

MUX,0
STORAGE ALLOCATION.

COMPASS - VER 2. 04/28/71 09.02.35.

PAGE 1

ADDRESS LENGTH

BINARY CONTROL CARDS.

0 6705
6705 (1302)

IDENT MUX,0
END

MUX,0

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PAGE 2

IDENT MUX,0
PERIPH

```

*
*
*
*
        6      MUXCHN      EQU      6
7774      MUXRD      EQU      7774B
7763      MUXWRT      EQU      7763B
        1      MUXRDY      EQU      1B
        400     MUXWRBIT    EQU      400B      IF CHANGED HERE, ALSO CHANGE MUXINT
*
*
*
        11     INTCHAN      EQU      9
        1      INTNUMB      EQU      1
*
*
*
        4001     OUTKILL      EQU      4001B
        4002     STOPCHR      EQU      4002B
        4003     ECHODCHR      EQU      4003B
        4004     NULLCHR      EQU      4004B
        4005     LOSTCHR      EQU      4005B
        4006     ECHOECHR      EQU      4006B
        4007     ECHOXCHR      EQU      4007B
        4010     PURGECHR      EQU      4010B
*
*
*
        2      INEVWD      EQU      2
        1      OUTEVWD      EQU      1
*
*
*
        1      CMMDSND      EQU      1
        2      CMMDGET      EQU      2
        3      CMMDSVNT      EQU      3
        4      CMMDCHKE      EQU      4
        5      CMMDHANG      EQU      5
*
*
*
        0      ZERO      EQU      0
*
*
*
        22     I.POINTS      EQU      22B

```

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*
*
*
*

DEFINE MUX QUEUE SIZE

144

MUXQSZ

EQU

100

```

*
*      DEFINE BIT MASKS AND FIELDS
*
*      INPUT TTY
*
7000      MODEMSK      EQU      7000B
777756    MDESHT      EQU      -9
400       EVENTBIT    EQU      400B
200       XMITBIT     EQU      200B
100       ININTBIT     EQU      100B
20        ECHFLG      EQU      20B
17        BRKMSK      EQU      17B
*
*      OUTPUT TTY
*
4000      OUTINTBT     EQU      4000B
2000      USERFLAG    EQU      2000B
1000      CMNEMPT      EQU      1000B
400       OUTACTV      EQU      400B
200       CHINMUX      EQU      200B
100       ECHOW        EQU      100B
*
*      DEFINE DEVICE TYPE INDEXES
*      ALSO DEFINED BY POSITION IN TABLES
*      MUXRESP
*      INTRESP
*
1         TTINTYP      EQU      1
2         TTOUTTYP     EQU      2
3         SPDVCTYP     EQU      3

```

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*
*
*
*

DEFINE START

0

ORG

0

0

1727

VFD

12/START-1

```

*
*
*
20          CM0      ORG      20B
20          BSSZ      1
21          CM1      BSSZ      1
22          CM2      BSSZ      1
23          CM3      BSSZ      1
24          CM4      BSSZ      1
25          CM5      BSSZ      1
*
26          CMMD      BSSZ      1
27          CHAN      BSSZ      1
30          EVENT1    BSSZ      1
31          EVENT2    BSSZ      1
32          CMMD4     BSSZ      1
*
33          CHANX     BSSZ      1
34          DATUM     BSSZ      1
*
35          0144      XMUX     VFD      12/MUXQSZ
36          0144      YMUX     VFD      12/MUXQSZ
*
37          X1        BSSZ      1
40          X2        BSSZ      1
*
41          0001      N1       DATA    1
*
42          DATA0    BSSZ      1
43          DATA1    BSSZ      1
44          DATA2    BSSZ      1
45          DATA3    BSSZ      1
46          DATA4    BSSZ      1
47          DATA5    BSSZ      1
*
50          4004      EMPTY    VFD      12/NULLCHR,12/NULLCHR,12/NULLCHR
51          4004
52          4004
53          4004      VFD      12/NULLCHR,12/NULLCHR
54          4004
*
100         ORG      100B

```

MASTER LOOP ENTRY

THIS LOOP CHECKS MUX

IF MUX HAS DATA, THEN THE DATA IS PLACED IN MUXQ
(IN MUXCHNQ AND MUXDTAQ)

IF MUXQ NOW FULL, ONE ENTRY IS PROCESSED

BY PROCSMUX

IF MUXQ NOT FULL, THE LOOP IS REENTERED

IF MUX DOES NOT HAVE DATA AND MUXQ NOT EMPTY
THEN ONE ENTRY IS PROCESSED BY PROCSMUX
AND THE LOOP REENTEREDIF MUX DOES NOT HAVE DATA AND MUXQ EMPTY
THEN THE INTERRUPT Q IS CHECKED BY PROCSINT
AND AT MOST 1 ENTRY PROCESSED
AND THE LOOP IS REENTERED

100

100

100 7706 7774
102 7406
103 7006
104 1201
105 0507
106 7506
107 3035
110 3236
111 0521
112 0100 0171

MUXREAD EQU 100B
READMUX FNC *
ACN MUXRD,MUXCHN
IAN MUXCHN
LPN MUXCHN
NJN MUXRDY
DCN READMUX1
LDD MUXCHN
SBD XMUX
NJN YMUX
LJM PROCSMUX
PROCSINT

*send "read" function code**read control word
check for data-ready-to-read
jump if any
else disconnect*

114 7006
115 5435 2373
117 7006
120 5435 2540
122 7506
123 3735
124 0503
125 2000 0144
127 3435
130 3236
131 0546

* READMUX1 IAN MUXCHN
STM MUXCHNQ,XMUX
IAN MUXCHN
STM MUXDTAQ,XMUX
DCN MUXCHN
SOD XMUX
NJN *+3
LDC MUXQSZ
STD XMUX
SBD YMUX
NJN READMUX

*read device address
put in address queue
read device data
put in data queue
disconnect
adjust queue ptrs*

132 5036 2373
134 3427
135 2200 0777
137 1002
140 2100 2705
142 3433
143 5036 2540
145 3434

* PROCSMUX LDM MUXCHNQ,YMUX
STD CHAN
LPC MUXWRBIT*2-1
SHN 2
ADC CHANBLKS
STD CHANX
LDM MUXDTAQ,YMUX
STD DATUM

146 3736
 147 0503
 150 2000 0144
 152 3436
 153 4033
 154 1203
 155 1001
 156 3437
 157 0137 0161

SOD YMUX
 NJN *43
 LDC MUXQSZ
 STD YMUX
 LDI CHANX
 LPN 3B
 SHN 1
 STD X1
 LJM MUXRESP,X1

*
 *
 *
 *

TO EXPAND THIS TABLE, MUST CHANGE AN LPN IN PROCSMX

161 0100 0100
 163 0100 0601
 165 0100 0440
 167 0100 0100

MUXRESP

LJM READMUX 0
 LJM TTYINMX 1
 LJM TTYOUTMX 2
 LJM READMUX 3

NUMBS IN COL 40

*

171 1426
 172 0200 0241
 174 0503
 175 0100 0100
 177 3027
 200 2200 0777
 202 1002
 203 2100 2705
 205 3433
 206 4033
 207 1203
 210 1001
 211 3437
 212 0137 0214

PROCSINT

LDN CMMD
 RJM GETCENT
 NJN *43
 LJM READMUX
 LDD CHAN
 LPC MUXWRBIT*2-1
 SHN 2
 ADC CHANBLKS
 STD CHANX
 LDI CHANX
 LPN 3B
 SHN 1
 STD X1
 LJM INTRESP,X1

*
 *
 *
 *

TO EXPAND THIS TABLE, MUST CHANGE AN LPN IN PROCSINT

214 0100 0100
 216 0100 1320
 220 0100 1533
 222 0100 1664

INTRESP

LJM READMUX 0
 LJM TTYINCM 1
 LJM TTYOUTCM 2
 LJM SPECDVC 3

NUMBS IN COL 40

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			*		
			*		
			*		SEND A CHARACTER TO MUX
224	0100 0000			LJM	0
		225	WRITMUX	EQU	*-1
226	3437			STD	X1
227	7706 7763			FNC	MUXWRT,MUXCHN
231	7406			ACN	MUXCHN
232	3027			LDD	CHAN
233	7206			OAN	MUXCHN
234	3037			LDD	X1
235	7206			OAN	MUXCHN
236	7506			DCN	MUXCHN
237	0364			UJN	WRITMUX-1

```

*
*
*
*
*
*
GET A WORD FROM CENTROL Q AND PLACE IN DIRECT
LOCATION GIVEN IN A

RETURNS WITH A NON ZERO IF SUCCESSFULL

240      0100 0000      241  GETCENT  LJM      0
242      1277          EQU      *1
243      2100 6000      LPN      77B
244      5400 0272      ADC      6000B      ( CRD 00 )
245      5000 0435      STM      GETCENT2
246      5200 0436      LDM      FRMCMIN
247      0515          SBM      FRMCMOUT
248      5000 0433      NJN      GETCENT1
249      2100 0000      LDM      FRMCMX
250      1601          ADC      0
251      6020          ADN      1
252      3024          CRD      CM0
253      5400 0435      LDD      CM4
254      5200 0436      STM      FRMCMIN
255      0450          SBM      FRMCMOUT
256          ZJN      GETCENT-1      NO WORDS TO READ
257
*
270      5000 0436      GETCENT1 LDM      FRMCMOUT
271      6000          GETCENT2 CRD      0
272      5600 0436      AOM      FRMCMOUT
273      5200 0437      SBM      FRMCMOUT
274      0505          NJN      *+5
275      5000 0434      LDM      FRMCMF
276      5400 0436      STM      FRMCMOUT
277      0200 0367      RJM      UPGET
278      1401          LDN      1
279      0100 0240      LJM      GETCENT-1
280
*
*
*
SEND A WORD TO CENTRAL Q FROM DIRECT LOC GIVEN IN A

311      0100 0000      312  PUTCENT  LJM      0
312      1277          EQU      *1
313      2100 6200      LPN      77B
314      5400 0322      ADC      6200B      ( CWD 00 )
315      5000 0430      STM      PUTCENT1
316      6200          LDM      TOCMIN
317          CWD      0
318      5600 0430      PUTCENT1 TOCMIN
319      5200 0432      AOM      TOCMIN
320      0505          SBM      TOCML
321      5000 0427      NJN      *+5
322      5400 0430      LDM      TOCMF
323      5000 0430      STM      TOCMIN
324      5200 0431      LDM      TOCMIN
325      0550          SBM      TOCMOUT
326      0200 0351      NJN      PUTCENT-1
327      0200 0351      RJM      PUTCENT2
328      0200 0351      PUTCENT3 RJM      PUTCENT2

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345	0475		ZJN	PUTCENT3
346	0100 0311		LJM	PUTCENT-1
		*		
350	0100 0000	351	PUTCENT2	LJM 0
			EQU	*-1
352	5000 0426		LDM	TOCMX
354	2100 0000		CENTQ5	ADC 0
356	1602		ADN	2
357	6020		CRD	CM0
360	3024		LDD	CM4
361	5400 0431		STM	TOCMOUT
363	5200 0430		SBM	TOCMIN
365	0362		UJN	PUTCENT2-1
		*		
		*		UPDATE OUT POINTER OF FRM Q
		*		
366	0100 0000	367	UPGET	LJM 0
			EQU	*-1
370	2000 0000		ZERO1	LDC 0
372	6020		CRD	CM0
373	5000 0436		LDM	FRMCMOUT
375	3424		STD	CM4
376	5000 0433		LDM	FRMCMX
400	2100 0000		CENTQ3	ADC 0
402	1602		ADN	2
403	6220		CWD	CM0
404	0361		UJN	UPGET-1
		*		
		*		UPDATE IN POINTER OF TO Q
		*		AND WAKE UP INTERRUPT ROUTINE
		*		
405	0100 0000	406	UPPUT	LJM 0
			EQU	*-1
407	2000 0000		ZERO2	LDC 0
411	6020		CRD	CM0
412	5000 0430		LDM	TOCMIN
414	3424		STD	CM4
415	5000 0426		LDM	TOCMX
417	2100 0000		CENTQ6	ADC 0
421	1601		ADN	1
422	6220		CWD	CM0
423	1401		LDN	INTNUMB
424	7211		OAN	INTCHAN
425	0357		UJN	UPPUT-1

	*			
426	TOCMX	BSS	1	
427	TOCMF	BSS	1	
430	TOCMIN	BSS	1	
431	TOCMOUT	BSS	1	
432	TOCML	BSS	1	
	*			
433	FRMCX	BSS	1	
434	FRCMF	BSS	1	
435	FRCMIN	BSS	1	
436	FRCMOUT	BSS	1	
437	FRCMML	BSS	1	

```

*
*
*
440      4033      TTYOUTMX LDI      CHANX
441      2277 7577      LPC      -CHINMUX
443      4433      STI      CHANX      CLEAR CHAR IN MUX FLAG
444      2200 0100      LPC      ECHOW      CHECK FOR ECHO WAITING
446      0403      ZJN      *.3
447      0100 0512      LJM      TTYOUTEC      ECHO WAITING
*
451      4033      LDI      CHANX
452      2200 1000      LPC      CMNEMPT      SEE IF CM BUFFER EMPTY
454      0503      NJN      *.3
455      0100 0100      LJM      READMUX      YES
*
457      0200 0533      TTYOUTA RJM      GETBUF      GET A NEW CHARACTER, ( IN A )
461      3434      STD      DATUM
462      2300 4001      LMC      OUTKILL
464      0436      ZJN      TTYOUTKL
465      4033      LDI      CHANX
466      2277 7377      LPC      -OUTACTV
470      2100 0400      ADC      OUTACTV      TURN ON OUTPUT ACTIVE FLAG
472      4433      STI      CHANX
473      3034      LDD      DATUM
*
474      2200 0377      TTYOUTSN LPC      377B
476      2300 0377      LMC      377B
500      1002      SHN      2
501      2100 4002      ADC      4002B
503      0200 0225      RJM      WRITMUX      SEND IT TO MUX
505      2000 0200      LDC      CHINMUX
507      4533      RAI      CHANX      SET CHAR IN MUX FLAG
510      0100 0100      LJM      READMUX
*
512      4033      TTYOUTEC LDI      CHANX      ECHO WAITING
513      2277 7577      LPC      -ECHOW      CLEAR ECHO WAITING FLAG
515      4433      STI      CHANX
516      5033 0001      LDM      1,CHANX      PICK UP CHARACTER
520      0100 0474      LJM      TTYOUTSN
*
522      4033      TTYOUTKL LDI      CHANX      KILL OUTPUT ACITVE
523      2277 6377      LPC      -CMNEMPT-OUTACTV
525      4433      STI      CHANX
526      0200 0561      RJM      RQSTMR
530      0100 0100      LJM      READMUX
*
*
*
*
532      0100 0000      533      LJM      0
534      2000 4002      GETBUF EQU      *.1
                        LDC      STOPCHR

```

536	3447		STD	DATA5
537	3027		LDD	CHAN
540	2100 0000	CMBUF7	ADC	0
542	6042		CRD	DATA0
543	6243		CWD	DATA1
544	3042		LDD	DATA0
545	2300 4001		LMC	OUTKILL
547	0407		ZJN	GETBUF1
550	3043		LDD	DATA1
551	2300 4002		LMC	STOPCHR
553	0503		NJN	*3
554	0200 0561		RJM	RQSTMR
556	3042	GETBUF1	LDD	DATA0
557	0352		UJN	GETBUF-1
		*		
		*		REQUEST A DATA WORD FROM ECS
		*		
560	0100 0000		LJM	0
		561	RGSTMR	*-1
562	2000 0002		LDG	CMMDGET
564	3426		STD	CMMD
565	1426		LDN	CMMD
566	0200 0312		RJM	PUTCENT
570	0200 0406		RJM	UPPUT
572	4033		LDI	CHANX
573	2277 0777		LPC	-OUTINTBT-USERFLAG-CMNEPT
575	2100 4000		ADC	OUTINTBT
577	4433		STI	CHANX
600	0357		UJN	RQSTMR-1

```

*
*
*
601      3034      TTYINMX LDD DATUM
602      2300 0377      LMC 377B
604      3434      STD DATUM
605      2200 0400      LPC 400B
607      0405      ZJN ATTYINMX
*
610      1402      LDN 2
611      0200 1246      RJM SNDSPC
613      0312      UJN BTTYINMX
*
614      3034      ATTYINMX LDD DATUM
615      2200 0177      LPC 177B
617      5333 0002      LMM 2.CHANX
621      0504      NJN BTTYINMX
622      1401      LDN 1
623      0200 1246      RJM SNDSPC
*
625      4033      BTTYINMX LDI CHANX
626      1066      SHN 0
627      1001      SHN 1
630      3437      STD X1
631      0137 0633      LJM XTTYINMX,X1
*
633      0100 0653      XTTYINMX LJM INECHO
635      0100 0744      LJM INECHO
637      0100 0761      LJM INNONECH
641      0100 0100      LJM READMUX
643      0100 0100      LJM READMUX
645      0100 0100      LJM READMUX
647      0100 0100      LJM READMUX
651      0100 0100      LJM READMUX
*
*
*
653      0200 1003      INECHO RJM BRTST
655      0603      PJN *+3
656      0100 0714      LJM INECHOX
660      5033 2000      LDM MUXWRBIT*4,CHANX
662      2200 0500      LPC OUTACTV+ECHOW
664      0403      ZJN *+3
665      0100 0714      LJM INECHOX
667      3034      LDD DATUM
670      2200 1777      LPC 1777B
672      0200 1033      RJM PUTBUF
674      5033 2000      LDM MUXWRBIT*4,CHANX
676      2200 0200      LPC CHINMUX
700      0503      NJN *+3
701      0100 0732      LJM INECHOI
*
703      3034      LDD DATUM

```

INVERT DATA BITS
CHECK FOR BROKEN LINE

MAJOR PANIC

CHECK FOR MILD PANIC

MILD PANIC

GET MODE

JUMP ON MODE

0 NUMB IN COL 50

1

2

3

4

5

6

7

TTY INPUT, ECHO MODE

CHECK OUTPUT STATE

SEND CHARACTER TO USER

SEND TH ECHO IMMEDIATLY

704	5433 2001	STM	MUXWRBIT*4+1,CHANX	STORE THE ECHO
706	2000 0100	LDC	ECHOW	
710	5533 2000	RAM	MUXWRBIT*4,CHANX	SET ECHO WAITING FLAG
712	0100 0100	LJM	READMUX	
*				
*				
*				
GO TO ECHO DEFERRED MODE				
714	2000 1000	INECHOX	LDC	1000B
716	4533	RAI	CHANX	SET MODE TO ECHO DEFERRED
717	2000 4003	LDC	ECHODCHR	SEND A SIGNAL OF CHANGE TO USER
721	0200 1033	RJM	PUTBUF	
723	3034	LDD	DATUM	SEND THE CHARACTER
724	2200 1777	LPC	1777B	AND
726	0200 1052	RJM	FPUTBUF	AN EVENT
730	0100 0100	LJM	READMUX	
*				
*				
*				
SEND ECHO IMMEDIATELY				
732	2000 0400	INECHOI	LDC	MUXWRBIT
734	3527	RAD	CHAN	RESET CHAN TO OUTPUT
735	1002	SHN	2	
736	2100 2705	ADC	CHANBLKS	
740	3433	STD	CHANX	RESET CHANX
741	3034	LDD	DATUM	
742	0100 0474	LJM	TTYOUTSN	
*				
*				
*				
ECHO DEFERRED MODE				
744	5033 0001	INECHOD	LDM	1,CHANX
746	1320	SCN	ECHFLG	
747	1620	ADN	ECHFLG	
750	5433 0001	STM	1,CHANX	
752	3034	LDD	DATUM	
753	2200 1777	LPC	1777B	
755	0200 1033	RJM	PUTBUF	
757	0100 0100	LJM	READMUX	
*				
*				
*				
NO ECHO, BUT WITH BREAK CHARS, MODE				
761	0200 1003	INNONECH	RJM	BKSTST
763	0710	MJN	NONECH2	
764	3034	LDD	DATUM	
765	2200 1777	LPC	1777B	
767	0200 1033	RJM	PUTBUF	
771	0100 0100	LJM	READMUX	
*				
773	3034	NONECH2	LDD	DATUM
774	2200 1777		LPC	1777B
776	0200 1052		RJM	FPUTBUF
1000	0100 0100		LJM	READMUX
*				
*				
*				
TEST A CHAR FOR BREAK				
RETURNS NEG IF BREAK				

1002	0100 0000		*	LJM	0	
		1003	BRKTST	EQU	*-1	
1004	3034			LDD	DATUM	
1005	2200 7400			LPC	7400B	TEST FOR LOST CHAR
1007	0403			ZJN	*+3	
1010	1501			LCN	1	
1011	0370			UJN	BRKTST-1	LOST CHAR
			*			
1012	3034			LDD	DATUM	
1013	2200 0177			LPC	177B	
1015	3437			STD	X1	SET UP INDEX FOR BREAK TABLE
1016	5033 0001			LDM	1.CHANX	
1020	1217			LPN	BRKMSK	GET BREAK TABLE
1021	1606			ADN	6	
1022	2100 1000			ADC	1000B	MAKE SHIFT INSTRUCTION
1024	5400 1030			STM	BRKTST1	
1026	5037 2103			LDM	BRKTBL5,X1	
1030	1000		BRKTST1	SHN	00B	(MODIFIED)
1031	0350			UJN	BRKTST-1	

```

*
*
*
1032      0100 0000      1033  PUTBUF  LJM      0
1034      3447      EQU      *-1
1035      3027      STD      DATAS
1036      2100 0000      CMBUF1  LDD      CHAN
1040      6042      ADC      0
1041      6243      CRD      DATA0
1042      3043      CWD      DATA1
1043      2300 4004      LDD      DATA1
1044      0464      LMC      NULLCHR
1045      0200 1146      ZJN      PUTBUF-1
1046      0361      RJM      PUTCMDTA
1050      UJN      PUTBUF-1

*
*
*
1051      0100 0000      1052  FPUTBUF LJM      0
1053      3447      EQU      *-1
1054      3027      STD      DATAS
1055      2100 0000      CMBUF2  LDD      CHAN
1057      6042      ADC      0
1060      6243      CRD      DATA0
1061      0200 1146      RJM      DATA1
1063      4033      LDI      PUTCMDTA
1064      2200 0400      LPC      CHANX
1066      0562      NJN      EVENTBIT
1067      4033      LDI      FPUTBUF-1
1070      2200 0200      LPC      CHANX
1072      0506      NJN      XMITBIT
1073      2000 0002      LDC      FPUTBF2
1075      0200 1271      RJM      INEVD
1077      0351      UJN      SDEVENT
      FPUTBUF-1

*
*
*
1100      4033      FPUTBF2  LDI      CHANX
1101      2277 7377      LPC      -EVENTBIT
1103      2100 0400      ADC      EVENTBIT
1105      4433      STI      CHANX
1106      0342      UJN      FPUTBUF-1

*
*
*
1107      4033      RPUTBUF  LDI      CHANX
1110      2277 7677      LPC      -ININTBIT
1112      4433      STI      CHANX
1113      2200 0200      LPC      XMITBIT
1115      0412      ZJN      RPUTBUF1
1116      3027      LDD      CHAN
1117      2100 0000      CMBUF3  ADC      0
1121      6043      CRD      DATA1
1122      2000 4004      LDC      NULLCHR

```

1124	3442		STD	DATA0
1125	0200 1146		RJM	PUTCMDTA
1127	4033	*		
1130	2200 0400	RPUTBUF1	LDI	CHANX
1132	0405		LPC	EVENTBIT
1133	2000 0002		ZJN	RPUTBUF2
1135	0200 1271		LDC	INEVWD
			RJM	SNDEVENT
1137	4033	*		
1140	2277 7077	RPUTBUF2	LDI	CHANX
1142	4433		LPC	-ININTBIT-XMITBIT-EVENTBIT
1143	0100 0100		STI	CHANX
			LJM	MUXREAD
		*		
		*		XFER A WORD TO ECS
		*		
1145	0100 0000		LJM	0
		1146	PUTCMDTA	EQU
1147	4033			*-1
1150	2200 0100		LDI	CHANX
1152	0527		LPC	ININTBIT
1153	2000 0001		NJN	PUTCMDTI
1155	3426		LDC	CMMDSEND
1156	1426		STD	CMMD
1157	0200 0312		LDN	CMMD
1161	1443		RJM	PUTCENT
1162	0200 0312		LDN	DATA1
1164	0200 0406		RJM	PUTCENT
1166	3027		RJM	UPPUT
1167	2100 0000		LDD	CHAN
1171	6250	CMBUF4	ADC	0
1172	4033		CWD	EMPTY
1173	2277 7577		LDI	CHANX
1175	2100 0100		LPC	-ININTBIT
1177	4433		ADC	ININTBIT
1200	0344		STI	CHANX
			UJN	PUTCMDTA-1
1201	4033	*		
1202	2277 7577	PUTCMDT1	LDI	CHANX
1204	2100 0200		LPC	-XMITBIT
1206	4433		ADC	XMITBIT
1207	3042		STI	CHANX
1210	2300 4004		LDD	DATA0
1212	0503		LMC	NULLCHR
1213	0100 1145		NJN	*+3
1215	2000 4005		LJM	PUTCMDTA-1
1217	3446		LDC	LOSTCHR
1220	3027		STD	DATA4
1221	2100 0000		LDD	CHAN
1223	6242	CMBUF5	ADC	0
1224	4033		CWD	DATA0
1225	2277 7377		LDI	CHANX
1227	2100 0400		LPC	-EVENTBIT
			ADC	EVENTBIT

1231	4433		STI	CHANX	
1232	2200 7000		LPC	MODEMSK	
1234	0403		ZJN	*+3	
1235	0100 1145		LJM	PUTCMDTA-1	
1237	4033		LDI	CHANX	
1240	2100 1000		ADC	1000B	IF MODE WAS 0, SWITCH TO 1
1242	4433		STI	CHANX	
1243	0100 1145		LJM	PUTCMDTA-1	
		*			
		*			
		*			SEND SPECIAL EVENT FOR A CHAN
1245	0100 0000		LJM	0	
		1246	SNDSPC	EQU	*-1
1247	3422		STD	CM2	EVENT1 WILL BE TYPE OF PANIC
1250	2000 0003		LDC	CMMDSVNT	COMMAND TO SEND AN EVENT
1252	3420		STD	CM0	
1253	2000 1000		LDC	MUXWRBIT*2	FAKE CHANNEL NUMBER
1255	3421		STD	CM1	
1256	3027		LDD	CHAN	CHANNEL NUMBER WILL BE IN EVENT2
1257	3423		STD	CM3	
1260	1400		LDN	0	
1261	3424		STD	CM4	
1262	1420		LDN	CM0	
1263	0200 0312		RJM	PUTCENT	
1265	0200 0406		RJM	UPPUT	
1267	0355		UJN	SNDSPC-1	
		*			
		*			
		*			SEND 12 BIT EVENT IN A FOR CURRENT CHANNEL
1270	0100 0000		LJM	0	
		1271	SNDEVENT	EQU	*-1
1272	3430		STD	EVENT1	
1273	1400		LDN	0	
1274	3431		STD	EVENT2	
1275	2000 0003		LDC	CMMDSVNT	
1277	3426		STD	CMMD	
1300	1426		LDN	CMMD	
1301	0200 0312		RJM	PUTCENT	
1303	0200 0406		RJM	UPPUT	
1305	0362		UJN	SNDEVENT-1	
		*			
		*			
		*			REHANG PSEUDO PROCESS ON EVENT CHANNEL
1306	2000 0005		LDC	CMMDHANG	
1310	3426		STD	CMMD	
1311	1426		LDN	CMMD	
1312	0200 0312		RJM	PUTCENT	
1314	0200 0406		RJM	UPPUT	
1316	0100 0100		LJM	READMUX	


```

1420      0100 1524      LJM      INXPANIC      7
*
*      PURGE CM BUFFER REQUEST ( TTY INPUT )
*
1422      2000 4010      INPURGE  LDC      PURGECHR
1424      0200 1052      RJM      FPUTBUF
1426      0100 1305      LJM      REHANG
*
*      ENTER ECHO MODE ( TTY INPUT )
*
1430      4033      INECH  LDI  CHANX
1431      2200 7000      LPC      MODEMSK
1433      0503      NJN      *+3
1434      0100 1360      LJM      INEMPT2      OK IF ALREADY IN ECHO MODE
1436      4033      LDI      CHANX
1437      2200 0100      LPC      ININTBIT
1441      0403      ZJN      *+3
1442      0100 1365      LJM      INNEMPT      REFUSE IF WAITING TO SEND CM TO ECS
1444      3027      LDD      CHAN
1445      2100 0000      CMBUF6  ADC      0
1447      6020      CRD      CM0
1450      3024      LDD      CM4
1451      2300 4004      LMC      NULLCHR
1453      0403      ZJN      *+3
1454      0100 1365      LJM      INNEMPT      REFUSE IF DATA IN CM BUFFER
1456      5033 0001      LDM      1,CHANX
1460      1320      SCN      ECHFLG
1461      5433 0001      STM      1,CHANX      CLEAR ECH FLG
1463      2000 0004      LDC      CMMDCHKE
1465      3426      STD      CMMD
1466      1426      LDN      CMMD
1467      0200 0312      RJM      PUTCENT      REQUEST CHECK OF ECS
1471      0200 0405      RJM      UBRUT
1473      0100 0100      LJM      READMUX
*
*      CHANGE BREAK TABLE
*
1475      5033 0001      INXBRK  LDM      1,CHANX
1477      1317      SCN      BRKMSK
1500      5433 0001      STM      1,CHANX
1502      3031      LDD      EVENT2
1503      1217      LPN      BRKMSK
1504      5533 0001      RAM      1,CHANX
1506      0100 1422      LJM      INPURGE
*
*      GO TO NON ECHO MODE
*
1510      4033      INXECH  LDI      CHANX
1511      2277 0777      LPC      -MODEMSK
1513      2100 2000      ADC      2000B
1515      4433      STI      CHANX
1516      2000 4007      LDC      ECHOXCHR
1520      0200 1033      RJM      PUTBUF

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1522

0100 1306

LJM

REHANG

*

*

*

CHANGE MILD PANIC CHARACTER

1524

3031

INXPANIC

LDD

EVENT2

1525

2200 0177

LPC

177B

1527

5433 0002

STM

2.CHANX

1531

0100 1306

LJM

REHANG

		*		TTYOUTPUT RESPONSE TO COMMAND FROM CM INTERRUPT	
		*			
		*			
1533	3026	TTYOUTCM	LDD	CMMD	
1534	1207		LPN	7B	
1535	1001		SHN	1	
1536	3437		STD	X ₁	
1537	0137 1541		LJM	TTYOTCMX,X ₁	
		*			
1541	0100 0100	TTYOTCMX	LJM	MUXREAD	0 NUMB IN COL 50
1543	0100 1561		LJM	OUTEVENT	1
1545	0100 1573		LJM	OUTWRD	2
1547	0100 1617		LJM	OUTNONE	3
1551	0100 1632		LJM	OUTMORES	4
1553	0100 0100		LJM	MUXREAD	5
1555	0100 0100		LJM	MUXREAD	6
1557	0100 0100		LJM	MUXREAD	7
		*			
		*		TTYOUTPUT HAS RECIEVED AN EVENT FROM USER PROCESS	
		*			
		*			
1561	3030	OUTEVENT	LDD	EVENT1	
1562	1201		LPN	1B	
1563	1001		SHN	1	
1564	3437		STD	X ₁	
1565	0137 1567		LJM	OTEVENTX,X ₁	
		*			
1567	0100 1306	OTEVENTX	LJM	REHANG	0 NUMBS IN COL 50
1571	0100 1636		LJM	OUTMORE	1
		*			
		*		OUTPUT COMMAND OF NEW WORD AVAILABLE	
		*			
		*			
1573	1442	OUTWRD	LDN	DATAD	
1574	0200 0241		RJM	GETCENT	
1576	3027		LDD	CHAN	
1577	2100 0000	CMBUF8	ADC	0	
1601	6242		CWD	DATAD	REFILL CENTRAL BUFFER
1602	4033		LDI	CHANX	
1603	2277 0777		LPC	-OUTINTBT-USERFLAG-CMNEMPT	TURN OFF WAITING AND
1605	2100 1000		ADC	CMNEMPT	USER INFO FLAGS, AND SET CM BUFFER
1607	4433		STI	CHANX	NON EMPTY
1610	2200 0200		LPC	CHINMUX	SEE IF A CHARACTER NOW IN MUX
1612	0403		ZJN	*+3	
1613	0100 0100		LJM	READMUX	YES
1615	0100 0457		LJM	TTYOUTA	SEND A CHARACTER
		*			
		*		OUTPUT COMMAND OF NO WORD AVAILABLE	
		*			
		*			
1617	4033	OUTNONE	LDI	CHANX	
1620	2277 3777		LPC	-OUTINTBT	TURN OFF WAITING FLAG
1622	4433		STI	CHANX	
1623	2200 2000		LPC	USERFLAG	SEE IF USER SAID MORE OUTPUT AVAILABLE
1625	0403		ZJN	*+3	
1626	0200 0561		RJM	RQSTMR	

```

1630      0100 0100      LJM      READMUX
          *
          *      SPECIAL SIGNAL OF MORE OUTPUT FROM MUXINT
          *
1632      0200 1643      OUTMORES RJM      OUTMOREX
1634      0100 0100      LJM      READMUX
          *
          *      EVENT FROM USER PROCESS SAYS MORE OUTPUT AVAILABLE
          *
1636      0200 1643      OUTMORE RJM      OUTMOREX
1640      0100 1306      LJM      REHANG
          *
          *      HANDLE MORE OUTPUT
          *
1642      0100 0000      LJM      0
          *      1643      OUTMOREX EQU      0-1
1644      4033      LDI      CHANX
1645      2200 1000      LPC      CMEMPTY      SEE IF CM BUFFER EMPTY
1647      0572      NJN      OUTMOREX-1
1650      4033      LDI      CHANX
1651      2277 5777      LPC      -USERFLAG
1653      2100 2000      ADC      USERFLAG      TURN ON USER INFO FLAG
1655      4433      STI      CHANX
1656      2200 4000      LPC      OUTINTBT      SEE IF WAITING FOR RESPONSE
1660      0561      NJN      OUTMOREX-1
1661      0200 0561      RJM      ROSTMR
1663      0366      UJN      OUTMOREX-1

```

```

*
*
*
SPECIAL STATE FOR INITIALIZING A DEVICE

1664      3026      *SPECDVC  LDD  CMMD
1665      1101      LMN  1B
1666      0403      ZJN  *+3      RECOGNIZE EVENTS ONLY
1667      0100 0100  LJM  MUXREAD
1671      3030      LDD  EVENT1
1672      1203      LPN  3B
1673      1001      SHN  1
1674      3437      STD  X1
1675      0137 1677  LJM  SPECEVX,X1

*
SPECEVX  LJM  REHANG      0  ( NUMBS IN COL 50 )
1701      0100 1305  LJM  REHANG      1
1703      0100 1707  LJM  NEWTTY     2
1705      0100 1305  LJM  REHANG      3

```

```

*
*
*      INITIALIZE TTY
1707      1400      NEWTTY      LDN      0
1710      5433 0001      STM      1,CHANX
1712      1401      LDN      TTINTYP
1713      4433      STI      CHANX
1714      2000 0000      CMBUF9     LDC      0
1716      3127      ADD      CHAN_
1717      6250      CWD      EMPTY
1720      1402      LDN      TTOUTTYP
1721      5433 2000      STM      MUXWRBIT*4,CHANX
1723      1400      LDN      0
1724      0200 0225      RJM      WRITMUX   TURN ON THIS TTY BOARD IN MUX
1726      0100 1306      LJM      REHANG

```

		*			
		*			
		*			
1730	1417	START	LDN	15	
1731	1701		SBN	1	DELAY FOR ALL CHANNELS TO
1732	0576		NJN	*-1	BE RELEASED
		*			
1733	2000 0022		LDC	I,POINTS	GET ADDRESS OF I,MUX
1735	1601		ADN	INTNUMB	AND STORE IN DATA3, DATA4
1736	6042		CRD	DATA0	
1737	3045		LDD	DATA3	
1740	1277		LPN	77B	
1741	3445		STD	DATA3	
		*			
1742	3045		LDD	DATA3	
1743	1014		SHN	12	
1744	3146		ADD	DATA4	GET CMBUF ADDRESS
1745	6020		CRD	CM0	
1746	3023		LDD	CM3	
1747	1277		LPN	77B	
1750	3423		STD	CM3	
1751	2000 0011		LDC	CMBUFCNT	
1753	3437		STD	X1	
1754	5037 2157	CMBUFL	LDM	CMBUFS,X1	
1756	3440		STD	X2	
1757	4040		LDI	X2	
1760	2200 7700		LPC	7700B	
1762	3123		ADD	CM3	
1763	4440		STI	X2	
1764	3024		LDD	CM4	
1765	5440 0001		STM	1,X2	
1767	3737		SOD	X1	
1770	0563		NJN	CMBUFL	
		*			
1771	3045		LDD	DATA3	
1772	1014		SHN	12	
1773	3146		ADD	DATA4	GET CENTQ ADDRESS
1774	1601		ADN	1	
1775	6020		CRD	CM0	
1776	3023		LDD	CM3	
1777	1277		LPN	77B	
2000	3423		STD	CM3	
2001	2000 0006		LDC	CENTQCNT	
2003	3437		STD	X1	
2004	5037 2151	CENTQL	LDM	CENTQS,X1	
2006	3440		STD	X2	
2007	4040		LDI	X2	
2010	2200 7700		LPC	7700B	
2012	3123		ADD	CM3	
2013	4440		STI	X2	
2014	3024		LDM	CM4	
2015	5440 0001		STM	1,X2	
2017	3737		SOD	X1	

2020	0563		NJN	CENTQL	
2021	3045	*	LDD	DATA3	
2022	1014		SHN	12	
2023	3146		ADD	DATA4	
2024	1602		ADN	2	GET TOCMF - CENTQ
2025	6020		CRD	CM0	
2026	3024		LDD	CM4	
2027	5400 0426		STM	TOCMX	
2031	3045	*	LDD	DATA3	
2032	1014		SHN	12	
2033	3146		ADD	DATA4	
2034	1603		ADN	3	GET FRMCMF - CENTQ
2035	6020		CRD	CM0	
2036	3024		LDD	CM4	
2037	5400 0433		STM	FRMCMX	
2041	1403	*	LDN	3	
2042	3437		STD	X1	
2043	3037	* CLOOPE	LDD	X1	
2044	2100 0000	CENTQ7	ADC	0	
2046	5100 0433		ADM	FRMCMX	
2050	6020		CRD	CM0	
2051	3024		LDD	CM4	
2052	5437 0434		STM	FRMCMF,X1	
2054	3737		SOD	X1	
2055	0965		PJN	CLOOPE	
2056	1403	*	LDN	3	
2057	3437		STD	X1	
2060	3037	* CLOOPT	LDD	X1	
2061	2100 0000	CENTQ8	ADC	0	
2063	5100 0426		ADM	TOCMX	
2065	6020		CRD	CM0	
2066	3024		LDD	CM4	
2067	5437 0427		STM	TOCMF,X1	
2071	3737		SOD	X1	
2072	0965		PJN	CLOOPT	
2073	3045	*	LDD	DATA3	
2074	1014		SHN	12	
2075	3146		ADD	DATA4	
2076	1604		ADN	4	GET ADDRESS OF A ZERO
2077	6020		CRD	CM0	
2100	3023		LDD	CM3	
2101	1277		LPN	77B	
2102	3423		STD	CM3	
2103	2000 0002		LDC	ZEROCNT	

2105	3437		STD	X1
2106	5037 2170	ZEROL	LDM	ZEROS,X1
2110	3440		STD	X2
2111	4040		LDI	X2
2112	2200 7700		LPC	7700B
2114	3123		ADD	CM3
2115	4440		STI	X2
2116	3024		LDD	CM4
2117	5440 0001		STM	1,X2
2121	3737		SOD	X1
2122	0563		NJN	ZEROL
		*		
		*		
		*		
2123	2000 0377		LDC	MUXWRBIT-1
2125	3427		STD	CHAN
2126	2000 0005		LDC	CMMDHANG
2130	3426		STD	CMMD
2131	1426	STLOOP	LDN	CMMD
2132	0200 0312		RJM	PUTCENT
2134	0200 0405		RJM	UPPUT
2136	3727		SOD	CHAN
2137	0671		PJN	STLOOP
		*		
2140	2000 1000		LDC	2*MUXWRBIT
2142	3427		STD	CHAN
2143	1426		LDN	CMMD
2144	0200 0312		RJM	PUTCENT
2146	0200 0405		RJM	UPPUT
		*		
		*		
2150	0100 0100		LJM	READMUX

```

*
*
ITEM      MACRO      D
VFD      12/D
ENDM

*
*
*
*
LIST OF ADDRESSES TO BE GIVEN CENTQ ADDRESS
2151  CENTQS  EQU      *-1
2152      0256      ITEM  CENTQ1
2153      0400      ITEM  CENTQ3
2154      0354      ITEM  CENTQ5
2155      0417      ITEM  CENTQ6
2156      2044      ITEM  CENTQ7
2157      2061      ITEM  CENTQ8

*
6  CENTQCNT  EQU      *-CENTQS-1
*
*
LIST OF ADDRESSES TO BE GIVEN CM BUFFER ADDRESS
2157  CMBUFS  EQU      *-1
2160      1036      ITEM  CMBUF1
2161      1055      ITEM  CMBUF2
2162      1117      ITEM  CMBUF3
2163      1167      ITEM  CMBUF4
2164      1221      ITEM  CMBUF5
2165      1445      ITEM  CMBUF6
2166      0540      ITEM  CMBUF7
2167      1577      ITEM  CMBUF8
2170      1714      ITEM  CMBUF9

*
11 CMBUFCNT  EQU      *-CMBUFS-1
*
*
LIST OF ADDRESSES TO BE GIVEN ADDRESS OF A ZERO
2170  ZEROS  EQU      *-1
2171      0370      ITEM  ZER01
2172      0407      ITEM  ZER02

*
2  ZERQCNT  EQU      *-ZEROS-1

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2540

*
*
*
*
*
*
*
*

MUXCHNO BSSZ MUXQSZ+1
MUXDTAG BSSZ MUXQSZ+1

2705
000400

000400

CHANBLKS EQU
DUP
VFD
DUP
DATA
BSSZ

*
MUXWRBIT,1
12/SPDYCTYP,12/0,12/0,12/0
MUXWRBIT,1
0,0,0,0
512**++CHANBLKS

6705

PAD OUT TO FULL SIZE TO BE SURE

6705

END

35375

STORAGE USED
6600 ASSEMBLY

1860 STATEMENTS
12.921 SECONDS

183 SYMBOLS
1083 REFERENCES

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SYMBOLIC REFERENCE TABLE.

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ATTYINMX	614	16/08	16/14 L						
BRKMSK	17	5/12 D	18/14	23/39	23/42				
BRKTBL5	2173	18/18	33/10 L						
BRKTST	1003	16/38	17/40	18/03 D	18/08	18/20			
BRKTST1	1030	18/17	18/19 L						
BTTYINMX	625	16/12	16/17	16/21 L					
CENTQCNT	6	29/43	32/18 D						
CENTQ1	2004	29/45 L	30/01						
CENTQ5	2151	29/45	32/10 D	32/18					
CENTQ1	255	11/16 L	32/11						
CENTQ3	400	12/24 L	32/12						
CENTQ5	354	12/07 L	32/13						
CENTQ6	417	12/39 L	32/14						
CENTQ7	2044	30/24 L	32/15						
CENTQ8	2061	30/36 L	32/16						
CHAN	27	7/13 L	10/09	19/07	20/29	23/19	31/16		
		8/47	15/02	19/22	20/48	25/34	31/22		
		9/23	17/20	19/50	21/19	28/09	31/26		
CHANBLKS	2705	8/50	9/26	17/22	34/12 D	34/17			
CHANX	33	7/18 L	14/23	16/16	17/32	20/10	21/05	23/38	25/50
		8/51	14/32	16/21	18/13	20/12	21/07	23/40	26/17
		9/05	14/35	16/41	19/27	20/19	22/21	23/43	26/20
		9/27	14/37	16/48	19/30	20/32	22/25	23/48	26/23
		9/28	14/38	17/01	19/37	20/35	22/27	23/51	28/05
		14/04	14/41	17/03	19/40	20/38	23/11	24/07	28/07
		14/06	14/43	17/09	19/45	20/41	23/15	25/37	28/12
		14/11	15/25	17/23	19/47	20/51	23/26	25/40	
		14/20	15/28	17/29	20/04	21/01	23/28	25/48	
CHINMUX	200	5/20 D	14/05	14/31	16/49	25/41			
CLOOPF	2043	30/23 L	30/30						
CLOOPF	2060	30/35 L	30/42						
CMBUF CNT	11	29/22	32/33 D						
CMBUFL	1754	29/24 L	29/33						
CMBUFS	2157	29/24	32/22 D	32/33					
CMBUF1	1036	19/08 L	32/23						
CMBUF2	1055	19/23 L	32/24						
CMBUF3	1117	19/51 L	32/25						
CMBUF4	1157	20/30 L	32/26						
CMBUF5	1221	20/49 L	32/27						
CMBUF6	1445	23/20 L	32/28						
CMBUF7	540	15/03 L	32/29						
CMBUF8	1577	25/35 L	32/30						
CMBUF9	1714	28/08 L	32/31						
CMMO	29	7/12 L	15/22	21/36	21/46	23/31	31/18		
		9/19	20/23	21/37	22/04	25/04	31/19		
		15/21	20/24	21/45	23/30	27/04	31/27		
CMMDCHKE	4	3/43 D	23/29						
CMMDGET	2	3/41 D	15/20						
CMMDHANG	5	3/44 D	21/44	31/17					
CMMDSND	1	3/40 D	20/22						
CMMDSVNT	3	3/42 D	21/15	21/35					
CMMD4	32	7/16 L							
CMNEMPT	1000	5/18 D	14/12	14/42	15/26	25/38	25/39	26/18	

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SYMBOLIC REFERENCE TABLE.

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CM0	20	7/05 L	12/20	12/41	23/21	30/07	30/38		
		11/18	12/26	21/16	29/18	30/15	30/49		
		12/09	12/35	21/23	29/39	30/26			
CM1	21	7/06 L	21/18						
CM2	22	7/07 L	21/14						
CM3	23	7/08 L	29/19	29/28	29/42	30/50	31/06		
		21/20	29/21	29/40	29/49	30/52			
CM4	24	7/09 L	12/10	12/37	23/22	29/51	30/16	30/39	
		11/19	12/22	21/22	29/30	30/08	30/27	31/08	
CM5	25	7/10 L							
DATA0	42	7/29 L	15/06	19/09	20/01	20/50	25/36		
		15/04	15/13	19/24	20/42	25/32	29/10		
DATA1	43	7/30 L	15/05	15/09	19/10	19/11	19/25	19/52	20/26
DATA2	44	7/31 L							
DATA3	45	7/32 L	29/11	29/13	29/15	29/35	30/03	30/11	30/45
DATA4	46	7/33 L	20/47	29/17	29/37	30/05	30/13	30/47	
DATA5	47	7/34 L	15/01	19/06	19/21				
DATUM	34	7/19 L	14/17	16/04	16/14	16/53	17/24	17/42	18/04
		8/53	14/24	16/06	16/45	17/12	17/33	17/47	18/10
ECHFLG	20	5/11 D	17/30	17/31	22/22	23/27			
ECHODCHR	4003	3/23 D	17/10						
ECHOECHR	4006	3/26 D	22/28						
ECHOW	100	5/21 D	14/07	14/36	16/42	17/02			
ECHOXCHR	4007	3/27 D	22/35	23/52					
EMPTY	50	7/36 L	20/31	28/10					
EVENTBIT	400	5/08 D	19/28	19/38	19/39	20/05	20/11	20/52	20/53
EVENT1	30	7/14 L	21/32	22/41	25/21	27/08			
EVENT2	31	7/15 L	21/34	23/41	24/05				
FPUTBF2	1100	19/32	19/37 L						
FPUTBUF	1052	17/14	17/49	19/20 D	19/29	19/35	19/41	22/36	23/06
FRMCMF	434	11/29	13/09 L	30/28					
FRMCMIN	435	11/12	11/20	13/10 L					
FRMCML	437	11/27	13/12 L						
FRMCMOUT	436	11/13	11/21	11/24	11/26	11/30	12/21	13/11 L	
FRMCMX	433	11/15	12/23	13/08 L	30/17	30/25			
GETBUF	533	14/16	14/52 D	15/14					
GETBUF1	556	15/08	15/13 L						
GETCENT	241	9/20	11/08 D	11/22	11/33	25/33			
GETCENT1	270	11/14	11/24 L						
GETCENT2	272	11/11	11/25 L						
INECH	1430	22/50	23/11 L						
INECHO	653	16/27	16/38 L						
INECHOD	744	16/28	17/29 L						
INECHO1	732	16/51	17/19 L						
INECHOX	714	16/40	16/44	17/08 L					
INEMPT	1346	22/13	22/21 L						
INEMPT1	1354	22/25 L							
INEMPT2	1360	22/28 L	23/14						
INEVENT	1374	22/11	22/41 L						
INEVENTX	1402	22/45	22/47 L						
INEVWD	2	3/33 D	19/33	20/07					
ININTBIT	100	5/10 D	19/46	20/11	20/20	20/33	20/34	23/16	
INNEMPT	1366	22/14	22/24	22/35 L	23/18	23/25			

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INNONECH	761	16/29	17/40 L						
INPURGE	1422	22/49	23/05 L	23/44					
INTCHAN	11	3/14 D	12/43						
INTNUMB	1	3/15 D	12/42	29/09					
INTRESP	214	9/32	9/37 L						
INXBRK	1475	22/51	23/38 L						
INXECH	1510	22/52	23/48 L						
INXPANIC	1524	23/01	24/05 L						
I.POINTS	22	3/53 D	29/08						
LOSTCHR	4005	3/25 D	20/46						
MDESHFT	7777766	5/07 D							
MODEMSK	7000	5/06 D	21/02	22/26	23/12	23/49			
MUXCHN	6	3/05 D	8/24	8/28	8/36	10/07	10/10	10/13	
		8/23	8/25	8/34	8/38	10/08	10/12		
MUXCHNG	2373	8/35	8/46	34/04 L					
MUXDTAQ	2540	8/37	8/52	34/05 L					
MUXQSZ	144	4/05 D	7/21	7/22	8/41	9/03	34/04	34/05	
MUXRD	7774	3/06 D	8/23						
MUXRDY	1	3/08 D	8/26						
MUXREAD	100	8/22 D	22/10	22/16	25/10	25/16	27/07		
		20/13	22/15	22/17	25/15	25/17			
MUXRESP	161	9/09	9/14 L						
MUXWRBIT	400	3/09 D	9/24	16/48	17/03	21/17	31/15	34/13	
		8/48	16/41	17/01	17/19	28/12	31/25	34/15	
MUXWRT	7763	3/07 D	10/07						
NEWTTY	1707	27/16	28/04 L						
NONECH2	773	17/41	17/47 L						
NULLCHR	4004	3/24 D	7/37	7/39	19/12	20/43			
		7/36	7/38	7/40	19/53	23/23			
N1	41	7/27 L							
OTEVENTX	1567	25/25	25/27 L						
OUTACTV	400	5/19 D	14/21	14/22	14/42	16/42			
OUTEVENT	1561	25/11	25/21 L						
OUTEVWD	1	3/24 D							
OUTINTBT	4000	5/16 D	15/26	15/27	25/38	25/49	26/24		
OUTKILL	4001	3/21 D	14/18	15/07					
OUTMORE	1636	25/28	26/10 L						
OUTMORES	1632	25/14	26/05 L						
OUTMOREX	1643	26/05	26/10	26/16 D	26/19	26/25	26/27		
OUTNONE	1617	25/13	25/48 L						
OUTWRD	1573	25/12	25/32 L						
PROCSINT	171	8/32	9/19 L						
PROCSMUX	132	8/31	8/46 L						
PURGECHR	4010	3/28 D	23/05						
PUTBUF	1033	16/47	17/35	19/05 D	19/15	23/53			
		17/11	17/44	19/13	22/29				
PUTCENT	312	11/38 D	12/02	20/25	21/24	21/47	31/20		
		11/51	15/23	20/27	21/38	23/32	31/28		
PUTCENT1	322	11/41	11/43 L						
PUTCENT2	351	11/52	11/53	12/05 D	12/13				
PUTCENT3	343	11/53 L	12/01						
PUTCMDTA	1146	19/14	19/26	20/02	20/18 D	20/36	20/45	21/04	21/08
PUTCMDT1	1201	20/21	20/38 L						

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TOCML	432	11/45	13/06 L						
TOCMOUT	431	11/50	12/11	13/05 L					
TOCMX	426	12/06	12/38	13/02 L	30/09	30/37			
TTINTYP	1	5/28 D	28/06						
TTOUTTYP	2	5/29 D	28/11						
TTYINCM	1320	9/38	22/04 L						
TTYINCMX	1326	22/08	22/10 L						
TTYINMX	601	9/15	16/04 L						
TTYOTCMX	1541	25/08	25/10 L						
TTYOUTA	457	14/16 L	25/44						
TTYOUTCM	1533	9/39	25/04 L						
TTYOUTEC	512	14/09	14/35 L						
TTYOUTKL	522	14/19	14/41 L						
TTYOUTMX	440	9/16	14/04 L						
TTYOUTSN	474	14/26 L	14/39	17/25					
UPGET	367	11/31	12/18 D	12/27					
UPPUT	406	12/33 D	15/24	21/25	21/48	31/21			
		12/44	20/26	21/39	23/33	31/29			
USERFLAG	2000	5/17 D	15/26	25/38	25/51	26/21	26/22		
WRITMUX	225	10/05 D	10/14	14/30	28/14				
XMITBIT	200	5/09 D	19/31	19/48	20/11	20/39	20/40		
XMUX	35	7/21 L	8/29	8/35	8/37	8/39	8/42		
XTTYINMX	633	16/25	16/27 L						
X1	37	7/24 L	10/06	16/18	25/07	27/12	29/45	30/29	31/01
		9/08	10/11	22/07	25/08	29/23	29/53	30/33	31/02
		9/09	16/24	22/08	25/24	29/24	30/21	30/35	31/10
		9/31	16/25	22/44	25/25	29/32	30/23	30/40	
		9/32	18/12	22/45	27/11	29/44	30/28	30/41	
X2	40	7/25 L	29/26	29/31	29/47	29/52	31/04	31/09	
		29/25	29/29	29/46	29/50	31/03	31/07		
YMUX	36	7/22 L	8/30	8/43	8/46	8/52	9/01	9/04	
ZERO	0	3/49 D							
ZEROCNT	2	30/83	32/41 D						
ZEROL	2106	31/02 L	31/11						
ZEROS	2170	31/02	32/37 D	32/41					
ZERO1	370	12/19 L	32/38						
ZERO2	407	12/34 L	32/39						