 617
329-9200

        Since the release of V3.2 of RSX-11M, we have been able
to greatly benefit from the use of several documented and
undocumented features of RSX-11M.

1. Parent/Offspring Directives

    Through the use of these directives several benefits have
    been obtained:

        1. Large application systems which involved several
            tasks which were requested in a serial fashion have
            been modified to use the SPAWN directive. Under
            RSX-11M V3.1 a large number of tasks had to be in-
            stalled (user) for each terminal (user) of these systems,
            eating up a considerable amount of POOL. The SPAWN
            directive eliminates the multiple INSTALLs.

        2. A DEC supported method of passing commands to MCR
            (the proper task to spawn is MCR...).

        3. A simple method of synchronizing task execution
            through the use of the event flag specified in the
            SPAWN directive.

2. EXIT with STATUS

The EXIT with STATUS directive provides a powerfull tool for implementing conditional indirect command files, i.e. tasks which detect errors during their execution would exit with an exit status not equal to 1, the indirect command file could then exit upon the error condition.

Another use of this directive occurs when a parent task spawns an offspring task, the parent task continues depending upon the value of the offspring task's exit status.

Several RSX-11M "MCR" commands set exit status codes:

MCR Command	EXIT STATUS	Reason
DMO	1	Successfull
	2	Error encountered (usually device not mounted)
FLX	1	Successfull
	2	Error encountered
MOU	1	Successfull
	2	Error encountered (usually device not ready)
TKB	1	Successfull
	4	Class 4 error
	8	Class 8 error
UFD	1	Successfull
	2	Error encountered

A most desirable MCR task to have exit status is PIP. Unfortunately PIP always exits with a status of 1 (success).

3. CATCH-ALL Task

The Release Notes for V3.2 claim that there exists a method of incorporating alternate command line interpreters. One simple method of doing this is through the use of the "catch-all" task capability of MCR. This feature is described in the August 1980 issue of the Multi-Tasker in the article by Andy Rubel "RSX-11M SPEAKS DCL" in the paragraph "RSX-11M IMPLEMENTATION DETAILS".

Whenever a command is passed to MCR which it does not recognize, if the task ...CA. is installed, MCR invokes it and passes the command line to it.

A simple version of such a task follows. This task assumes that all commands passed to it are actually requests for the execution of an indirect command file from a system library of such command files.

```
      PROGRAM CATCH
C     CATCH-ALL TASK FOR MCR COMMANDS
C     THIS TASK PERFORMS THE FOLLOWING:
C
C     1. OBTAINS MCR COMMAND LINE
C     2. PREFIXES @SY2:[1,2] TO COMMAND
C     3. PASSES COMMAND BACK TO MCR
C
      LOGICAL*1 CBUFF(82)
      LOGICAL*1 ABUFF(92)
      DATA AMCR/6RMCR.../
      DATA ABUFF/'@','S','Y','2',';','[','1',
     1 ',','2',']',82*0/
      CALL GETMCR(CBUFF,IDS)
      LB=IDS+10
      CALL SPAWN(AMCR,,,1,,,,ABUFF,LB)
      CALL STLOR(1)
      CALL EXIT
      END
```

The command file used for task building is:

```
CATCH/CP=CATCH,LB:[1,1]SYSLIB/LB:$SHORT
/
TASK=...CA.
UNITS=1
ACTFIL=1
PRI=65
//
```

The above task greatly simplifies the user interface to RSX-11M and encourages users to write command files that are of "universal" use.

As a result of our experiences with the above features we would like to request that:

1. DEC document the exit status's of all DEC tasks.

2. All new releases of layered software supply appropriate exit status.

3. The ...CA. task interface be offically supported by DEC.

Sincerely;

Robert F. Thomas

Robert F. Thomas

The enclosed is a "Road Map" of RSXMC.MAC symbols as produced by 3.2 SYSGEN, sent in by Mr.Dick Baker-Munton of Paramin (UK) Ltd., Victor House, Norris Road, Staines, Middlesex, TW18 4DS. This was produced by extracting all lines including "$$" from the [200,200] *.CMD files. The lines were then sorted (and duplicates omitted) using TECO.

```
A$$CHK=0           ;ADDRESS CHECKING
A$$CPS=0           ;ACP SUPPORT
A$$DO1='AD'.       ;ADO1 A/D CONVERTERS
A$$F11='AF'.       ;AFC11 A/D CONVERTERS
A$$NSI=0           ;ANSI MAGTAPE SUPPORT
A$$PRI=0           ;ALTER PRIORITY DIRECTIVE
A$$R11='AR'.       ;AR11 LAB PERIPHERAL SYSTEMS
A$$RDA=0           ;AR11 D/A OPTION
A$$TRP=0           ;AST SUPPORT
C$$CDA='$CDD'      ;CRASH DUMP ROUTINE
C$$CKP=0           ;CHECKPOINTING SUPPORT
C$$CSR='$MDC'      ;CSR ADDRESS OF CRASH DEVICE
C$$INT=0           ;CONNECT TO INTERRUPT DIRECTIVE
C$$ONS='CO'.       ;CONSOLE DRIVER
C$$ORE='$DSA'.     ;SIZE OF DYNAMIC STORAGE REGION
C$$OTM=0           ;CONSOLE TIME STAMP
C$$R11='CR'.       ;CR11 CARD READERS
C$$RSH='$CND'      ;CRASH REPORTING
C$$RUN='$CDU'      ;PHYSICAL UNIT NUMBER OF CRASH UNIT
C$$SMT=0           ;CANCEL SELECTIVE MARK TIMES
C$$TTY='$RSD'      ;REGISTER/STACK DUMP DEVICE CSR ADDRESS
D$$B11='XB'.       ;DA11-B PAR. LINE IINTERFACES
D$$E11='XL'.       ;DL11-E LINE INTERFACE
D$$H11='NCONTR.'   ;DH11 ASYNCHRONOUS LINE MULTIPLEXERS
D$$IAG=0           ;USER MODE DIAGNOSTICS
D$$ISK=0           ;NONRESIDENT TASK SUPPORT
D$$J11='NCONTR.'   ;DJ11 ASYNCHRONOUS LINE MULTIPLEXERS
D$$L11='NCONTR.'   ;DL11 A/B/C/D LINE INTERFACES
D$$M11='NDM.'      ;DM11BB MODEM CONTROL INTERFACES
D$$P11='XP'.       ;DF11 LINE INTERFACES
D$$Q11='XQ'.       ;DQ11 SYNC. LINE INTERFACES
D$$R11=0           ;DR11-K OPTION PRESENT
D$$SHF=0           ;AUTOMATIC DYN. MEM. COMPACTION
D$$U11='XU'.       ;DU11 LINE INTERFACES
D$$W11='XW'.       ;DUP11 LINE INTERFACES
D$$WCK=0           ;DISK WRITECHECK SUPPORT
D$$YNC=0           ;DYNAMIC CHECKPOINT ALLOCATION
D$$YNM=0           ;DYNAMIC MEMORY ALLOCATION SUPPORT
D$$Z11='NCONTR.'   ;DZ11 ASYNCHRONOUS LINE MULTIPLEXERS
D$$ZMD=0           ;DZ11 MODEM SUPPORT
E$$DVC=0           ;LOG DEVICE ERRORS AND TIMEOUT
E$$EAE=0           ;EAE SUPPORT
E$$NSI=0           ;LOG UNDEFINED INTERRUPTS
E$$PER=0           ;LOG PARITY ERROR TRAPS
E$$XPR=0           ;EXTEND PARTITION (TASK) DIRECTIVE
F$$LPP=0           ;FLOATING POINT PROCESSOR SUPPORT
F$$LTP=0           ;FIS SUPPORT
F$$LVL=1           ;FILES STRUCTURE LEVEL SUPPORT
G$$EFN=0           ;GROUP GLOBAL EVENT FLAGS
G$$TPP=0           ;GET PARTITION PARAMETERS DIRECTIVE
G$$TSS=0           ;GET SENSE SWITCH DIRECTIVE
G$$TTK=0           ;GET TASK PARAMETERS DIRECTIVE
G$$WRD=0           ;INCLUDE $GTWRD CODE
```

```
H$$RTZ=50.         ;LINE FREQUENCY
I$$C11='IC'.       ;ICS/ICR-11 INDUS CONTROL SUBSYSTEM
I$$CAD=0           ;ICS/ICR-11 A/D CONVERTER MODULES
I$$CLK=0           ;ICS/ICR TASK ACTIVATION FROM INTERRUPTS
I$$CR=0            ;ICR/11 REMOTE UNIT
I$$CWD='E.'        ;ICS/ICR-11 ERROR COUNT
I$$C'TYPE1'=0      ;ICS/ICR-11 'TYPE' MODULES
I$$P11='IP'.       ;IP11/IP300 PROCESS SUBSYSTEMS
I$$P14=0           ;IP11 14-BIT A/D CONVERTER MODULES
I$$PAD=0           ;IP11 12-BIT A/D CONVERTER MODULES
I$$PB'CONTR'='ZN1'
I$$PCO=0           ;IP11 CHANGE-OF-STATE MODULES
I$$PDA=0           ;IP11 D/A CONVERTER MODULES
I$$PDI=0           ;IP11 DIGITAL SENSE INTERRUPT MODULES
I$$PDO=0           ;IP11 DIGITAL OUTPUT MODULES
I$$PDS=0           ;IP11 DIGITAL SENSE MODULES
I$$PEF=0           ;IP11 EVENT FLAG LINKAGE
I$$PPF='ZN1.'      ;IP11 OUTPUTS TO SAVE ON POWER FAIL
I$$PQO=0           ;IP11 DIRECT OUTPUT VIA QIO$
I$$PRD=0           ;IP11 DIRECT INPUT VIA QIO
I$$PSS=0           ;IP11 SINGLE-SHOT MODULES
I$$PTI=0           ; IP11 COUNTER SUPPORT
I$$PUI=0           ;IP11 UNSOLICITED INTERRUPT SUPPORT
I$$PUN=0           ;IP11 - TREAT ALL CONTROLLERS AS ONE
                   ; UNIT
I$$RAR=0           ;INSTALL, REQUEST, AND REMOVE ON EXIT
I$$RDN=0           ;I/O RUNDOWN
I$$S11='TEST.'     ;DRS/DSS-11 INPUT/OUTPUT MODULES
I$$SCM=0
I$$SDR='ZN1.'      ;DRS-11 OUTPUT MODULES
I$$SDS='ZN2'       ;DSS-11 INPUT MODULES
I$$SLK=0           ;TASK ACTIVATION FROM INTERRUPTS
I$$SPW=0           ;DRS-11 POWER RECOVERY
I$$SRC='Z2'        ;DRS-11 COMMAND REGISTER ADDRESS
I$$SSC='Z3'        ;DSS-11 COMMAND REGISTER ADDRESS
K$$CNT=172542      ;COUNT REGISTER ADDRESS
K$$CSR=172540      ;PROGRAMMABLE CLOCK CSR ADDRESS
K$$IEN=113         ;CLOCK INTERRUPT ENABLE (KW11-P IN PROG
                   ; MODE)
K$$LDC=1           ;LOAD COUNT VALUE
K$$TPS=50.         ;TICKS PER SECOND
K$$W11=172400      ;KW11-Y SUPPORT
L$$11R=0           ;FAST PRINTER SUPPORT
L$$50H=0           ;50Hz LINE FREQUENCY
L$$A11='LA'.       ;LPA11 LAB PERIPH. ACCELERATORS
L$$ASG=0           ;LOGICAL UNIT ASSIGNMENT
L$$DRV=0           ;LOADABLE DRIVER SUPPORT
L$$KPC='KMK.'      ;KMC11 POLLING COUNT
L$$LDR=0           ;LOADABLE LOADER SUPPORT
L$$P11='LP'.       ;LP/LS/LV11/LA180 LINE PRINTERS
L$$PS1='LS'.       ;LPS11 LAB PERIPHERAL SYSTEM
L$$PTO='$PNR.'     ;LP: NOT READY MSG INTERVAL
L$$SBF=0           ;LPS11 BANDWIDTH FILTERING
L$$SDA=0           ;LPS11 D/A OPTION
L$$SDR=0           ;LPSDR-A PRESENT
L$$SGR=0           ;LPS11 GAIN RANGING OPTION
L$$SI1=0           ;LSI-11 PROCESSOR
```

```
M$$CLI=0                ;MULTIPLE CLI SUPPORT
M$$CRB=84.              ;MCR COMMAND BUFFER LENGTH
M$$CRX=0                ;EXTERNAL MCR FUNCTIONS
M$$EXT=0                ;EXTENDED MEMORY SUPPORT
M$$FCS=0                ;FCS/FILE SYSTEM SUPPORT
M$$MGE=0                ;MEMORY MANAGEMENT
M$$MUP=0                ;MULTI-USER PROTECTION
M$$NET=0                ;DECNET SUPPORT
M$$OVR=0                ;OVERLAYED MCR
N$$LDV='NL'.            ;NULL DEVICE
N$$MOV='$DTV.'          ;SIZE OF BLXIO ''MOV'' TABLE
N$$PCS='NPCS.'          ;IP112/IP302 SUBSYSTEMS
N$$UMR=5*4              ;BYTES OF STATICALLY ALLOCATED UMR''S
P$$D70=0                ;MEMORY PARITY SUPPORT ON 11/70
P$$GMX=0                ;GET MAPPING CONTEXT
P$$LAS=0                ;PROGRAM LOGICAL ADDRESS EXTENTIONS
P$$NIC='$PDD'           ;CSR ADDRESS OF PANIC DUMP DEVICE
P$$OFF=0                ;PARENT/OFFSPRING TASKING
P$$P11='PP'.            ;PC11 PAPER TAPE PUNCH
P$$P45=0                ;ROTATING DATA LIGHTS
P$$R11='PR'.            ;PR11 PAPER TAPE READER PLUS ANY PC11
                        ; READERS
P$$RFL=0                ;POWER FAIL
P$$RTY=0                ;PARITY MEMORY
P$$SRF=0                ;SEND/RECEIVE BY REFERENCE
P$$WRD=0                ;INCLUDE $PTWRD CODE
Q$$CRC=0                ;DQ11 CRC OPTION SUPPORT
Q$$HPT=0                ;DQ11 PROTOCOL OPTION SUPPORT
Q$$OPT='$NPK.'          ;PRE-ALLOCATE I/O PACKETS
R$$11S=0                ;RSX-11S SYSTEM
R$$11M=0                ;RSX-11M SYSTEM
R$$611='DM'.            ;RK611 DISK CART CONTROLLERS
R$$60F=0                ;RK06 OFFSET RECOVERY SUPPORT
R$$DER=0                ;CORAL DEALLOCATION ERROR CHECKING
R$$EXV=0                ;EXTEND EXECUTIVE TO 20K
R$$F11='DF'.            ;RF11 FIXED HEAD DISK CONTROLLERS
R$$JP1='DB'.            ;RJ/RWP040506 PACK CONTROLLERS
R$$JPO=0                ;RP04/05/06 OFFSET RECOVERY SUPPORT
R$$JS1='DS'.            ;RJ/RWS0304 DISK CONTROLLERS
R$$K11='DK'.            ;RK11 RK05 DISK CONTROLLERS
R$$L11='DL'.            ;RL11 DISK CARTRIDGE CONTROLLERS
R$$LKL=1                ;RMS RECORD LOCKING AND PLACE CTL.
R$$M11='DR'.            ;RWM03 DISK PACK CONTROLLERS
R$$MOF=0                ;RM03 OFFSET RECOVERY SUPPORT
R$$NDC='$RRS.'          ;CLOCK TICKS PER SCHEDULING INTERVAL
R$$NDH='$HIC.'          ;HIGHEST PRIORITY CLASS TO CONSIDER
R$$NDL='$LOC.'          ;LOWEST PRIORITY CLASS
R$$P11='DP'.            ;RP11-Ce DISK PACK CONTROLLERS
R$$SND=0                ;SEND/RECEIVE DIRECTIVES
R$$X11='DX'.            ;RX11 DISK CONTROLLERS
R$$X21='DY'.            ;RX211 DISK CONTROLLERS
S$$ECC=0                ;SHARRED ECC CODE
S$$TOP=0                ;STOP BIT DIRECTIVES
S$$WPC='$DKS.'          ;CLOCK TICKS PER SWAPPING INTERVAL
S$$WPR='$SWP.'          ;SWAPPING PRIORITY
```

```
S$$WRG=0                ;PROCESSOR HAS A SWITCH REGISTER
S$$YSZ='$TME.'*32.      ;SIZE OF PHYSICAL MEMORY IN 32W BLOCKS
T$$30P=0                ;LA30P SUPPORT
T$$A11='CT'.            ;TA11 DUAL CASSETTES
T$$ACR=0                ;AUTOMATIC CR/LF
T$$BTW=0                ;BREAKTHROUGH WRITE
T$$BUF=0                ;BUFFERED TERM I/O; CKP DURING INPUT
T$$C11='DT'.            ;TC11 DECTAPE CONTROLLERS
T$$CCA=0                ;UNSOLICITED INPUT AST
T$$CCO=0                ;WRITE WITH CONTROL/O CANCELLATION
T$$CPW=0                ;FULL DUPLEX TERMINAL DRIVER
T$$CTR=0                ;CONTROL-R SUPPORT
T$$CUP=0                ;DEVICE INDEPENDENT CURSOR POSITIONING
T$$ESC=0                ;ESCAPE SEQUENCE SUPPORT
T$$GMC=0                ;GET TERMINAL CHARACTERISTICS
T$$GTS=0                ;GET TERMINAL DRIVER SUPPORT
T$$HFF=0                ;LA180S TERMINAL SUPPORT
T$$HLD=0                ;HOLD SCREEN MODE
T$$J16='MM'.            ;TM02/03 MAGTAPE CONTROLLERS
T$$KMG=0                ;TASK TERM./DEVICE NOT READY MESSAGES
T$$LWC=0                ;SETTABLE CASE CONVERSION
T$$M11='MT'.            ;TM/TMA/TMB11 MAGTAPE CONTROLLERS
T$$MAN='TEMPN4'         ;DM11BB ANSWER BAUD RATE
T$$MIN=0                ;BASELINE TERMINAL DRIVER
T$$RED=0                ;HARDWARE RECEIVE ERROR SUPPORT
T$$RNE=0                ;READ WITH NO ECHO
T$$RPR=0                ;READ AFTER PROMPT
T$$RST=0                ;READ WITH SPECIAL TERMINATOR
T$$RUB=0                ;CRT RUBOUT SUPPORT
T$$S11='MS'.            ;TS04/TS11 MAGTAPE SYSTEMS
T$$SMC=0                ;SET TERMINAL CHARACTERISTICS
T$$SYN=0                ;TERMINAL-HOST SYNCHRONIZATION
T$$TRW=0                ;TRANSPARENT READ/WRITE
T$$U58='DD'.            ;TU58 <NEW> DECTAPE CONTROLLERS
T$$UTB=0                ;USER TERMINAL INPUT BUFFERING
T$$UTO='$TMN.'          ;TIME OUT ON UNSOLICITED INPUT
T$$VBF=0                ;VARIABLE LENGTH INPUT BUFFERING
T$$ZAN='TEMPN1'         ;DZ11 ANSWER BAUD RATE
U$$ACH='UAK'.           ;NUMBER OF CHANNELS PER MODULE
U$$ADM='UDD0.'+'UDD1.'  ;ADU01/IAD-IA ANALOG INPUT
U$$AOM='UDD2.'          ;ANALOG OUTPUT
U$$CIM='UDD3.'          ;DIGITAL INTERRUPT
U$$CSM='UDD4.'          ;DIGITAL SENSE
U$$D11='UD'.            ;UDC11 UNIVERSAL DIGITAL CONTROLLER
U$$LTM='UDD5.'          ;BI-STABLE OUTPUT
U$$MHI=0                ;HIGH ADDRESS OF 18 BIT UNIBUS ADDRESS
                        ; IN BITS 4 AND 5
U$$MLO=120000           ;LOW PART OF UNIBUS ADDRESS
U$$MRN=170224           ;ADDRESS OF NEXT AVAILABLE UMR
U$$NTP=0                ;AR11 UNI-POLAR A/D SAMPLING
U$$SSM='UDD6.'          ;SINGLE SHOT OUTPUT
U$$TIM='UDD7.'          ;I/O COUNTER
V$$CTR='$HIV.'          ;HIGHEST INTERRUPT VECTOR
V$$RSN=32               ;RSX-11M VERSION 3.2
V$$S2S=0                ;VS60 DRIVES 2 CRT MONITORS
```

```
V$$S60=0        ;VS60 GRAPHICS DISPLAY SUBSYSTEM
V$$T11=0        ;VT11 GRAPHICS DISPLAY SUBSYSTEM
X$$DBT=0        ;EXECUTIVE DEBUGGING TOOL
X$$M11='XM'     ;DMC11 LINE INTERFACES
```

COMMAND FILE LIBRARIES

The recent SIG Menu included a request for a default device and UIC for indirect command files, reminding me that it would be worth disseminating our own approach to this.

If the simple patch below is applied to MGCML.MAC and incorporated into MCR.OLB and IND is rebuilt, the use of $ then refers to a standard device and UIC (e.g. @$COPYDISC). The actual device and UIC may be tailored to site requirements by changing SLENGTH and UICSTRING. We have used this facility for over two years and it has been enormously useful.

```
MGCML.MAC/-BF/AU=MGCML.MAC
\
-/.IDENT/,.
        .IDENT  /MT.12A/
-/VERSION:/,.
; VERSION        M10.12A
-/DTB001/
;
;       C.BREWER  CB01  3/2/78 - ALLOW $ FOR STANDARD DEVICE AND UIC
%
-/GETMCR:/
-/2$:/+7,.,/; CB01/
        BEQ     20$             ; YES - CHECK FOR $
-/10$:/,,/; CB01/

SLENGTH=8.                      ; UIC STRING LENGTH
20$:    CMPB    (R1),#^$        ; STANDARD UIC?
        BNE     6$              ; NO
        MOV     R1,-(SP)
        MOV     R2,-(SP)
        ADD     R2,R1           ; R1 POINTS TO LAST BYTE + 1
        MOV     R1,R0
        ADD     #SLENGTH-1,R0   ; R0 POINTS TO NEW LAST BYTE + 1
21$:    MOVB    -(R1),-(R0)     ; MOVE COMMAND LINE UP
        SOB     R2,21$          ; LEAVES R1 POINTING TO FIRST BYTE
        MOV     #SLENGTH,R2
        MOV     #UICSTRING,R0
22$:    MOVB    (R0)+,(R1)+     ; INSERT UIC STRING, OVERWRITING $
        SOB     R2,22$
        MOV     (SP)+,R2
        ADD     #SLENGTH-1,R2   ; UPDATE BYTE COUNT
        MOV     (SP)+,R1
        BR      6$
UICSTRING:
        .ASCII  /LB:[1,7]/
        .EVEN
/
```

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Software Performance Reports

This section contains SPRs submitted to Digital by users. SPRs should always be sent directly to Digital. If you feel that a report should be published in The Multi-Tasker, you must send a duplicate copy to the editor (at one of the addresses on the cover). Users should be aware that SPRs published by this newsletter have not been checked for accuracy and that publication within the Multi-Tasker does not imply endorsement by the SIG. Implementation of suggested fixes must be at the user's own risk.

The following SPRs on RSX-11M V 3.2 were submitted by David Kristol (Mass. Computer Associates, Inc., 26 Princess Street, Wakefield, MA 01880):

1. TTDRV HDX

> PROBLEM:
> On my system, some lines sent to the terminal get lost. Specifically, on all of my terminals, the 'ENTER MINUTES TO WAIT BEFORE SHUTDOWN:' message gets lost from SHUTUP (which is INStalled). On one 1200 baud terminal, the 'HAVE A GOOD XXXX' message from BYE gets lost, but it appears on all of my other (9600 baud) terminals. The other messages from these programs appear normally.
>
> ANALYSIS:
> I have the half-duplex TTDRV, multi-user protection, and parent-offspring tasking. The problem results from a complicated interaction between TTDRV, BYE and SHUTUP, the SPWN$ directive, and MCR.
>
> Take BYE first. I type BYE <CR>. BYE begins running and spawns an 'ASN = /LOGIN <CR>' to MCR, then outputs a 'HAVE A GOOD XXXX' on the terminal with a breakthrough-write (WBT). On the 1200 baud terminal, output is just slow enough that the MCR prompt resulting from the <CR> that ends the spawned ASN is still in progress when the WBT occurs. TTDRV returns an IE.RSU error (unshareable resource in use. BYE proceeds to kill (unnecessarily) the WBT and continues with its business. The message never appears. On faster terminals, the MCR prompt seems to finish before it would interfere with the message in question.
>
> Changing the <CR> to an <ESC> in the ASN command does not help. If the user has mounted a volume which gets dismounted at logout, the dismount message will also interfere with the 'HAVE A GOOD XXXX' message.

The problem in SHUTUP has the same basic cause. When SHUTUP runs, it puts out a banner ('RSX11M SHUTDOWN PROGRAM'), then asks for the number of minutes until shutdown. When SHUTUP is an installed task, the MCR prompt from the RUN command comes out just after the banner. The minutes-to-shutdown prompt is queued to TTDRV using WBT and gets lost like the BYE message. In this case it always gets lost (on all our terminals). Thus the terminal is waiting for input with no apparent prompt.

These problems appear to result from new code in TTDRV added since RSX-11M V3.1. The code with audit trail EB198 at 40$ after TTCHK is new. In V3.1, the problems described above did not occur, but they probably would have with this new code added. However, I think the code itself is correct and proper. Therefore, the corrections must be made elsewhere.

SOLUTION:
DEC must rethink how and when WBT is used in its multi-user utilities, particularly those which spawn lines to MCR that can cause terminal output. The following "solutions", if proposed, will be absolutely unacceptable:

1. Use full duplex TTDRV.
2. Don't install SHUTUP.
3. Use only 9600 baud terminals

2. PRT..., CRF...

PROBLEM:
In multi-user protection systems, there is a problem using tasks (like) CRF... and PRT... under the following conditions:

1) file is on private (allocated) device
2) non-privileged user has changed his default UIC
3) task is spawned or requested

Under these conditions PRT... (serial despooler) and CRF... fail to access-for-write or delete files they must process: (See listing).

ANALYSIS:
It appears PRT... does not inherit the protection UIC of the parent task. The same fact would explain the CRF... errors, as well.

SOLUTION:
Unknown.

3. Fortran IV Plus OTS

PROBLEM:
The F4P OTS behaves inconsistently when a program writes to a terminal records that are longer than its default buffer size (U.CW4). If the first record written is longer than the buffer size, an error results. However, if at least one record of shorter length is written first, subsequent longer records do not cause an error.

Note that, for FORTRAN carriage control records, the actual record length is one less than the number of characters in the record. However, the OTS appears (incorrectly) to count the carriage control character as part of the record length.

In the previous version of F4P, similar code resulted in no errors at all.

SOLUTION:
At a minimum, make it possible to output (for example) 72 characters plus carriage control to a device whose buffer size is 72. Make the OTS behave consistently, whether the first or the N-th record is too long. Since the previous F4P did not flag an error here, neither should V3.0.

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