THE mini-tasker

DECUS
RT-11 SIG NEWSLETTER

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FROM THE EDITOR

It is very important that you take the time to complete the survey at the end of this newsletter. Your opinion is needed. It is the most powerful mechanism our SIG has in informing DEC what our current and future needs are. Please take the time to let DEC know what your opinion is.

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Two quick notes. The first about the VT-11 and the other about the LPA-11, Digital's intelligent controller.

It is often useful to effect ^E from within a program. When GT ON is in effect, RMON keeps an overlay in memory containing the display text buffer and the code that handles the keyboard input and output. Furthermore, RMON has changed the keyboard printer status address from the console DL to a software PSR. At a fixed offset from this PSR is the keyboard echo byte, which is known as SCECHO in the monitor source code. If this byte is negative then the output goes to both the VT-11 screen and the printer; if this byte is non-negative then the output only goes to the VT-11 screen.

The enclosed programs control this status byte. They also check to see if VT-11 hardware exists and if so, if GT ON is in effect.

The second note is about the LPA-11. Digital does not support this device for RT-11, so I have written a driver and the support routines for the LPA-11 under any RT-11 monitor. The support routines emulate most of the Fortran routines for the LPA under VMS or RSX-11. In addition, a routine, ADDIBF, is included, which controls extended memory a little better. Anyone wanting a copy of these routines on a floppy disk need only send me a blank 8-inch floppy disk.

Sincerely,

John Mertus

John Mertus
Research Associate

```
        .TITLE  CTRLE
        .ENABL LC
        .NLIST TOC
        .NLIST BIN
;
;-----------------------------------------------------------------------
;
;   These subroutines control the ^E option of GT ON.
;
;   Besides CTRLE, which is the ^E toggle switch, there are two other
; related calls:
;
```

```
;   CEON   - Turn on the printing (Ctrl E ON)
;   CEOFF  - Turn off the printing (Ctrl E OFF)
;
;   These calls are dummies if VT hardware does not exist or GT OFF
; is in effect.
;
;                                   --John Mertus   November '81
;
;-----------------------------------------------------------------
;
        RMON = 54                       ; Base of RMON address
        CONFIG = 300                    ; Configuration word
        KPS = 310                       ; Keyboard printer Status
        ECHOFF = 16                     ; Byte offset from SCTPS
                                        ; (which is GT ON's Status word)
                                        ; to the echo control byte.
        HWDSP = 4                       ; GT hardware bit

        .GLOBL  CTRLE,CEON,CEOFF
;
;-----------------------------------------------------------------
;
;  CEON turn on the ^E switch
;
;  CALL from Fortran or MACRO:   Call CeOn
;
;-----------------------------------------------------------------
;
CEON:   CALL    BASE                    ; Construct offset, R0 returns
                                        ; with the ECHO byte address
        BCC     1$                      ; GT ON?
        RETURN                          ; No!  Just return
1$:     MOVB    #-1,@R0                 ; Turn echo on
        RETURN                          ; Return from CEON
;
;-----------------------------------------------------------------
;
;  CEOFF turn off the ^E switch
;
;  CALL from Fortran or MACRO:   Call CeOff
;
;-----------------------------------------------------------------
;
CEOFF:  CALL    BASE                    ; Construct offset, R0 returns
                                        ; with the ECHO byte address
        BCC     1$                      ; GT ON?

        RETURN                          ; No!  Just return
1$:     MOVB    #1,@R0                  ; Turn echo on
        RETURN                          ; Return from CEOFF
;
;-----------------------------------------------------------------
;
;  CTRLE flips the ^E switch
;
;  CALL from Fortran or MACRO:    Call CtrlE
;
;-----------------------------------------------------------------
```



```
;
CTRLE:  CALL    BASE                    ; Construct offset, R0 returns
                                        ; with the ECHO byte address
        BCC     1$                      ; GT ON?
        RETURN                          ; No!  Just return
1$:     NEGB    @R0                     ; Turn echo on
        RETURN                          ; Return from CTRLE
;
;-----------------------------------------------------------------
;
;  This subroutine just constructs the address of the SCECHO
; byte of GT ON.  The address is returned in R0 and the carry bit
; cleared.  If no hardware is present or GT OFF is in effect, R0
; is set to zero and the carry bit set.
;
;-----------------------------------------------------------------
;
BASE:   MOV     @#RMON,R1               ; Get RMONs base address
        MOV     R1,R0
;
; Test for hardware
;
        ADD     #CONFIG,R0              ; Configuration word
        BIT     #HWDSP,(R0)             ; Any hardware?
        BEQ     1$                      ; No, Exit
;
;  Construct address
;
        ADD     #KPS,R1                 ; GT's Printer status pointer
        MOV     (R1),R0                 ; Get address

        CMP     R0,#160000              ; Are we pointing to I/O space?
        BHI     1$                      ; Yes, GT OFF in effect

        ADD     #ECHOFF,R0              ; Offset from Printer status to
                                        ; SCECHO byte
        CLC                             ; Clear carry bit
        RETURN                          ; Return
;
;  No hardware or GT OFF return
;
1$:     CLR     R0                      ; No address
        SEC                             ; Set carry bit
        RETURN                          ; From BASE
        .END
```

Where are those elusive virtual arrays stored?

Given the slow speed and clumsiness involved in accessing Fortran virtual arrays, it is desireable to be able to access these arrays without Fortran to increase their usefulness. One particular application our lab had in mind was to move a 8KB input buffer to a D/A converter driving an oscilloscope from low memory to high (virtual) memory. It seemed that this would be particularly easy to do since the DMA register on the D/A board takes an 18 bit value for the conversion buffer starting address. Thus we envisioned writing a buffer of data into a virtual array and passing the physical starting address of this array to the D/A board. The question was: how does one obtain the physical address of a virtual array?

This information is not given in any PDP-11 manual I am aware of, nor did any of the numerous people I contacted possess it. A bit of detective work and an educated guess provided the answer. I wrote a number of program skeletons in which several virtual arrays of different sizes were delcared, and I wrote a simple Fortran-callable macro routine whose sole function was:

```
MOV     2(R5),@4(R5)    ;  Moves address of 1st param into 2nd param.
```

When I passed it a virtual array it returned the entry Fortran put in the parameter address table for the virtual array. Inspecting these values for varying combinations of virtual array sizes revealed:

1) The "address" of the first array declared was always 0.
2) The "addresses" of subsequent arrays were small numbers (n<100) roughly proportional to the sums of the sizes of all previously declared arrays.

Since I had read that Fortran always allocates the first virtual array at physical 160000_8, and since I knew memory mapping maps to physical addresses in units of 32_{10} words, I reasoned that the "address" Fortran was encoding was the offset of the start of the array from 160000_8 in units of 32_{10} words. This is in fact the case.

To compute the address of a virtual array element, use RT-11's wonderfully convenient Integer*4 routines to evaluate:

$160000_8 + 64_{10}$*OFFSET + (INDEX-1)*BYTSIZ

Where:
OFFSET = the "address" of the virtual array which Fortran places on the R5 address table before a subroutine call;
INDEX = the index of the array element;
BYTSIZ = the size in bytes of one array element (i.e., 4 for a REAL*4 array).

Peter Karp
University of Pennsylvania
(Computer Science Department)

Here is a 32 word combined bootstrap loader routine for the RL11 disk and TM11 magtape systems.

It can be programmed into a Digital M792 diode memory board, available from various surplus equipment vendors.

As with the RT-11 toggle-in loaders, it is necessary to manually re-load the drive using the LOAD button before starting the loader.

Sincerely,

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Academic Systems


```
 1                              .TITLE  RTBOOT          ;RL11/TM11 boot loader
 2
 3                      ; Important!!! Must be loaded at address 7000 (octal)
 4                      ;                                 or higher
 5
 6                      ;RL11 register definitions:
 7          174400              RLCSR   = 174400        ;control/status register
 8          174404              RLDAR   = 174404        ;disk address register
 9          000001              RLGSMK  = 1             ;DAR marker bit
10          000002              RLGSGS  = 2             ;DAR set status bit
11          000010              RLGSRS  = 10            ;DAR reset bit
12          000004              RLGSTS  = 2*2           ;CSR set status command
13          000014              RLREAD  = 6*2           ;CSR read data command
14
15                      ;TM11 register definitions:
16          172524              TMBRC   = 172524        ;byte/record counter
17          000001              TMGO    = 1             ;MTC go bit
18          000002              TMREAD  = 1*2           ;MTC read bit
19          000010              TMSPFW  = 4*2           ;MTC space forward bit
20          060000              TMDEN   = 3*20000       ;MTC density bits
21
22 000000                       .ASECT
23          173400              .       = 173400        ;ROM address
24
25 173400  012700   RLBOOT: MOV     #RLCSR,R0       ;entry point for RL11 boot
                    174400
26 173404  010001           MOV     R0,R1
27 173406  012760           MOV     #RLGSMK!RLGSGS!RLGSRS,RLDAR-RLCSR(R0)
                    000013
                    000004
28 173414  012721           MOV     #RLGSTS,(R1)+
                    000004
29 173420  105710   1$:     TSTB    (R0)
30 173422  100376           BPL     1$
31 173424  005021           CLR     (R1)+
32 173426  005021           CLR     (R1)+
33 173430  010021           MOV     R0,(R1)+
34 173432  012710           MOV     #RLREAD,(R0)
                    000014
35 173436  000413           BR      RTBOOT
36 173440  012700   TMBOOT: MOV     #TMBRC,R0       ;entry point for TM11 boot
                    172524
37 173444  005310           DEC     (R0)
38 173446  012740           MOV     #TMDEN!TMSPFW!TMGO,-(R0)
                    060011
39 173452  105710   1$:     TSTB    (R0)
40 173454  100376           BPL     1$
41 173456  005710           TST     (R0)
42 173460  100767           BMI     TMBOOT
43 173462  012710           MOV     #TMDEN!TMREAD!TMGO,(R0)
                    060003
44 173466  105710   RTBOOT: TSTB    (R0)
45 173470  100376           BPL     RTBOOT
46 173472  005710           TST     (R0)
47 173474  100777   1$:     BMI     1$
48 173476  005007           CLR     PC
49
50          000001              .END
```

APPLICATION NOTE : RT 11 (FORTRAN IV SOURCES.)
****

****

"CRYPTE" : PROGRAM FOR ENCRYPTION-DECRYPTION OF ASCII CODES
PERMITTING A SELF-ADAPTATION OF THE PRIVACY LEVEL
FOR MICRO TO LARGE SCALE COMPUTERS.

****

BY DANIEL GUINIER

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****

ABSTRACT :
****

. THIS PAPER PRESENTS THE POSSIBILITIES AND SOME PERFORMANCES OF THE READY TO USE, APPLICATIONS ORIENTED AND TRANSPORTABLE FORTRAN IV PROGRAM "CRYPTE" RUNNING ON RT11 OPERATING SYSTEM WITH A PDP 11 (DEC).

. "CRYPTE" USES A MULTI-OVER, MULTI-PHASE METHOD OF ENCRYPTION-DECRYPTION PERMETTING A SELF-ADAPTATION BY THE USER TO THE LEVEL OF CONFIDENTIALITY DESIRED, AS A CONSEQUENCE, IT CAN BE USED FOR MANY DIFFERENT APPLICATIONS INCLUDING COMMERCIAL, MEDICAL, STAFF MANAGEMENT, SECURITY SYSTEMS, ETC. FOR A LOW COST.

. THE METHOD EMPLOYES INDEPENDANT CROSSED PSEUDO-RANDOM GENERATORS TO OBTAIN QUASI-RANDOM NUMBERS WITH SHIFTING OF THE ORIGIN POINT AND THE POSSIBILITY OF DISTURBANCE IN THE STRUCTURE OF THE RANDOM NUMBERS.

. THE METHOD CAN BE ADAPTED TO FILES, RECORDS OR FIELDS IN A FILE WITH DIFFERENT START KEYS, PUBLIC OR PERSONAL.

. AN OPTION ALLOWS THE COMMUNICATION OR NOT BETWEEN COMPUTERS WHICH STRUCTURES ARE DIFFERENT.

****

1.INTRODUCTION :
****

WITH THE INCREASING USE OF COMPUTERS HAS EMERGED A PARALLEL INCREASE IN THE NUMBER OF INFORMATION TRANSACTIONS. THIS IS MANIFEST IN THE GENERALIZATION OF CONNECTIONS TO NETWORKS WITH, AS A CONSEQUENCE, A RISK OF INSECURITY EITHER FOR FRAUDULENT PURPOSE OR FOR MODIFICATION IN THE INTEGRITY OF THE DATA HANDLED.

GOVERNMENTS PRESUMABLY HAVE A RESPONSABILITY TO THEIR CITIZENRY TO PROTECT ITS RIGHTS AGAINST VIOLATION OF INDIVIDUAL PRIVACY. IN FRANCE FOR EXAMPLE, A SECRECY LAW HAS BEEN VOTED IN 1978 AND THE "COMMISSION NATIONALE DE L'INFORMATIQUE ET DES LIBERTES" HAS THE CHARGE TO WATCH OVER THE SPIRIT OF THE LAW. A RESOLUTION ADOPTED IN 1981 RECOMMENDED SAFETY MEASURES FOR INFORMATION SYSTEMS AND ESPECIALLY VOLUNTARY ACTION IN CONCERTATION BETWEEN PUBLIC ESTABLISHMENTS AND INFORMATICIANS TO PROMOTE A GENERAL IMPROVEMENT OF SECURITY. IMPLICIT IN THESE MESURES IS THE RESERVE INHERENT IN THE USE OF INFORMATION FILES AND DATA MANAGEMENT SYSTEMS TREATING MEDICAL DATA BASES OR STAFF FILES FOR EXAMPLE. THERE EXISTS ANOTHER IMPORTANT ASPECT TO THE SECRECY PROBLEM, NAMELY PROTECTION OF COMPLEX SOURCE PROGRAMS (LIKE OPERATING SYSTEMS SOURCES) WHOSE COST REPRESENTS A NON-NEGLIGEABLE FINANCIAL INVESTMENT TO THEIR OWNER.

A GREAT MANY REFERENCES HAVE ACCUMULATED OVER THE YEARS ON THE SUBJECT OF ENCRYPTION-DECRYPTION WITH THE RESULT THAT THE MOST IMPORTANT METHODS ARE TOP SECRET. IN SOME CASES A GOOD PROTECTION PROGRAM CAN ADD SIGNIFICANT OVERHEAD COST DUE TO THE INCREASE IN EXECUTION TIME REQUIRED.

WE HAVE CONCENTRATED ON DEVELOPPING A METHOD PROGRAMMED IN FORTRAN IV, WHICH IS ECONOMICAL IN CORE MEMORY AND EXECUTION TIME, AND WHICH IS TRANSPORTABLE FROM MICRO TO LARGE SCALE COMPUTERS. THE RESULTING PROGRAM ENSURES REVERSABILITY OF THE ENCRYPTION-DECRYPTION AS WELL AS CONTROL OVER OTHER OPERATIONS LIKE VISUALISATION AND FEQUENCY ANALYSIS OF THE RESULTANT CODE AFTER EACH OPERATION.

IN THE PRESENT REPORT, WE BRIEFLY DESCRIBE THE METHOD AND SUMMARIZE ITS PERFORMANCE. THE INVIOLABILITY OF THE INFORMATION IT PROTECTS DEPENDS ON THE NUMBER OF KEYS AND ON THE CODE ITSELF. THE DEGREE OF THIS INVIOLABILITY IS AT THE DISCRETION OF THE USER, DEPENDING JUST ON THE NUMBER OF PHASES AND OVERS.

2.REFERENCES :
****

2.1.PSEUDO-RANDOM GENERATORS :
****

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2.2.CRYPTOSYSTEMS :
****

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2.3.PARLIAMENTARY DELIBERATION :
****

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3.DEFINITIONS :
****

3.1.PERMITTED ASCII CODES :
****

FROM 040 (OCTAL) TO 173 (OCTAL) AND <HT>, <LF>, <VT>, <FF>, <CR>, 124 (OCTAL) FOR END OF MESSAGE MARK.

3.2. MULTI-PHASE :
****

EACH BLOCK OF DATA CAN BE ENCRYPTED OR DECRYPTED ONE OR MORE TIMES WITH THE SAME START KEY(S). IN THE CASE OF A SINGLE PHASE, THE INCRYPTING (OR DECRYPTING) IS PERTURBED BY THE PRECEDENT CODE ITSELF IN A MODIFICATION IN THE STRUCTURE OF THE ACTUAL RANDOM NUMBERS USED; IN THIS CASE, THE CODE APPEARS LIKE A SECOND TYPE OF KEY.

3.3.MULTI-OVER :
****

EACH BLOCK CAN BE ENCRYPTED (OR DECRYPTED) BY ONE OR MORE SUCCESSIVE OVERS BUT WITH DIFFERENT START KEYS, THAT ARE DIFFERENT WITH MULTI-PHASE.

3.4.REMARK :
****

MULTI-PHASE AND MULTI-OVER REQUIREMENTS CAN BE MIXED TO INCREASE THE DECIPHERING DIFFICULTIES.

4.START KEYS FOR ENCRYPTION-DECRYPTION OPERATIONS :
****

FOR EACH OVER, WE HAVE TWO DIFFERENT METHODS TO GENERATE PSEUDO-RANDOM NUMBERS :

4.1. A SINGLE CIPHER KEY FOR EACH OVER : (TEN DECIMAL NUMBER MAXIMUM)
****

AFTER INITIALIZATION, THERE IS GENERATION OF PSEUDO-RANDOM NUMBERS INDEPENDANT OF THE STRUCTURE OF THE COMPUTER USED, THIS PERMITES COMMUNICATION BETWEEN TWO COMPUTERS OF DIFFERENT STRUCTURES (16, 32, OR 36 BITS, FOR EXAMPLE).

4.2. A DOUBLE CIPHER KEY FOR EACH OVER : (2*12 DECIMAL NUMBER MAXI.)
****

AFTER INITIALIZATION, THERE IS GENERATION OF PSEUDO-RANDOM NUMBERS BY TWO INDEPENDANT METHODS AND THE FINAL RESULT IS OBTAINED BY CROSSING THE INDIVIDUAL RESULTS WITH EACH OTHER. THE METHODS USED ARE THE FOLLOWING :

```
Y1(N+1) =     7** 5 * Y2(N) MODULO(2**31 - 1)
Y2(N+1) = 3 + 2**16 * Y1(N) MODULO(2**31)
```

THIS PRINCIPLE AND THE PERTURBATIONS BY THE CODE ITSELF ELIMINATE ANY DETECTABLE PERIODIC EFFECTS.

5.GENERAL REMARKS :
****

5.1.AN INCREASING NUMBER OF OVERS LEADS TO A CONSIDERABLY INCREASING INVIOLABILITY OF THE ENCRYPTED CODES :

EXAMPLES FOR DOUBLE CIPHER START KEYS AND ONE PHASE :

1 OVER : 4.6 * 10**18 POSSIBILITIES.
2 OVERS : 2.1 * 10**37 POSSIBILITIES.
3 OVERS : 9.7 * 10**55 POSSIBILITIES; ETC...

5.2.THE DOUBLE CIPHER START KEY SYSTEM PERMITS :

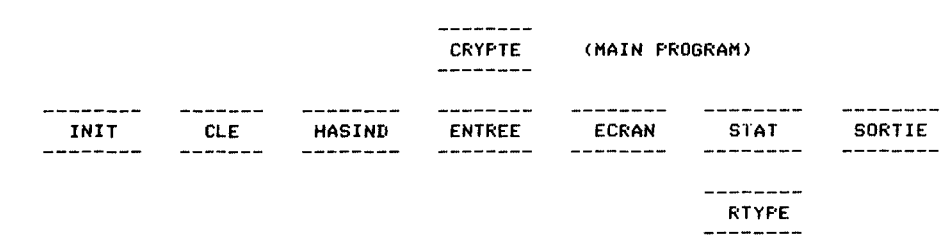
5.2.1.TRANSACTIONS BETWEEN TWO USERS AND THE PROVING OF A TRUE 'CIPHERED SIGNATURE', IN ORDER TO, FRAUDULENT MODIFICATION OF DATAS IN THIS CASE DOES NOT PERMIT TO OBTAIN A GOOD RESULT IF THE 'CIPHER' HAVE NOT THE GOOD START KEY.

5.2.2.AN INDIVIDUAL PROTECTION : TO DESCRIBE THIS, WE CONSIDER AS AN EXAMPLE THE MANAGEMENT OF STAFF FILES. SOME INFORMATION WILL BE RESTITUED BY THE COUPLING OF THE TWO KEYS OF THE DOUBLE START KEY SYSTEM OR THE SINGLE KEY SYSTEM WITH TWO OVERS : ONE BY THE STAFF MANAGER ('PUBLIC-KEY') AND THE OTHER BY THE EMPLOYEE HIMSELF ('PERSONNAL KEY').

5.3.THERE IS NO SYMMETRY IN THE RESULTS ON EACH PHASE OR OVER OF ENCRYPTION AND DECRYPTION OPERATIONS,...BUT ONLY RESTITUTION AT THE LAST OPERATION OF DECRYPTION.

6.GENERAL DIAGRAM :

THE PROGRAM 'CRYPTE' USES ONE MAIN PROGRAM (MODULE : CRYPTE) ONE FUNCTION (MODULE : HASIND) AND SEVEN SUBROUTINES.
MODULES ECRAN, STAT AND RTYPE CAN BE OPTIONAL.



7.RESULTS :

TO ILLUSTRATE THE PROGRAM, WE HAVE CHOSEN TWO EXAMPLES OF CYPHERING AND THE STATISTICS AFTER EACH PHASE AND / OR OVER OBTAINED FROM ONE BLOCK OF 512 CHARACTERS :

7.1.ONE BLOCK WITH 512 TIMES A SINGLE CHARACTER AND ONE OVER : (EX.:'-')

7.1.1.ENCRYPTION OPERATIONS :

7.1.1.1.BEFORE PHASE NO.1 : (INITIAL CODE)

7.1.1.2.AFTER PHASE NO.1 :

```
b)Z8EH7.5w@E/^?boG_H*\UUtJfLmRCi40mK>{IcB7t)'nO1GPir%cy(:T!8Afo!
/36408]R%QO`2kK/r9IGPa3s@,vcOUNER1?kcIx45X1D5x=G6M')`%5@%F<CR'?$
4-$43%+iy(?hhXHW1N$QOU=0.^C'<VZQ;#YmJSwh8Y1#1s?t.a?<F*5V)k@c<Jhr
UBQ')?@#J+#B$=JVTB,suXSkzG`t{cD^D+_#$,@v4dYTn+d5Z4oBa#/@RC&^<:e5
RrS&8Ig[MU38]AcKcrX^W.z(9L<?J@9RJ@Jkt1`,9bz'5$-TCZ$<,Y6BZX4HFo2v
:XZ&){z,.JTyJ3eJ4uP]\7W_R!<J>.3Px-T;Ks_ay47uX.$'##'Ks9)IGS^h/o(i
oF+?O#J9vc'u&/To:@'*?t'ERIsu]5Pac?Ba5E-S?hYJ2A+X5BtJ{1P0Ta\cMJ'[
G'H'nSCRB\=sh``rptUs[aJ#{v6%;hN^x76k8>`HCsrB4'XaUE-@cILThr?ka$wJ
```

STATISTICS : STANDARD-ERROR OF THE MEAN OF THE OCCURRENCES % : 4.80

DISTRIBUTION OF THE ASCII CHARACTERS :

0		3	!	6	"	9	#
9	$	7	%	4	&	10	'
4	(	7	)	4	*	6	+
6	,	5	-	7	.	6	/
5	0	6	1	3	2	6	3
11	4	11	5	5	6	5	7
7	8	6	9	4	:	3	;
8	<	4	=	3	>	13	?
11	@	3	A	10	B	6	C
3	D	6	E	5	F	7	G
6	H	7	I	6	J	5	K
3	L	3	M	3	N	4	O
3	P	4	Q	10	R	6	S
9	T	8	U	3	V	3	W
9	X	5	Y	5	Z	4	[
4	\	6	]	7	^	4	_
6	`	7	a	3	b	12	c
2	d	2	e	2	f	4	g
8	h	4	i	10	j	7	k
2	l	3	m	3	n	7	o
4	p	5	q	8	r	4	s
8	t	5	u	5	v	3	w
4	x	4	y	4	z	5	{

7.1.1.3.AFTER PHASE NO.2 :

```
\1D*^%1aG5WOMX!'(7ztOYJHPI\t^5M*,GcsQ:B1JizozNM;$0a=3(XlKdQ4zPAH
yAaWa)YH$'jEs/)$1J2:PB3+p%a@.PY(rZ&bhw^5&J1SsGx)xJ/\sS(sDc2IL^EB
%k-Kh)YH_4CP\aUa@$Xc_^!]'!NK.&WasstyO(\inh4>&mtp\^sEMJ5Ak%1'f\k
6yaAO@RMW$aMk:oVT%S^J4u;^$!ZEMwz'D7YRZmthB:EK2iIEifRPyLARyMiXGKO
x(d*Y+&O</CvGT4,A.#ID"=z!n$5JYHs`utHJOs5Ey'<WZ^JzJSJa`->AnC6^led
'8LFoTF/^*J=a9GoaE*j6beaS\DH.9k'XCrC>QxbK;$o:P+Dc$b1.IO!cMb>uZa:
u>HPY6Sws5cVT'SFvBAUW(@t<aYe,($MNJ.+{"J#MCOZpDZ]!NcCsQOy`(O<`>yf
^y@t+oCudrB92r2QEChOp#L1O%t:A$FCs3GH'Ft1;6\6ieJGOVNI&2Js{Tk6+I]3
```

STATISTICS : STANDARD-ERROR OF THE MEAN OF THE OCCURRENCES % : 4.59

DISTRIBUTION OF THE ASCII CHARACTERS :

0		7	!	4	"	7	#
7	$	6	%	6	&	8	'
9	(	4	)	5	*	6	+
3	,	2	-	6	.	3	/

8	0	7	1	6	2	4	3
5	4	7	5	7	6	3	7
1	8	3	9	7	:	5	;
4	<	3	=	6	>	0	?
5	@	9	A	6	B	10	C
1	D	9	E	5	F	8	G
9	H	6	I	8	J	6	K
4	L	11	M	5	N	7	O
8	P	5	Q	4	R	7	S
5	T	2	U	3	V	6	W
5	X	9	Y	7	Z	7	[
9	\	7	]	12	^	2	_
4	`	8	a	5	b	7	c
4	d	4	e	3	f	8	g
5	h	5	i	7	j	6	k
5	l	2	m	3	n	6	o
4	p	8	q	4	r	6	s
10	t	5	u	2	v	3	w
4	x	9	y	7	z	2	{
3	\	2	]	2	^	1	_
0	`	0	a	1	b	2	c
2	d	1	e	1	f	1	g
2	h	1	i	0	j	2	k
0	l	1	m	0	n	0	o
0	p	1	q	0	r	1	s
0	t	1	u	1	v	0	w
0	x	2	y	0	z	1	{

7.1.2.DECRYPTION OPERATIONS :

7.1.2.1.AFTER PHASE NO.1 :

```
'5.zFebp?FDsK'jMAxHYR*' dg$Uyk7I%D$I@G&VU_3s*h+7ehXS;Msq>=])frZT
w;XPny)$+^HmbLf!G>q -i-LJ&se+(8kMVo$2[n.y?-<kWhJo==`4[ TcJ$3'd3K
yk6Db1[gn91p!6:G\^a?=61i\QfY<`.3S'$4<)9!0B)>:G[-o(Ld,PUgE-m6nIC&
id=GS.?Wu% 8t*R--kT*JdOX1eInRr`IkJ`c[[Z+afiye42Asb$=w(J.-cT8I:n(
S>>1NJ=Jwb=kr@YifDSs1!K$pOp$ F<B$bWe$,469D5GOc^6dx\;r4$)oC<vE*`v
uhzMsaTOJU$L43JRZXB:bX;/.hLfx8e_hCK5 fFyZ4u'jO4Jm'hnO=S`I'1^ssvY
3%J>7@akyZni[%,_i/GXE<K\rUnxW ;dsXtRseJX;c$xkG\2t9w&%MHv90 a@i$8
D$%$EI-POC2ZR?8sJW@EB:/;\7kB3D%m()>er5AqhKr!bkz^c>NHKqKL@JYSRRnQ
```

7.1.2.2.AFTER PHASE NO.2 : (INITIAL CODE RESTITUTION)

```
`
-------------------------------------------------------------------
-------------------------------------------------------------------
-------------------------------------------------------------------
-------------------------------------------------------------------
-------------------------------------------------------------------
-------------------------------------------------------------------
-------------------------------------------------------------------
-------------------------------------------------------------------
```

7.2.ONE BLOCK WITH DIFFERENT CHARACTERS AND ONE PHASE PER OVER :

(EX.: THE BEGINNING OF A FORTRAN IV SOURCE PROGRAM).

7.2.1.ENCRYPTION OPERATIONS :

7.2.1.1.BEFORE OVER NO.1 : (INITIAL CODE)

BY DANIEL GUINIER

LABORATOIRE DE PHYSIOLOGIE COMPAREE DES REGULATIONS
GROUPE DE LABORATOIRES DU CNRS DE STRASBOURG-CRONENBOURG
23 RUE DU LOESS
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1.INTRODUCTION :

WITH THE INCREASING USE OF COMPUTERS HAS EMERGED A PARALLEL INCREASE IN THE NUMBER OF INFORMATION TRANSACTIONS. THIS IS MANIFEST IN THE GENERALIZATION OF CONNECTIONS TO NETWORKS WITH, AS A CONSEQUENCE, A RISK OF INSECURITY IN THE INTEGRITY OF THE DATA...

7.2.1.2.AFTER OVER NO.1 :

```
5(V\Vlvlwtlux*sJYBRw-`nvopCCfl$3B;m8HR@RYT *Gr?H:A:>/hS^$Au$F9>2
k^oSCeb ms4J>CvDCU7eC-3:vxcT!W_CZ5=MY'J7WR/sO&BLJ=iNcz<N1fYC>-Sa
p.Jp&3d\Xn?(V<SoL$,e%cdhF3, OGPOxJRLi+iloeAEw+a&J i8QT?zAD(J2!0a
$*S$%p@fnyX'iCbxc47ao>B3K'2`BMB5)P*/+4EAmE(,xsZ/>dab%,1h`:$21U=1
aQmkMNXNUC'*QP9c'yltEPO1<Es7*KEkOydkL)Zzb_U,^a>hI@DP-<F*@G+L'.Mh
,aLra@K`)DznzIDMTo2va,<NXJJmMbbaCWmPYGkksA<8Dl^=Y*^P+J!>.Qfe 7R*
PJCVIa\aL v;c6EHs2*zJAn.hBXJCP`F,`[z%hnV'VKhbsect)o>.22Chbk1-JC/
VuMYN_oc18ccTm%,'2aGwCL3IZ v(Mbl/hbcxb(rJa'\h`m)iVa=T**bO1NOu772
```

STATISTICS : STANDARD-ERROR OF THE MEAN OF THE OCCURRENCES % : 4.65

DISTRIBUTION OF THE ASCII CHARACTERS :

7		3	!	3	"	8	#
5	$	6	%	3	&	6	'
6	(	5	)	6	*	5	+
9	,	5	-	5	.	6	/
5	0	5	1	10	2	6	3
3	4	3	5	1	6	7	7
4	8	2	9	4	:	2	;
6	<	5	=	9	>	3	?
5	@	7	A	7	B	6	C
6	D	7	E	4	F	5	G
3	H	3	I	7	J	3	K
8	L	8	M	7	N	4	O
9	P	4	Q	7	R	5	S
6	T	4	U	8	V	3	W
4	X	7	Y	4	Z	11	[
4	\	4	]	5	^	3	_
7	`	5	a	13	b	11	c
5	d	6	e	4	f	5	g
12	h	6	i	5	j	7	k
12	l	8	m	5	n	7	o
3	p	11	q	3	r	3	s
3	t	4	u	6	v	4	w
6	x	3	y	7	z	0	{

7.2.1.3.AFTER OVER NO.2 :
****

```
_F@U;!74PZ4J\RZts^'+CPa%,_>oh2>S>no1Je_VStEm@eP$Sa,IA HF1f$@(a2C
v['-naS<5X`kKI(GtR<s@YEwkxrkw^y0`61W3@'y3mO_uJd-S'PJ+**1YOh1d!T4
@Ia,;RI^NC<xfah:Jr'/JfbvJs3xUuyn2kB$J$qRFs.?<E=0'S =;s(?mNJ>bXNd
1JUy$@m.V1zNM<LbsuZmdT5W18fJP\H#%ecqPJr;'&_s eiadc^I-Y&ysvN_7sx'
rJqsPz/uICqNm,flIwVF^<*J+t37)so7Vr8=00(*@C3z8J*dhR5%!x,KS9XEH8,#
T7.q8TDAZc8isH9JM-,!^JY$JR5e:1Wk%l[7M "'?nsn[(fJ ma!^5Xw<P^I_=UZ
FdmXi:$0q9o4SCJiTbM5JHH %,x*iIH\r,@o:En:)T<@<LShsE%xLCrJ9$K16;n-
rMzlZ.o5&Gs_YmQw=Ad%b$-VS a2Ibsz'86,(`(**ZC<u kM?JA&N'(#CX/E,l'.
```

STATISTICS : STANDARD-ERROR OF THE MEAN OF THE OCCURRENCES % : 4.36

DISTIBUTION OF THE ASCII CHARACTERS :

8		5	!	10	"	7	#
5	$	7	%	4	&	3	'
8	(	2	)	8	*	3	+
10	,	6	-	6	.	3	/
4	0	9	1	4	2	5	3
4	4	7	5	3	6	6	7
7	8	4	9	5	:	5	;
10	<	5	=	4	>	4	?
10	@	4	A	1	B	8	C
1	D	6	E	5	F	2	G
7	H	10	I	11	J	3	K
3	L	6	M	7	N	3	O
7	P	1	Q	6	R	10	S
6	T	4	U	5	V	3	W
6	X	5	Y	7	Z	5	[
3	\	5	]	8	^	8	_
3	`	9	a	6	b	3	c
8	d	5	e	6	f	8	g
5	h	5	i	7	j	6	k
5	l	9	m	7	n	6	o
4	p	6	q	5	r	8	s
4	t	5	u	3	v	5	w
7	x	5	y	5	z	0	{

7.2.2.DECRYPTION OPERATIONS :
****

REVERSE OF THE ENCRYPTION OPERATIONS.

REMARK : BETWEEN THE ENCRYPTION AND DECRYPTION OPERATIONS, THE START KEYS MUST BE ALSO ENTERED IN INVERSE ORDER.

8.EXECUTION TIME :
****

LESS THAN 10 MS / CODE ASCII.

9.CONCLUSION :
****

THE METHOD USED IN THIS PROGRAM PRESENTS SOME INTEREST IN THE FACT THAT IT PERMITS ADAPTATION OF THE SEQUENCES TO THE EXACT LEVEL OF PRIVACY DESIRED BY THE USER AND TO THE PERMISSIBLE COST WHICH IS A FUNCTION OF THE LEVEL OF 'INVIOLABILITY'.

THE ENCRYPTION-DECRYPTION PROGRAM 'CRYPTE' IS IMMEDIATLY TRANSPORTABLE TO ALL OPERATING SYSTEMS WITH A FORTRAN IV COMPILER AND IS DIRECTLY APPLICATIONS ORIENTED FOR MICRO TO LARGE SCALE COMPUTERS.

I THOUGHT YOU'D APPRECIATE THE TRICK I USE TO FIND OUT WHERE BUGS COME FROM. I'M A CTS-300 DIBOL USER WHO SEEMS TO END UP MAINTAINING OTHER PEOPLE'S CODE AFTER THEY'VE GIVEN UP AND CHANGED JOBS. I COME IN AND HAVE TO TRACK DOWN BUGS IN MOUNTAINS OF CODE THAT I NEVER SAW BEFORE, BUT I CAN DO IT BECAUSE I USE THE ATTACHED PROCEDURE WHICH WILL PRINT OUT ALL THE LINES OF CODE THAT REFER TO A CERTAIN VARIABLE NAME. I USE EDIT WHILE RUNNING UNDER BATCH MODE.

VERY TRULY YOURS,

Tim Kieffer

TIM KIEFFER

29 PARK DRIVE #8
BOSTON, MASS. 02215
MARCH 26, 1982

BATCH EDITING

THIS IS AN EXAMPLE OF GOING THROUGH ALL THE FILES ON A DISK AND PRINTING OUT ALL THE LINES OF CODE WHICH REFER TO A CERTAIN VARIABLE.

ASSUMPTIONS:

1)ALL SOURCE FILES HAVE A .DBL EXTENSION.

2)THE MONITOR IS SYSGENNED FOR BATCH

3)THERE IS A PRINTER AVAILABLE

4)THERE IS ROOM TO WORK ON SY:

5)WORK FILES HAVE A .XXX EXTENSION

6)WE WILL LOOK FOR A VARAIBLE NAMED "ROACH"

7)WE WILL USE THE K52 EDITOR (SET EDIT K52) FOR CREATING THE BATCH FILES

8)FILES NAMED TEMP*.* ARE MINE

9)COMMANDS TO THE EDITOR WILL BE SEPARATED BY A COMMA.

10)THE PROGRAM "EDIT.SAV" WILL BE ON THE SYSTEM DISK.

11) WHERE K52 WILL DISPLAY THE PLUS-OR-MINUS SIGN IN PLACE OF AND ESCAPE, I WILL USE THE POUND SIGN ('#').

==

PART 'A' - GET THE FILES WITH 'ROACH' IN THEM TO A .XXX EXTENSION

==

1) CREATE AN ALPHABETICAL LIST OF THE FILES.

```
.DIR/FAST/COL:1/ORDER:NAME/OUTPUT:TEMP.BAT *.DBL
```

2) FIX UP THE LIST OF THE FILES. DELETE THE FIRST LINE WITH THE DATE, AND THE LAST TWO LINES WITH THE FILE COUNT AND FREE BLOCK COUNT. THEN GET RID OF ANY EMBEDDED SPACES.

```
.EDIT TEMP.BAT
DELLINE,
GOLD,ADVANCE,CTRL/U,CTRL/U,
GOLD,BACKUP,
GOLD,COMMAND,L,E,ENTER,GOLD,FIND,(BLANK),
        ADVANCE,DELCHR,(LEFT ARROW),
GOLD,2,0,0,0,GOLD,X,
GOLD,COMMAND,E,X,I,T,ENTER
```

3) THE LIST OF FILES WILL NOW LOOK LIKE THIS:

```
AAAAAA.DBL
BBBBB.DBL
CCCC.DBL
DDD.DBL
EE.DBL
F.DBL
ZZZZZZ.DBL
```

4) USE THE EDITOR AGAIN TO PUT IN THE COMMANDS TO BATCH

```
EDIT TEMP.BAT
GOLD,COMMAND,L,E,ENTER,GOLD,FIND,.,D,B,L,ADVANCE,BACKUP,BLINE,
.,',F,F,',RETURN,.,R,(SPACE),E,D,I,T,RETURN,
ADVANCE,BLINE,GOLD,2,0,0,0,GOLD,X
```

5) THE FILE SHOULD LOOK LIKE THIS:

```
.'FF'
.R EDIT
AAAAAA.DBL
.'FF'
.R EDIT
BBBBB.DBL
.'FF'
        (AND SO ON TO...)
ZZZZZZ.DBL
```

6) INSERT A HEADING TO THE BATCH FILE

```
GOLD,BACKUP,$,J,O,B,/,R,T,1,1,RETURN,
TAB,TAB,T,T,Y,I,O,RETURN
```

7) CLEAN UP THE END OF THE FILE

```
GOLD,ADVANCE,.,',F,F,',RETURN,
$,E,O,J,RETURN,
```


8) END OUT FOR NOW (SO IF WE MAKE A MISTAKE, IT'S NOT ALL GONE).

```
GOLD,COMMAND,E,X,I,T,ENTER
```

9) GO BACK INTO K52, AND FIX UP THE LINES GOING INTO THE PROGRAM "EDIT"

```
.EDIT TEMP.BAT
GOLD,COMMAND,L,E,ENTER,GOLD,FIND,.,D,B,L,ADVANCE,
BACKUP,BLINE,*,E,R,ADVANCE,EOL,GOLD,2,7,GOLD,SPECINS,R,
GOLD,2,7,GOLD,SPECINS,GOLD,2,7,GOLD,SPECINS,
GOLD,2,0,0,0,GOLD,X,
GOLD,COMMAND,E,X,I,T,ENTER
```

10) THE FILE WILL LOOK LIKE THIS:

```
$JOB/RT11
                TTYIO
.'FF'
.R EDIT
*ERAAAAAA.DBL#R##
.'FF'
.R EDIT
*ERBBBBB.DBL#R##
.'FF'
                (AND SO ON TO.....)
*ERZZZZZZ.DBL#R##
.'FF'
$EOJ
```

11) NOW EDIT IN THE OUTPUT FILE NAMES

```
EDIT TEMP.BAT
GOLD,COMMAND,L,E,ENTER,
GOLD,FIND,*,E,R,ADVANCE,
DELLINE,GOLD,UNDELLINE,GOLD,UNDELLINE,ADVANCE,ADVANCE,
GOLD,2,0,0,0,GOLD,X,
GOLD,COMMAND,E,X,I,T,ENTER
```

12) NOW FIX UP THE OUTPUT FILE LINES

```
EDIT TEMP.BAT
GOLD,COMMAND,L,E,ENTER,
GOLD,FIND,*,E,R,ADVANCE,BLINE,(RIGHT ARROW),
DELCHR,DELCHR,E,W,
GOLD,FIND,.,ADVANCE,(RIGHT ARROW),
DELCHR,DELCHR,DELCHR,X,X,X,
(RIGHT ARROW),DELCHR,E,X,
GOLD,2,0,0,0,GOLD,X,
GOLD,COMMAND,E,X,I,T,ENTER
```

13) THE FILE SHOULD LOOK LIKE THIS:

```
$JOB/RT11
                TTYIO
.'FF'
.R EDIT
*ERAAAAAA.DBL#R##
*EWAAAAAA.XXX#EX##
```

```
,'FF'
,R EDIT
*ERBBBBB,DBL$R##
*EWBBBBB.XXX$EX##
,'FF'
                    (AND SO ON TO.....)
*ERZZZZZZ,DBL$R##
*EWZZZZZZ.XXX$EX##
,'FF'
$EOJ

NOW PUT IN THE SEARCH FOR "ROACH".

EDIT TEMP.BAT
GOLD,COMMAND,L,E,ENTER,
GOLD,FIND,*,E,W,ADVANCE,(RIGHT ARROW),
G,R,O,A,C,H,GOLD,2,7,GOLD,SPECINS,
GOLD,2,0,0,0,GOLD,X,
GOLD,COMMAND,E,X,I,T,ENTER

THE FILE WILL NOW LOOK LIKE THIS:

$JOB/RT11
                    TTYIO
,'FF'
,R EDIT
*ERAAAAAA,DBL$R##
*GROACH$EWAAAAAA.XXX$EX##
,'FF'
,R EDIT
*ERBBBBB,DBL$R##
*GROACH$EWBBBBB.XXX$EX##
,'FF'
                    (AND SO ON TO.....)
*ERZZZZZZ,DBL$R##
*GROACH$EWZZZZZZ.XXX$EX##
,'FF'
$EOJ

NOW RUN THAT BATCH:

.ASSIGN TT LOG
.ASSIGN TT LST
.LOAD TT
.LOAD BA
.RUN BATCH
*TEMP

GET A CUP OF COFFEE WHILE BATCH AND EDIT GO LOOKING FOR
"ROACH"ES, AND ON FINDING THEM, PUTTING COPIES OF THOSE
FILES OUT WITH A .XXX EXTENSION.
```

==========

PART "B" - MARCH ALL THE "ROACH"ES OUT TO THE PRINTER

==========

1) CREATE AN ALPHABETICAL LIST OF THE FILES CONTAINING "ROACH"


```
.DIR/FAST/COL:1/ORDER:NAME/OUTPUT:TEMP.BAT *.XXX
```

2) FIX UP THE LIST OF THE FILES. DELETE THE FIRST LINE WITH THE DATE, AND THE LAST TWO LINES WITH THE FILE COUNT AND FREE BLOCK COUNT. THEN GET RID OF ANY EMBEDDED SPACES.

```
.EDIT TEMP.BAT
DELLINE,
GOLD,ADVANCE,CTRL/U,CTRL/U,
GOLD,BACKUP,
GOLD,COMMAND,L,E,ENTER,GOLD,FIND,(BLANK),
       ADVANCE,DELCHR,(LEFT ARROW),
GOLD,2,0,0,0,GOLD,X,
GOLD,COMMAND,E,X,I,T,ENTER
```

3) THE LIST OF FILES WILL NOW LOOK LIKE THIS:

```
AAAAAA.XXX
BBBBB.XXX
CCCC.XXX
ZZZZZZ.XXX
```

4) USE THE EDITOR AGAIN TO PUT IN THE COMMANDS TO BATCH

```
EDIT TEMP.BAT
GOLD,COMMAND,L,E,ENTER,GOLD,FIND,.,X,X,X,ADVANCE,BACKUP,BLINE,
.,',F,F,',RETURN,.,R,(SPACE),E,D,I,T,RETURN,
ADVANCE,BLINE,GOLD,2,0,0,0,GOLD,X
```

5) THE FILE SHOULD LOOK LIKE THIS:

```
,'FF'
,R EDIT
AAAAAA.XXX
,'FF'
,R EDIT
BBBBB.XXX
,'FF'
       (AND SO ON TO...)
ZZZZZZ.XXX
```

6) INSERT A HEADING TO THE BATCH FILE

```
GOLD,BACKUP,$,J,O,B,/,R,T,1,1,RETURN,
TAB,TAB,T,T,Y,I,O,RETURN
```

7) CLEAN UP THE END OF THE FILE

```
GOLD,ADVANCE,.,',F,F,',RETURN,
$,E,O,J,RETURN,
```

8) END OUT FOR NOW.

```
GOLD,COMMAND,E,X,I,T,ENTER
```

9) GO BACK INTO K52, AND FIX UP THE LINES GOING INTO THE PROGRAM

```
'EDIT'

.EDIT TEMP.BAT
GOLD,COMMAND,L,E,ENTER,GOLD,FIND,.,X,X,X,ADVANCE,
BACKUP,BLINE,*,E,R,ADVANCE,EOL,GOLD,2,7,GOLD,SPECINS,R,
GOLD,2,7,GOLD,SPECINS,GOLD,2,7,GOLD,SPECINS,
GOLD,2,0,0,0,GOLD,X,
GOLD,COMMAND,E,X,I,T,ENTER
```

10) THE FILE WILL LOOK LIKE THIS:

```
$JOB/RT11
                TTYIO
.'FF'
.R EDIT
*ERAAAAAA.XXX$R$$
.'FF'
.R EDIT
*ERBBBBB.XXX$R$$
.'FF'
                (AND SO ON TO.....)
*ERZZZZZZ.XXX$R$$
.'FF'
$EOJ
```

11) NOW PUT IN THE SEARCH FOR 'ROACH'.

```
EDIT TEMP.BAT
GOLD,COMMAND,L,E,ENTER,
GOLD,FIND,*,E,R,ADVANCE,BLINE,
*,B,2,0,0,0,<,G,R,O,A,C,H,GOLD,2,7,GOLD,SPECINS,V,A,>,
GOLD,2,7,GOLD,SPECINS,
GOLD,2,7,GOLD,SPECINS,RETURN,
GOLD,2,0,0,0,GOLD,X,
GOLD,COMMAND,E,X,I,T,ENTER
```

12) THE FILE WILL NOW LOOK LIKE THIS:

```
$JOB/RT11
                TTYIO
.'FF'
.R EDIT
*ERAAAAAA.XXX$R$$
*B2000<GROACH$VA>$$
.'FF'
.R EDIT
*ERBBBBB.XXX$R$$
*B2000<GROACH$VA>$$
.'FF'
                (AND SO ON TO.....)
*ERZZZZZZ.XXX$R$$
*B2000<GROACH$VA>$$
.'FF'
$EOJ
```

13) NOW RUN THAT BATCH:

```
.ASSIGN LP LOG

.ASSIGN LP LST

.LOAD LP

.LOAD BA

.RUN BATCH

*TEMP
```

14) GET A CUP OF COFFEE WHILE BATCH AND EDIT GO LOOKING FOR 'ROACH'ES, AND ON FINDING THEM, WILL PRINT OUT EACH ONE ON YOUR PRINTER.

USER REQUESTS

==========

H E L P W A N T E D

==========

At the Spring '82 DECUS Symposium I volunteered to 'honcho' an effort to convert the 'Software Tools' package from RSX-11 to RT-11/TSX-Plus. My motives were purely selfish; I want to use the package. I need some volunteers to form a Working Group to tackle the project. If you are interested in participating, contact:

Bill Jacklin - 1738
Sandia National Laboratories
P.O. Box 5800
Albuquerque, NM 87185
(505) 844-8088

I an interested in contacting anyone that has an RT-11 handler that supports an RM02/RM03 disk.

Thankyou,

Vince Perriello
111 Carroll St.
Naugatuck, Ct. 06770

USER RESPONSES

I would like to thank you for your work with the Mini-Tasker. I look forward to setting it here in Cairo Egypt as it is a source of information which is not available from the local DEC dealer or any other source.

In the recent Mini-Tasker someone asked for a RT-11 "Visi-calc". Lifeboat Associates, 1651 Third Ave., NYC 10028, (212) 860-0300 advertise "T/Maker II" as a Visi-calc equivalent for RT-11. I checked them out about a month ago and they still did not have the RT-11 version available but it may be now. It is written in "C" and a Unix version is available.

I am in need of some information and if you have the time could you answer the following questions.

1. Do you know of any other Data Base Programs other than RTFILE which would run under RT-11 with floppy disks and not be too expensive?

Very Truly Yours,

Wm F Deerhake

William F. Deerhake
Amoco Egypt Oil Co.
PO Box 38530
Houston, TX 77088

UPCOMING SYMPOSIUM INFORMATION

Coming Attractions for the Fall DECUS Symposia

Planning for the Fall DECUS symposia has already begun and, in fact, began at the Spring Symposia in Atlanta. The Fall convention should be an exciting one for RT-11 persons, because the long awaited Version 5 will be a reality, if only in test sites. The purpose of this article is to preview some of the sessions that will be held in Anaheim in December.

RT-11 Version 5 is being called a 'stabilization' release. That means that the overall structure of RT-11 and the utilities are being enhanced, but that no new functionality is being added. We can expect many new features, but they are being added to extend existing functionality of RT-11. The RT-11 developers will be presenting three technical sessions on some of the new features of RT-11. One of these sessions will be a tutorial on the XM monitor and how it can be used in different areas. There will also be an in-depth tutorial on the Version 5 logical disk subsystem that will be a part of the distribution kit. And, finally, the creator of IND (the indirect command file processor that is a superset of the RSX version) for RT-11 will be there to discuss how it works and how it can be used.

Those three sessions alone may be enough to get you to attend the symposia, but there is still more. One session will give a general overview of Version 5 and all the layered products that will be supported. And another session will be an illustrated history of RT-11. It is rumored that we will have pictures of all the past, present, and future RT-11 developers starting with Version 1. I am sure that we will hear one or two war stories and even learn why RT-11 is the way it is. The user Speakout! session will again be scheduled and I am sure that we will be able to silence the clown in the back of the room that kept answering all the questions with 'write it in TECO!'

There will also be a number of user driven sessions in Anaheim, especially in the area of FORTRAN. One session will demonstrate gestalt programming techniques by examining the FORTRAN-MACRO interface and how it is used. There will also be a user panel on three of the FORTRAN preprocessors that are available for RT-11. The ever popular FORTRAN file structure tutorial may be presented again in an expanded time slot.

So, there is an idea of what to expect at the next DECUS symposia. I find the conventions very worthwhile and a great place to meet new friends. It is my job to schedule the RT-11 sessions for the conventions, and I would be happy to talk to you about a paper that you would like to present or topics that you would like to see in the future. I do need some help for the next symposia in the form of session chairmen or chairwomen. The job of the session chairperson is to introduce the session speaker and fill out a short questionnaire about the quality of the session. The job can be used as an excuse to your boss that your attendance is required at the next convention and it also will get you a green ribbon for your badge. If you are interested, please write to me at the address below, and I will be happy to sign you up. Please indicate what areas you are interested in, and I will match you up with similar sessions. This is a great way to get involved with the RT-11 SIG and get to know some of the speakers.

Ned W. Rhodes
Melpar Division
E-Systems Inc.
7700 Arlington Blvd.
Falls Church, VA. 22046

SYMPOSIUM TAPE INFORMATION

****

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 magnetic tape. However, before requesting copies on any media other than magnetic tape you should contact the copy center for confirmation.

The rules are quite simple. A magnetic 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.

CAUTION

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. 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
Fall 80	San Diego
Spring 81	Miami
Fall 81	Los Angeles
Spring 82	Atlanta

MIDWESTERN U.S.

Joseph Lachman
Lachman Associates, Inc.
645 Blackhawk Dr.
Westmont, IL 60559
(312) 986-8840
Media: 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

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

19-May-81/NABourgeois

****

****
*
* Spring 82 DECUS Symposium RT-11 Tape *
*
* Atlanta *
*
* Annotated Directory *
*
****
*
* IMPORTANT *
*
* Read the file, README.1ST, first. *
*
****

David Stagg
Dept of Pharmacology
Yale University Medical School
333 Cedar Street
New Haven
Ct 06510
203-436-2151

These files are taken from the Fall 81 RT-11 tape.

This is an implementation of the virtual-device driver described by Crapuchettes on page 639 of the DECUS proceedings Fall 1980.

```
XD      .COM      1  01-May-80  Virtual-device build file
XD      .MAC      5  08-May-81  Virtual-device driver source
XD      .RNO      8  16-Nov-81  Description RUNOFF source
XDX     .SYS      2  05-May-81  XM driver
XDATCH.COM        1  17-Apr-81  XDATCH utility command file
XDATCH.FOR        9  13-Nov-81  XDATCH utility source
GETFIL.MAC       10  05-Nov-81  XDATCH subroutine
FTRAN .MAC        3  17-Apr-81  XDATCH subroutine
TRIMS .MAC        1  17-Apr-81  XDATCH subroutine
ASLOOK.MAC        6  17-Apr-81  XDATCH subroutine
XD      .SYS      2  05-May-81  SJ/FB driver
XD      .DOC     10  16-Nov-81  Description document
XDATCH.SAV       21  17-Apr-81  XDATCH utility
README.DOC        1  16-Nov-81  This file
 14 Files, 80 Blocks
```

****

DIR1.DEV
DIR2.DEV

N. A. Bourgeois, Jr. / 1738
Sandia National Laboratories
P. O. Box 5800
Albuquerque, NM 87185
(505) 844-8088

R. W. Barnard
Sandia National Laboratories
P. O. Box 5800
Albuquerque, NM 87185
(505) 844-5115

Annotated directories of the DECUS Symposia RT-11 tapes from the Spring of 78 through the Fall of 81.

```
S78    .DIR     28  21-Dec-81      F78    .DIR     27  21-Dec-81
S79    .DIR     37  21-Dec-81      F79    .DIR     92  21-Dec-81

S80    .DIR     41  21-Dec-81      F80    .DIR    102  21-Dec-81
S81    .DIR    158  21-Dec-81
 7 Files, 485 Blocks

F81    .DIR     55  21-Dec-81      README.RNO      4  21-Dec-81
README.DOC       4  21-Dec-81      PRINT .COM      1  22-Dec-81
S78NEW.DIR      29  14-Apr-82      RTAPES.LIB    145  06-May-82
README.LIB       3  06-May-82
 7 Files, 241 Blocks
```

****

MISC.DEV

Hugh Scott
Sandia National Labs
Division 2644
Albuquerque
NM 87185
505-844-6681

TEMPRO - PDP11 to and from VAX file transfer program and terminal emulator.

```
TEMPRO.MAC -- source file for TEMPRO
TEMPRO.DOC -- instructions for running TEMPRO
TEMPRO.TXT -- this file
```

****

Paul F. Fitts
Innovatek Microsystems Inc.
Smithfield Road
Millerton, New York 12546
(914) 373-9003

Affixes 1 line date and time and a command string to printouts.

This Package consists of 8 files:

```
HDR.DOC         This file
HDR.COM         This is the entry file for execution
HDRCMD.MAC      HDRCMD source file
HDRCMD.OBJ      HDRCMD object file
HDRCMD.MAP      HDRCMD LINK map file
HDRCMD.SAV      HDRCMD run time file
HDRCMD.LST      HDRCMD listing file from MACRO
HDRCMD.COM      This indirect command file executes the command entered
                by the operator.
```

****

```
########################################
#                                      #
#       BIG GOOF        BIG GOOF       #
#                                      #
#   This submission failed to make it  #
#   onto this tape.  All I can do now  #
#   is to say that I'm sorry.  NAB     #
#                                      #
########################################
```

EXEC is a version of the TSTE terminal emulator program which includes Compuserve Information Service (CIS) "executive" protocol for file transfer between DEC/H11 computers acting as terminals and the host machines at CIS.

Submitted By: Chuck Sadoian
PO Box 397
Dinuba, Calif 93618

Through: R. W. Barnard
Sandia National Laboratories
Albuquerque, NM 87185

```
EXEC  .DOC    25  05-May-82      ACCESS.DOC    10  22-Mar-82
EXEC  .MAC    90  05-May-82      EXEC  .TXT     3  06-May-82
EXEC  .DIR     1  12-May-82
 6 Files, 130 Blocks

********
```

W. L. Jacklin
Sandia National Laboratories
P. O. Box 5800
Albuquerque, NM 87185
(505) 844-8088

Text of paper presented at the Spring '82 DECUS Symposium:
USE OF THE 'C' LANGUAGE PRE-PROCESSOR IN THE RT-11 FORTRAN ENVIRONMENT.

```
12-May-82
CFOR  .DOC    38  12-May-82
 1 Files, 38 Blocks
```

****

```
C1.DEV
C2.DEV
C3.DEV
C4.DEV
C5.DEV
```

>>> DECUS C SUPPORTS FLOATING POINT AND INLINE EIS <<<

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

At long last, here is a PRELIMINARY binary kit for Decus C which supports floats and doubles. You need FPU hardware, or some kind of emulator. It also emits inline EIS. Many, many bug fixes to the compiler, complete overhaul of some of it, restructuring of the library, more tools, etc. This kit is the result of a last minute merge (late Tuesday nite 4-May) and may still have a few problems. Some of the new versions of the tools have not been tested on RT-11 ... worked fine on RSX. Thanks to Martin Minow at DEC for doing 80% of ALL work on Decus C ('nuff said!!), Cliff Geschke at Unimation Robotics, who did the massive overhaul of the compiler, and Scott Roth, also of Unimation Robotics, who did the library mods for floating point and other goodies.

****
* N O T E *
****

The finally released kit will be available from the DECUS library soon. PLEASE, if you want a copy of the kit, sources and all, order it from the DECUS library. I have gone nuts over the last year and a half answering calls on problems due to partial and corrupted kits. We're going to put together a reasonable RT-11 kit. Anyway, THE LIBRARY CAN'T CONTINUE TO EXIST IF YOU DONT BUY PROGRAMS FROM IT. Please, think about it...


```
README.1ST     7  04-May-82     Read this first (this document)

STDIO .H       5  04-May-82     Standard I/O Header file

The following header files are needed only when using certain
library functions. Copy 'em to your system disk anyway.
TIME  .H       3  04-May-82      CTYPE .H       6  04-May-82
RTIME .H       3  04-May-82      SETJMP.H       1  04-May-82
TIMEB .H       3  04-May-82

C Compiler and Assembler
CC    .SAV   116  04-May-82      AS    .SAV    32  04-May-82

Library modules. CLIB has small "stub" floating format conversion
routines. If you use floating conversions in printf() and friends,
explicitly link in DTOA.OBJ, for floating conversions in scanf()
and friends, explicitly link in ATOD.OBJ.
SUPORT.OBJ     1  04-May-82      DTOA  .OBJ     3  04-May-82
ATOD  .OBJ     1  04-May-82      CLIB  .OBJ   103  04-May-82

Trig routines
ATAN2 .C       5  04-May-82      SINCOS.C       4  04-May-82
SQRT  .C       2  04-May-82

Software tools. See TOOLS.DOC
AR    .SAV    29  04-May-82      BUILD .SAV    54  04-May-82
COMM  .SAV    16  04-May-82      DIFF  .SAV    22  04-May-82
ECHO  .SAV    10  04-May-82      FIXDOC.SAV    15  04-May-82
GETCMD.SAV    23  04-May-82      GETKWK.SAV    15  04-May-82
GETRNO.SAV    32  04-May-82      NC    .SAV    11  04-May-82
GREP  .SAV    25  04-May-82      SORTC .SAV    19  04-May-82
KWIK  .SAV    24  04-May-82      MC    .SAV    29  04-May-82
MP    .SAV    44  04-May-82      OD    .SAV    14  04-May-82
PR    .SAV    11  04-May-82      SCAT  .SAV    20  04-May-82
T     .SAV    40  04-May-82      TODAY .SAV    22  04-May-82
UNIQ  .SAV    22  04-May-82      WC    .SAV    14  04-May-82
NM    .SAV    39  04-May-82      XRF   .SAV    24  04-May-82

Documentation.
TOOLS .DOC   210  04-May-82      WIZARD.DOC   695  04-May-82
AS    .DOC    64  04-May-82      CC    .DOC   111  04-May-82
KIT   .DOC    65  04-May-82      DECUS .DOC     6  04-May-82

NOTE:   WIZARD.DOC is in C4.DEV and C5.DEV as WIZARD.1 and

        WIZARD.2, respectively.
```

****

```
SFGL1.DEV
SFGL2.DEV
```

SFGL70 IS A GENERAL PURPOSE FORTRAN CALLABLE GRAPHICS LIBRARY THAT SUPPORTS:

1. RT11,RSX11M & IAS OPERATING SYSTEMS
2. TEKTRONIX 4006,4010,4014 & 4025 TERMINALS
3. VT100 TERMINALS WITH THE RETROGRAPHICS OR SELANAR UPGRADE
4. ANY OF THE MANY TERMINALS THAT ACCEPT 4010 GRAPHICS INPUT

5. CPU'S WITH OR WITHOUT FLOATING POINT HARDWARE
6. CPU'S WITH OR WITHOUT THE EXTENDED INSTRUCTION SET

THIS FLOPPY CONTAINS THE LATEST VERSION (MAY 1982). I HAVE CORRECTED ALL PROBLEMS THAT HAVE BEEN REPORTED TO ME.

KEN DEMERS
UNITED TECHNOLOGIES RESEARCH CENTER
ROBOTICS LABORATORY
EAST HARTFORD, CONNECTICUT 06108
203 727-7527 OR 7240

FLTXTI.MAC	3	25-Mar-82	HTEXT .MAC	2	17-Dec-79
HTEXTI.MAC	2	17-Dec-79	HTXT .MAC	2	17-Dec-79
PLOT .MAC	2	17-Dec-79	TICXOY.MAC	2	25-Nov-81
PLOTC .MAC	2	17-Dec-79	VCURSR.MAC	2	17-Dec-79
VTEXT .MAC	2	17-Dec-79	VTEXTI.MAC	2	17-Dec-79
LSTPLT.MAC	2	24-Nov-81	PLTSYM.MAC	3	25-Mar-82
TXTGRD.MAC	2	25-Mar-82	EMU20 .FOR	1	30-Mar-82
COPPLT.COM	3	23-Nov-81	GTCUR .MAC	2	17-Dec-79
TXTINT.MAC	2	25-Mar-82	WINDOW.MAC	4	18-Nov-81
MVCUR .MAC	2	22-Mar-82	VTXT .MAC	3	18-Nov-81
POINT .MAC	3	25-Nov-81	PLTDAT.MAC	9	30-Mar-82
REGSAV.MAC	2	24-Nov-81	TICMKG.MAC	3	17-Dec-79
LSTPLT.COM	3	25-Nov-81	POINTI.MAC	3	25-Nov-81
PLTTST.FOR	3	20-Nov-81	PLTSCR.FOR	2	23-Nov-81
ABSGRD.MAC	4	25-Nov-81	PLTTIC.MAC	3	25-Nov-81
TICMRK.MAC	3	17-Dec-79	LABEL .MAC	4	25-Nov-81
FIRST .MAC	3	25-Nov-81	TICGRD.MAC	5	02-Dec-81
MACPLT.COM	2	25-Nov-81	TICWIN.MAC	5	02-Dec-81
FLTXT .MAC	3	25-Mar-82	SCALE .MAC	8	03-Dec-81
VIRABS.MAC	5	02-Dec-81	LIBPLT.COM	2	07-Dec-81
SFGL70.DOC	44	06-May-81	PLTTST.COM	1	21-Jan-82
PLTVCR.COM	1	21-Jan-82	PLTSCR.COM	1	21-Jan-82
BLDPLT.COM	1	01-Mar-82	GRID .MAC	15	30-Mar-82
EMU20 .COM	1	07-Apr-82	EMU20 .MAP	12	07-Apr-82
PLTVCR.SAV	27	05-May-82	PLTVCR.FOR	2	13-Apr-82
ENCODE.MAC	6	28-Apr-82	PLTWIN.FOR	3	04-May-82
PLTGEN.MAC	4	05-May-82	LABTIC.MAC	5	04-May-82
PLTCON.FST	2	05-May-82	PLOTPR.MAC	49	04-May-82
PLTSCR.SAV	27	05-May-82	Z .COM	1	05-May-82
PLTWIN.COM	1	05-May-82	COMDBT.MAC	13	05-May-82
DISTIC.MAC	11	05-May-82	PLTCON.MAC	2	05-May-82
X .COM	1	05-May-82	BLDTST.COM	1	05-May-82
PLTTST.MAP	12	05-May-82	PLTWIN.MAP	14	05-May-82
PLTSCR.MAP	11	05-May-82			

67 Files, 388 Blocks

PLTVCR.MAP	12	05-May-82	SFGL70.RNO	42	05-May-82
README.1ST	4	05-May-82	PLTWIN.SAV	30	05-May-82
PLTTST.SAV	28	05-May-82	DATA .OBJ	7	25-Nov-81
SFGL70.OBJ	40	05-May-82			

8 Files, 165 Blocks

****

TECO1.DEV
TECO2.DEV

TECO Version 36.

Steve Heflin
New Age Micro Systems, Inc.
28 Bates Street
Foxboro, Mass 02035
(617)543-4237

TECO .OBJ	46	18-Jan-82	SCREEN.OBJ	16	18-Jan-82
SCRINS.OBJ	4	18-Jan-82	SCROLL.OBJ	4	18-Jan-82
TECO .MAP	14	18-Jan-82	TECO .SAV	51	18-Jan-82
TECOV .MAP	14	18-Jan-82	TECOV .SAV	50	18-Jan-82
CRTASM.COM	1	18-Jan-82	TECASM.COM	1	18-Jan-82
TECLNK.COM	1	18-Jan-82	TECO .DIR	3	12-MAY-82

11 Files, 202 Blocks

CRTPRE.MAC	1	18-Jan-82	TIOPRE.MAC	18	18-Jan-82
TECOV .MAC	2	18-Jan-82	TECOIO.MAC	66	18-Jan-82
TIOFET.MAC	4	18-Jan-82	TIOEIO.MAC	28	18-Jan-82
TIOIAS.MAC	6	18-Jan-82	CRTRUB.MAC	47	18-Jan-82
TIOENC.MAC	28	18-Jan-82	TIOINI.MAC	61	18-Jan-82
TIORFS.MAC	34	18-Jan-82	TIODCD.MAC	16	18-Jan-82

12 Files, 311 Blocks

****

RESLIB.DEV

This is a set of modules for implementing RSX-like libraries under RT-11 FB. It is an updated version of an earlier submission.

Mark Bartelt
Caltech 356-48
Pasadena, California 91125
213/356-6663

(After July 1, 1982, I can be reached at:

HSC Research Development Corporation
555 University Avenue
Toronto, Ontaraio M5G 1X8
Canada

RESLIB.DOC	11	07-May-82	LB .MAC	6	07-May-82
MAKELB.FOR	12	07-May-82	LSHIFT.MAC	2	21-May-79
MAKELB.V3	16	07-May-82	MAKELB.V4	16	07-May-82
OTI .NHD	5	25-Jan-82	OTI .EAE	5	25-Jan-82
OTI .EIS	5	25-Jan-82	OTI .FIS	5	25-Jan-82
OTI .FPU	6	25-Jan-82	OTISET.OBJ	1	25-Jan-82
FCHNL .OBJ	1	03-May-80			

13 Files, 91 Blocks

****

GETRSX.DEV

This is a UNIX program to read RSX-11 (ODS-1) filesystems. It is submitted in hopes that it can be easily ported to RT-11 using the DECUS C compiler.

Mark Bartelt
Caltech 356-48
Pasadena, California 91125
213/356-6663

(After July 1 I can be reached at:

HSC Research Development Corporation
555 University Avenue
Toronto, Ontario M5G 1X8
Canada)


```
README.1ST     2  07-May-82      GETRSX.C      38  07-May-82
GETRSX.DOC     6  07-May-82      GETRSX.DIR     2  12-May-82
 3 Files, 46 Blocks
```

****

APL1.DIR
APL2.DIR

Douglas R. Bohrer
First Chicago
1 First National Plaza
Personnel Suite 0005
Chicago
IL 60091
312-732-8785

APL-11 and Utilities.

```
APL03 .SAV    CHAREX.HLP    FORUTL.DOC    MAPPER.FOR    MATCHB.FOR
APL06 .SAV    FIXLEN.FOR    FSALEN.FOR    MAPPER.HLP    MATCHB.HLP
APL07 .SAV    FIXLEN.HLP    FSALEN.HLP    MATCH .FOR    UTLCAL.APL
CHAREX.FOR    FORUTL.COM    INVERT.APL    MATCH .HLP    UTLPRT.APL
20 files, 391 Blocks

APLUTL.DOC    APL00 .SAV    APL01 .SAV    APL02 .SAV    APL04 .SAV
5 files, 417 Blocks
```

****
*****

The following is a physical directory of the Spring 82 RT-11 SIG tape that was made in Atlanta.

```
 Volume ID: S82
 Owner    : RT-11
TAPE  .DIR    28  18-May-82      README.1ST     7  18-May-82
GETFIL.MAC    10  18-May-82      FTRAN .MAC     3  18-May-82
TRIMS .MAC     1  18-May-82      ASLOOK.MAC     6  18-May-82
```



```
XD    .COM     1  18-May-82      XD    .MAC     5  18-May-82
XDATCH.COM     1  18-May-82      XDATCH.FOR     9  18-May-82
XD    .RNO     8  18-May-82      README.DOC     2  18-May-82
MMGT  .MAC     1  18-May-82      XDATCH.SAV    21  18-May-82
XD    .DOC    10  18-May-82      XD    .SYS     2  18-May-82
DIR1  .DEV   494  18-May-82      DIR2  .DEV   494  18-May-82
MISC  .DEV   494  18-May-82      C1    .DEV   494  18-May-82
C2    .DEV   494  18-May-82      C3    .DEV   494  18-May-82
C4    .DEV   494  18-May-82      C5    .DEV   494  18-May-82
SFGL1 .DEV   494  18-May-82      SFGL2 .DEV   494  18-May-82
TECO1 .DEV   494  18-May-82      TECO2 .DEV   494  18-May-82
RESLIB.DEV   494  18-May-82      GETRSX.DEV   494  18-May-82
APL1  .DEV   494  18-May-82      APL2  .DEV   494  18-May-82
 32 Files, 8019 Blocks
```

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I have made three enhancements to the SFGL70 graphics package that was submitted to the Atlanta Symposium Tape. They will be included in the package that will be submitted to the tape this Fall. If you would like to have a copy sooner, just send me 1 double density or 2 single density floppy disks. The three enhancements are:

1. the package wil now interface with 'DEC BASIC'.
2. the package will now interface with 'TSX'.
3. the package will now allow graphic output to a scope that is not at the standard console address.

Ken Demers

FORTRAN-77 and PASCAL for RT-11 Survey

The RT-11 SIG has become increasingly concerned about the lack of language development support from Digital in the past few years. At the Spring 1982 DECUS Symposium in Atlanta there were several discussions with Digital on FORTRAN-77. An RT-11 SIG Position Paper on FORTRAN-77 has been submitted to Digital detailing the features of FORTRAN-77 which are highly desireable for RT-11. The major items presented were floating point instruction support, faster execution times, INTEGER*4, structured language constructs, and compatibility.

The purpose of this survey is to augment the Position Paper with inputs from the whole RT-11 community. The results of the survey will be forwarded directly to Digital's Technical Languages Group which is responsible for FORTRAN IV, FORTRAN 77, and PASCAL.

WE NEED YOUR INPUT !!

This is your opportunity to make your wishes known to Digital on further language development for RT-11.

Please take the time to fill out the survey and return it to me by October 1, 1982. Use an additional sheet for comments if necessary.

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1. Can a floating point unit be mandatory on an RT system running a FORTRAN-77 product? (Can EIS be mandatory? Is FIS required?)

2. Is it acceptable that compilations using this FORTRAN-77 product require the XM monitor and 128K bytes of memory? In general, would required minimal configurations (e.g. amount of memory and disk space required) still make this a useful product for you?

3. Is it acceptable that there be no option to generate threaded code with a FORTRAN-77 product on RT? (FORTRAN IV/RT does generate threaded code. In addition to the loss of ability to reduce application task sizes through generation of threaded code, lack of a threaded code capability would mean there would be less checking for overflow than is available with FORTRAN IV/RT.)

4. Do you need a FORTRAN-77 product to conform to the ANSI FORTRAN Standard at the subset level, or do you require just some of the ANSI features?

5. What features of F77/RSX would you find most useful? (CHARACTER variables, IF THEN ELSE, INTEGER * 4 arithmetic, in-line floating point code...) Would this product need to implement only some of the language features in F77/RSX, or would you require all of those features?

6. Can the compile speed of a FORTRAN-77 product on RT be slower than that of FORTRAN IV?

7. What size constraints (on user programs, memory, compiler task image) would you consider acceptable? In particular, in comparison to the FORTRAN IV product, what would an acceptable percentage growth in compiler task size be (10%, 20%, ...)? How about user program growth (10%, 20%, ...)?

8. Quote a price range that you believe is reasonable for a FORTRAN-77 product on RT.

9. What is an acceptable window of availability for a FORTRAN-77 product on RT (within the next year, next two years, etc.)?

10. Do you need to be able to run applications 'stand alone' as is now possible with FORTRAN IV/RT and SIMRT?

11. Would you be willing to accept a phase-out of support of the FORTRAN IV product within a year of the release of a FORTRAN-77 product (after phase-out, the FORTRAN IV product would be available in a stable condition on a totally unsupported basis)?

12. Are you especially interested in a Pascal on RT? Before or instead of a FORTRAN-77? After a FORTRAN-77 or never? Simultaneously?

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