THE mini-tasker

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USER INPUT

RT-11 SJ/FB/XM Performance Report

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Since its introduction in 1973, RT-11 has grown from a Single Job (SJ) monitor to a Foreground/Background (FB) monitor and now to an Extended Job (XM) monitor. With three versions of RT-11 available, it it sometimes hard to choose the version that is correct for your application. The purpose of this talk is to present some performance characteristics of the different versions of RT-11 that will make the choice easier.

```
        PROGRAM TEST
C
C
C       THIS ROUTINE IS THE MAIN CALLING ROUTINE
C       TO CHECK OUT THE PERFORMANCE CHARARACTERISTICS
C       OF THE VARIOUS RT-11 OPERATING SYSTEMS.
C       THIS MAIN ROUTINE USES THE LINE FREQUENCY CLOCK
C       TO PERFORM ITS TIMING OPERATIONS.  SO, FOR ALL THE
C       TIMES LISTED, THE ERROR CAN BE AS GREAT AS 16.6
C       MSEC.
C
C       WRITTEN BY NED W. RHODES
C
```



```
C
        COMMON /RANDU/IX,IY     !RANDOM NUMBER VARIABLES
        CALL TIMEI              !GET STARTING TIME
        CALL SINTST             !COMPUTE SOME SINES
        CALL TIMEE(T2)          !GET ENDING TIME
        WRITE(7,9000) T2
9000    FORMAT(' Time of test is',F20.3,' seconds.')
        END

        SUBROUTINE TIMEI
C
C
C       THIS SUBROUTINE GET THE CURRENT TIME IN
C       SECONDS FOR A TIMING LOOP CALCULATION
C
C
        INTEGER ITIME(2)
        INTEGER ITIME2(2)
        COMMON  /TIME/ ITIME,ITIME2
        CALL GTIM(ITIME)                !GET TIME OF DAY
        RETURN
        END
        SUBROUTINE TIMEE(T2)
C
C
C       THIS SUBROUTINE CALCULATES THE TIME THE LOOP
C       TOOK IN SECONDS.
C
C
        INTEGER ITIME(2)
        INTEGER ITIME2(2)
        COMMON  /TIME/ ITIME,ITIME2
        CALL GTIM(ITIME2)               !GET TIME OF DAY
        CALL JSUB(ITIME2,ITIME,ITIME)   !TWO WORD SUBTRACT
        CALL CVTTIM(ITIME,IH,IM,IS,ITICK)
        T2 = (FLOAT(IH) * 3600.) + (FLOAT(IM) * 60.) +
        1       FLOAT(IS) + (FLOAT(ITICK) / 60.)
        RETURN
        END
```

SINTST -- Non-Virtual array

```
        SUBROUTINE SINTST
C
C
C       PROGRAM TO TEST NED'S SIN ROUTINE
C       AGAINST THE FORTRAN IV SIN ROUTINE
C
C       THIS VERSION DOES NOT USE VIRTUAL ARRAYS.
C
C
        REAL BUFF(1000)
        DO 100 J=1,10
        DO 100 I=1,1000
        BUFF(I) = FLOAT(IRANDU() * J)   !GET A RANDOM NUMBER
        RRR=SIN(BUFF(I))                !OTS SIN ROUTINE
```

```
        RR=FSIN(BUFF(I))                !MODIFIED SIN ROUTINE
        RRRR = ABS(RRR-RR)              !COMPUTE DIFFERENCES
        IF(RRR.NE.RR) WRITE(7,9000) R,RR,RRR,RRRR
9000    FORMAT(1X,4(1PE20.7))
100     CONTINUE
        RETURN
        END

        SUBROUTINE SINTST
C
C
C       PROGRAM TO TEST NED'S SIN ROUTINE
C       AGAINST THE FORTRAN IV SIN ROUTINE
C
C       THIS VERSION USES VIRTUAL ARRAYS.
C
C
        VIRTUAL BUFF(1000)
        DO 100 J=1,10
        DO 100 I=1,1000
        BUFF(I) = FLOAT(IRANDU() * J)   !GET A RANDOM NUMBER
        RRR=SIN(BUFF(I))                !OTS SIN ROUTINE
        RR=FSIN(BUFF(I))                !MODIFIED SIN ROUTINE
        RRRR = ABS(RRR-RR)              !COMPUTE DIFFERENCES
        IF(RRR.NE.RR) WRITE(7,9000) R,RR,RRR,RRRR
9000    FORMAT(1X,4(1PE20.7))
100     CONTINUE
        RETURN
        END



IRANDU


        FUNCTION IRANDU
C
C
C       FUNCTION TO RETURN RANDOM NUMBER USING
C       THE SYSTEM FUNCTION RAN.
C
C
C
        COMMON /RANDU/ IX,IY
        DATA IX,IY/0,0/         !START THEM AT 0
        IRANDU = RAN(IX,IY)     !GET A RANDOM NUMBER
        RETURN
        END

        .TITLE SIN AND COS
        .GLOBL  FSIN,FCOS
;
;
;       SIN     COS     THE REAL SIN AND COSINE FUNCTIONS
;       CALLING SEQUENCE:
;
;       FORTRAN STANDARD (1 ARG)
```



```
;
;       RETURNS SIN OR COS OF ARG IN R0 AND R1
;
;
;       SPIRITED FROM THE FORTRAN SOURCES PACK AND MODIFIED
;       TO USE THE FPU DIRECTLY.
;
;
        F0=%0
        F1=%1
        F2=%2
        F3=%3
;
;
        .SBTTL  COS ENTRY
;
;
FCOS:   SETD                    ;DOUBLE PRECISION FP
        LDCFD   @2(R5),F0       ;GET ARGUMENT
        ADDD    PIOV2,F0        ;COS(X)= SIN(X+PI/2)
        BR      SINCOS
;
;
        .SBTTL  SIN ENTRY POINT
;
;
FSIN:   SETD                    ;DOUBLE PRECISON FP
        LDCFD   @2(R5),F0       ;GET ARGUMENT
;
;
        .SBTTL  COMMON ROUTINE
;
;
SINCOS: SETI                    ;SHORT INTEGERS
        MOV      FCONST,R0      ;POINTER TO CONSTANTS
        CLR     R4              ;SIGN FLAG: + ARG
        CFCC                    ;GET SIGN OF ARGUMENT
        BGE     POS
        INC     R4              ;SIGN FLAG: - ARG
        ABSD    F0              ;REMOVE ARGUMENT SIGN
POS:    DIVD    (R0)+,F0        ;X/(PI/2)
        MODD     0.25,F0        ;F0=FRACT(X/2PI)
        SETF                    ;SINGLE PRECISION FP
        LDCDF   F0,F0           ;CONVERT ARGUMENT
        CFCC
        BEQ     RTN             ;CHECK FOR 0 FRACTION
        MODF     4.0,F0         ;F0=FRACT(4*FRACT(X/2PI))

        STCFI   F1,R1           ;QUAD=INT(4*FRACT(X/2PI))
        ROR     R1
        BCC     Q13             ;JUMP IF FIRST OR THIRD QUAD
        NEGF    F0
        ADDF     1.0,F0         ;Y=1.0-X
Q13:    ROR     R1
        BCC     Q12             ;JUMP IF FIRST OR SECOND QUAD
        NEGF    F0              ;Y= -Y
Q12:    LDF     F0,F2
        MULF    F2,F2           ;Z=Y**2
```

```
        MOV      4,R1           ;COUNT OF CONSTANTS FOR POLY
        LDF      (R0)+,F1       ;INITIALIZE ACCUMULATOR
XPAND:  MULF     F2,F1
        DEC      R1             ;COUN
        ADDF     (R0)+,F1       ;F1:= Z*F1 + C(I)
        BGT      XPAND          ;LOOP
        MULF     F1,F0          ;F0:= Y*F1
        TST      R4             ;TEST SIGN FLAG
        BEQ      RTN
        NEGF     F0             ;SIN(-X) = -SIN(X)
;
;
        .SBTTL   EXIT CODE
;
;
RTN:    STF      F0,-(SP)       ;MOVE RESULT TO STACK
        MOV      (SP)+,R0       ;AND THENCE TO R0,R1
        MOV      (SP)+,R1
        RTS      PC             ;EXIT
;
;
        .SBTTL   SIN/COS CONSTANTS
;
;
FCONST:
PIOV2:  .WORD    040311,007732  ;PI/2 (DOUBLE PRECISION)
        .WORD    121041,064302
;
;
        .SBTTL   ORDER-DEPENDENT CONSTANTS
;
;
        .WORD    035036,153672  ;.00015148419
        .WORD    136231,023143  ;-.00467376557
        .WORD    037243,032130  ;.0796896793
        .WORD    140045,056741  ;-.645963711
CONSTS: .WORD    040311,007733  ;1.570796318
        .END
```

```
!       LINK FILE FOR CONFIGURATION 1
!
!
LINK/PRO TEST/EXEC:TEST1/MAP:TEST1,SINTST,TIMES
SIN
IRANDU
//
!
!       LINK FILE FOR CONFIGURATION 2
!
!
LINK/PRO TEST/EXEC:TEST2/MAP:TEST2,SINTST,TIMES
SIN/O:1
IRANDU/O:1
//
!       LINK FILE FOR CONFIGURATION 3
!
!
LINK/PRO TEST/EXEC:TEST3/MAP:TEST3,SINTST,TIMES
SIN/V:1
IRANDU/V:1
//
```



```
!       LINK FILE FOR CONFIGURATION 4
!
!
LINK/PRO TEST/EXEC:TEST4/MAP:TEST4,SINTST,TIMES
IRANDU
SIN/V:1
//
!       LINK FILE FOR CONFIGURATION 5
!
!
LINK/PRO TEST/EXEC:TEST5/MAP:TEST5
SINTST,TIMES,IRANDU,SIN/V:1
//
!       LINK FILE FOR CONFIGURATION 6
!
!
LINK/PRO TEST/EXEC:TEST6/MAP:TEST6
SINV,TIMES,IRANDU,SIN
//
!       LINK FILE FOR CONFIGURATION 6X
!
!
LINK/PRO TEST/EXEC:TEST6X/MAP:TEST6X,DY1:FPUVPL.VNU
SINV,TIMES,IRANDU,SIN
//
!
!
!       LINK FILE FOR CONFIGURATION 7
!
!
LINK/PRO TEST/EXEC:TEST7/MAP:TEST7,SINV,TIMES
SIN/O:1
IRANDU/O:1
//
!       LINK FILE FOR CONFIGURATION 7X
!
!
LINK/PRO TEST/EXEC:TEST7X/MAP:TEST7X,SINV,TIMES,DY1:FPUVPL.VNU
SIN/O:1
IRANDU/O:1
//
!       LINK FILE FOR CONFIGURATION 8
!
!
LINK/PRO TEST/EXEC:TEST8/MAP:TEST8,SINV,TIMES,DY1:FPUVPL.VNU
SIN/V:1
IRANDU/V:1
//
!       LINK FILE FOR CONFIGURATION 9
!
!
LINK/PRO TEST/EXEC:TEST9/MAP:TEST9,SINV,TIMES,DY1:FPUVPL.VNU
IRANDU
SIN/V:1
//
```

```
!       LINK FILE FOR CONFIGURATION 10
!
!
LINK/PRO TEST/EXEC:TEST10/MAP:TEST10,DY1:FPUVPL.VNU
SINV,TIMES,IRANDU,SIN/V:1
//
```

Dear Sir

Re: HP9872 Plotter Handler Via IB-11 Interface.

Should anyone be interested we have available an RT-11 device handler which is designed to allow output to a 'listen only' device using the IB-11 IEEE interface. This handler should run on any monitor (including XM) under Version 4.

The handler was written to provide a more flexible method of using a HP 9872S plotter, via the IB-11 interface, than was available using DEC's Instrument Bus Subroutines. With only the plotter on the IEEE bus the normal file transfer utility programs (PIP & QUEUE) may be used for plotting files from disc, (in addition to specific programs designed to write to the plotter). The restrictions imposed by using the handler are that no plotter errors are detected, (although IEEE bus errors are) and that only one device is on the IEEE bus.

One obvious advantage of the handler is that plot files containing large amounts of text (eg tables) may be prepared directly using an editor. By the addition of only a few plot commands the file may then be plotted.

We would be pleased to hear from anyone who wishes to obtain a copy of the handler, or also from anyone who would be prepared to offer any FORTRAN or MACRO software which will run the HP 9872 plotter.

Any enquiries should be addressed to:

J. Docherty
Ministry of Works & Development,
Central Laboratories,
P.O. Box 30845,
Lower Hutt,
New Zealand.


```
MMG$T=1
.NLIST TTM

.TITLE  PL.SYS

;J.W. DOCHERTY,  7-APR-81
;MINISTRY OF WORKS AND DEVELOPMENT
;CENTRAL LABORATORIES,
;P.O. BOX 30845,
;LOWER HUTT, N.Z.

;RT-11 V4 HANDLER TO RUN A LISTEN ONLY DEVICE ON THE IEEE BUS VIA THE
;IB-11 INTERFACE.  THIS HANDLER WAS WRITTEN SPECIFICALLY FOR
;USE WITH THE HP 9872S PLOTTER, RUNNING IN THE LISTEN ONLY MODE.
;THIS ALLOWS THE PLOTTER TO BE TREATED AS A NORMAL RT-11 DEVICE
;AND THUS DATA MAY BE TRANSFERRED TO THE PLOTTER VIA ANY OF THE
;NORMAL RT-11 FILE TRANSFER PROGRAMS FROM AN ASCII FILE.
;THE HANDLER ALSO OPERATES UNDER THE XM MONITOR, REMOVING THE
```



```
;RESTRICTION IMPOSED BY USE OF THE DEC INSTRUMENT BUS SUBROUTINES.
;IN ORDER TO PROVIDE A MEANS OF TERMINATING THE TRANSFER OF PRINTING
;CHARACTERS TO THE PLOTTER UNDER THE 'LB' COMMAND A TAB IS USED AS THE
;TERMINATING CHARACTER. THE HANDLER INTERCEPTS THIS AND CONVERTS IT
;TO THE NECESSARY 'ETX' CHARACTER.
;A FORM FEED MUST BE THE LAST CHARACTER IN THE FILE TO BE PLOTTED;
;THIS IS RECOGNISED BY THE HANDLER AS THE EOF CHARACTER WHICH THEN
;TERMINATES THE DATA TRANSFER.

;THE HANDLER WILL ONLY SUPPORT THE MEMORY MANAGEMENT OPTION IF MMG$T=1
;AT ASSEMBLY TIME. NO OTHER ASSEMBLY CONDITIONALS ARE RECOGNISED.

;A SET FACILITY IS PROVIDED TO CHANGE THE ADDRESS OF THE LISTENER,
;WHICH OTHERWISE IS SET AT 5 (ACTUALLY 45(8)).
;THIS IS INVOKED BY USING THE FOLLOWING COMMAND

;       SET PL:LISTEN=7 FOR EXAMPLE.

;THIS HANDLER ALLOWS PLOTTING FILES TO BE CREATED DIRECTLY USING A
;TEXT EDITOR, RATHER THAN USING THE NORMAL INSTRUMENT BUS SUBROUTINES.
;THIS IS PARTICULARLY CONVENIENT FOR USING THE PLOTTER TO PREPARE
;TABLES CONTAINING TEXT, AS THESE MAY BE PREPARED ON A TERMINAL, AND
;PLOTTED SIMPLY BY PRECEEDING THE TEXT WITH THE SHORT STRING OF
;COMMANDS NEEDED TO SELECT A PEN, POSITION IT FOR THE FIRST CHARACTER,
;PUT IT DOWN AND THEN SEND THE TEXT USING THE 'LB' COMMAND. THE TEXT
;IS TERMINATED WITH A TAB TO SEND THE ETX CHARACTER.
;THE ONLY RESTRICTION IS THAT YOU DO NOT ATTEMPT TO INCLUDE CHARACTERS
;SUCH AS TABS OR FORMFEEDS IN THE TEXT. SPACES AND LINEFEEDS MUST BE
;USED IN PLACE OF THESE CHARACTERS.

.IDENT  /V04.01/
.MCALL  .DRDEF
.DRDEF  PL,370,WONLY$,0,160150,430


PL$EVC  = PL$VEC-10     ;IB11 ERROR VECTOR
PLBR    = PL$CSR+2      ;IB11 BUFFER REGISTER

PLIE    = 100           ;INTERRUPT ENABLE BIT

    PLTKR   = 1000          ;TALKER READY, BIT 9.
    PLEOI   = 2             ;END OR POLL
    HDERR   = 1             ;HARD ERROR BIT
    FF      = 14            ;FORM FEED

;SET COMMAND PARAMETERS
        .NLIST  ME
        .DRSET  LISTEN,40,0.LISTEN,NUM  ;LISTENER ADDRESS ON IEEE BUS


0.LISTEN:ADD    #40,R0          ;MAKE IT A PROPER LISTENER ADDRESS. IE ADD 40
        MOV     R0,LISTNR       ;NEW LISTENER
        CMP     R0,R3           ;ERROR IF < 40
        RTS     PC

;END OF SET OPTIONS

;LOAD POINT
        .DRBEG  PL
```

```
;I/O INITIATION SECTION.

        MOV     PLCQE,R4        ;R4 POINTS TO CURRENT QUEUE ELEMENT
        ASL     Q$WCNT(R4)      ;WORD COUNT TO BYTES
        BCC     PLERR           ;READ REQUEST ILLEGAL
        TST     IFLAG           ;BEEN HERE BEFORE FLAG
        BNE     1$              ;IF NOT ZERO LISTENER ALREADY ON BUS
        MOV     #110,@#PL$CSR   ;BECOME CONTROLLER IN CHARGE ON IEEE BUS
1$:     BIS     #100,@#PL$CSR   ;AND ENABLE INTERRUPTS.
        RTS     PC              ;AND RETURN

        .DRVTB  PL,PL$VEC,PLINT ;INTERRUPT VECTOR FOR WRITE OPERATION
        .DRVTB  ,PL$EVC,PLINT,1 ;INTERRUPT FOR ERRORS - C BIT SET


;INTERRUPT SERVICE

        .DRAST  PL,4,PLDONE     ;RUN PLOTTER AT PRIORITY 4
        BCS     PLERR           ;IF CARRY SET CAME FROM VECT 420 (ERROR)
        MOV     PLCQE,R4        ;R4 POINTS TO CURRENT Q ELEMENT
        TST     IFLAG           ;IS IS FIRST TIME ROUND
        BNE     PLNEXT          ;NO - LISTENER ALREADY "ON"
        TST     (R4)            ;DOING BLOCK0
        BEQ     BLK0            ;YES OUTPUT INITIALISATION COMMANDS
        BR      BLK0B           ;NOW SET LISTENER ADDRESS
PLNEXT: BIT     #PLTKR,@#PL$CSR ;TEST BIT 9 - READY FOR ANOTHER
        BNE     PLOT            ;GO IF TALKER READY BIT SET
        RTS     PC              ;WAIT THEN

.IF NE MMG$T    ;ASSEMBLE THIS ONLY FOR XM MONITOR

PLOT:   MOV     PLCQE,R4
        TST     Q$WCNT(R4)      ;ANY MORE CHARACTERS
        BEQ     PLFIN           ;NO - FINISHED
        INC     Q$WCNT(R4)      ;YES DECREMENT COUNTA - WAS NEG.
        JSR     PC,@$GTBYT      ;GET NEXT CHARACTER UNDER

    MOV     (SP)+,R5        ;XM MONITOR

.IFF            ;THIS ONLY FOR NO XM MONITOR

PLOT:   MOV     PLCQE,R4
        ADD     #Q$WCNT,R4      ;OFFSET QUEUE ELEMENT POINTER TO WORD COUNT
        TST     @R4             ;ANY MORE CHARACTERS
        BEQ     PLFIN           ;NO - FINISHED
        MOVB    @-(R4),R5       ;GET A CHARACTER
        INC     (R4)+           ;INC BUFFER POINTER
        INC     @R4             ;AND CHARACTER COUNT
.ENDC
        BIC     #177600,R5      ;ONLY OUPTPUT 7 BITS.
        CMPB    #FF,R5          ;IS IT END OF FILE
        BEQ     PLDONE          ;YES - FINISH OFF FOR GOOD.
        CMPB    R5,#11          ;IS IT A TAB
        BNE     PC1             ;NO - KEEP GOING
        MOV     #3,R5           ;MAKE IT ETX
PC1:    MOVB    R5,@#PLBR       ;PLOT CHARACTER
        BR      PLNEXT          ;AND GET THE NEXT ONE
PC2:    MOVB    R5,@#PLBR       ;PLOT CHARACTER
RET:    RTS     PC              ;AND RETURN
BLK0:   INC     (R4)            ;ONLY COME HERE ONCE
```



```
        MOV     #105,@#PL$CSR   ;SET IE,REM & TCS BITS OF IB11
        MOV     #77,R5          ;SEND UNLISTEN COMMAND
        BR      PC2             ;THEN RETURN
BLK0B:  MOV     LISTNR,@#PLBR   ;SET LISTENER ADDRESS ON IEEE BUS
        MOV     #144,@#PL$CSR   ;SET IE,TON,REM BITS - IB11 TALKER
        MOV     #1,IFLAG        ;SET FLAG
        BR      RET             ;RETURN
PLERR:  MOV     PLCQE,R4        ;GET CURRENT QUEUE ELEMENT IN R4
        BIS     #HDERR,@-(R4)   ;SET HARD ERROR BIT
PLDONE: BIS     #PLEOI,@#PL$CSR ;SEND EOI ON BUS
        CLR     @#PL$CSR        ;TURN OFF INTERRUPTS ETC
        CLR     IFLAG           ;RESET FLAG
        BR      NOMORE          ;AND RETURN TO MONITOR
PLFIN:  BIC     #100,@#PL$CSR   ;DISABLE INTERRUPTS TILL NEXT BLOCK
NOMORE: .DRFIN  PL              ;AND RETURN TO MONITOR.


LISTNR: .WORD   45              ;LISTENER ADDRESS DEFAULT FOR HP PLOTTER.
IFLAG:  .WORD   0               ;FLAG SET AFTER INITIALISATION COMMANDS SENT.
.EVEN
        .DREND  PL
        .END
```

Changing RT-11 V04 RL01/02 Handler to Divide A Physical Unit Into A Number Of Logical Units

by A.V. SHEPHERD

1.0 SUMMARY

When using RT-11 on medium sized disks such as the RL01 (5 M. byte) or the RL02 (10 M. byte), it is very easy to create large and clumsy directorys.

Using RT-11 V3B, modifications to the RL01 device handler were made to logically split up a single unit into a number of logical units (max. of 8). See RT-11 SIG. Newsletter july 1979: "Splitting a device into several logical units" by J. Yardley.

This is a brief description of how to modify the new RL01/02 handler for RT-11 V04, which is significantly changed from the V3B handler.

2.0 Description

The changes made to the handler are about 20 lines of code that are inserted in the initiation section of the handler. They are designed to do the following functions:-

1. Calculate the size of the logical unit (in blocks). I.e. the size of the physical unit/no. of partitions less the requirements for bad sectors and bad blocks. For RL01 disks, the bad sector data is held in the last 20 blocks on the disk (i.e. the last track). Before this is the bad blocks replacement area of 10 blocks.

2. Identify the requested unit in the Q - element.

3. Clear the unit no. in the Q - element.

4. Find the true physical unit no.

5. Do any translations to logical units within that physical unit.

6. Put the results into the Q - elements and internal registers used in the handler.

7. Ensure that the handler references the logical home block rather than the physical home block.

See the list of changes made to the handler in the "Differences" output overleaf.

```
1) DK:DL.OLD
2) DK:DL.MAC
**********
1)3   DLSIZE  = <256.*2-1)*DLBPT-DLNBAD
1)    DLSIZ2  = <512.*2-1)*DLBPT-DLNBAD
1)    DLWPT   = 256.*DLBPT
****
2)3   DLSIZE  = <256.*2*5)-DLBPT-DLNBAD              ;DEV.SIZE LESS BAD SECTOR
2)    DLSIZ2  = <512.*2*5)-DLBPT-DLNBAD              ;TRACK AND BAD BLOCKS
2)    DLWPT   = 256.*DLBPT
**********
1)4
****
2)3   LUNITS  = 4                                    ;NUMBER OF LOGICAL UNITS/DRIVE
2)4
**********
1)6           CMP     R0, DL$UN*400
****
2)6           BIC      <7*400>,Q$FUNC(R5)     ;CLEAR OUT REQUESTED UNIT
2)            SWAB    R0                      ;PUT UNIT REQUESTED IN LOW BYTE
2)            CLR     DLUNIT                  ;CLEAR STORE
2)            CLR     (PC)+                   ;CLEAR STORE
2)    DLSTOR: .WORD   0.
2)    TSTUNT: CMP     R0, LUNITS              ;LOGICAL UNIT NO. EXCEED PARTITIONS?
2)            BLT     SETBLK                  ;NO!
2)            SUB      LUNITS,R0              ;YES! - MAP TO NEXT PHYSICAL UNIT
2)            INC     DLUNIT                  ;AND INCREMENT STORE.
2)            BR      TSTUNT                  ;CHECK UNIT AGAIN.
2)    SETBLK: TST     R0                      ;ANY BLOCK TRANSLATION REQUIPED?
2)            BEQ     LEAVIT                  ;NO!
2)    INCBLK: ADD      <DLSIZE+DLBPT+DLNBAD),DLSTOR   ;YES!
2)            DEC     R0                      ;TEST FOR MORE TRANSLATIONS
2)            BNE     INCBLK                  ;DO MORE
2)            ADD     DLSTOR,Q$BLKN(R5)       ;ELSE ADD TRANSLATION TO Q ELEMENT
2)    LEAVIT: MOV     DLUNIT,R0               ;LEAVE IT AND PUT UNIT NO. IN R0
2)            SWAB    R0                      ;AS IF NOTHING HAS HAPPEND
2)            BIS     R0,Q$FUNC(R5)           ;AND RESET Q ELEMENT VALUE
2)            CMP     R0, DL$UN*400
**********
1)7           MOV      DLTSIZ/2,R2
****
2)7           ADD     DLSTOR,R1               ;ADD ON ANY TRANSLATION
2)            MOV      DLTSIZ/2,R2
**********
```


3.0 OPERATION

In RT-11 V04 the disk utility program (DUP), when performing an initialization with the /REPLACE option, will scan the device for bad blocks and then "merge" the scan data with the manufacturing bad sector table which is kept in the last track of the unit. (See vol 3B SSM ch 10.8 page 10.38). DUP then allocates a replacement for each bad block and writes a table of the bad blocks and their replacements in the "Home block". (Block 1 of the unit). This means that any logical unit must have its own home block, bad block table (10 blocks in size) and bad sector table (20 blocks in size because there are 20 blocks to a track).

To generate the correct home block the disk can be initialized using a distribution handler (i.e. no partitions). It is advisable to check the home block for any bad blocks/sectors that are present from manufacture. If there are, then you have problems. If not, then using the partitioned handler the disk may be split up and the logical home blocks used for any future bad blocks that occur.

By using the COPY/DEV command and the partitioned handler to copy the 1'st logical unit to all the other logical units on the device the original bootstrap and home blocks get copied across. By doing this any of the logical units may be used as a system device using the partitioned handler.

4.0 CONCLUSIONS

4.1 BAD POINTS

1. At the present the target disk to be partitioned must have no bad blocks or sectors from manufacture. If it has, then a method has to be found to replace the bad blocks, and even worse, the bad sector data into the correct partition that covers them.

2. The disk must first be initialised by a non-partition handler to obtain a correct home block.

3. Effects of any future DEC patches to the handler are unknown.

4.2 GOOD POINTS

1. Once set up any bad blocks that occur are contained within the partitioned unit. Therefore one disk with 4 logical units can hold up to 40 bad blocks rather than the 10 usually supported per disk.

2. Any logical unit can be used as a system device.

3. Organisation of disks and users become easier. e.g. one disk with 4 partitions could support 1 system with utilities and library's and 3 user partitions with their own directories and storage.

4. The maximum number of 8 units suported by RT-11 V04 can be used regardless of the total number of units the system has.

DCLS and Command File Expan

RT-11 copes with both command files and DCLS commands by use of the command expansion buffer. This is a dynamic area in memory which resides below RMON*. The KMON and USR slide down to accomodate this buffer. When a DCLS command is typed in, RT-11 converts it to a 'simple' command string, e.g.

```
DIR/FREE becomes R DIR
                 TT:=DK:/M
                 ↑C
```

This simple command string is placed in the command expansion buffer (C.E.B.). When a DCLS command is typed in, RT-11 uses the CSI (command string interpretter) to parse the command and calculate the amount os space needed for the C.E.B. This is allocated in 34 byte blocks. The DCLS command is 'coded' and placed in the C.E.B. area. Each line is in ASCIZ and the buffer terminates with a 377 byte. When the command is finished, KMON and USR slide back up in memory.

A similar method is used for processing indirect command files which may contain several commands. Any simple commands (e.g. RUN) are placed directly in the C.E.B. and the first DCLS command is coded and placed in the buffer. Following DCLS commands are placed in the C.E.B. uncoded. When the first (coded) command has been executed, the next is coded (overwriting the first) and processed. As with single DCLS commands, each line is in ASCIZ and the C.E.B. is terminated with a 377 byte.

Command files which contain a ↑C (or uparrow-C) are treated a a sequence of command files, the ↑C being the boundary. This means that the C.E.B. area is smaller, although the disk .COM file must still be open to allow the next sequence of commands to be coded.

* In SJ - below RMON and LOADed handlers.
  In FB - Below FG and LOADed handlers (presumably below system jobs if used in V4).

Having spent several days writing simple programs to discover the mysteries of RT-11 DCLS handling I thought it would be nice to put this new-found knowledge to some use. The following is my first attempt at this.

DEC are probably kicking themselves for making command files available since all the users liked them so much that they wanted more facilities, like parameters for them. DEC did not come up with any new facilities in V4 and I don't think that they intend to include any in V5 (or 6 or 7.....). I have written a simple program to illustrate how parameters may be specified. It is very limited, not very elegant or portable but it is simple and may be of use to those in the real world.

I have made use of the fact that RT-11 transfers the .COM file to the C.E.B. Once there it can be modified. First the command file is created, with the first line being 'R PARAM' followed by a list of commands with the sequence ###### being used to specify where a parameter is to be substituted. The PARAM program takes the (single) parameter value from the console (with .TTYIN) and searches the C.E.B. for all occurances of ###### and substitutes the supplied parameter. The C.E.B. start point is after the USR in memory. This is calculated by adding the monitor offsets 266 (USR load address) and 374 (USR size) together. The C.E.B. is terminated with a 377 byte.

Please note that this is only a prototype designed to stimulate others into making something more useful. If anyone does this then I would like to hear about it. One limitation is that .COM files with imbedded control-c's will not be fully modified because they are 'split up' into several .COM files. And don't try to run PARAM on its own or it will probably crash the system.

One final and general point - If you want to know about DCLS etc. you have to experiment yourself. Documentation (even in V4) on KMON is almost non-existant and it is not covered in the RT-11 System programmers (E340) course in the UK. I suspect that DEC

itself is not quite sure what goes on. If they ever do document and understand it then maybe we will get proper parameters for command files!!!

Financial Times
Bracken House, 10 Cannon St, EC4
Pete Harris. 01-248-8000 England

```
.!PARAMETER PROGGY:

.TYPE PARAM.MAC
        .TITLE  PARAM - @FILE PARAMETER
        .SBTTL  LIFE STORY.

;THIS IS A SIMPLE PROGRAM DESIGNED TO ILLUSTRATE
;A METHOD FOR SPECIFYING A PARAMETER FOR AN
;INDIRECT COMMAND FILE.
;THE PARAM PROGRAM IS THE FIRST PROGRAM TO BE RUN
;IN THE @FILE.  THIS READS IN A PARAMETER AND
;MODIFIES THE COMMAND EXPANSION BUFFER.
;THE PARAMETER IS SUBSTITUTED FOR THE '******'
;SEQUENCE.

        .MCALL  .PRINT,.TTYIN,.GVAL,.EXIT

GOGOGO: MOV     #700,SP                 ;SET UP STACK
        .PRINT  #PROMPT                 ;ASK FOR PARAM
        MOV     #PBUFF,R5               ;SET UP PARAM BUFF
        MOV     #6.,R4                  ;6 CHARS
1$:     .TTYIN                          ;GET A CHAR
        CMPB    R0,#15                  ; <CR> ?
        BEQ     2$                      ;YES, GOT IT
        MOVB    R0,(R5)+                ;CHAR, STORE IT
        SOB     R4,1$                   ;NEXT PLEASE
        .TTYIN                          ;FLUSH <CR>
2$:     .TTYIN                          ;FLUSH <LF>

;PBUFF NOW = PARAMETER

        .GVAL   #AREA,#266              ;USR ADD.
        MOV     R0,R5                   ;STORE IT
        .GVAL   #AREA,#374              ;USR LEN.
        ADD     R0,R5                   ;R5 = BEG. OF C.E.B.

;NOW SUBSTITUTE

LOOK:   CMPB    (R5),#377               ;END OF C.E.B. ?
        BEQ     2$                      ;YEP, ALL DONE
        CMPB    (R5)+,#43               ;  # ?
        BNE     LOOK                    ;NO, NEXT CHAR IN C.E.B
        DEC     R5                      ;R5 = PARAM ******
        MOV     #PBUFF,R3               ;SUBSTITUE FROM PBUFF
        MOV     #6.,R4                  ;6 CHARS
1$:     MOVB    (R3)+,(R5)+             ;SUBSTITUTE
        SOB     R4,1$                   ;ALL 6 CHARS
        BR      LOOK                    ;ANY MORE???
```



```
;OK, DONE

2$:     .EXIT                           ;OK, HUNKY DORY

PROMPT: .ASCII  /PARAMETER? /<200>
PBUFF:  .ASCII  /      /
        .EVEN
AREA:   .BLKW   2.
        .END    GOGOGO
```

```
.!COMMAND FILE:

.TYPE PTEST.COM
R PARAM
DIR ******/BR


.!EXAMPLE:

.SET TT NOQUIET

.@PTEST

.R PARAM
PARAMETER? *.COM

.DIR *.COM /BR
 27-Oct-80
STARTS.COM    T      .COM    T1     .COM
F4     .COM   D      .COM    PTEST  .COM
 8 Files, 8 Blocks
 192 Free blocks

.@PTEST

.R PARAM
PARAMETER? FDMNSJ

.DIR FDMNSJ/BR
 27-Oct-80
FDMNSJ.SYS
 1 Files, 59 Blocks
 192 Free blocks

.@PTEST

.R PARAM
PARAMETER? *.OBJ

.DIR *.OBJ /BR
 27-Oct-80
SYSLIB.OBJ    ODT    .OBJ    PARAM .OBJ
 3 Files, 167 Blocks
 192 Free blocks
```

Setting DZ or DZV ports to speeds higher than 30 cps.

The main console of our PDP 11 is an LA36 and the system also has a DZ with various VT100's. In order to use KED, I had to use the VT100's but the RT sysgen only allows speeds up to 300 baud (question 150 in the sysgen). One can set the speeds higher by editting the SYCND.MAC file and changing the value of DZPD to the appropriate value in the table below. Having changed this symbol, one can proceed to build the system. If the system is already built and one does not want to rebuild it, just rebuild the Multiterminal components from the commands found in DEVBLD.COM after the sysgen. An alternative way may be using the .MTSET system macro although I have not tried this.

Note that a subset of the possibilities of the DZ and DZV may be found on page 2-74 of Program Requests manual. The following table is taken from the bit definition of the DZ controller in the Terminals and Communications manual. Do not use the pattern in the Microcomputers Interfaces manual since it contains a typographical error at 9600 baud which is the most likely baud rate.

Bit Pattern	Baud Rate
0	50
400	75
1000	110
1400	134.5
2000	150
2400	300
3000	600
3400	1200
4000	1800
4400	2000
5000	2400
5400	3600
6000	4800
6400	7200
7000	9600

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Eliezer May

P.S. To change control to a terminal one simply uses the SET TT: CONSOL=n where n is the terminal number.

An Unwish List

The final sentence of the RT-11 history published last year in the MINI-tasker suggested that users should also suggest UNWISH's; i.e. features that they no longer required in the monitor. Now, strangely enough unwishs have even less chance of success than wishs; what is once given is rarely, if ever, taken away. However, version four established a very sensible precedent by removing support for a monitor feature: namely escape sequence support.

An operating system is like a big bag; you can stuff so much into it and then it just gets full. If you want to put anything more in it, you have to take something out of it. This is the idea with the unwish list: take things out of RT-11 so there's room for new things.

For example the USR. The RT-11 USR is fixed at 2k words forever and many wishlist items seem to be rejected because there is simply no room left in the USR. What could be taken out? I don't know anyone who has used the 'extra-word' feature of RT-11 directories and anyway, since the RT-11 utilities (PIP, DIR, MACRO etc.) don't handle them, they are useless. I unwish extra-word support.

I unwish all the following monitor commands: EXAMINE, DEPOSIT, BASE, GET, SAVE, CLOSE and RESET. These commands have such limited effectivity that they are also useless. Firstly, these commands take up room in KMON and KMOVLY that could be put to much better use. Secondly they cause millions of redundant swapping operations when KMON/USR are brought back in after a program exit.

For the same reason I unwish the START and REENTER commands. Now I can hear the screams, but bear with me awhile: Wouldnt most of these commands be redundant if RT-11 had the capability of loading a really good resident debugger?

Unwishs at the EMT level are useless since they would never be implemented but, never the less, I unwish .LOCK and .UNLOCK (and .TLOCK) since I like the USR to be permanently resident anyway (how many users leave the USR NOSWAP?). RT-11 would be a much simpler system if the USR never had to swap; it would also solve the problem about the USR size.

I also unwish the .CSIGEN and .CSISPC program requests. No I'm not crazy. More than half a kay words of the USR is taken up with CSI code; and there is nothing that CSI requests do that couldn't be handled by programs. So, my idea is that CSI requests be implemented as a library call in SYSLIB, this would permit programs to decide whether they wanted CSI resident or in an overlay. And, voila, we have over 512 words free in the USR, or a USR that is 512 words smaller when loaded.

Now, FB and XM systems choose, or are forced, to LOAD all handlers. Since SJ systems have much BG space than both these systems they could also LOAD device... If this was done, we could toss the .FETCH code out of the USR, saving another couple of hundred words. This in turn would reduce the work, and the size, of the .SRESET code. The chain-reaction goes on and on. With enough unwishs, around one kay of code could be pruned from the monitor.

I have more unwishs but don't want to exceed a page on what is a useless enterprise. Now, what I really keep dreaming about (oops, this is a wishlist item) is RT-11/plus running on a VAX. Could you ever imagine a swapping USR on a VAX?

Ian Hammond - HAMMOND-software - Am Feldborn 22 - D-34 Göttingen - West Germany

---

USER REQUESTS

I am currently developing software to allow an LSI-11, running RT-11, to communicate with an ASEA IRB-6 robot. The current software supports:

1. transferring robot motion programs from the ASEA to the LSI-11 disk.
2. transferring robot motion programs from the LSI-11 disk to the ASEA.
3. controlling the ASEA in real time via the LSI-11.
4. co-ordinate transformation software to convert between world co-ordinates and robot co-ordinates

Items to be completed later this year include:

1. an editor on the LSI-11 that allows robot motion programs stored on disk to be listed,created,modified,resequenced etc.
2. software to allow the LSI-11 to communicate with a Cincinnati Milicron PT3 robot.

I would like to hear from anyone developing or using software that communicates between any brand robot (ASEA,Cincinnati,Unimate,Prab,Fanuc etc.) and a computer or micro-processor.

Ken Demers
United Technologies Research Center
MS 44
East Hartford, Conn. 06108
203 727-7527 or 7240

I AM USING THE K52 KEYPAD EDITOR ON A ZENITH Z-19 TERMINAL, WHICH EMULATES A VT52. A DRAWBACK OF THE Z-19 TERMINAL IS THE LACK OF SEPARATE ARROW KEYS. THE ARROW ESCAPE SEQUENCES ARE OBTAINED BY SHIFTING FOUR OF THE KEYPAD DIGIT KEYS. TO AVOID SHIFTING, I WOULD LIKE TO MOVE THE ARROW FUNCTIONS TO FOUR OF THE UNUSED FUNCTION KEYS ON THE Z-19. I AM HOPING THAT SOMEONE IN THE RT-11 SIG CAN TELL ME IF THERE IS A WAY TO PATCH K52.SAV TO ALTER THE ESCAPE SEQUENCES THAT ARE RECOGNIZED AS THE ARROW KEYS.

SPECIFICALLY, I WANT THE K52 EDITOR TO ACCEPT THE ESCAPE SEQUENCES ON THE LEFT (THE Z-19 FUNCTION KEYS) IN PLACE OF THE ESCAPE SEQUENCES ON THE RIGHT (THE VT52 ARROW KEYS).

Z19 KEY	ESCAPE SEQUENCE	VT52 KEY	ESCAPE SEQUENCE
F1	ESC S	←	ESC D
F2	ESC T	↓	ESC B
F3	ESC U	↑	ESC A
F4	ESC V	→	ESC C

THANK YOU FOR YOUR ASSISTANCE IN THIS MATTER

CHARLES M. MOORE
ECOTOMIC GROUP, INC.
P. O. BOX 5667
ARLINGTON, TX 76011
(817) 261-0461

SINCERELY,

CHARLES M. MOORE
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MFL

Laboratoires **Merck Frosst** Laboratories

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RE: DIGITAL - DECUS: SPECIAL INTEREST GROUPS

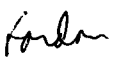
We are in the process of having a PDP-11/23 Configuration installed in our department.

This system will incorporate the RT-11 operating system and will be based on both hard disk and floppy diskette data input. Our specific requirement is concerned with Clinical Research Data Base Management and comprehensive applied statistical analysis. Primarily we will be working in the batch mode.

Knowing that there may be common and specialized interests within the RT-11 Special Interest Group, we would very much like to find out more about the activities of this group. It does not appear that the Laboratory Data Acquisition and LSI-11 groups would be aligned with our interests.

Looking forward to hearing from you.

Yours sincerely,



Gordon Krip, Ph.D.
Senior Biomedical Adviser
Medical Research Department

I have a requirement to use a Lear-Sieglar ADM-3A video terminal on a PDP-11/23 running RT-11. I am very impressed with the new KED editor and would like a similar video editor capability for the ADM-3A. Considering the quantity of ADM-3A's available, someone must have interfaced it, perhaps the solution is a macro for TECO similar to VT52 TEC; but writing such a macro is beyond my capability. Are you aware of any solution? Thank You.

Sincerely

M. Russell Bakke
Chief Engineer

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UPCOMING SYMPOSIUM INFORMATION

1981 DECUS Europe Symposium

The DECUS Europe symposium will take place in beautiful Hamburg this year, from the first until the fourth of September. The usual array of RT-11 sessions are planned. The symposium will take place at the Hamburg Congress Centre, which is located very conveniently. The club-room sites look very good this year.

The 1980 symposium, and training sessions, set attendance records. We hope to break them again this year, and hope that as many RT-11 users will attend as possible. The symposia are your opportunity to talk directly to the reponsible people at Digital about your requirements. No less valuable is the opportunity to get together with birds of a feather.

RT-11 hackers from other DECUS chapters are always particulary welcome. If you are going to be near Hamburg in September, then make the effort to come to the Symposium. Hamburg is an easy-going city with a wonderful atmosphere. There is more to Hamburg than just the Reeperbahn.

Ian Hammond - HAMMOND-software - Am Feldborn 22 - D-34 Göttingen - West Germany

SYMPOSIUM TAPE DISTRIBUTION

```
**************************************************************
*                                                            *
*              SPRING 1981 DECUS SYMPOSIUM                   *
*                                                            *
*                    MIAMI, FL                               *
*                                                            *
*                RT-11 SIG TAPE                              *
*                                                            *
**************************************************************
```


N. A. Bourgeois, Jr. / 1738
Sandia National Laboratories
P. O. Box 5800
Albuquerque, NM 87185

DATBAS (DECUS 11-294) consists of some extension routines to the BASIC-11 V2 interpreter that provide the means for reading and writing words, bytes and bits at any implemented Q-BUS or UNIBUS address. The bug in the GETB routine of the 1979 release has been fixed.

DATBAS.HLP	9	12-Jan-81	DATBAS.BAS	22	25-Oct-78
DATBAS.DAT	3	21-Oct-78	DATBAS.COM	1	05-Mar-79
DATBAS.DIR	2	27-Mar-79	DATBAS.TEC	1	14-Nov-78
DATBAS.MAC	86	12-Jan-81	DATBAS.DOC	285	27-Mar-79
DATBAS.TXT	2	13-Jan-81			

9 Files, 411 Blocks

CROSS is a group of BASIC V2 cross referencing programs. This package has been updated to reference all statement numbers in computed GO TO and GO SUB statements.

CROSS0.BAS	7	27-Feb-81	CROSS1.BAS	14	27-Feb-81
CROSS2.BAS	8	27-Feb-81	CROSS .BAS	22	27-Feb-81
CROSSV.BAS	23	27-Feb-81	CROSS .RNO	6	27-Feb-81
CROSS .DOC	7	27-Feb-81			

7 Files, 87 Blocks

KB is a device independent serial line (DL11) I/O handler for RT-11 V4.0. Conditional code is included for use with the RT-11's XM monitor and TSX-Plus. Eleven set options are available.

KB .TXT	1	12-Mar-81	KB .MAC	43	12-Mar-81
KBX .SYS	3	12-Mar-81	KB .SYS	3	12-Mar-81

4 Files, 50 Blocks

TSXLIB is a library of FORTRAN callable routines that implement the EMT's provided by TSX-Plus V2.0. The code is all reentrant.

TSXTST.FOR	1	03-Apr-81	TSXMSC.FOR	3	03-Apr-81
TSXTST.COM	1	09-Apr-81	DETJBS.MAC	9	14-Apr-81
MNTDEV.MAC	6	14-Apr-81	MSGCOM.MAC	10	14-Apr-81
RUNTIM.MAC	8	14-Apr-81	SHRFIL.MAC	12	14-Apr-81
TRMCOM.MAC	7	14-Apr-81	TSXMSC.MAC	10	14-Apr-81
TSXODT.MAC	5	14-Apr-81	TSXLIB.BAS	7	15-Apr-81
TRMCTL.MAC	12	15-Apr-81	TSXLIB.COM	5	20-Apr-81
PRFANL.MAC	12	16-Apr-81	TSXLIB.DIR	3	30-Apr-81
TSXLIB.DAT	13	20-Apr-81	TSXLIB.LST	13	20-Apr-81
RELTIM.MAC	19	22-Apr-81	TSXLIB.OBJ	8	22-Apr-81

20 Files, 164 Blocks

PATCHS consists of the patches for RT-11 V4.0, FORTRAN IV/RT-11 V2.5 and BASIC V2 through February 1981 as published in the "RT-11 software Dispatch".

DUP .001	1	05-Aug-80	DIR .001	1	05-Aug-80
LINK .001	1	05-Aug-80	LIBR .001	1	05-Aug-80
SIPP .001	1	05-Aug-80	RT11SJ.001	1	06-Aug-80
RMONFB.001	1	05-Aug-80	BSTRAP.001	1	05-Aug-80
RMONFB.002	1	05-Aug-80	BSTRAP.002	1	05-Aug-80
BSTRAP.003	1	05-Aug-80	KMON .001	1	05-Aug-80
RMONSJ.001	1	05-Aug-80	RMONFB.003	1	05-Aug-80
USR .001	1	05-Aug-80	BSTRAP.004	1	05-Aug-80
RT11BL.001	1	05-Aug-80	RT11FB.001	1	05-Aug-80
RT11FB.002	1	05-Aug-80	BSTRAP.005	1	05-Aug-80
DD .001	1	05-Aug-80	DM .001	1	05-Aug-80
TM .001	1	05-Aug-80	TJ .001	1	05-Aug-80
TS .001	1	05-Aug-80	RTPAT .RNO	4	06-Aug-80
RTPAT .DOC	4	06-Aug-80	PATA1 .MAC	1	25-Aug-80
PATA2 .MAC	1	25-Aug-80	350102.COM	1	25-Aug-80
350103.COM	1	25-Aug-80	PATB1 .MAC	1	25-Aug-80
PATB2 .MAC	1	25-Aug-80	350104.COM	1	25-Aug-80
PATC1 .MAC	1	25-Aug-80	PATC2 .MAC	1	25-Aug-80
350105.COM	1	25-Aug-80	PATD1 .MAC	1	25-Aug-80
PATD2 .MAC	1	25-Aug-80	350106.COM	1	25-Aug-80
PATE1 .MAC	1	25-Aug-80	PATE2 .MAC	1	25-Aug-80
350107.COM	1	25-Aug-80	PATF1 .MAC	1	25-Aug-80
PATF2 .MAC	1	25-Aug-80	350108.COM	1	25-Aug-80
PATG1 .MAC	1	25-Aug-80	PATG2 .MAC	1	25-Aug-80

```
350109.COM     1  25-Aug-80      PATH1 .MAC     1  25-Aug-80
PATH2 .MAC     1  25-Aug-80      PATI1 .MAC     1  25-Aug-80
350111.COM     2  25-Aug-80      PATJ1 .MAC     1  25-Aug-80
PATJ2 .MAC     1  25-Aug-80      PATJ3 .MAC     1  25-Aug-80
PATJ4 .MAC     1  25-Aug-80      350113.COM     1  25-Aug-80
PATL1 .MAC     1  25-Aug-80      PATL2 .MAC     1  25-Aug-80
350114.COM     1  25-Aug-80      PATM1 .MAC     1  25-Aug-80
PATM2 .MAC     1  25-Aug-80      350115.COM     1  25-Aug-80
PATN1 .MAC     1  25-Aug-80      PATN2 .MAC     1  25-Aug-80
350117.COM     1  25-Aug-80      PATO1 .MAC     1  25-Aug-80
PATO2 .MAC     1  25-Aug-80      350110.COM     1  25-Aug-80
PATI2 .MAC     1  25-Aug-80      350202.COM     1  27-Aug-80
SUCVT1.001     1  27-Aug-80      450102.FOR     1  24-Dec-80
FXVR01.MAC     1  24-Dec-80      DEAE  .001     1  12-Dec-80
PATO1A.MAC     2  24-Dec-80      SUCVT1.002     1  27-Aug-80
350201.COM     1  27-Aug-80      DUP   .002     1  21-Aug-80
FILEX .001     1  21-Aug-80      KED   .001     2  02-Sep-80
KED   .002     3  26-Aug-80      K52   .003     1  12-Dec-80
K52   .001     2  22-Aug-80      K52   .002     3  22-Aug-80
LINK  .002     1  21-Aug-80      RESORC.001     1  21-Aug-80
SRCCOM.001     1  21-Aug-80      TS    .002     1  28-Aug-80
KED   .003     1  12-Dec-80      OCHAIN.MAC     1  05-Sep-80
ICHAIN.KED     2  05-Sep-80      170201.TST     1  05-Sep-80
ICHAIN.K52     2  05-Sep-80      CONHOG.MAC     2  05-Sep-80
170101.TST     1  05-Sep-80      170102.TST     2  05-Sep-80
170202.TST     2  05-Sep-80      NFT   .001     1  15-Dec-80
NETGEN.001     1  15-Dec-80      DDCMP .001     1  15-Dec-80
FALGET.001     1  15-Dec-80      NSP   .001     2  15-Dec-80
FAL   .001     2  15-Dec-80      DAPSVC.001     1  15-Dec-80
DAPAST.001     1  15-Dec-80      DAPNSP.001     2  15-Dec-80
NWRITE.001     2  15-Dec-80      RMONFB.006     1  12-Dec-80
KMOVLY.002     1  12-Dec-80      MTTINT.002     1  24-Dec-80
USR   .003     1  12-Dec-80      DL    .001     1  12-Dec-80
SYSMAC.001     1  12-Dec-80      SYSTBL.001     1  12-Dec-80
ICSIFX.001     1  12-Dec-80      DEIS  .001     1  12-Dec-80
SEAE  .001     1  12-Dec-80      PATP1 .MAC     1  24-Dec-80
SEIS  .001     1  12-Dec-80      450102.TST     1  12-Dec-80
BSTRAP.010     1  24-Dec-80      LF    .TXT     1  10-Feb-81
OCHAIN.001     1  26-Aug-80      PAT02 .MAC     1  24-Dec-80
BSTRAP.011     1  24-Dec-80      RMONFB.004     1  29-Sep-80
BSTRAP.006     1  29-Sep-80      RMONFB.005     1  29-Sep-80
BSTRAP.007     1  29-Sep-80      TM    .002     1  29-Sep-80
FILEX .002     1  29-Sep-80      RT11FB.003     1  23-Dec-80
PIP   .001     1  23-Dec-80      FDTP1 .MAC     2  23-Dec-80
LINK  .003     1  24-Dec-80      ISGNFX.001     1  24-Dec-80
BATCH .001     1  24-Dec-80      BSTRAP.008     1  24-Dec-80
USR   .002     1  24-Dec-80      RMONSJ.002     2  24-Dec-80
RMONSJ.003     1  24-Dec-80      KMOVLY.001     1  24-Dec-80
BSTRAP.009     1  24-Dec-80      SLP   .001     1  24-Dec-80
HELP  .001     1  24-Dec-80      KED   .004     1  24-Dec-80
K52   .004     1  24-Dec-80      PATP2 .MAC     1  24-Dec-80
PATQ1 .MAC     1  01-Feb-81      PAT01B.MAC     1  24-Dec-80
450103.FOR     1  24-Dec-80      450103.TST     1  12-Dec-80
450201.FOR     1  02-Feb-81      FXVR02.MAC     1  24-Dec-80
450201.TST     1  02-Feb-81      BSTRAP.012     1  24-Dec-80
DUP   .003     2  24-Dec-80      PAT03 .MAC     1  02-Feb-81
450202.FOR     1  02-Feb-81      DIR   .002     1  24-Dec-80
SRCCOM.002     1  24-Dec-80      FDTP1 .COM     3  01-Feb-81
PATQ2 .MAC     1  01-Feb-81      010101.COM     1  10-Feb-81
010102.COM     2  10-Feb-81      010103.COM     2  10-Feb-81
```



```
MTTINT.001     1  10-Feb-81      010104.COM     1  10-Feb-81
060601.COM     2  10-Feb-81      062001.COM     3  10-Feb-81
070201.COM     1  10-Feb-81      070301.COM     1  10-Feb-81
070901.COM     1  10-Feb-81      071001.COM     1  10-Feb-81
071601.COM     1  10-Feb-81      LS    .001     1  10-Feb-81
062002.COM     2  10-Feb-81      070202.COM     1  10-Feb-81
070501.COM     1  10-Feb-81      070902.COM     1  10-Feb-81
071101.COM     1  10-Feb-81      071201.COM     1  10-Feb-81
170101.COM     1  10-Feb-81      170202.COM     1  10-Feb-81
170102.COM     1  10-Feb-81      010106.COM     2  10-Feb-81
LP    .001     1  10-Feb-81      070101.COM     1  10-Feb-81
080102.COM     2  10-Feb-81      150101.COM     1  10-Feb-81
010107.COM     2  10-Feb-81      010108.COM     2  10-Feb-81
010109.COM     1  10-Feb-81      010110.COM     2  10-Feb-81
010111.COM     2  10-Feb-81      071501.COM     1  10-Feb-81
170204.COM     1  11-Feb-81      170104.COM     1  11-Feb-81
060501.COM     2  11-Feb-81      070203.COM     1  11-Feb-81
070302.COM     1  11-Feb-81      071202.COM     1  11-Feb-81
090101.COM     1  11-Feb-81      100301.COM     1  11-Feb-81
060401.COM     1  13-Feb-81      061201.COM     2  13-Feb-81
061301.COM     2  13-Feb-81      071102.COM     1  13-Feb-81
170103.COM     1  13-Feb-81      170203.COM     1  13-Feb-81
010105.COM     2  13-Feb-81      FF    .TXT     1  23-Jun-80
070903.COM     1  13-Feb-81      071901.COM     1  13-Feb-81
080101.COM     2  13-Feb-81      170201.COM     1  13-Feb-81
CAUG80.COM     5  10-Feb-81      CDEC80.COM     2  10-Feb-81
CJUL80.COM     3  10-Feb-81      CNOV80.COM     3  10-Feb-81
COCT80.COM     4  10-Feb-81      CSEP80.COM     4  10-Feb-81
CASSGN.COM     1  10-Feb-81      CDASSG.COM     1  10-Feb-81
CJAN81.COM     3  10-Feb-81      COPALL.COM     1  10-Feb-81
COPYUT.COM     2  10-Feb-81      DUPALL.COM    12  10-Feb-81
PASSGN.COM     1  10-Feb-81      PAUG80.COM     3  10-Feb-81
PDEC80.COM     1  10-Feb-81      PJAN81.COM     2  10-Feb-81
PJUL80.COM     1  10-Feb-81      PNOV80.COM     2  10-Feb-81
POCT80.COM     3  10-Feb-81      PSEP80.COM     2  10-Feb-81
PDASSG.COM     1  10-Feb-81      PATALL.COM     1  10-Feb-81
README.TXT    18  09-Feb-81      062003.COM     2  04-Mar-81
LS    .002     1  01-Feb-81      DUP   .004     1  02-Feb-81
SLP   .003     1  02-Feb-81      EDIT  .001     1  02-Feb-81
PATR1 .MAC     1  02-Feb-81      DIRPAT.COM     1  04-Mar-81
BACKUP.COM     1  04-Mar-81      DL    .002     1  01-Feb-81
PATR2 .MAC     1  01-Feb-81      450202.TST     1  06-Feb-81
PAT04 .MAC     1  02-Feb-81      010113.COM     3  04-Mar-81
RT11FB.004     1  01-Feb-81      BSTRAP.013     1  02-Feb-81
KMOVLY.003     1  01-Feb-81      RMONSJ.004     1  02-Feb-81
RMONFB.007     1  02-Feb-81      MTTINT.003     1  02-Feb-81
070205.COM     1  04-Mar-81      071502.COM     1  04-Mar-81
072001.COM     1  04-Mar-81      BASPAT.RNO     4  04-Mar-81
350118.COM     2  04-Mar-81      350119.COM     2  04-Mar-81
350120.COM     2  04-Mar-81      FORPAT.RNO     4  04-Mar-81
BASPAT.DOC     5  04-Mar-81      FORPAT.DOC     5  04-Mar-81
450102.COM     2  04-Mar-81      450103.COM     2  04-Mar-81
450201.COM     1  04-Mar-81      450202.COM     1  04-Mar-81
010112.COM     2  05-Mar-81      060502.COM     2  05-Mar-81
061302.COM     2  05-Mar-81      PRINT .COM    16  05-Mar-81
RTPAT .COM     5  05-Mar-81      BASPAT.COM     3  05-Mar-81
FORPAT.COM     2  06-Mar-81      PATCHS.DIR    18  05-May-81
 282 Files, 444 Blocks

 322 FILES, 1156 BLOCKS.
```

```
****************************************************************
KENNETH DEMERS
UNITED TECHNOLOGIES RESEARCH CTR
MS44
EAST HARTFORD, CT. 06108
(203) 727-7527

SFGL70 - PACKAGE TO SUPPORT GRAPHICS ON A TEKTRONIX  4006, 4010, 4014

LIB216.CMD;1        2.          19-MAY-81 16:36
MAC216.CMD;1        6.          19-MAY-81 16:37
SFGL70.DOC;1        45.         19-MAY-81 16:37
PLTGRD.FTN;1        3.          19-MAY-81 16:37
PLTSCR.FTN;1        2.          19-MAY-81 16:37
PLTVCR.FTN;1        2.          19-MAY-81 16:37
PLTWIN.FTN;1        3.          19-MAY-81 16:37
TK4025.FTN;1        1.          19-MAY-81 16:37
ABSGRD.MAC;1        3.          19-MAY-81 16:37
ASGLUN.MAC;1        2.          19-MAY-81 16:37
COMDBT.MAC;1        8.          19-MAY-81 16:37
DISTIC.MAC;1        6.          19-MAY-81 16:37
ENCODE.MAC;1        5.          19-MAY-81 16:37
FIRST.MAC;1         3.          19-MAY-81 16:37
FLTXT.MAC;1         3.          19-MAY-81 16:37
FLTXTI.MAC;1        3.          19-MAY-81 16:37
GRID.MAC;1          13.         19-MAY-81 16:38
GTCUR.MAC;1         2.          19-MAY-81 16:38
HTEXT.MAC;1         2.          19-MAY-81 16:38
HTEXTI.MAC;1        2.          19-MAY-81 16:38
HTXT.MAC;1          2.          19-MAY-81 16:38
LABEL.MAC;1         4.          19-MAY-81 16:38
LABTIC.MAC;1        4.          19-MAY-81 16:38
MVCUR.MAC;1         2.          19-MAY-81 16:38
PLOT.MAC;1          2.          19-MAY-81 16:38
PLOTC.MAC;1         2.          19-MAY-81 16:38
PLTDAT.MAC;1        8.          19-MAY-81 16:38
PLTGEN.MAC;1        4.          19-MAY-81 16:38
PLTSYM.MAC;1        3.          19-MAY-81 16:38
PLTTIC.MAC;1        3.          19-MAY-81 16:38
POINT.MAC;1         2.          19-MAY-81 16:38
POINTI.MAC;1        3.          19-MAY-81 16:38
REGSAV.MAC;1        2.          19-MAY-81 16:38
SCALE.MAC;1         5.          19-MAY-81 16:39
TICGRD.MAC;1        4.          19-MAY-81 16:39
TICMKG.MAC;1        3.          19-MAY-81 16:39
TICMRK.MAC;1        3.          19-MAY-81 16:39
TICWIN.MAC;1        4.          19-MAY-81 16:39
TICXOY.MAC;1        2.          19-MAY-81 16:39
TXTGRD.MAC;1        2.          19-MAY-81 16:39
TXTINT.MAC;1        2.          19-MAY-81 16:39
VCURSR.MAC;1        2.          19-MAY-81 16:39
VIRABS.MAC;1        3.          19-MAY-81 16:39
VTEXT.MAC;1         2.          19-MAY-81 16:39
VTEXTI.MAC;1        2.          19-MAY-81 16:39
VTXT.MAC;1          3.          19-MAY-81 16:39
WINDOW.MAC;1        4.          19-MAY-81 16:39
SFGL70.RNO;1        46.         19-MAY-81 16:39
PLOTPR.MAC;1        45.         19-MAY-81 16:39
README.1ST;1        6.          19-MAY-81 16:39

 50. FILES
```



```
****************************************************************
file READ.ME

Author: Maarten van Swaay
        Department of Chemistry
        Kansas State University
        Manhattan, Kansas 66506

This disk contains 4 files:

        SPOOL.TXT
        SPOOL.MAC

        CRYPT.TXT
        CRYPT.MAC

SPOOL is a program that performs a function similar to QMAN, with less
flexibility, but with the capability to write output to a serial printer
via a DZ multiplexer without tying up all channels of that interface.

CRYPT is a program to encrypt and decrypt text files by means of a crypt
string that must be typed in at run-time. The crypt string can be of
variable length, and may include all ASCII codes except those intercepted
by RMON. Although nonrandom input files, e.g. text with long strings of
space codes, will leave clues about the crypt string, the protection afforded
by the encryption should be more than adequate for most applications.

There is some interaction between SPOOL and CRYPT: if the spooler is used
to print a plaintext version of an encrypted file, that may leave that
plaintext record on the system disk. Although the spooler deletes all
files it prints, it is a simple matter for a dedicated snooper to retrieve
such deleted files with the help of DIR and DUP. To frustrate those
activities, the spooler can be compiled with an option that makes it
destroy the content of each file it prints.

************************************************************

Misc. programs and utilities contributed by
        Ned W. Rhodes
        DTNSRDC
        CODE 2950
        Bethesda, Md.  20084

OTHELO.FOR      Game of othello
KB    .MAC      Version 2 KB handler updated to V4
VM    .MAC      Virtual memory handler from Fall 79 with fix to boot
HS    .MAC      HS handler from Fall 80 updated to V4
HSPOOL.MAC      Spooler routine that uses HS handler
MACLIB.MAC      Updated copy of some structured language macros for MACRO
CLK100.MAC      Timing routines for KW
AD    .MAC      V4 handler for AD-11 A/D
ADTEST.FOR      Test routine for above
GO    .FOR      Game of GO MOKU -- five in a row
SPY   .FOR      Spy on locations in the monitor
```

```
PEEK  .FOR      Peek anywhere in memory -- good for hardware debug
POKE  .FOR      Poke anywhere in memory -- good for hardware debug
CONSOL.MAC      Subroutines to control JSW bits
SCREEN.COM
SCREEN.MAC      Subroutine to do screen oriented functions -- GOTOXY, etc.
MTCON .FOR      Routine to control magnetic tape units -- RW, OF, FF, BF
DECUS .COM
DECUS .PAS      PASCAL routine to take a RUNOFF formatted file and
                make a file for the DECUS paper layup sheets
DECUS .SAV      FPP runable version
```

****

TEDI Editor-Formatter for RT-11

Clair W. Nielson
Los Alamos National Laboratory
Los Alamos, New Mexico 87545

The TEDI files included are TEDI.SAV, TEDF.SAV, TEDRT.TED, TEDRT.DOC, and TEST.TED.

TEDI is an edit only version while TEDF includes both editing and formatting. The edit only version is of interest primarily to someone running on single-density floppy disks.

TEDRT.TED is the documentation source text for the TEDF formatter while TEDRT.DOC is the formatted form, suitable for sending to a printer.

TEST.TED is an example of source text for TEDF which exercises most of its features, including equation formatting to daisy-wheel printers.

****

SCOTT SAMET
MIAMI HERALD PUBLISHING CO.
1 HERALD PLAZA
MIAMI FLA. 33101
(305) 350-2740

RTCON - RT11 CONSOLE SWITCH COMMAND
SYSAVE - LARGE DEVICE TO SMALL DEVICE BACKUP UTILITY

```
RTCON.MAC;1         10.         19-MAY-81 16:46
SYSAVE.TEC;1        1.          19-MAY-81 16:46
SYSAVE.COM;1        1.          19-MAY-81 16:46
SYSAVE.PAS;1        8.          19-MAY-81 16:46
SYSAVE.SAV;1        14.         19-MAY-81 16:48
SYSAVE.DOC;1        4.          19-MAY-81 16:46
RTCON.DOC;1         2.          19-MAY-81 16:46

 8. FILES
```


****

EDS Word Processing System

Distributed by UK RT-11 SIG

Enquiries to Nigel Bevan, 01-977 3222 x4011
NPL, Teddington, Middx.


```
TECO  .SAV      EDV   .RNO      EDS   .RNO      EDS   .COM      RT11  .EDS
README.EDS      EDITOR.TEC      EDITOR.STA      EDITOR.EDS      EDITOR.EDV
HELP  .EDV      EDSEDV.HLP      SET   .EDS      TECB2F.EDS      TECRUL.EDS
TECFIN.EDS      TECLST.EDS      TECESC.EDS      TECDBG.EDS      TECGBL.EDS
TECFMT.EDS      TECMOD.EDS      TECCTL.EDS      TECCNT.EDS      TECO  .EXM
```

****

N. BEVAN
NATIONAL PHYSICAL LABORATORY
DNALS, TEDDINGTON, MIDDX, ENGLAND
7W110LW

AUSTRALIAN DECUS PROGRAMS

```
CULHAM.DIR;1        1.          19-MAY-81 16:54
SWITCH.MAC;1        3.          19-MAY-81 16:54
BROKSA.REL;1        12.         19-MAY-81 17:00
BROKSA.MAC;1        38.         19-MAY-81 16:54
SPOOLR.MAC;1        10.         19-MAY-81 16:54
LOG.MAC;1           8.          19-MAY-81 16:54
SWAP.MAC;1          5.          19-MAY-81 16:54
UPDATE.COM;1        1.          19-MAY-81 16:54
UPDATE.DOC;1        3.          19-MAY-81 16:54
UPDATE.FOR;1        10.         19-MAY-81 16:54
FGNET.REL;1         17.         19-MAY-81 17:00
UPDATE.SAV;1        20.         19-MAY-81 17:00
NET.SAV;1           15.         19-MAY-81 17:00
NET.RNO;1           97.         19-MAY-81 16:54
NET.MAC;1           81.         19-MAY-81 16:54
TYPSET.FOR;1        39.         19-MAY-81 16:55
TYPSET.DOC;1        21.         19-MAY-81 16:55
TYPSET.SAV;1        41.         19-MAY-81 17:00
BANNER.SAV;1        52.         19-MAY-81 17:01
DIR.TAG;1           4.          19-MAY-81 16:55
NET.DIR;1           2.          19-MAY-81 16:55
INIT.COM;1          1.          19-MAY-81 16:55

 23. FILES
```

PACKAGES DISTRIBUTED BY UK RT-11 SIG

PIP8.MAC;1	22.	19-MAY-81 17:00
PIP8.FOR;1	49.	19-MAY-81 17:00
PIP8.TXT;1	12.	19-MAY-81 17:00
PIP8.COM;1	2.	19-MAY-81 17:00
C.COM;1	1.	19-MAY-81 17:00
RTVEG.TEC;1	3.	19-MAY-81 17:00
VT52R.TEC;1	7.	19-MAY-81 17:00
CU.TXT;1	9.	19-MAY-81 17:00
CU.COM;1	1.	19-MAY-81 17:00
TSXVEG.TEC;1	4.	19-MAY-81 17:00
SCOPE.MAC;1	1.	19-MAY-81 17:00
VT52X.TEC;1	9.	19-MAY-81 17:00
EDITOR.TEC;1	1.	19-MAY-81 17:00
TECO.EXM;1	42.	19-MAY-81 17:00
TECO.SAV;1	50.	19-MAY-81 17:04
DCREM.DOC;1	11.	19-MAY-81 17:00
DCREM.SAV;1	9.	19-MAY-81 17:04
DCREM.RNO;1	10.	19-MAY-81 17:00
ASSEMB.RNO;1	3.	19-MAY-81 17:00
LIST.BAS;1	13.	19-MAY-81 17:00
MLIST.BAS;1	14.	19-MAY-81 17:00
FLIST.BAS;1	14.	19-MAY-81 17:00
LIST.TXT;1	20.	19-MAY-81 17:00
DCREM.MAC;1	50.	19-MAY-81 17:00
ASSEMB.MAC;1	102.	19-MAY-81 17:01
ZERO.RNO;1	5.	19-MAY-81 17:01
ZERO.MAC;1	12.	19-MAY-81 17:01

28. FILES

****

N. BEVAN
NATIONAL PHYSICAL LABORATORY
DNACS, TEDDINGTON, MIDDX, ENGLAND
7W110LW

PACKAGES DISTRIBUTED BY UK RT-11 SIG

INVDER.OBJ;1	9.	19-MAY-81 17:08
SPELL.RNO;1	16.	19-MAY-81 17:06
SPELL.WRD;1	123.	19-MAY-81 17:06
SPELL.MAC;1	56.	19-MAY-81 17:06
MTDIR.MAC;1	46.	19-MAY-81 17:07
MTIO.RNO;1	61.	19-MAY-81 17:07
MTIO.MAC;1	101.	19-MAY-81 17:07
MTIO.SAV;1	19.	19-MAY-81 17:08
MTDIR.SAV;1	10.	19-MAY-81 17:08
SPELL.COM;1	1.	19-MAY-81 17:07
SPELL.SAV;1	9.	19-MAY-81 17:09
MTIO.COM;1	1.	19-MAY-81 17:07
INVDER.FOR;1	25.	19-MAY-81 17:07

14. FILES

****

Submitted by: Robert B. Denny
Creative System Design Co.
3452 E. Foothill Blvd. Suite 601
Pasadena, CA 91107
(213) 792-9474

15-May-81
README.1ST Read this first.

Sources and command files for DECUS RUNOFF Version M02.3
This is the RSX/RSTS/RT version with MANY buss fixed since M01. This is the most up to date version of DECUS RUNOFF. Has hyphenation fixes per UNIX V7 NROFF hyphenator. Files for all O.S.'s are present.

RNOASM.CMD	2	15-May-81	RNOBLD.CMD	2	15-May-81
RNOIAS.CMD	3	15-May-81	RSTASM.CMD	1	15-May-81
RSTBLD.CMD	2	15-May-81	RNOASM.COM	1	15-May-81
RNOLNK.COM	1	15-May-81	RNOBLD.CTL	4	15-May-81
RUNOFF.DOC	146	15-May-81	CMTAB .MAC	12	15-May-81
COMND .MAC	8	15-May-81	ERMSG .MAC	10	15-May-81
FMTCM .MAC	26	15-May-81	HYPHEN.MAC	55	15-May-81
INDEX .MAC	11	15-May-81	PINDX .MAC	9	15-May-81
RNCMD .MAC	21	15-May-81	RNFIO .MAC	9	15-May-81
RNORSX.MAC	6	15-May-81	RNPRE .MAC	5	15-May-81
RNRT11.MAC	30	15-May-81	RSTS .MAC	1	15-May-81
RT11 .MAC	1	15-May-81	RUNOFF.MAC	74	15-May-81
START .MAC	9	15-May-81	UARITH.MAC	3	15-May-81
SMAC .MLS	6	15-May-81	RBLDFC.ODL	2	15-May-81
RNO .ODL	1	15-May-81	RNOBLD.ODL	2	15-May-81
RNOIAS.ODL	1	15-May-81	RUNOFF.RNO	122	15-May-81
RUNOFF.SAV	3				

3 15-May-81

Reasonably up to date DECUS C system. Will soon be superseded by official DECUS library submission, but this version is in pretty good shape. Also contains MP - macro processor which supports full Kernighan & Ritchie #define's with param's. Pay no mind to the RUNOFF error messages from the RNO's, they have hax in 'em for VAX RUNOFF.

CC .SAV	101	15-May-81	AS .SAV	46	15-May-81
XR .SAV	23	15-May-81	MP .SAV	38	15-May-81
CLIB .OBJ	81	15-May-81	SUPORT.OBJ	1	15-May-81
CC .RNO	71	28-Dec-80	WIZARD.RNO	433	24-Dec-80
AS .RNO	45	24-Dec-80	STDIO .H	5	15-May-81
WHYC .RNO	36	15-May-81			

LEX lexical analyzer generator. Very powerful tool. Examples are in .LXI files. CTOC.LXI and .COM are derived from the example in the manual LEX.RNO.

LEXLIB.OBJ	23	15-May-81	LEX .H	4	15-May-81
LEX .RNO	91	15-May-81	WORD .LXI	3	15-May-81
HWORD .LXI	4	15-May-81	CTOC .LXI	3	15-May-81
CTOC .COM	1	15-May-81	LEX .SAV	85	15-May-81

A few of my favorite software tools:

```
MC     .SAV     28  15-May-81  Multi-Column lister.
GREP   .SAV     27  15-May-81  Search for text patterns (wildcard files)
KWIK   .SAV     23  15-May-81  Keyword in context index generator
SORTC  .SAV     45  15-May-81  Dumb but fast sorter
MC     .RNO      2  15-May-81
GREP   .RNO      6  15-May-81
KWIK   .RNO      8  15-May-81
SORTSC.RNO      3  15-May-81

**********************************************************************

        Bill Brindley
        DECUS (Network SIG) MR2-E/E55
        One Iron Way
        Marlboro, MA 01752
        (202) 282-0527

MDUMP.MAC       RT-11 memory dump handler.

***********************************

GRAND TOTAL      6114 BLOCKS        590 FILES

***********************************
```

I incorrectly included the wrong version of the routine PLOTPR.MAC in the SPGL70 graphics package I submitted to the Miami RT Symposium tape. The following changes should be made:

1. the following variables should be made global. T$M.CHR,B$BFLG,IBFR,FPOS, E$FDATA,O$UTBF,F$DATA,L$STX,L$ASTY,O$UTBUF,L$STHX,L$STLY,L$STHY,X$ITFLG.
2. the following 2 changes should be made in the subroutine named 'INPUT'.

```
MOV   #IBFR,R2      to      MOV   #I$BFR,R2
SOB   INP10         to      SOB   R1,INP10
```

3. the following change should be made to the subroutine 'WRITEQ'

```
SOB,R1              to      SOB   R1,WRT10
```

If you have any problems getting the package to work correctly, please call me. It really is a nice little plot package for Tektronix scopes.

Ken Demers
United Technologies Research Center
MS-44
East Hartford, Conn. 06108
203 727-7527 or 7240

****

RT-11 Tape Copy Centers

The following shops have offered to copy RT-11 SIG DECUS/US Symposia tapes. Some are willing to copy to media other than mag tape. However, before requesting copies on any media other than mag tape you should contact the copy center for confirmation.

The rules are quite simple. A mag tape (or other media) in a reusable mailer along with return label and postage (not cash or check) is required. Include a note stating which tape you want. Any media arriving without the reusable mailer, return label and postage will be treated as a gift to the copy center.

Not all centers have all tapes. Most will have the combined tape and the later tapes. The RT-11 SIG tapes are listed below:

```
Spring 78          Chicago
Fall 78      San Francisco
Spring 79      New Orleans
Fall 79          San Diego
Spring 80          Chicago
Combination of the above
Fall 80          San Diego
Spring 81            Miami
```

CENTRAL U.S.

Gary Siftar
Vikings
2815 E. Skelly Dr.
Suite 816
Tulsa, OK 74105
(918) 749-2296
Media: RX01/02, MT 800 bpi

EASTERN U.S.

Ned W. Rhodes
Naval Ship R & D Center
Bethesda, MD 20084
(202) 227-1592
Media: RK05, RL01/02, RX01/02, MT 800 bpi

MIDWESTERN U.S.

Joseph Lachman
Lachman Associates, Inc.
825 North Cass
Westmont, IL 60559
(312) 986-8840
Media: RK05, RL01/02, RX01/02, MT 800 bpi

Greg Merrell
Digital Equipment Corporation
3733 Park East
Cleveland, OH 44122
(216) 831-6000
Media: RL01, RK05, RX01/02, MT 800/1600 bpi

NORTHEASTERN U.S.

Alfred H. Scholldorf
Phisics Dept.
SUSB
Stony Brook, NY 11794
(516) 246-7110
Media: RL01, RX02, MT 800 bpi

NORTHWESTERN U.S.

Rand Dow
Oregon State University
School of Oceanography
Corvallis, OR 97331
(503) 754-2296
Media: MT 800 bpi, RX01/02, RK05, RL02

SOUTHEASTERN U.S.

Mary Williams
Science Applications, Inc.
2109 W. Clinton Ave.
Suite 800
Huntsville, AL 35805
(205) 533-5900
Media: MT 800 bpi

SOUTHWESTERN U.S.

Ray Kaplan
Electrical Engineering
Building 20
University of Arizona
Tucson, AZ 85721
(602) 626-4462
Media: RL01/02, RK05/07, RX01, MT 800/1600 bpi

Carl Lowenstein
University of California
Marine Physical Laboratory
Scripps Institution of Oceanography
San Diego, CA 92152
(714) 294-3678
Media: MT 800 bpi

Nick Bourgeois / 1738
Sandia National Laboratories
P. O. Box 5800
Albuquerque, NM 87185
(505) 844-8088
Media: MT 800 bpi

CANADA

Greg L. Adams
Dept. of National Defence
National Defence Headquarters
Attn: DACS 2-2-4
Ottowa, Canada K1A0K4
(613) 993-9624
Media: MT 800 bpi

GREAT BRITAIN

J. R. Lishman
University of Aberdeen
Department of Psychology
King's College
Aberdeen
AB9 2UB
Scotland
0224-40241
Media: RK05, RX01, MT 800 bpi

New & Revised DECUS Library Submissions

11-SP-18 (new) by David Conroy, Martin Minow, Robert Denny, and Charles Forsythe.

"C" a systems programming language. The DECUS "C" distribution contains a complete "C" programming system including a compiler, a runtime library, more than twenty "C" programs and extensive documentation. All software is distributed in source format.

11-294 (rev) by N. A. Bourgeois, Sandia National Laboratories, Albuquerque, NM.

The DATBAS package consists of some extension routines to BASIC-11 that provide the means for reading and writing words, bytes and bits at any implemented UNIBUS or Q-bus address. Complete source and documentation files are included. A bug in the GETB routine has been fixed.

11-421 (rev) by Scott Adams, Roger Chaffee, John Comeau, Jim Thompson, Mark Rosenthal and Robert Supnik.

Seven games written in BASIC. QUEST is a maze-mapping game. OTHELLO is a board game for two players. TREK is a variant of SPCWAR or STRTRK. LIFE is a version of John Conway's "Game of Life". WUMPUS is the original maze-mapping, monster-fighting game. ADVENTURELAND and PIRATES ADVENTURE are two adventure games from Scott Adams' "Adventure Land" series. Some bugs have been fixed and two of the games are new.

11-423 (rev) by Walter E. Wahnsiedler, Aluminum Company of America, Alcoa Center, PA.

This program package allows a MINC-11 or other PDP-11 based system with analog-to-digital conversion capability to be used as a shared data logger under RT11FB. The background job is free for other uses while data is being logged. The system has been revised to suppress storage of nonvarying data.

11-471 (new) by H. W. Holdaway, C.S.I.R.O. Division of Textile Physics, Rmde, Australia.

This package consists of seventeen FORTRAN subroutines for the more common matrix operations.

11-461 by Dr. Robert L. Mullen, Case Western University, Ohio.

FEP2 is a program for the analysis of elastic solids. Both constant strain, and higher order continuum elements are included along with a special element for incompressible media. The program uses an out of core skyline equation solver so the problem size is not restricted by storage of the global stiffness matrix.

11-466 by David Ford, ANSCO Information Systems, Quebec, Canada.

GENERAL is a game of resource management. Cavalary, infantry and artillery units contend for control of roads, rivers, hills, towns, bridges and forests. Strategic decisions must be made in real time, aided by statistical reports and animated video displays.

11-469 by G. C. Scott.

This FORTRAN program calculates the Michaelis-Menton parameters the maximum velocity and the substrate concentration at half-maximal velocity, and their 95% confidence ranges for the dependence of enzyme activity of substrate concentration, in the absence of product.

****

RT-11 MARKETPLACE

A series of low cost microprocessor cross-assemblers are now available from Sira. Supported devices include 8080/85, 8048, 6800, 6809, 1802 and Z80. Source files are written in the manufacturers standard mnemonic code. Up to three output files can be generated, an object file (in the manufacturers standard HEX format), a listing and a PROM file (in HEX-SPACE format). For further details contact, Eric Goodyer, Sira Institute Ltd, South Hill, Chislehurst, Kent BR7 5EH, England.

DECUS NUMBER- 138146 (installation)
Name- Howard Klemmer
Company- Sky Computers Inc.
Address- Foot of John Street
City- Lowell
State- Ma. 01852

SKYMNK performs 1D, 2D or N dimensional FFT, Convolutions, Auto-Correlations, or other digital filtering algorithms; solves complex differential equations; performs matrix manipulations; does image processing and much more. For more information concerning this software package please contact me at the above address.

SPR'S

OPERATING SYSTEM	VERSION	SYSTEM PROGRAM OR DOCUMENT TITLE	VERSION OR DOCUMENT PART NO.	DATE
RT-11	V3B	Monitor		2.8

NAME: John Yardley
FIRM: National Physical Laboratory
ADDRESS: Queens Road, Teddington,
CUST. NO.: Middlesex, England

DEC OFFICE: WELWYN
DO YOU HAVE SOURCES? YES [ ]

REPORT TYPE/PRIORITY
[X] PROBLEM/ERROR
[ ] SUGGESTED ENHANCEMENT
[ ] OTHER

1. [ ] HEAVY SYSTEM IMP
2. [X] MODERATE SYSTEM
3. [ ] MINOR SYSTEM IMP
4. [ ] NO SIGNIFICANT IM
5. [ ] DOCUMENTATION/SU

SUBMITTED BY: John Yardley
PHONE: 01-977-3222

CAN THE PROBLEM BE REPRODUCED AT WILL? YES [X]

ATTACHMENTS
MAG TAPE [ ] FLOPPY DISKS [X] LISTING [ ] DECTAPE [ ]
OTHER:

COULD THIS SPR HAVE BEEN PREVENTED BY BETTER OR MORE DOCUMENTATION? YES [ ]
PLEASE EXPLAIN IN PROVIDED SPACE BELOW.

CPU TYPE	SERIAL NO.	MEMORY SIZE	DISTRIBUTION MEDIUM	SYSTEM DEVICE	DO NOT PUBLISH
LSI-11	WM02104	28KW	Floppy	RL01	

Problem: The execution of a completion routine appears to lockout I/O for the duration of the routine. This has the effect of preve other completion routines from executing and hence contradicts the Advances Programmer's Guide which states in section 2.2.8 under the SJ Monitor , completion routines are totally asynchr and can interrupt one another. This problem may be specific t execution on an LSI-11.

The attatched program illustrates the problem. It is a straig forward input to output process using double-buffering and completion routines. When the first Read BBUFF Completion Rou executes, it is designed to wait for a flag to be set by the Write ABUFF Completion Routine, before issuing a .READC for AB However, as soon as "RCB.RT" comences execution, it locks out output xfrom ABUFF, which in turn prevents "WCA.RT" from execu and thus the processor hangs indefinately waiting for "A" to b cleared.

On entry to the Completion Routine, the Processor Priority is Lowering the priority to zero does not appear to affect the situation.

There is no doubt that in the mainline program, the .WRITC is issued before the .READC completion routine executes.

Once hung, the Monitor can only be re-started by re-booting.

Diagnosis: None

Cure: **Re-code to prevent completion routines waiting on other comple routines.**

Statement: The SJ Monitor completion routines are executed at the priority of the device handler (or clock service) that processed it's queue element, not at zero.

Response: Thank you for your SPR. SJ completion routines must be run at the priority of the device because of the absence of a serialized queueing mechanism as in the FB monitor. Unfortunately, since the LSI processor has only 2 priority levels, running a completion routine at greater than zero priority results in interrupts being turned off during it's execution. This accounts for all the problems that you have encountered. This is an undocumented restriction in SJ for RT-11 V3B; and we suggest that you use the FB monitor for your application. This restriction will be documented in the documentation update for V4.

I do not believe this to be true, since there are problems under the FB monitor and with an LSI-11/23. I would welcome any comments concerning this problem.

John Yardley

DECUS

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