

MUXTNT  
STORAGE ALLOCATION.

COMPASS - VER 2. 07/24/71 17.49.52.

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ADDRESS	LENGTH	BINARY CONTROL CARDS.	
0	1511	IDENT	MUXINT
1511		END	

ENTRY POINTS.

MUXWRIT	=	400	MUXQADD	=	357	T,MUX	=	361
I,MUXP	=	0	MUXPNTS	=	360			

EXTERNAL SYMBOLS.

I,LOCK	DISASTR	T,MUXQ	HANGI	INTSCR
EVENTI	E,ECS	T,MUXPC	DINTO	T,WAIT

MUXINT

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IDENT MUXINT

\*  
\*

EXT	I-LOCK,EVENT1
EXT	DISASTR
EXT	E-ECS
EXT	I-MUXQ,I-MUXPC
EXT	HANG1
EXT	D-INTQ,INTSCR
LIST	X

0

INTSYS XTEXT

50	P-SOCL	EQU	548	INTSYS	1
454	I-PAUSE	EQU	360	LOOP TIME (APROX 2 MICROSEC PER LOOP) INTSYS	1
	*			FOR PAUSE FOR PPU INTERRUPTS	1
5	I-NUNCH	EQU	5	NUMBER OF CHAINING WORDS TO UNCHAIN	1
	*			BEFORE PAUSE FOR PPU INTERRUPTS	1
5	I-NUSUR	EQU	5	NUMBER OF SUBPROCESS PROBES IN ECS	1
	*			DURING INTER-PROCESS INTERRUPTS	1
	*			INTSYS	1
	*			BEFORE PAUSE FOR PPU INTERRUPTS	1
				INTSYS	1

## REFINE ASSORTED CONSTANTS.

## MUX INTERRUPT COMMANDS TO TTY OUTPUT

1	COUTEVNT	EQU	1
2	GETOKRSP	EQU	2
3	GETNORSP	EQU	3
4	CSPOUT	EQU	4

## MUX INTERRUPT COMMANDS TO TTY INPUT

1	CINDEVNT	EQU	1
2	INRESP	EQU	2
3	CHKEMPT	EQU	3
4	CHKNEMPT	EQU	4

## EVENTS TO USER

10000	OUTEVENT	EQU	10000B
20000	INEVENT	EQU	20000B
30000	FVEVENT	EQU	30000B

## SIZE OF MULTIPLEXOR

MUXWRBT MUST BE CHANGED IN MUX IF MUXWRBT  
CHANGED HERE

	ENTRY	MUXWRBT	
400	MUXWRBT	EQU	400B
400	MUXWRBT	EQU	MUXWRBT

## CONSTANTS FOR BROADCAST

20	MAXBRDN	EQU	16	MAX NUMBER OF WORDS IN A BROADCAST MSG
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MUXINT

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\*  
\* FCS READ AND WRITE MACROS  
\*  
RECS MACRO CNT  
RE CNT  
RU E,ECS  
ENDM  
\*  
WECS MACRO ANT  
WE ANT  
RU E,ECS  
ENDM

## ENTRY POINT OF MUX INTERRUPT CODE

		ENTRY	I <sub>m</sub> MUXP
*			
0	S1 0000000 X 17611	I <sub>m</sub> MUXP	S1 BX6 SA1 NZ
1	5160000000 X 0311000000		X1 =XI,WAIT X1,0
2	5110000000 X 0311000000		E,ECS
3	0200000007 *	MUXLOOP	NZ JP CHKPPU K7-K7
4	13777		SA7 E,ECS
5	5170000000 X		JP 0
			( WILL BE MODIFIED BY RJ S 1 )

\*  
\* SEE IF ANY COMMANDS FROM PPU  
\*

\* REGISTER USE

\* CMMDO

\* X2 PHYSICAL ADDRESS

\* X3 ECS ADDRS OF 2ND PART OF PROCESS

\* X6 REST OF COMMAND WORDS SHIFTED

\* B2 EVENT TO BE SENT TO USER? IF NON ZERO

6 010000003 + MUXEXIT RJ MUXLOOP SETS UP CALL TO CHKPPU

7 01 0000307 + CHKPPU RJ GETPPU  
10 0305000034 + ZR X5=CHKEVNT NONE, SEE IF ANY EVENTS

11 15160 42060 20614 MX0 65-12  
20614 LX6 12  
BX1 =X0\*X6 GET CMD

12 7232776777 15260 LX6 12  
0314000014 + BX2 =X0\*X6 GET CHAN  
SK3 X5=MUXWRBIT#2  
NZ X4=CHKPPU1

13 7130000400 0200000015 + SX3 MUXWRBIT SPECIAL ADDRESS  
JP CHKPPU2

14 7130000400 1=3>3 CHKPPU1 SK3 MUXWRBIT INPUT CHAN NUMBER  
15 0100000332 + ZR =X3\*X2 READ IN PART 2 OF PPROC  
16 0100000007 + RZ =RETPPROC NO SUCH PPROC

17 0710000007 + 63170 SB1 LT B1>B0+CHKPPU  
6120000005 SB2 CMMDN  
20 0721000007 + 66260 LT B2>B1+CHKPPU  
66260 SB2 B3  
21 0210000022 + JP CMMDOX+R1

22 02000004007 + CMMDOX JP CHKPPU NULL COMMAND  
23 0200000216 + < JP SEND 1 SEND A WORD TO ECS BUFFER  
24 0200000152 + < JP GPTW 2 GET A WORD FROM ECS BUFFER  
25 0200000243 + < JP SENDEV 3 SEND AN EVENT  
26 0200000245 + < JP CKECS 4 CHECK ECS BUFFER  
27 0200000255 + < JP HANGP 5 HANG ON THE EVENT CHANNEL

30 S CMMDN BSS 0  
\* EQU #\_CMMDOX-1

30 10033 5100001456 + CHKPPUx BX0 X3  
SA0 FILED

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		WECS	P\$IZE?	WR <sup>I</sup> TE BACK PART 2 OF PROCESS
31	120000013	*		
32	0420000007 *	CHKPPLV	ZR	B2*CHKPPU
	76720		SX7	B2*
33	6170000007 +		SB7	CHKPPU
	0200000272 +		JP	SENDVENT

SEE IF AN EVENT TO SEND, JUMP IF NOT  
EVENT DATUM  
WHERE TO RETURN  
SEND AN EVENT

\*  
\* EVENTS TO BE SENT TO TTY PROCESS ( EVENT1 )  
\*

- \* 1 MORE OUTPUT AVAILABLE
- \* 2 PURGE CM INPUT BUFFER ( MOVE TO ECS )
- \* 3 GO TO ECHO MODE
- \* 4 CHANGE BREAK TABLE
- \* 5 GO TO NON ECHO MODE
- \* 6 HAVE REMOVED SOME WORDS FROM INPUT ECS BUFFER
- \* 7 CHANGE MILD PANIC CHARACTER

\*  
\* SEE IF ANY EVENTS FROM USER PROCESSES  
\*  
\*

\* REGISTER USE

			X1	EVENT WD 1
			X2	ECS ADDRESS OF PROCESS
			*	
34	5110001506 +	CHKEVNT	SA1	RDCAST ..SEE IF BROADCAST IN PROGRESS
	0701000037 *		ZR	Y1,CHKEVNT1
35	0100000135 +		RJ	SETBRD
36	0200000007 +		JP	CHKPPU .. SEE IF ANY REQUESTS FROM PPU
		*		
37	5110000357 +	CHKEVNT1	SA1	MUXQADD
	0100000000 X		RJ	DINTQ
40	03-2000006 +		ZR	X3=MUXEXIT NO EVENTS, SO EXIT
	10022		BX0	X2
41	5100001450 +		SA0	PROCESS
42	110000021		RECS	P=IZE
43	5110001455 +		SA1	EVENTWD2 PICKUP SECOND EVENT WD
	0311000050 *		NZ	X1,CHKEVNT2 CHECK FOR
44	0221000050 +		PL	X1,CHKEVNT2 EVENT = -0
		*		
45	010000260 +		BX1	X2
46	6170000034 +		RJ	HANGON
	7170030000		SB7	CHKEVNT
47	0200000272 +		SX7	EVENT WAS FULL, SO SEND RESPONSE TO USER
		*	JP	SENDOVENT PROCESS
50	5130001466 +	CHKEVNT2	SA3	INCHAN
	7232777377		SX3	X3=MUXWRBIT
51	0303000067 +		ZR	X3,CHKEVNT4 IS SPECIAL TTY INDEX
		*		
52	10611		MK0	60-24
	21614		BX1	=X0*X1
	63140		BXA	X1
53	0710000065 +		AX6	12 GET 2ND 12 BITS OF EVENT
	6120000007		SR1	X6
54	0721000065 +		LT	B1,R0,CHKEVNT3
	0210000055 +		SB2	EVNTN
		*	LT	B2,R1,CHKEVNT3
55	0200000065 +	EVNTX	JP	EVNTX+B1
56	0200000075 +	*	JP	CHKEVNT3 0 NUMBER IN COL 36
57	0200000102 +	*	JP	O1TEVNT 1
60	0200000102 +	*	JP	INEVNT 2
61	0200000102 +	*	JP	INEVNT 3
62	0200000102 +	*	JP	INEVNT 4
63	0200000104 +	*	JP	INEVNT 5
64	0200000102 +	*	JP	GOTDATA 6
		*	JP	INEVNT 7

65 7 EVNTN BSS 0 \*LEVNTX-1  
\*  
\*  
\*  
\*  
65 10122 CHKEVNT3 BX1 X2  
0100000240 + RJ HANON  
66 0200000034 + JP CKEVNT  
\*  
\*  
\* EVENT RECEIVED BY SPECIAL TTY  
\*  
\*  
67 43060 CHKEVNT4 MX0 40-12  
10611 BX4 X1  
20640 LX4 40-12  
15660 BX6 =X0\*X6 GET 2ND 12 BITS  
70 63160 SB1 X6  
0710000065 + LT B1,B0,CHKEVNT3  
71 0120000001 SB2 SEVNTN  
0721000065 + LT B2+B1,CHKEVNT3  
72 0210000073 + JP SEVNTX\*B1 JUMP ON REQUEST INDEX  
\*  
73 0200000065 + SEVNTX JP CHKEVNT3 0  
74 0200000124 + JP BROADCAST 1  
\*  
75 1 SEVNTN BSS 0  
\* =SEVNTX-1

## EVENT HANDLING CODE

## SEND AN EVENT TO OUT ADDRESS

75	7160000001	OUTEVNT	SX6	OUTEVNT
	71460000400		SX4	MIXWRBIT
76	20614	OUTEVNT1	LX6	12
	5130001456 +	SA3	INCHAN	
	43060	NX0	60-12	
77	15330	BX3	X3*X3	REMOVE ALL BUT INPUT LINE NUMBER
	12636	BX6	X3*X6	PLACE CHAN ADDRSS IN COMMAND
	12644	BX6	X6*X4	
	20630	LX6	24	
100	12661	BX6	X6+X1	PLACE EVENT IN COMMAND
	20614	LX6	12	
	0106000327 +	RJ	PUTPPU	SEND COMMAND TO PPU
101	0200000034 +	JP	C4KEVN1	

## SEND AN EVENT TO IN ADDRESS

102	7160000001	INEVNT	SX6	C1NEVN1
	76400		SX4	BN
103	0200000076 +		JP	OUTEVNT1

## WORDS MAY HAVE BEEN REMOVED FROM IN BUFFER

104	5130001466 +	GOTDATA	SA3	INCHAN
	0324000065 +		PL	X3*CHKEVN13 NO RESPONSE WAITING
105	0100000275 +		RJ	GOTFILE
106	5130001462 +		SA3	PIN
	7234000001		SX4	X3+1
107	5140001463 +		SA4	P1LAST
	37434		IX4	X3-X4
110	0314000111 +		NZ	X4:GOTDATA1
	5130001461 +		SA3	PPLAST WRAP AROUND
111	5140001501 +	GOTDATA1	SA4	INOUT
	37434		IX4	X3-X4 COMPARE IN WITH OUT
112	0304000065 +		ZR	X4*CHKEVN13 STILL FULL

	5130001466 +		SA3	NOT FULL? SEND RESPONSE AND RESET
113	43601		MX6	RESPONSE BIT; ALSO REHANG ON EVNT
	15636		BX6	CHANNEL
	5160001466 +		SA6	INCHAN
114	7100000006		SX0	PSIZE1
	34002		IX0	X0*X2
115	5100001456 +		SA0	FILED
116	0120000013		WECS	PSIZE2
117	0100000302 +		RJ	PUTFILE
120	7160000002		SX6	INRESP
	20614		LX6	12

121	5130001466 + 43060		SA3	INCHAN
			NX0	40-12
	15330		BX3	=X0*X3
122	12663 20644		BX6	X6*X3
			LX6	6=24
123	10122 0200000005 +		RJ	PUTPPU
			SX1	X2
			JP	CHKEVNTS

REMOVE ALL BUT INPUT LINE NUMBER

124	10122 0100000240 +	BRDCST	BX1	X2
125	7130000400		RJ	HANGON RE HANG
	0100000332 +		SX3	MUXWRIT
126	1100000275 +		RJ	GETPPROC
127	5110001473 + 73110		RJ	READ IN PART 2 OF PPROC
			SA1	GETFILE
			SX1	OUTFST WORD COUNT
			BX6	X1
130	72 1777757 0431000132 +		SX1	X1-MAXBRDN
131	7160000020		NE	X1-BRDCSTI
132	5160001503 + 716000377	BRDCSTI	SX6	MAXBRDN
133	5160001504 +		SX6	BRDCSTCN
			SX6	MUXWRIT-1
			SX6	SAVE COUNT
			SX6	BRDCSTX
			SX6	INITIALIZE INDEX
134	5160001506 + 0200000034 +		SX6	
			SX6	INDICATE BRDCST IN PROGRESS
			JP	CHKEVNT

SEND A BROADCAST TO ALL DEVICES

135		SETBRD	BSSZ	1
136	5130001504 + 0100000332 +		SA3	BRDCSTX
137	0300000146 + 5126001503 +		RJ	GETPPROC
			ZR	READ IN PART 2 OF PPROC
			X0;SETBRDI	NO SUCH PPROC EXISTS
140	10622 5160001470 +		SA2	BRDCSTCN
141	0100000352 +		BX6	X2
142	5110000151 + 5126001504 +		SA6	ROADFLG
143	7100000377 11262		RJ	PUTPPROC
144	7222000400 26244		SA1	SETBRDA
			SA2	RRDCSTX
			SX0	MUXWRIT-1
			BX3	X0*X2
			SX2	X2+MUXWRIT
			LX2	3*12
			BX6	X1*X2
145	0100000327 +		RJ	PUTPPU
				INFORM PPU OF MORE OUTPUT AVAILABLE

SET BROADCAST FLAG FOR A PARTICULAR DEVICE  
INPUT INDEX AT BRDCSTX

READ IN PART 2 OF PPROC  
NO SUCH PPROC EXISTS

SET FLAG  
WRITE BACK PART 2 OF PPROC

PREPARE OUTPUT ADDRESS OF LINE

INFORM PPU OF MORE OUTPUT AVAILABLE

146	5110001504 +	*	SETBRD1	SA1	BRDCSTX	.. STOP TO PICKUP NEXT LINE NUMBER
	7261777776			SX6	x1=1	
147	54 10			SA6	A1	
	0326000775 +		PL		x6,SETBRD .. MORE TO DO	
	76600			SX6	90	
150	5160001506 +			SA6	BRDCSTF	.. NO MORE BRDCSTING TO DO
	0200000135 +	*		JP	SETBRD	
151	0004000000000000000000	*	SETBRDA	VFD	T2/CSPUT:12/0,12/0,12/0,12/0	

			*		
GET A WORD FROM ECS BUFFER					
152	5140001470 +	GETW	SA4	RROADFLG	
	0314000176 +		NZ	X4,GETWBRD	BROAD CAST IN PROGRESS
153	5100000275 +		RJ	GETFILE	
154	51 0001460 +		SA4	PAUT	GET OUT POINTER
	5150001500 +		SAS	OUTIN	GET IN POINTER
155	37545		IX5	X4-X5	
	0305000175 +		ZR	X5,GETWA	ECS BUFFER EMPTY
156	5150001456 +		SAS	FILLED	SET FILE ADDRESS
	21552		AX5	I8	
	36645		IX0	X4-X5	COMPUTE STORAGE ADDRESS
157	5100001562 +		SA0	FILEW	
160	0110000001		RECS	I	GET A WORD
161	71 00009001		SX5	I	
	37545		IX4	X4-SX5	BUMP POINTER
162	5150001461 +		SAS	PELAST	
	37545		IX5	X4-X5	
163	0315000164 +		NZ	X5,GETWI	WORD AROUND
	5140001457 +		SA4	PFIRST	
164	10644	GETWI	BX6	X4	
	5160001440 +		SAS	PAUT	UPDATE POINTER
165	5150001500 +		SA5	OUTIN	
	37545		IX5	X4-X5	
166	0315000167 +		NZ	X5,GETWB	
	6120010000		SB2	ONTEVENT	
167	71 00000002	GETW2	SX6	GETOKRSP	
	21554		LX6	I5	
	12662		BX6	X4-X2	
170	20644		LX6	G4-D4	
	0100000317 +		RJ	PUTPPUK	
171	5150001502 +		SAS	FILEW	
	10645		BKA	X5	
172	0100000327 +		RJ	PUTPPU	
173	0100000302 +		RJ	PUTFILE	
174	0100000304 +		JP	CKPPUK	
	7160000003	GETWA	SX6	GETNDRSP	
	02000000234 +		JP	SENDW3	
			*		
BROADCAST ON THIS DEVICE IN PROGRESS					
176	63640	GETWBRD	SB6	X4	MESSAGE WORD COUNT
	20452		LX4	A0-I8	
	63540		SR5	X4	CURRENT POSITION
177	5145000001		SB4	S5+1	NEXT POSITION
	0744000201 +		LT	R4,R5,GETWBRI	THIS NOT THE LAST
200	76600		SX6	R0	THIS WAS THE LAST
	0200000202 +		JP	GETWBRD2	
			*		

201	76660	GETWBRD1	SX6	R6	THIS NOT LAST, FORM NEW FLAG WORD
	76740		SX7	R4	
	20722		LX7	R8	
	12667		BX6	X6+X7	
202	5160001470 +	GETWBRD2	SA6	R6	BROADFLG
	76620		SX6	R5	
203	5160001505 +		SA6	R6	RDCCSTY SAVE CURRENT POSITION
	0100000352 +		RJ	PUTPPROC	PUT BACK PART 2 OF PPROC
204	7130000460		SX3	MUXWRBIT	
	0100000332 +		RJ	GETPPROC	READ IN SPECIAL PPROC
205	5110001456 +		SA1	FILED	GET FILE ADDRESS
	21122		AX1	I8	POSITION ADDRESS CORRECTLY
206	5140001505 +		SA4	RDCCSTY	GET CURRENT POSITION
	7244000001		SX4	X4+1	
207	39014		IX0	Y1+X4	
	5100001502 +		SA0	FILEW	
210	5110000001		RECS	I	GET THE WORD
211	7160000002		SX6	GETOKRSP	
	20614		LXA	I2	
	12662		BX6	X6+K2	
212	20644		LX6	60-24	
	0100000317 +		RJ	PUTPPUX	
213	5150001502 +		SAS	FILEW	
	10AES		BX6	X5	
214	0100000327 +		RJ	PUTPPU	
215	0200000007 +		JP	AHKPPU	

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SEND A WORD TO ECS BUFFER

216	0100000275 +	SENDW	RJ	GETFILE	GET FILE CONTROL DATA
217	0100000307 +		RJ	GETPPU	GET A WORD FROM PPU
220	5160001502 +		SA6	FILEW	SAVE THE WORD
	5140001462 +		SA4	PIN	GET IN POINTER
221	5150001456 +		SA5	FTLED	GET FILE ADDRESS
	21552		AXS	I	
	36045		IX0	X4+X5	COMPUTE STORAGE ADDRESS
222	5100001502 +		SA0	FTLEW	
223	0120000001		WECS	I	STORE THE WORD
224	7244000001		SX4	X4+1	BUMP THE POINTER
	5150001463 +		SAS	PLAST	GET LAST
225	37645		IX6	X4-X5	COMPARE WITH LAST
	0316000237 +		NZ	X6,SENDW1	
226	5140001461 +		SA4	BPLAST	WRAP AROUND
227	10 44		BX6	X4	
	5160001462 +		SA4	PIN	
230	7244000001		SX4	X4+1	
	37645		IX6	X4-X5	
231	0316000232 +		NZ	X6,SENDW2	
	5140001461 +		SA4	BPLAST	WRAP AROUND
232	51 0001501 +	SENDW2	SAS	INOUT	
	37645		IX5	X4-X5	COMPARE WITH OUT
233	0305000240 +		ZR	X6,SENDCWC	
	7160000002 +		SX6	INRESP	
	*				
234	20614	SENDW3	LX6	I	
	12682		BX6	X4+X2	
	20644		LX6	S6=24	
235	0100000327 +		RJ	PINPPU	SEND A RESPONSE TO PPU
	*				
236	0100000302 +	SENDW4	RJ	PUTFILE	WRITE BACK FILE CONTROL DATA
237	0200000030 +		JP	CHKPPUX	
	*				
240	5140001466 +	SENDWC	SA4	INCHAN	
	43651		MX6	I	
	12664		BX6	X4+X4	
241	5160001466 +		SA6	INCHAN	
	6126020000		S82	TNEVENT	
242	0200000236 +		JP	SENDWA	

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## SEND AN EVENT TO USER

243	20630	SENDEV	LX6	24	
	43744		MX7	60-24	
	15747		BX7	-Y7*X6	FORM EVENT WDI 1 FROM COMMAND
244	6170000007 +		SB7	C4KPPU	
	0200000272 +		JP	SENDVENT	

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## CHECK ECS BUFFER

245	3100000275 +	CHKECS	RJ	GTFFILE	GET FILE DATA
246	5140001501 +		SA4	IINOUT	
	5150001462 +		SAS	PIN	
247	37445		IX4	X4-X5	
	0314000251 +		NZ	X4+CHKECSI	NOT EMPTY
250	7160000003	*	SX6	C4KEMPT	
	0200000252 +		JP	CHKECS2	EMPTY
251	7160000004	CHKECSI	SX6	C4KNEMPT	
252	20614	CHKECS2	LX6	I3	
	12662		BX6	X2+X2	
	26644		LX6	60-24	FORM COMMAND
253	0400000327 +		RJ	SUTPPU	
254	02 00000007 +		JP	C4KPPU	

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## HANG THE PROCESS ON AN EVENT CHANNEL

255	7110000006	HANGP	SKI	PSIZE1	
	37181		IX1	X3-X1	
256	01 0000260 +		RJ	HANSON	
257	02 0000007 +		JP	C4KPPU	

\*  
\* HANG PROCESS IN EVENT CHANNEL ( ECS ADDRS IN X1 )  
\* DESTROYS ALL REGISTERS  
\*

260		HANGON	BSS	1	
261	51 0001450 +		SA0	PROCESS	
	10011		BX0	X1	
262	01 0000006		RECS	PSIZE1	
263	10311		BX3	X1	MOVE ECS ADDRS OF PROCS TO X3
	76600		SX6	B6	
	5160001451 +		SA6	CHAINWD	
264	5160001452 +	5100001450 +	SA6	ZWD	
	10011		SA6	PROCESS	
265	0120000006		BX0	X1	
266	0110000000 x		WECS	PSIZE1	
267	5170000260 +	5120001467 +	SBI	INTSCR	
	5120001464 +		SA1	PNOT	
270	0200000000 x		SB7	HANGON	
271	5150001467 +		SA2	HOMEVENT	
	10655		JP	HANG1	

\*  
\* SFND AN EVENT  
\*

\* EVENT WD 2 IN X7  
\* PROCESS 2ND PART IN CORE  
\* RETURN IN B7

272	5150001467 +	SENDVENT	SAS	PNOT	
	10655		BX6	X6	MOT OF THIS PROCESS
273	5110001465 +		SA1	TOEVENT	EVENT CHANNEL INFO
	5165777776		SB6	X1	WHERE TO WTORE RETURNS
274	0110000000 x		SBI	INTSCR	
	0200000000 X		JP	EVENT1	

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\*  
\*  
\*GET FILE CONTROL INFO  
DESTROYS A4, X4, AD, X0

275	GETFILE	BSS	I
276	5140001456 +	SA4	FILED
	21422	AX4	I8
	10044	BX0	X4
277	5100001473 +	SA0	OUTFST
300	01 0000007	RECS	7
307	0200000275 +	JP	GETFILE

\*  
\*  
\*  
\*WRITE BACK FILE CONTROL INFO  
DESTROYS A4, X4, AD, X0

302	PUTFILE	BSS	I
303	5140001456 +	SA4	FILED
	21422	AX4	I8
	10044	BX0	X4
304	5100001457 +	SA0	PFIRST
305	0120000005	WECS	S
306	0200000302 +	JP	PUTFILE

\*  
 \* CODE TO GET A WORD FROM CM QUEUE  
 \* RETURNS RESULT IN X6 ( X5 = 0 IF NO RESULT )  
 \* DESTROYS A4, X4, A5, X5, A6, X6, A7, X7  
 \*  
 307 GETPPU BSS 1  
 310 5140000371 + SA4 TnCMOUT  
 5150000370 + SA5 TnCMIN  
 311 37545 IX5 X4-X5  
 0305000307 + ZR X5-GETPPU EXIT IF NO ENTRIES IN QUEUE  
 53540 SAS X4  
 312 10655 BX6 X5 GET ENTRY  
 7244000001 SX4 X4+1 BUMP POINTER  
 313 5150000372 + SA5 TnCM<sub>L</sub> PICK UP LIMIT  
 37554 IX5 X5-X4  
 314 0315000315 + NZ X5-GETPPU<sub>1</sub>  
 5140000367 + SA4 TnCMF WRAP AROUND  
 315 10744 BX7 X4  
 5170000371 + SA7 TnCMOUT UPDATE POINTER  
 316 7150000001 SKS I  
 0206000307 + JP GETPPU  
 \*  
 \* CODE TO PUT A WORD IN FRMCM QUEUE  
 \* WILL NOT UPDATE POINTERS  
 \* HAVE WORD IN X6  
 \* DESTROYS A4, X4, A5, X5, A6, X6  
 \*  
 317 PUTPPUX BSS 1  
 320 5150000377 + SAS F<sub>M</sub>CMINX PICK UP POINTER  
 52640 SA6 X5 STORE THE WORD  
 321 7255000601 SKS X5+1 BUMP POINTER  
 5140000376 + SA4 F<sub>M</sub>CM<sub>L</sub> PICK UP LIMIT  
 322 37454 IK4 X5=X4  
 0314000324 + NZ X4,PUTPPUX<sub>1</sub>  
 323 5150000373 + SAS F<sub>M</sub>CMF WRAP AROUND  
 324 5140000375 + PUTPPUX<sub>1</sub> SA4 F<sub>M</sub>CMOUT PICK UP OUT POINTER  
 37454 IK4 X5=X4  
 325 0304000324 + ZR X4,PUTPPUX<sub>1</sub> FULL QUEUE, WAIT IN LOOP  
 10645 BX6 X5  
 326 5160000377 + SA6 F<sub>M</sub>CMINX SAVE POINTER  
 0206000317 + JP PUTPPUX  
 \*  
 \* CODE TO PUT A WORD IN FRMCM QUEUE  
 \* WILL UP DATE POINTER  
 \* HAVE WORD IN X6  
 \* DESTROYS A4, X4, A5, X5, A6, X6  
 \*  
 327 PUTPPU BSS 1  
 330 0100000317 + RJ PUTPPUX  
 5160000374 + SA6 F<sub>M</sub>CMIN  
 0206000327 + JP PUTPPU  
 \*

\* GET PART 2 OF A PPROC  
\* INPUT INDEX IN X3

\* USES X0, X3, X4

\* SAVES X6

\* RETURNS ADDRESS OF PART 2 IN X3

332		GETPPROC	BSSZ	1	
333	5160001510 +		SA6	ATPRCSV6	
	73330		SX3	X3	
334	7203777376		SX0	X3-MUXWRBIT-1	
335	0230000336 +	*	NG	X0,*+1	
	0100000000 X		RJ	DISASTR	
336	5140000360 +		SA4	MUXPNTR START ADDRESS OF PPROC POINTERS	
	3500000		IX0	X3+X4	
337	5100001450 +		SA0	PROCESS	
340	01 0000001		RECS	1	
341	5140001450 +		SA4	PROCESS	
	10044		BX0	X4	
342	5130001510 +		SA3	ATPRCSV6	
	10633		BX6	X3	
343	0300000332 +		ZR	X0,GETPPROC NO SUCH PPROC	
	43347		MX3	60-21	
	15343		BX3	=X3*X4 ECS ADDRESS OF PPROC	
344	7140000006		SX4	PSIZE1 AMOUNT TO SKIP	
	36324		IX3	X3+X4	
	10633		BXn	X3	
345	10633		BX6	X3	
	5160001507 +		SA6	SPROC2 SAVE ADDRESS OF PART 2	
346	5100001456 +		SA0	FILED	
347	0110000013		RECS	PSIZE2 READ IN PART 2	
350	51 0001510 +		SA4	ATPRCSV6	
	10644		BX6	X4	
351	0200000332 +		JP	RETPPROC	

\* RETURN PART 2 OF A PPROC  
\* PCS ADDRESS OF PART 2 ASSUMED IN PPROC2

\* USES X0, X1

352		PUTPPROC	BSSZ	1	
353	5110001507 +		SA1	SPROC2	
	10071		BX0	X1	
354	51 0001456 +		SA0	FILED	
355	01 0000013		WECS	PSIZE2	
356	0200000352 +		JP	PUTPPROC	

## ECS POINTERS FOR MUX INTERRUPT CODE

	ENTRY	MUXQADD, MUXPNTS	
357	MUXQADD	BSSZ	1
360	MUXPNTS	BSSZ	1

WILL CONTAIN ECS ADDRS OF MUX QUEUE  
ECS ADDRS OF PNTRS TO PSEUDO PROCS

\*  
\*  
\* THESE ARE THE POINTERS USED BY THE MUXPPU

361	00	0000000000000000450	*	I_MUX	ENTRY	I_MUX
362	0000000000000000367	*	VFD	VFD	6A/CMBUF	
363	00000000000000000000	*	VFD	VFD	6A/CENTQ	
364	00000000000000000004	*	VFD	VFD	6A/TOCMF-CENTQ	
365	0000000000000000000366	*	VFD	VFD	6A/FRMCMF-CENTQ	
		*			A0/ZERO	

\*  
\*  
\* THESE ARE THE AREAS USED BY THE MUXPPU

366	0000000000000000000000	ZERO	DATA	0	A ZERO TO BE USED BY MUX PPÜ
24		TOCMQSZ	EQU	20	
24		FRMCMQSZ	EQU	30	

367		CENTQ	BSS	0	
-----	--	-------	-----	---	--

367	0000000000000000400	*	TOCMF	VFD	6A/TOCMQ
370	0000000000000000400	*	TOCMIN	VFD	6A/TOCMQ
371	0000000000000000400	*	TOCMOUT	VFD	6A/TOCMQ
372	0000000000000000424	*	TOCML	VFD	6A/TOCMQ+TOCMOSZ
		*			
373	0000000000000000424	*	FRMCMF	VFD	6A/FRMCMQ
374	0000000000000000424	*	FRMCMIN	VFD	6A/FRMCMQ
375	0000000000000000424	*	FRMCMOUT	VFD	6A/FRMCMQ
376	0000000000000000450	*	FRMCMCL	VFD	6A/FRMCMQ+FRMCMQSZ
		*			
377	0000000000000000424	*	FRMCMINX	VFD	6A/FRMCMQ

\*  
\* THIS QUEUE MUST BE IN BOTTOM 4K (1 DEC) OF CM

400		TOCMQ	BSSZ	TOCMQSZ
424		FRMCMQ	BSSZ	FRMCMQSZ
		*		
450		CMBUF	BSSZ	6AMUXURBIT

\*\*\*\*\*  
TEMPORARY DATA USED BY MUX INTERRUPT ROUTINE  
\*\*\*\*\*

1450	PROCESS	BSS	1
1451	CHAINWD	BSS	1
1452	ZWD	BSS	1
1453	CONTWD	BSS	1
1454	EVENTWD1	BSS	1
1455	EVENTWD2	BSS	1
1456	*		
1456	PSIZE1	EQU	0
1457	*		
1458	FILED	BSS	1
1459	PFIRST	BSS	1
1460	POUT	BSS	1
1461	PFLAST	BSS	1
1462	PIN	BSS	1
1463	PLAST	BSS	1
1464	FRMEVENT	BSS	1
1465	TOEVENT	BSS	1
1466	INCHAN	BSS	1
1467	PMOT	BSS	1
1468	BROADFLG	BSS	1
1469	*		
1470	*		
1471	PSIZE2	EQU	0
1472	*		
1473	PSIZE	EQU	PROCESS-PSIZE1
1474	*		
1475	QFIRST	BSS	1
1476	QLAST	BSS	1
1477	*		
1478	OUTFST	BSS	1
1479	OUTCUT	BSS	1
1480	OUTLAST	BSS	1
1481	ININ	BSS	1
1482	INLAST	BSS	1
1483	OUTIN	BSS	1
1484	*		
1485	INPUT	BSS	1
1486	*		
1487	FILEW	BSS	1
1488	*		
1489	*		
1490	BRDCSTCN	BSS	1
1491	BRDCSTX	BSS	1
1492	BRDCSTY	BSSZ	1
1493	BRDCSTF	BSSZ	1
1494	PPROC2	BSS	1
1495	GTPRCV6	BSS	1
1496	*		

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END

35311	STORAGE USED 6600 ASSEMBLY	807 STATEMENTS 3,781 SECONDS	141 SYMBOLS 435 REFERENCES
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SYMBOLIC REFERENCE TABLE

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BRDCST	124	PROGRAM*	11/23	13/14 L							
BRDCSTCN	1503	PROGRAM*	13/25	S 13/42 25/47 L							
BRDCSTF	1506	PROGRAM*	10/10	13/30 S 14/07 S 25/50 L							
BRDCSTX	1504	PROGRAM*	13/27	S 13/39 13/47 14/02 25/48 L							
RRDCSTY	1505	PROGRAM*	16/68	S 16/14 25/49 L							
RRDCST1	132	PROGRAM*	13/23	13/25 L							
RROADFLG	1470	PROGRAM*	13/44	S 15/04 16/06 S 25/25 L							
CENT0	367	PROGRAM*	24/06	24/07 24/08 24/20 L							
CHAINWD	1451	PROGRAM*	19/11	S 25/06 L							
CHKECS	245	PROGRAM*	7/45	18/12 L							
CHKECS1	251	PROGRAM*	18/16	18/21 L							
CHKECS2	252	PROGRAM*	18/19	18/22 L							
CHKEMPT	3		4/16 D	18/18							
CHKEVNT	34	PROGRAM*	7/17	10/10 L 10/27 11/08 12/20 13/31							
CHKEVNT1	37	PROGRAM*	10/11	10/15 L							
CHKEVNT2	50	PROGRAM*	10/22	10/23 10/31 L							
CHKEVNT3	65	PROGRAM*	10/40	10/45 11/17 11/22 12/41							
			10/42	11/06 L 11/19 12/31 13/08							
CHKEVNT4	67	PROGRAM*	10/33	11/12 L							
CHKEMPT	4		4/17 D	18/21							
CHKPPU	7	PROGRAM*	6/12	7/33 7/37 8/03 10/13 18/07 18/33							
			7/18 L	7/35 7/41 8/05 16/27 18/26							
CHKPPUX	30	PROGRAM*	7/52	L 17/37 17/35							
CHKPPUY	32	PROGRAM*	8/03	L							
CHKPPU1	14	PROGRAM*	7/25	7/30 L							
CHKPPU2	15	PROGRAM*	7/28	7/32 L							
CINEVNT	1		4/14 D	12/24							
CMBUF	450	PROGRAM*	24/05	24/40 L							
COMMON	5		7/76	7/49 D							
CMMDX	22	PROGRAM*	7/39	7/41 L 7/49							
CONTWD	1453	PROGRAM*	25/08	L							
COUTEVNT	1		4/27 D	12/07							
CSPOUT	4		4/10 D	14/10							
DINTG	0	EXTERNAL*	10/16								
DISASTR	0	EXTERNAL*	22/15								
EVENTW01	1454	PROGRAM*	25/09	L							
EVENTW02	1455	PROGRAM*	10/21	25/10 L							
EVENT1	0	EXTERNAL*	19/23								
EVEVENT	30000		4/23 D	10/28							
EVNTN	7		10/41	11/02 D							
EVNTX	55	PROGRAM*	10/43	10/45 L 11/02							
E_ECS	0	EXTERNAL*	6/10	8/02 12/81 16/19 19/09 20/11 22/20 22/24							
			6/14 S	10/21 15/16 17/13 19/16 20/22 22/34							
FILED	1456	PROGRAM*	7/53	15/12 17/08 20/17 22/47							
			12/49	16/12 20/05 22/32 25/15 L							
FILEX	1502	PROGRAM*	15/14	18/33 16/17 16/24 17/06 S 17/11 25/43 L							
FRMCMF	373	PROGRAM*	21/35	24/08 24/27 L							
FRMCMTN	374	PROGRAM*	21/59	S 24/28 L							
FRMCMTNX	377	PROGRAM*	21/29	21/40 S 24/32 L							
FRMCML	376	PROGRAM*	21/32	24/30 L							
FRMCMOUT	375	PROGRAM*	21/36	24/29 L							
FRMCMQ	424	PROGRAM*	24/27	24/28 24/29 24/30 24/32 24/38 L							
FRMCMOSZ	24		24/17 D	24/30 24/38							

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FRMEVENT	1464	PROGRAM*	19/19	25/21 L					
GETFILE	275	PROGRAM*	12/32	13/18	15/06	17/04	18/12	20/05 L	26/11
GETNORSP	3		4/09 D	15/39					
GETOKRSP	2		4/08 D	15/28	16/19				
GETPPROC	332	PROGRAM*	7/32	13/17	13/40	16/11	22/10 L	22/24	22/36
GETPPU	307	PROGRAM*	7/16	17/05	21/06 L	21/10	21/21		
GETPPUI	315	PROGRAM*	21/16	21/18 L					
GETW	152	PROGRAM*	7/43	15/04 L					
GETWA	175	PROGRAM*	15/10	15/39 L					
GETWB RD	176	PROGRAM*	15/55	15/45 L					
GETWB RD1	201	PROGRAM*	15/49	16/01 L					
GETWB RD2	202	PROGRAM*	15/52	16/06 L					
GETW1	164	PROGRAM*	15/20	15/22 L					
GETW2	167	PROGRAM*	15/26	15/28 L					
GOTDATA	104	PROGRAM*	10/21	12/30 L					
GOTDATA1	111	PROGRAM*	12/37	12/39 L					
GTPRC CSV6	1510	PROGRAM*	22/11 S	22/22	22/34	25/52 L			
HANGON	260	PROGRAM*	10/26	11/07	13/15	16/32	19/05 L	19/18	
HANGP	255	PROGRAM*	7/46	18/30 L					
HANG1	0	EXTERNAL*	19/20						
INCHAN	1466	PROGRAM*	10/21	12/30	12/46 S	17/37			
			12/21	12/43	13/01	17/40 S	25/23 L		
INEVENT	20000		4/22 D	17/41					
INEVNT	102	PROGRAM*	10/47	10/48	10/49	10/50	10/52	12/24 L	
ININ	1476	PROGRAM*	25/38 L						
INLAST	1477	PROGRAM*	25/39 L						
INOUT	1501	PROGRAM*	12/39	17/24	18/13	25/41 L			
INRESP	2		4/15 D	12/52	17/27				
INTSCR	0	EXTERNAL*	19/16	19/32					
I_LOCK	0	EXTERNAL*	6/66						
I_MUX	361	PROGRAM*	24/04 E	24/05 L					
I_MUXP	0	PROGRAM*	6/04 E	6/06 L					
I_MUXPC	0	EXTERNAL*							
I_MUXQ	0	EXTERNAL*							
I_NUNCH	5		3/74 D						
I_NUSUR	5		3/16 D						
I_PAUSE	454		3/12 D						
I_WAIT	0	EXTERNAL*	6/08 S						
MAXBRDCN	20		4/38 D	13/22	13/24				
MUXEXIT	6	PROGRAM*	7/13 L	10/17					
MUXLOOP	3	PROGRAM*	6/12 L	7/13					
MUXPNTS	360	PROGRAM*	22/16	23/06 E	23/09 L				
MUXQADD	357	PROGRAM*	10/16	23/06 E	23/08 L				
MUXWRRT	400		4/33 D	7/27	10/32	13/16	13/48	16/10	24/40
			7/24	7/30	12/08	13/26	13/50	22/13	
			4/30 E	4/32 D	4/33				
MUXWRBT	400		4/21 D	15/27					
OUTEVENT	10000		4/21 D	12/07 L					
OUTEVNT	75	PROGRAM*	10/46	12/07 L					
OUTEVNT1	76	PROGRAM*	12/10 L	12/26					
OUTFST	1473	PROGRAM*	13/19	20/09	25/35 L				
OUTIN	1500	PROGRAM*	15/08	15/24	25/40 L				
OUTLAST	1475	PROGRAM*	25/37 L						
OUTOUT	1474	PROGRAM*	25/36 L						

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