

LOCTR OBJECT TEXT STMT SOURCE STATEMENT
3 COPY LOG4000 ** MAP EC HISTORY **
4 *****
5 *
6 * ** PREREQUISITES **
7 *
8 * HARDWARE EC 576943A
9 *
10 *****
11 *
12 * ** MODIFICATIONS **
13 *
14 * CHANGES MADE TO CORRECT FOR LOW BAUD RATE
15 *
16 *****
17 *
18 * ** REA'S INCORPORATED **
19 *
20 * NONE
21 *
22 *****
23 *
24 * ** SPECIAL INSTRUCTIONS **
25 *
26 * NONE
27 *
28 *****
29 *
30 * ** E. C. HISTORY **
31 *
32 * DATE 01JUL76 DATE 01OCT76 DATE 02DEC76 DATE 10JUN77
33 * E.C. 578446 E.C. 578468 E.C. 578469 E.C. 578625
34 *
35 * DATE 22JUL77 DATE 15SEP77 DATE 01SEP78 DATE
36 * E.C. 578757 E.C. 754882 E.C. 374888 E.C.
37 *
38 *****
40 I4000 START X'2500' START ADDRESS OF ALL 'I' TYPE PROG
41 @QUES EQU X'0100' EQUATED VALUE FOR MDI STATEMENT
42 @FIXT EQU X'0101' EQUATED VALUE FOR MDI STATEMENT
43 @STOP EQU X'0102' EQUATED VALUE FOR MDI STATEMENT
44 @GOTO EQU X'0200' EQUATED VALUE FOR MDI STATEMENT
45 @CALL EQU X'0201' EQUATED VALUE FOR MDI STATEMENT
46 @INPT EQU X'0300' EQUATED VALUE FOR MDI STATEMENT
47 @QUXX EQU X'0400' EQUATED VALUE FOR MDI STATEMENT
48 @TUXX EQU X'0500' EQUATED VALUE FOR MDI STATEMENT
49 @NVLD EQU X'0600' EQUATED VALUE FOR MDI STATEMENT
50 EQ EQU X'0000' EQUATE FOR EQUAL
51 NE EQU X'0004' EQUATE FOR NOT EQUAL
52 HI EQU X'0008' EQUATE FOR HIGH
53 NH EQU X'000C' EQUATE FOR NOT HIGH
54 LO EQU X'0010' EQUATE FOR LOW
55 NL EQU X'0014' EQUATE FOR NOT LOW
56 LT EQU X'0010' EQUATE FOR LESS THAN
57 LE EQU X'000C' EQUATE FOR LESS THAN OR EQUAL TO
58 GT EQU X'0008' EQUATE FOR GREATER THAN
59 GE EQU X'0014' EQUATE FOR GREATER THAN OR EQUAL TO
60 ON EQU X'0200' EQUATE FOR ON
61 OF EQU X'0202' EQUATE FOR OFF
62 MX EQU X'0204' EQUATE FOR MIXED
63 EBC EQU X'0000' EQUATE FOR EBCDIC DATA TRANSFER
64 HEX EQU X'0001' EQUATE FOR HEX DATA TRANSFER
65 XTRNL EQU X'0001' EQUATE FOR EXTERNAL REFERENCE
66 XNTRNL EQU X'0000' EQUATE FOR INTERNAL REFERENCE
67 PARM EQU X'0000' EQUATE INDICATING PARAMETER
68 DA EQU X'0001' EQUATE FOR DEVICE ADDRESS
69 UA EQU X'0002' EQUATE FOR UNIT ADDRESS
70 DUMMY EQU X'0000' DUMMY EQUATE
71 PID EQU *-X'0D00' ADDRESS OF MDI HEADER
72 PTYPE EQU *-X'22CE' ADDRESS OF PROCESSOR TYPE FIELD
73 STEPNUM EQU PID+X'000C' ADDRESS OF DECIMAL STEP NUMBER
74 OPWD1 EQU PID+X'000E' ADDRESS OF OPTION WORD ONE
75 OPWD2 EQU PID+X'0010' ADDRESS OF OPTION WORD TWO
76 TUSTATUS EQU PID+X'0018' ADDRESS OF TU STATUS WORD
77 TUBK EQU PID+X'001A' ADDRESS OF TU WORK AREA
78 TUPARM EQU PID+X'009A' ADDRESS OF PARM 1 POINTER
79 TUPARM1 EQU PID+X'009C' ADDRESS OF PARM 2 POINTER
80 TUPARM2 EQU PID+X'009E' ADDRESS OF PARM 3 POINTER
81 TUPARM3 EQU PID+X'00A0' ADDRESS OF PARM 4 POINTER
82 TUPARM4 EQU PID+X'00A2' ADDRESS OF PARM 5 POINTER
83 TUPARM5 EQU PID+X'00A4' ADDRESS OF PARM 6 POINTER
84 TUPARM6 EQU PID+X'00A6' ADDRESS OF PARM 7 POINTER
85 TUPARM7 EQU PID+X'00A8' ADDRESS OF PARM 8 POINTER
86 TUPARM8 EQU PID+X'00AA' ADDRESS OF PARM 9 POINTER
87 TUPARM9 EQU PID+X'00AC' ADDRESS OF PARM 10 POINTER
88 TUPARM10 EQU PID+X'00AE' ADDRESS OF PARM 11 POINTER
89 TUPARM11 EQU PID+X'00B0' ADDRESS OF PARM 12 POINTER
90 TUPARM12 EQU PID+X'00B2' ADDRESS OF PARM 13 POINTER
91 TUPARM13 EQU PID+X'00B4' ADDRESS OF PARM 14 POINTER
92 TUPARM14 EQU PID+X'00B6' ADDRESS OF PARM 15 POINTER
93 TUPARM15 EQU PID+X'00B8' ADDRESS OF PARM 16 POINTER
94 TUPARM16 EQU PID+X'00BA' ADDRESS OF -> TO COMMON MSG WRITER
95 TUMSGWTR EQU PID+X'00BE' ADDRESS OF UNIT ADDRESS IN EBC
96 TUUA EQU PID+X'00C0' ADDRESS OF DEVICE ADDRESS IN ERC
97 TUDA EQU PID+X'00C2' ADDRESS OF LAST USED WORD IN MAP
98 TUBUFF EQU PID+X'00C4' ADDRESS OF LAST ADDRESSABLE WORD
99 TURESLN EQU PID+X'00C8' ADDRESS OF LENGTH OF TU RESULTS
100 TURESUL EQU PID+X'00CC' ADDRESS OF TU RESULTS FIELD
101 TURESUL EQU PID+X'00C8' ADDRESS OF MAP NAME FIELD IN HEX
102 MAPNAME EQU PID+X'00FC' ADDRESS OF \$INPT DATA
103 TUINPT EQU PID+X'0148' ADDRESS OF \$INPT INPUT AREA
104 PARMARA EQU PID+X'016E' MDI POINTER
105 @DCADD1 EQU PID+X'01B8' MDI POINTER
106 @DCADD2 EQU PID+X'01BA' ADDRESS OF MDI STATUS
107 SUPSTAT EQU PID+X'01C4' ADDRESS OF DEVICE ADDRESS TABLE 0
108 DEVADD EQU PID+X'01D0' ADDRESS OF DEVICE ADDRESS TABLE 1
109 DEVADD1 EQU PID+X'01DA' ADDRESS OF DEVICE ADDRESS TABLE 2
110 DEVADD2 EQU PID+X'01E4' ADDRESS OF DEVICE ADDRESS TABLE 3
111 DEVADD3 EQU PID+X'01EE' ADDRESS OF DEVICE ADDRESS TABLE 4
112 DEVADD4 EQU PID+X'01F8' ADDRESS OF DEVICE ADDRESS TABLE 5
113 DEVADD5 EQU PID+X'0202' ADDRESS OF DEVICE ADDRESS TABLE 6
114 DEVADD6 EQU PID+X'020C' ADDRESS OF DEVICE ADDRESS TABLE 7
115 DEVADD7 EQU PID+X'0216' PRINT OFF
116

002500
000100
000101
000102
000200
000201
000300
000400
000500
000600
000000
000004
000008
00000C
000010
000014
000010
00000C
000008
000014
000020
000202
000204
000000
000001
000000
000000
000001
000002
000000
001800
000232
00180C
001810
001818
00181A
001818
00189A
00189C
00189E
0018A0
0018A2
0018A4
0018A6
0018A8
0018AA
0018AC
0018AE
0018B0
0018B2
0018B4
0018B6
0018B8
0018BA
0018BE
0018C0
0018C2
0018C4
0018C6
0018C8
0018FC
001948
00196E
0019B8
0019BA
0019C4
0019D0
0019DA
0019E4
0019EE
0019F8
001A02
001A0C
001A16

LOCTR OBJECT TEXT STMT SOURCE STATEMENT COPYRIGHT IBM CORP 1976
002500 252C
201 DC A(ENTPT) POINT TO MAP ENTRY POINT TABLE
202 *****
203 *****
204 **
205 ** THE FOLLOWING TABLES ARE USED BY THE MDI SUPERVISOR (D3C00) **
206 ** TO LOCATE THE CORRECT RULE TO INVOKE, TO OBTAIN THE PROPER **
207 ** PARAMETERS TO PASS TO THE TU'S AND TO PASS TO THE OPERATOR **
208 ** THE INDICATED MESSAGE(S). THERE ARE FOUR TABLES USED FOR THIS **
209 ** PURPOSE THEY ARE: **
210 **
211 ** STEP AND RULE ADDRESS TABLE **
212 ** THIS TABLE GIVES THE ADDRESS OF THE RULE TO INVOKE AND **
213 ** THE ASSOCIATED STEP DECIMAL STEP NUMBER OF THAT RULE. **
214 ** ENTRIES ARE AS FOLLOWS **
215 ** A) AN ADDRESS OF THE RULE DC START AREA **
216 ** B) THE STEP NUMBER IN DECIMAL **
217 ** C) AN EQUATE FOR THE STEP NUMBER **
218 **
219 ** RULE INFORMATION TABLE **
220 ** THIS TABLE CONTAINS THE REQUIRED INFORMATION TO EXECUTE **
221 ** THE APPROPRIATE RULE UNDER MDI. EACH RULE HAS ITS OWN **
222 ** UNIQUELY DEFINED AREA INDICATED BELOW. END OF TABLE IS **
223 ** INDICATED WITH A X'0000' FOR THE RULE EQUATE. **
224 **
225 ** \$QUES **
226 ** A) RULE EQUATE X'0100' **
227 ** B) ADDRESS OF THE YES LEG RULE **
228 **
229 ** \$FIXT **
230 ** A) RULE EQUATE X'0101' **
231 ** B) ADDRESS OF MESSAGE TO PRINT **
232 **
233 ** \$STOP **
234 ** A) RULE EQUATE X'0102' **
235 ** B) ADDRESS OF MESSAGE **
236 **
237 ** \$GOTO **
238 ** A) RULE EQUATE X'0200' **
239 ** B) ADDRESS OF MESSAGE **
240 ** C) NAME OF MAP TO GO TO **
241 ** D) ENTRY POINT WITHIN GO TO MAP TO USE **
242 ** E) INDICATOR FOR EXTERNAL OR INTERNAL REFERENCE **
243 **
244 ** \$CALL **
245 ** A) RULE EQUATE X'0201' **
246 ** B) ADDRESS OF MESSAGE **
247 ** C) NAME OF MAP TO CALL **
248 ** D) ENTRY POINT WITHIN CALLED MAP TO USE **
249 ** E) INDICATOR FOR EXTERNAL OR INTERNAL REFERENCE **
250 **
251 ** \$INPT **
252 ** A) RULE EQUATE X'0300' **
253 ** B) INPUT TYPE (EBCDIC OR HEX) **
254 ** C) ADDRESS OF YES LEG RULE **
255 ** D) DESTINATION LOCATION OF INPUT DATA **
256 ** E) LENGTH OF INPUT DATA **
257 ** F) LOWER LIMIT OF GOOD DATA **
258 ** G) HIGHER LIMIT OF GOOD DATA **
259 **
260 ** \$QUXX **
261 ** A) RULE EQUATE X'0400' **
262 ** B) ADDRESS OF YES LEG RULE **
263 ** C) TU BRANCH TO ADDRESS (INITIAL) **
264 ** D) TU BRANCH TO ADDRESS (SECONDARY) **
265 ** E) LENGTH OF PARAMETER IN BYTES **
266 ** F) PARAMETER TO PASS TO TU **
267 ** G) STORE ADDRESS FOR FIRST 8 WORDS OF PARAMETER **
268 **
269 ** \$TUXX **
270 ** A) RULE EQUATE X'0500' **
271 ** B) ADDRESS OF YES LEG RULE **
272 ** C) TU BRANCH TO ADDRESS **
273 ** D) TYPE OF COMPARE TO MAKE ON RESULTS **
274 ** E) LENGTH OF COMPARED RESULTS **
275 ** F) MASK FIELD FOR COMPARE **
276 ** G) LENGTH OF PARAMETER IN BYTES **
277 ** H) PARAMETER TO PASS TO THE TU **
278 ** I) STORE ADDRESS FOR FIRST 8 WORDS OF PARAMETER **
279 **
280 ** \$NVLD **
281 ** A) RULE EQUATE X'0600' **
282 **
283 ** ENTRY POINT TABLE **
284 ** THIS TABLE CONTAINS THE ENTRY POINTS WITHIN THE MAP THAT **
285 ** THE MAP CAN BE ENTERED FROM THESE ENTRY POINTS ARE **
286 ** REFERENCED BY NAME AND ADDRESS. ENTRIES ARE AS FOLLOWS: **
287 **
288 ** A) NAME OF ENTRY POINT **
289 ** B) ADDRESS OF ENTRY POINT RULE TABLE **
290 **
291 ** THE ENTRY POINT TABLE END IS INDICATED BY A X'0000' **
292 **
293 ** MESSAGE TABLE **
294 ** THIS TABLE CONTAINS THE MESSAGE PASSED TO THE OPERATOR **
295 ** VIA THE MDI SUPERVISOR. THE TABLE IS AS FOLLOWS: **
296 **
297 ** A) EQUATE FOR START OF MESSAGE BLOCK **
298 ** B) NUMBER OF LINES OF MESSAGE **
299 ** C) LENGTH OF FOLLOWING LINE **
300 ** D) FIRST LINE OF MESSAGE **
301 ** E) LENGTH OF FOLLOWING LINE **
302 ** F) SECOND LINE OF MESSAGE **
303 ** G) ETC. **
304 **
305 ** ***** **
306 ** ***** **
307 ** ***** **
308 ** ***** **

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311 *****
312 *****
313 **
314 ** STEP AND RULE ADDRESS TABLE **
315 **
316 *****
317 *****
318 DC AL2(N00001)
319 DC XL2'0001'
320 EQN00001 EQU 0001
321 DC AL2(N00002)
322 DC XL2'0002'

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427 START EQU 10 START CYCLE STEAL SVC
428 STCSS EQU 11 START CYCLE STEAL STATUS SVC
429 PREP EQU 12 PREPARE DEVICE SVC
430 READ0 EQU 13 READ WITH FUNCTION BIT 3 ON SVC
431 READ1 EQU 14 READ WITH FUNCTION BIT 3 OFF SVC
432 RSTAT EQU 15 READ STATUS SVC
433 WRIT0 EQU 16 WRITE WITH FUNCTION BIT 3 ON SVC
434 WRIT1 EQU 17 WRITE WITH FUNCTION BIT 3 OFF SVC
435 CTRL EQU 18 CONTROL SVC
436 RIBC EQU 19 RELEASE INTERRUPT CONTROL BLOCK SVC
437 CIBC EQU 20 CONNECT INTERRUPT CONTROL BLOCK SVC
438 HIO EQU 21 HALT I/O
439 REOSD EQU 22 REQUEST USE OF DCP DISK SVC
440 RELSD EQU 23 RELEASE USE OF DCP DISK SVC
441 HALT EQU 24 HALT SVC
442 ETOH EQU 25 EBCDIC TO HEX SVC (STRING)
443 HTOE EQU 26 HEX TO EBCDIC SVC (STRING)
444 ATOH EQU 27 ASCII TO HEX SVC (STRING)
445 HTOA EQU 28 HEX TO ASCII SVC (STRING)
446 ETOA EQU 29 EBCDIC TO ASCII SVC (STRING)
447 ATOE EQU 30 ASCII TO EBCDIC SVC (STRING)
448 READI EQU 31 READ DATA SETS FOR MDT/UTIL
449 WRIT1 EQU 32 WRITE DATA SETS FOR UTIL
451 *****
452 *
453 * EQUATES USED BY TU'S AS CONSTANTS *
454 *
455 *****
456 PLUS EQU C'+1 PLUS CHAR
457 MINUS EQU C'-1 MINUS CHAR
458 ZERO EQU 0
459 ONE EQU 1
460 TWO EQU 2
461 THREE EQU 3
462 FOUR EQU 4
463 FIVE EQU 5
464 SIX EQU 6
465 SEVEN EQU 7
466 EIGHT EQU 8
467 NINE EQU 9
468 TEN EQU 10
469 ELEVN EQU 11
470 TWELV EQU 12
471 THRTN EQU 13
472 FIVTN EQU 14
473 SIXTN EQU 15
474 THRY2 EQU 16
475 SIX2 EQU 32
476 ONES EQU 64
477 TWOS EQU 128
478 FOURS EQU 256
479 ONEK EQU 1024
480 TWOK EQU 2048
481 THREEK EQU 3072
482 FOURK EQU 4096
483 M1 EQU -1
484 M2 EQU -2
485 M3 EQU -3
486 M4 EQU -4
487 *****
488 *****
489 *****
490 *****
491 ***** THE FOLLOWING ARE EQUATES FOR BIT DISPLACEMENTS FROM THE *****
492 ***** BEGINNING OF THE BYTE TO EACH BIT IN THE WORD OF SWITCHES. *****
493 *****
494 *****
495 BS0 EQU 0
496 BS1 EQU 1
497 BS2 EQU 2
498 BS3 EQU 3
499 BS4 EQU 4
500 BS5 EQU 5
501 BS6 EQU 6
502 BS7 EQU 7
503 BS8 EQU 8
504 BS9 EQU 9
505 BS10 EQU 10
506 BS11 EQU 11
507 BS12 EQU 12
508 BS13 EQU 13
509 BS14 EQU 14
510 BS15 EQU 15
511 ***** COPY T4000 *****
512 *****
513 *****
514 *****
515 ***** TEST OVERVIEW AND OPERATING PROCEDURES *****
516 *****
517 ***** THIS TEST IS DESIGNED TO BE RUN IN THE AUTOMATIC SEQUENCE OF THE *****
518 ***** SERIES 71 DIAGNOSTIC PACKAGE. IT CANNOT ASSUME ANY ATTACHED DEVICE. *****
519 ***** THIS PROGRAM RUNS UNDER CONTROL OF THE DIAGNOSTIC CONTROL PROGRAM. *****
520 ***** WITH THE ATTENDANT CONTROLS AND RESTRICTIONS. THIS PROGRAM DOES HAVE *****
521 ***** TRAP AND LOOP CONTROLS USEFUL FOR PROBLEM DETERMINATION AND *****
522 ***** RELIABILITY TESTING. *****
523 *****
524 *****
525 *****
526 *****
527 *****
528 *****
529 *****
530 ***** CONSTANTS AND EQUATES *****
531 *****
532 *****
533 TUID DC X'4000' TEST UNIT ID
534 RTNE DC A(*-*) CURRENT ROUTINE IN EXECUTION
535 CKPT DC A(*-*) CURRENT CHECKPOINT WITHIN A ROUTINE
536 IDCB DC 2A(*-*) IDCB LAST EXECUTED
537 XIOCC DC X'FF' LAST 'EXPECTED' OTO COND CODE
538 RIOCC DC X'FF' LAST 'RECEIVED' OTO COND CODE
539 XINCC DC X'FF' LAST 'EXPECTED' INTERRUPT COND CODE
540 RINCC DC X'FF' LAST 'RECEIVED' INTERRUPT COND CODE
541 IDRDA DC X'FF' DEVICE ID OR DEVICE ADDRESS
542 LLEVEL DC X'FF' LEVEL LAST INTERRUPT OCCURRED ON
543 *****
544 ATTD DC X'10' DEVICE ID OF THE TTY ATTACHMENT
545 BPHDR DC X'80' 'BYPASS HEADER PRINT' SWITCH
546 *****

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002588 4000 547 ALIGN WORD
00258A 000000000000000000 548 PGMID DC X'4000'
549 BUFFER DC 30A(*-*)
550 *
551 CCERR DC A(*-*)
552 *
553 CC1 DC X'01'
554 CC2 DC X'02'
555 CC3 DC X'03'
556 CC6 DC X'06'
557 CC7 DC X'07'
558 CCX DC 2A(-1)
559 *
560 *
561 ALIGN WORD
562 DC X'00'
563 *
564 CTLSW DC X'00'
565 CTLSW DC A(BUFFER)
566 *
567 *
568 *
569 DAPTR DC A(*-*)
570 DDB DC A(*-*)
571 DVAER DC A(*-*)
572 IBIT DC X'01'
573 INTIN DC A(*-*)
574 *
575 LSB DC 11A(*-*)
576 DLSB DC 11A(*-*)
577 *
578 LVLER DC A(*-*)
579 *
580 LVL0 DC X'00'
581 LVL1 DC X'02'
582 LVL2 DC X'04'
583 *
584 MCKCD DC X'3803'
585 MCPSW DC A(*-*)
586 *
587 PARM1 DC A(*-*)
588 PARM2 DC A(*-*)
589 PARM3 DC A(*-*)
590 *
591 PRHDR DC X'00'
592 SAVER DC A(*-*)
593 SDCP DC A(*-*)
594 *
595 LSR EQU LSB+4
596 *
597 MCK EQU X'000A'
598 *
600 *****
601 *
602 * IMMEDIATE DEVICE CONTROL BLOCKS (IDCB'S)
603 *
604 *****
605 *
606 CRTST DC X'00'
607 CRTDA DC X'00'
608 A(O)
609 *
610 PREPR DC X'60'
611 PRPDA DC X'00'
612 DC X'00'
613 PDATA DC X'00'
614 *
615 READ DC X'10'
616 RDDA DC X'00'
617 DC X'00'
618 RDATA DC X'00'
619 *
620 RDW DC X'6E'
621 RDWDA DC X'00'
622 X'0000'
623 *
624 RDID DC X'20'
625 RIDDA DC X'00'
626 DC X'00'
627 DVCID DC X'00'
628 *
629 RST DC X'6F'
630 RSTDA DC X'00'
631 X'0000'
632 *
633 WRITE DC X'50'
634 WRTDA DC X'00'
635 DC X'00'
636 WDATA DC X'00'
637 *
638 *****
639 *
640 * MESSAGE TEXTS
641 *
642 *****
643 *
644 *
645 MG09 DC C'DID NOT GET AN INTERRUPT FROM TTY'
646 DC X'00'
647 MSG00 DC C'INCORRECT OIO COND CODE ON ''READ ID''
648 DC X'00'
649 *
650 MSG01 DC C'INCORRECT DEVICE ID RETURNED ON ''READ ID''
651 DC X'00'
652 *
653 MSG02 DC C'INCORRECT OIO COND CODE ON ''RESET''
654 DC X'00'
655 *
656 MSG03 DC C'INCORRECT OIO COND CODE ON ''PREPARE''
657 DC X'00'
658 *
659 MSG04 DC C'INTERRUPTED AFTER SEQ: RESET, PREP-DISABLED'
660 DC X'00'
661 *
662 MSG05 DC C'INTERRUPTED AFTER SEQ: RESET, PREP-DISABLED, PREP-ENABLED'
663 DC X'00'

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00275D C9D5C3D6D9D9C5C3E 664 *
00277F 00 665 MSG06 DC C'INCORRECT OIO COND CODE ON ''WRITE''
666 DC X'00'
667 *
668 MSG07 DC C'INTERRUPTED AFTER SEQ: PREP-DISABLED, WRITE'
669 DC X'00'
670 *
671 MSG08 DC C'INCORRECT OIO COND CODE AFTER SEQ: PREP-DISABLED, WRITE, W
672 DC X'00'
673 *
674 MSG09 DC C'INTERRUPTED AFTER SEQ: PREP-DISABLED, WRITE, WRITE'
675 DC X'00'
676 *
677 MSG0A DC C'NO INTERRUPT AFTER SEQ: WRITE, PREP-ENABLED'
678 DC X'00'
679 *
680 MSG0B DC C'NO INTERRUPT AFTER SEQ: PREP-ENABLED, WRITE'
681 DC X'00'
682 *
683 *
684 MSG0C DC C'INTERRUPTED TO WRONG LEVEL'
685 DC X'00'
686 *
687 *
688 MSG0D DC C'INCORRECT DVC ADDR IN R7 ON INTERRUPT - ENTERED VIA CORREC
689 DC X'00'
690 *
691 MSG0E DC C'INVALID INTERRUPT ON ''READ ID''
692 DC X'00'
693 *
694 MSG0F DC C'UNEXPECTED INTERRUPT COND CODE'
695 DC X'00'
696 *
697 *
698 MSG10 DC C'INTERRUPTED AFTER SEQ: MASK, WRITE, RESET TO DIAG WRAP'
699 DC X'00'
700 *
701 MSG11 DC C'INCORRECT DATA READ AFTER WRITE X'00' IN DIAG WRAP'
702 DC X'00'
703 *
704 MSG12 DC C'DATA CLOBBERED IN ''OVERRUN RCV'' OPERATION'
705 DC X'00'
706 *
707 MSG13 DC C'UNEXPECTED INTERRUPT'
708 DC X'00'
709 *
710 MSG14 DC C'INCORRECT OIO COND CODE IN ''CMD REJ'' TEST'
711 DC X'00'
712 *
713 MSG15 DC C'UNEXPECTED INTERRUPT IN ''CMD REJ'' TEST'
714 DC X'00'
715 *
716 MSG16 DC C'INCORRECT OIO COND CODE ON ''RESET TO DIAG WRAP''
717 DC X'00'
718 *
719 MSG17 DC C'INCORRECT OIO COND CODE ON ''READ''
720 DC X'00'
721 *
722 MSGND DC A(MSGND) END OF ERROR MESSAGE TEXT STRING
723 *
724 *
725 ** INTERNAL 'RTNE/CKPT' MESSAGE TEXT
726 *
727 IRCPM DC C'INTERNAL RTNE = '
728 IR DC 2A(*-*)
729 DC C' INTERNAL CKPT = '
730 ICP DC A(*-*)
731 DC X'00' TERMINATOR
732 *
733 IRCND DC A(IRCND) END OF INTERNAL RTNE/CKPT MESSAGE
734 *
735 *
736 ** 'MACHINE CHECK STATUS' MESSAGE TEXT
737 *
738 MCMSCG DC C'MCK MAP = 4000'
739 DC C' STEP = '
740 STEP DC 2A(*-*)
741 PSW DC C' PSW = '
742 DC 2A(*-*)
743 IAR DC C' IAR = '
744 DC 2A(*-*)
745 IDCBX DC C' IDCBC = '
746 DC 4A(*-*)
747 DC X'00' TERMINATOR
748 *
749 MCHND DC A(MCHND) END OF MESSAGE TEXT STRING
750 *
751 *****
752 *
753 *
754 * CONDITION CODES
755 *
756 * CODE OIO INTERRUPT
757 *
758 * 0 DVC NOT ATTACHED
759 * 1 DEVICE BUSY
760 * 2
761 * 3 COMMAND REJECT EXCEPTION
762 * 4 DEVICE END
763 * 5 INTFC DATA CHECK ATTENTION
764 * 6
765 * 7 OIO ACCEPTED ATTN & EXCEPTION
766 *
767 *****
768 *
769 *****
770 *
771 *
772 * NAME: RT00 (INITIALIZATION AND DCP INTERFACE)
773 *
774 * PURPOSE: TO INITIALIZE PROGRAM EXECUTION AND INTERFACE WITH THE
775 * DCP.
776 *
777 * METHOD: THIS ROUTINE INITIALIZES THE IDCBC'S AND SERVES AS THE
778 * GENERAL INTERFACE WITH THE DCP. THE ID OF THE DEVICE AT
779 * THE SPECIFIED DEVICE ADDRESS IS VERIFIED.
780 *
781 *****

LOCTR OBJECT TEXT STMT SOURCE STATEMENT COPYRIGHT IBM CORP 1976
782 *
783 T4000 EQU *
784 RT00 MVI R7,GOBCK+2 SET RETURN LINK
785 MVWI X'4000',RTNE INITIALIZE ROUTINE AND
786 MVWI 0,CKPT * CHECKPOINT VALUES
787 MVW SAVER,RO WE ALREADY SAVED VECTOR ENTRY ?
788 JNZ RT01 YES, JUMP
789 *
790 MVW MCK SAVER NO. SAVE IT
791 MVA MACHK,MCK PUT OUR OWN ROUTINE SIA IN THERE
792 MVB DEVADD,RO GET DEVICE ADDRESS
793 MVI X'00FF',RO STRIP OFF PROPOGATED BITS
794 MVB RO,CRTPDA * EACH
795 MVB RO,PRPDA * IDCB
796 MVB RO,RDDA * WITH
797 MVB RO,RDWDA * SPECIFIED
798 MVB RO,RIDDA * DEVICE
799 MVB RO,RSTDA * ADDRESS
800 MVB RO,WRTDA SET UP VECTOR ADDR FOR THIS DVC ADDR
801 SLL 1,RO *
802 ABT X'30',RO *
803 MVI (RO),DAPR SAVE IT
804 MVA (RO),SDCP SAVE THE CONTENTS
805 MVA DDB,(R0) SET TRANSFER VECTOR
806 MVA TUID,(R3) SET RAS DISPLAY POINTER
807 MVD CCX,XIOCC INITIALIZE CC INDRS
808 *
809 *****
810 *
811 *
812 * NAME: RT01 (READ DEVICE IDENTIFICATION)
813 *
814 * PURPOSE: TO INSURE THE PROPER RESPONSE(S) ARE RECEIVED FROM A
815 * 'READ ID' COMMAND.
816 *
817 * METHOD: THE 'READ ID' COMMAND IS MONITORED FOR THE RETURN OF THE
818 * PROPER CONDITION CODE, AND THE CORRECT DEVICE ID. SHOULD
819 * AN ERROR OCCUR, IT WILL BE REPORTED, IF APPLICABLE.
820 *
821 *****
822 *
823 RT01 MVWI 1,RTNE *>>> R 1
824 MVWI 1,CKPT *>>> CP 1
825 MVA ISS01,DDB SET INT SERVICE ADDRESS
826 MVWZ INTIN,RO INITIALIZE 'INT OCCURRED' INDR
827 MVB CC7,XIOCC SET 'EXPECTED' COND CODE INDR
828 MVD RDID,IDCB SET 'IDCB' INDR
829 IO RDID READ DEVICE ID
830 BCC 7,RT105 IF GOOD CC, BRANCH
831 *
832 CPLSR R5 SET 'RECEIVED' COND CODE INDR
833 SRL 13,R5 *
834 MVB R5,RIOCC *
835 MVA MSG00,R1 MOVE MESSAGE TO BUFFER
836 MVA BUFFER,R2 *
837 MVWI MSG01-MSG00,R7 *
838 MVFN (R1),(R2) *
839 B PRINT OUTPUT THE MESSAGE
840 *
841 RT105 MVWI 2,CKPT *>>> R 1, CP 2
842 CB ATUID,DVCID INSURE ID IS CORRECT
843 JE RT02 JUMP IF IT IS
844 *
845 MVB DVCID,IDRDA SET 'RECEIVED ID' INDR
846 MVA MSG01,R1 MOVE MESSAGE TO BUFFER
847 MVA BUFFER,R2 *
848 MVWI MSG02-MSG01,R7 *
849 MVFN (R1),(R2) *
850 B PRINT OUTPUT THE MESSAGE
851 *
852 *****
853 *
854 *
855 * NAME: ISS01 (RT01 INTERRUPT SERVICE SUBROUTINE)
856 *
857 * PURPOSE: TRAP UNEXPECTED INTERRUPTS
858 *
859 * METHOD: BUILD A COND CODE, LEVEL AND DVC ADDR IN R5.
860 *
861 *****
862 *
863 ISS01 CPLSR R5 SET 'RECEIVED' COND CODE INDR
864 SRL 13,R5 *
865 MVB R5,RINCC *
866 CPCL R0 SET 'LEVEL' INDR
867 MVB R0,LEVEL *
868 MVB R7,IDRDA SET 'DEVICE ADDRESS' INDR
869 MVA MSG00,R1 MOVE MESSAGE TO BUFFER
870 MVA BUFFER,R2 *
871 MVWI MSG01-MSG00,R7 *
872 MVFN (R1),(R2) *
873 B PRINT OUTPUT THE MESSAGE
874 *
875 *****
876 *
877 *
878 * NAME: RT02 (RESET AND PREPARE TESTS)
879 *
880 *
881 * PURPOSE: INSURE THE TTY ATTACHMENT WILL ACCEPT RESET COMMANDS
882 * AND PREPARE COMMANDS, AND RETURN THE PROPER CONDITION
883 * CODES TO EACH. THE PREPARE REGISTER IS THEN TESTED,
884 * ALONG WITH THE PROPER UTILIZATION OF THE PREPARE DATA
885 * ASSOCIATED WITH THE INTERRUPT REQUEST PRESENTATION.
886 *
887 * METHOD: THE 'RESET' COMMAND IS ISSUED, THEN THE PREPARE REG IS
888 * TESTED FOR SETTINGS OF EACH LEVEL, BOTH ENABLED AND
889 * DISABLED. THE ATTACHMENT IS THEN TESTED FOR CONDITIONS
890 * OF 'INTERRUPT PENDING', 'RESET' AND 'INTERRUPT REQUEST'
891 *
892 *****
893 *
894 RT02 MVWI 2,RTNE *>>> R 2
895 MVWI 1,CKPT *>>> CP 1
896 MVA ISS02,DDB FLIP DDB
897 MVB CC7,XIOCC SET 'EXPECTED' COND CODE INDR
898 MVD RDW,IDCB SET 'IDCB' INDR

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899 IO RDW RESET TO DIAG WRAP
900 BCC 7,RT205 IF GOOD CC, BRANCH
901 *
902 CPLSR R5 SET 'RECEIVED' COND CODE INDR
903 SRL 13,R5 *
904 MVB R5,RIOCC *
905 MVA MSG16,R1 MOVE MESSAGE TO BUFFER
906 MVA BUFFER,R2 *
907 MVWI MSG17-MSG16,R7 *
908 MVFN (R1),(R2) *
909 B PRINT OUTPUT THE MESSAGE
910 *
911 RT205 MVWI 2,CKPT *>>> R 2, CP 2
912 MVB LVL0,PDATA SET 'PREP' IDCB FOR LVL 0, DISABLED
913 MVB CC7,XIOCC SET 'EXPECTED' COND CODE INDR
914 MVD PREPR,IDCB SET 'IDCB' INDR
915 IO PREPR PREPARE TTY ATTACHMENT
916 BCC 7,RT20A IF ACCEPTED, BRANCH
917 *
918 *
919 *
920 CPLSR R5 SET 'RECEIVED' COND CODE INDR
921 SRL 13,R5 *
922 MVB R5,RIOCC *
923 MVA MSG03,R1 MOVE MESSAGE TO BUFFER
924 MVA BUFFER,R2 *
925 MVWI MSG04-MSG03,R7 *
926 MVFN (R1),(R2) *
927 B PRINT OUTPUT THE MESSAGE
928 *
929 RT20A BAL DEL,R7 WAIT FOR INTERRUPT
930 *
931 MVWI 3,CKPT *>>> R 2, CP 3
932 MVWZ INTIN,RO DID AN INTERRUPT OCCUR ? (SHOULD NOT)
933 JZ RT20C NO, JUMP
934 *
935 MVA MSG04,R1 MOVE MESSAGE TO BUFFER
936 MVA BUFFER,R2 *
937 MVWI MSG05-MSG04,R7 *
938 MVFN (R1),(R2) *
939 B PRINT OUTPUT THE MESSAGE
940 *
941 RT20C MVWI 4,CKPT *>>> R 2, CP 4
942 MVB LVL0,PDATA SET 'PREP' IDCB TO LVL 0, ENABLED
943 MVB CC7,XIOCC SET 'EXPECTED COND CODE' INDR
944 MVD PREPR,IDCB SET 'IDCB' INDR
945 IO PREPR PREP TTY ATTACHMENT
946 BCC 7,RT20H IF CC OKAY, BRANCH
947 *
948 CPLSR R5 SET 'RECEIVED' COND CODE INDR
949 SRL 13,R5 *
950 MVB R5,RIOCC *
951 MVA MSG03,R1 MOVE MESSAGE TO BUFFER
952 MVA BUFFER,R2 *
953 MVWI MSG04-MSG03,R7 *
954 MVFN (R1),(R2) *
955 B PRINT OUTPUT THE MESSAGE
956 *
957 RT20H BAL DEL,R7 WAIT FOR INTERRUPT
958 *
959 *
960 MVWI 5,CKPT *>>> R 2, CP 5
961 MVWZ INTIN,RO INTERRUPT OCCUR ? (SHOULD NOT)
962 JZ RT20L NO, JUMP
963 *
964 MVA MSG05,R1 MOVE MESSAGE TO BUFFER
965 MVA BUFFER,R2 *
966 MVWI MSG06-MSG05,R7 *
967 MVFN (R1),(R2) *
968 B PRINT OUTPUT THE MESSAGE
969 *
970 RT20L MVWI 6,CKPT *>>> R 2, CP 6
971 MVB LVL0,PDATA SET 'PREP' IDCB TO LVL 0, DISABLED
972 MVB CC7,XIOCC SET 'EXPECTED COND CODE' INDR
973 MVD PREPR,IDCB SET 'IDCB' INDR
974 IO PREPR PREP TTY ATTACHMENT
975 BCC 7,RT20R CC OKAY, BRANCH
976 *
977 *
978 CPLSR R5 SAVE COND CODE
979 SRL 13,R5 *
980 MVB R5,RIOCC *
981 MVA MSG03,R1 MOVE MESSAGE TO BUFFER
982 MVA BUFFER,R2 *
983 MVWI MSG04-MSG03,R7 *
984 MVFN (R1),(R2) *
985 B PRINT OUTPUT THE MESSAGE
986 *
987 RT20R MVWI 7,CKPT *>>> R 2, CP 7
988 MVWI X'008D',WDATA-1 SET IDCB TO WRITE 'C/R' OUT
989 MVB CC7,XIOCC SET 'EXPECTED COND CODE' INDR
990 MVD WRITE,IDCB SET 'IDCB' INDR
991 IO WRITE ATTEMPT TO CAUSE AN INT TO TEST PREP
992 BCC 7,RT20W IF ACCEPTED, BRANCH
993 *
994 CPLSR R5 SAVE COND CODE
995 SRL 13,R5 *
996 MVB R5,RIOCC *
997 MVA MSG06,R1 MOVE MESSAGE TO BUFFER
998 MVA BUFFER,R2 *
999 MVWI MSG07-MSG06,R7 *
1000 MVFN (R1),(R2) *
1001 B PRINT OUTPUT THE MESSAGE
1002 *
1003 RT20W BAL DEL,R7 WAIT FOR INTERRUPT
1004 *
1005 *
1006 MVWI 8,CKPT *>>> R 2, CP 8
1007 MVWZ INTIN,RO INTERRUPT OCCUR ? (SHOULD NOT)
1008 JZ RT211 NO, JUMP
1009 *
1010 *
1011 RT20Z MVA MSG07,R1 MOVE MESSAGE TO BUFFER
1012 MVA BUFFER,R2 *
1013 MVWI MSG08-MSG07,R7 *
1014 MVFN (R1),(R2) *
1015 B PRINT OUTPUT THE MESSAGE

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1016 *
1017 RT211 MVWI 9,CKPT *>>>> R 2, CP 9
1018 MVB CC1,XIOCC
1019 MVD WRITE,IDCB
1020 IO WRITE
1021 BCC 1,RT216
1022 *
1023 CPLSR R5
1024 SRL 13,R5
1025 MVB R5,RIOCC
1026 MVA MSG08,R1
1027 MVA BUFFER,R2
1028 MVWI MSG09-MSG08,R7
1029 MVFN (R1),(R2)
1030 B PRINT
1031 *
1032 RT216 BAL DEL,R7
1033 *
1034 MVWI X'A',CKPT *>>>> R 2, CP A
1035 MVWZ INTIN,R0
1036 JZ RT21B
1037 *
1038 MVA MSG09,R1
1039 MVA BUFFER,R2
1040 MVWI MSG0A-MSG09,R7
1041 MVFN (R1),(R2)
1042 B PRINT
1043 *
1044 *
1045 ** TEST PREPARE TO LEVEL 0, ENABLED
1046 *
1047 RT21B MVWI X'B',CKPT *>>>> R 2, CP B
1048 OB IBIT,PDATA
1049 MVB CC7,XIOCC
1050 MVB CC7,XINCC
1051 MVD PREPR,IDCB
1052 IO PREPR
1053 BCC 7,RT220
1054 *
1055 ** FIRST INTERRUPT SHOULD OCCUR AT THIS POINT. EXECUTION SHOULD RESUME
1056 ** ON THIS LEVEL (3), AT LOCATION 'RT220' AFTER THE INTERRUPT HAS BEEN
1057 ** SERVICED
1058 *
1059 CPLSR R5
1060 SRL 13,R5
1061 MVB R5,RIOCC
1062 MVA MSG03,R1
1063 MVA BUFFER,R2
1064 MVWI MSG04-MSG03,R7
1065 MVFN (R1),(R2)
1066 B PRINT
1067 *
1068 RT220 BAL DEL,R7
1069 *
1070 MVWI X'C',CKPT *>>>> R 2, CP C
1071 MVWZ INTIN,R0
1072 JNZ RT228
1073 *
1074 MVA MSG0A,R1
1075 MVA BUFFER,R2
1076 MVWI MSG0B-MSG0A,R7
1077 MVFN (R1),(R2)
1078 B PRINT
1079 *
1080 RT228 MVWI X'000A',WDATA-1
1081 MVB CC7,XIOCC
1082 MVB CC2,XINCC
1083 MVD WRITE,IDCB
1084 IO WRITE
1085 BCC 7,RT22D
1086 *
1087 CPLSR R5
1088 SRL 13,R5
1089 MVB R5,RIOCC
1090 MVA MSG06,R1
1091 MVA BUFFER,R2
1092 MVWI MSG07-MSG06,R7
1093 MVFN (R1),(R2)
1094 B PRINT
1095 *
1096 RT22D BAL DEL,R7
1097 *
1098 MVWI X'E',CKPT *>>>> R 2, CP E
1099 MVWZ INTIN,R0
1100 JNZ RT231
1101 *
1102 MVA MSG0B,R1
1103 MVA BUFFER,R2
1104 MVWI MSG0C-MSG0B,R7
1105 MVFN (R1),(R2)
1106 B PRINT
1107 *
1108 ** TEST PREPARE TO LEVEL 1
1109 *
1110 RT231 MVWI X'F',CKPT *>>>> R 2, CP F
1111 MVB LVL1,PDATA
1112 MVB CC7,XIOCC
1113 MVB CCX,XINCC
1114 MVD PREPR,IDCB
1115 IO PREPR
1116 BCC 7,RT236
1117 *
1118 CPLSR R5
1119 SRL 13,R5
1120 MVB R5,RIOCC
1121 MVA MSG03,R1
1122 MVA BUFFER,R2
1123 MVWI MSG04-MSG03,R7
1124 MVFN (R1),(R2)
1125 B PRINT
1126 *
1127 RT236 MVWI X'10',CKPT *>>>> R 2, CP 10
1128 *
1129 *
1130 *
1131 *
1132 *

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1133 MVB CC7,XIOCC
1134 MVD WRITE,IDCB
1135 IO WRITE
1136 BCC 7,RT23C
1137 *
1138 CPLSR R5
1139 SRL 13,R5
1140 MVB R5,RIOCC
1141 MVA MSG06,R1
1142 MVA BUFFER,R2
1143 MVWI MSG07-MSG06,R7
1144 MVFN (R1),(R2)
1145 B PRINT
1146 *
1147 RT23C BAL DEL,R7
1148 *
1149 MVWI X'11',CKPT *>>>> R 2, CP 11
1150 MVWZ INTIN,R0
1151 JZ RT240
1152 *
1153 MVA MSG07,R1
1154 MVA BUFFER,R2
1155 MVWI MSG08-MSG07,R7
1156 MVFN (R1),(R2)
1157 B PRINT
1158 *
1159 RT240 MVWI X'12',CKPT *>>>> R 2, CP 12
1160 MVB CC1,XIOCC
1161 MVD WRITE,IDCB
1162 IO WRITE
1163 BCC 1,RT245
1164 *
1165 CPLSR R5
1166 SRL 13,R5
1167 MVB R5,RIOCC
1168 MVA MSG08,R1
1169 MVA BUFFER,R2
1170 MVWI MSG09-MSG08,R7
1171 MVFN (R1),(R2)
1172 B PRINT
1173 *
1174 RT245 BAL DEL,R7
1175 *
1176 MVWI X'13',CKPT *>>>> R 2, CP 13
1177 MVWZ INTIN,R0
1178 JZ RT249
1179 *
1180 CPLSR R5
1181 SRL 13,R5
1182 MVB R5,RIOCC
1183 MVA MSG09,R1
1184 MVA BUFFER,R2
1185 MVWI MSG0A-MSG09,R7
1186 MVFN (R1),(R2)
1187 B PRINT
1188 *
1189 RT249 MVWI X'14',CKPT *>>>> R 2, CP 14
1190 OB IBIT,PDATA
1191 MVB CC7,XIOCC
1192 MVB CC2,XINCC
1193 MVD PREPR,IDCB
1194 IO PREPR
1195 BCC 7,RT24E
1196 *
1197 CPLSR R5
1198 SRL 13,R5
1199 MVB R5,RIOCC
1200 MVA MSG03,R1
1201 MVA BUFFER,R2
1202 MVWI MSG04-MSG03,R7
1203 MVFN (R1),(R2)
1204 B PRINT
1205 *
1206 RT24E BAL DEL,R7
1207 *
1208 MVWI X'15',CKPT *>>>> R 2, CP 15
1209 MVWZ INTIN,R0
1210 JNZ RT25A
1211 *
1212 CPLSR R5
1213 SRL 13,R5
1214 MVB R5,RIOCC
1215 MVA MSG0A,R1
1216 MVA BUFFER,R2
1217 MVWI MSG0B-MSG0A,R7
1218 MVFN (R1),(R2)
1219 B PRINT
1220 *
1221 RT25A MVWI X'18',CKPT *>>>> R 2, CP 18
1222 MVB CC7,XIOCC
1223 MVB CC2,XINCC
1224 MVD WRITE,IDCB
1225 IO WRITE
1226 BCC 7,RT25E
1227 *
1228 CPLSR R5
1229 SRL 13,R5
1230 MVB R5,RIOCC
1231 MVA MSG06,R1
1232 MVA BUFFER,R2
1233 MVWI MSG07-MSG06,R7
1234 MVFN (R1),(R2)
1235 B PRINT
1236 *
1237 RT25E BAL DEL,R7
1238 *
1239 MVWI X'19',CKPT *>>>> R 2, CP 19
1240 MVWZ INTIN,R0
1241 JNZ RT262
1242 *
1243 MVA MSG0B,R1
1244 *
1245 *
1246 *
1247 *
1248 *
1249 *

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00300E 4224 258A 1250 MVA BUFR,R2 *
003012 4724 002C 1251 MVWI MSGOC-MSGOB,R7 *
003016 2944 1252 MVFN (R1),(R2) *
003018 6802 384A 1253 B PRINT OUTPUT THE MESSAGE
1254 *
1256 ** TEST PREPARE TO LEVEL 2
1257 *
1258 RT262 MVWI X'1A',CKPT *
1259 LVL2,PDATA SET 'PREP' IDCBC TO LVL 2, DISABLED 1A
1260 MVB CC7,XIOCC SET 'EXPECTED COND CODE' INDRS
1261 MVB CCK,XINCC *
1263 MVD PREPR,IDCB SET 'IDCB' INDR
1264 IO PREPR,ATTACHMENT PREP TTY ATTACHMENT
1265 BCC 7,RT267 CC OKAY, BRANCH
1266 *
1267 CPLSR R5 SAVE COND CODE
1268 SRL 13,R5 *
1269 MVB R5,RIOCC *
1270 MVA MSGO3,R1 *
1271 MVA BUFR,R2 *
1272 MVWI MSGO4-MSGO3,R7 *
1273 MVFN (R1),(R2) *
1274 B PRINT OUTPUT THE MESSAGE
1275 *
1276 RT267 MVWI X'1B',CKPT *
1277 MVB CC7,XIOCC SET 'EXPECTED COND CODE' INDR *
1278 MVD WRITE,IDCB SET 'IDCB' INDR
1279 IO WRITE,IDCB ATTEMPT TO CAUSE AN INT TO TEST PREP
1280 BCC 7,RT26C IF ACCEPTED, BRANCH
1281 *
1282 CPLSR R5 SAVE COND CODE
1283 SRL 13,R5 *
1284 MVB R5,RIOCC *
1285 MVA MSGO6,R1 *
1286 MVA BUFR,R2 *
1287 MVWI MSGO7-MSGO6,R7 *
1288 MVFN (R1),(R2) *
1289 B PRINT OUTPUT THE MESSAGE
1290 *
1292 RT26C BAL DEL,R7 WAIT FOR INTERRUPT
1293 *
1294 MVWI X'1C',CKPT *
1295 MVWZ INTIN,R0 INTERRUPT OCCUR ? (SHOULD NOT) CP 1C
1296 JZ RT270 NO, JUMP
1297 *
1298 CPLSR R5 SAVE COND CODE
1299 SRL 13,R5 *
1300 MVB R5,RIOCC *
1301 MVA MSGO7,R1 *
1302 MVA BUFR,R2 *
1303 MVA BUFR,R2 *
1304 MVWI MSGO8-MSGO7,R7 *
1305 MVFN (R1),(R2) *
1306 B PRINT OUTPUT THE MESSAGE
1307 *
1308 RT270 MVWI X'1D',CKPT *
1309 MVB CC7,XIOCC SET 'EXPECTED COND CODE' INDR CP 1D
1310 MVD WRITE,IDCB SET 'IDCB' INDR
1311 IO WRITE,BUSY FORCE 'BUSY'
1312 BCC 1,RT275 COND CODE OK, BRANCH
1313 *
1314 CPLSR R5 SAVE COND CODE
1315 SRL 13,R5 *
1316 MVB R5,RIOCC *
1317 MVA MSGO8,R1 *
1318 MVA BUFR,R2 *
1319 MVWI MSGO9-MSGO8,R7 *
1320 MVFN (R1),(R2) *
1321 B PRINT OUTPUT THE MESSAGE
1322 *
1324 RT275 BAL DEL,R7 WAIT FOR INTERRUPT
1325 *
1326 MVWI X'1E',CKPT *
1327 MVWZ INTIN,R0 INTERRUPT OCCUR ? (SHOULD NOT) CP 1E
1328 JZ RT279 NO, JUMP
1329 *
1330 CPLSR R5 SAVE COND CODE
1331 SRL 13,R5 *
1332 MVB R5,RIOCC *
1333 MVA MSGO9,R1 *
1334 MVA BUFR,R2 *
1335 MVA BUFR,R2 *
1336 MVWI MSGO10-MSGO9,R7 *
1337 MVFN (R1),(R2) *
1338 B PRINT OUTPUT THE MESSAGE
1339 *
1340 RT279 MVWI X'1F',CKPT *
1341 OB IBIT,PDATA SET 'I-BIT' IN PREP FIELD *
1342 MVB CC7,XIOCC SET 'EXPECTED COND CODE' INDRS
1343 MVB CCK,XINCC *
1344 MVD PREPR,IDCB SET 'IDCB' INDR
1345 IO PREPR,ENABLED PREP, ENABLED
1346 BCC 7,RT27E COND CODE OK, BRANCH
1347 *
1348 CPLSR R5 SAVE COND CODE
1349 SRL 13,R5 *
1350 MVB R5,RIOCC *
1351 MVA MSGO3,R1 *
1352 MVA BUFR,R2 *
1353 MVWI MSGO4-MSGO3,R7 *
1354 MVFN (R1),(R2) *
1355 B PRINT OUTPUT THE MESSAGE
1356 *
1358 RT27E BAL DEL,R7 WAIT FOR INTERRUPT
1359 *
1360 MVWI X'20',CKPT *
1361 MVWZ INTIN,R0 INTERRUPT OCCUR ? (SHOULD) CP 20
1362 JNZ RT28A YES, JUMP
1363 *
1364 RT280 MVA MSGO1,R1 *
1365 MVA BUFR,R2 *
1366 MVWI MSGO1-MSGO1,R7 *
1367

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003174 2944 1368 MVFN (R1),(R2) *
003176 6802 384A 1369 B PRINT OUTPUT THE MESSAGE
1370 *
1371 RT28A MVWI X'23',CKPT *
1372 MVB CC7,XIOCC SET 'EXPECTED COND CODE' INDRS *
1373 MVB CCK,XINCC *
1374 MVD WRITE,IDCB SET 'IDCB' INDR
1375 IO WRITE,INTIN FORCE INTERRUPT
1376 BCC 7,RT28F IF COND CODE OK, BRANCH
1377 *
1378 CPLSR R5 SAVE COND CODE
1379 SRL 13,R5 *
1380 MVB R5,RIOCC *
1381 MVA MSGO6,R1 *
1382 MVA BUFR,R2 *
1383 MVWI MSGO7-MSGO6,R7 *
1384 MVFN (R1),(R2) *
1385 B PRINT OUTPUT THE MESSAGE
1386 *
1387 RT28F BAL DEL,R7 WAIT FOR INTERRUPT
1388 *
1389 MVWI X'24',CKPT *
1390 MVWZ INTIN,R0 INTERRUPT OCCUR ? (SHOULD) CP 24
1391 JNZ RT290 YES, JUMP
1392 *
1393 MVA MSGO6,R1 *
1394 MVA BUFR,R2 *
1395 MVWI MSGO6-MSGO6,R7 *
1396 MVFN (R1),(R2) *
1397 B PRINT OUTPUT THE MESSAGE
1398 *
1399 RT290 IO READ CLEAR THE 'READ' BUFFER
1400 J RT03 JUMP
1401 *
1403 *****
1404 *
1405 * NAME: ISS02 (RT02 INTERRUPT SERVICE SUBROUTINE)
1406 *
1407 * PURPOSE: TO SERVICE INTERRUPTS FROM 'RT02' AND TO DETERMINE IF:
1408 * THE PROPER LEVEL WAS UTILIZED FOR THE INTERRUPT, THE
1409 * CORRECT DEVICE ADDRESS WAS RETURNED, AND THE PROPER
1410 * CONDITION CODE WAS SET UPON INTERRUPTING.
1411 *
1412 * METHOD: THE CONDITION CODE IS TESTED AND ANY ERROR TRAPPED. ALSO,
1413 * ANY DEVICE ADDR OR LEVEL ERROR IS LOGGED.
1414 *
1415 *****
1416 *
1417 ISS02 CPLSR R5 SAVE COND CODE
1418 SRL 13,R5 *
1419 MVB R5,RINCC *
1420 MVB R7,IDRDA *
1421 CCL R7 *
1422 MVB R7,LEVEL *
1423 CB XINCC,RINCC GET CORRECT INTERRUPT CC ?
1424 JE S0200 YES, JUMP
1425 *
1426 MVA MSGO7,R1 *
1427 MVA BUFR,R2 *
1428 MVWI MSGO10-MSGO7,R7 *
1429 MVFN (R1),(R2) *
1430 B PRINT OUTPUT THE MESSAGE
1431 *
1432 S0200 MVB PDATA,R1 GET EXPECTED LEVEL
1433 SRL 1 * GET RID OF 'I-BIT'
1434 CB LEVEL,R1 ACTUAL = EXPECTED ?
1435 JE S0207 YES, JUMP
1436 *
1437 *
1438 MVA MSGO8,R1 *
1439 MVA BUFR,R2 *
1440 MVWI MSGO8-MSGO8,R7 *
1441 MVFN (R1),(R2) *
1442 B PRINT OUTPUT THE MESSAGE
1443 *
1444 *
1445 S0207 CB DEVADD,IDRDA CHECK FOR CORRECT DEVICE ADDRESS
1446 JE S0208 OK, JUMP
1447 *
1448 MVA MSGO9,R1 *
1449 MVA BUFR,R2 *
1450 MVWI MSGO9-MSGO9,R7 *
1451 MVFN (R1),(R2) *
1452 B PRINT OUTPUT THE MESSAGE
1453 *
1454 *
1455 S0208 ABI -2,R5 WAS OUR ENTRY CC = 2 ?
1456 JNZ S0209 NO, JUMP
1457 *
1458 *
1459 *
1460 MVB CC3,XINCC *
1461 S0209 MVWI 1,INTIN YES. EXPECT IMMEDIATE ENTRY, CC 3
1462 LEX 2 SET 'INT OCCURRED' INDR
1463 *
1465 *****
1466 *
1467 * NAME: RT03 (DIAGNOSTIC WRAP TEST)
1468 *
1469 * PURPOSE: TO TEST THE 'DIAGNOSTIC WRAP' FEATURE
1470 *
1471 * METHOD: A 'WRITE' OF X'00' IS ISSUED, FOLLOWED BY A 'READ' AND A
1472 * TEST OF THE DATA INTEGRITY. A 'WRITE' OF X'FF' FOLLOWED
1473 * IMMEDIATELY (NO INTERVENING 'READ') BY ANOTHER 'WRITE' OF
1474 * X'00' TESTS THE 'RECEIVE OVERRUN' CONDITION. THE FINAL
1475 * TEST IS TO INSURE THE OVERRUNNING DATA DID NOT ALTER THE
1476 * ORIGINAL DATA IN THE READ BUFFER.
1477 *
1478 *****
1479 *
1480 RT03 MVWI 3,RTNE *
1481 MVWI 1,CKPT *
1482 MVA ISS03,DDP *
1483 MVWZ DDATA-1,R0 SET INT SERVICE ADDRESS
1484 MVB CC7,XIOCC SET 'EXPECTED CC' INDRS

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00326E 8028 25CC 2582 1485 MVB CC7,XINCC *
00327A 9028 263A 257C 1486 MVD WRITE,IDCB SET 'IDCB' INDR
00327A 680C 263A 1487 IO WRITE WRITE 00
00327E 6F04 329C 1488 BCC 7,RT313 IF ACCEPTED, BRANCH
1489 *
003282 70AE 1490 CPLSR R5 SAVE ERROR COND CODE
003284 356A 1491 SRL 13,R5 *
003286 C528 2581 1492 MVB R5,RIOCC *
00328A 4124 275D 1493 MVA MSG06,R1 MOVE MESSAGE TO BUFFER
00328E 4224 258A 1494 MVA BUFR,R2 *
003292 4724 0023 1495 MVWI MSG07-MSG06,R7 *
003296 2944 1496 MVFN (R1),(R2) *
003298 6802 384A 1497 B PRINT *
1498 *
00329C 6F03 3884 1499 RT313 BAL DEL,R7 WAIT FOR INTERRUPT
1500 *
0032A0 4020 257A 0002 1501 MVWI 2,CKPT *
0032A6 C825 25DE 1502 MVWZ INTIN,R0 INTERRUPT OCCUR ? (SHOULD)
0032AA 1809 1503 JNZ RT317 YES, JUMP
1504 *
0032AC 4124 284A 1505 MVA MSG06,R1 MOVE MESSAGE TO BUFFER
0032B0 4224 258A 1506 MVA BUFR,R2 *
0032B4 4724 002C 1507 MVWI MSG0C-MSG0B,R7 *
0032B8 2944 1508 MVFN (R1),(R2) *
0032BA 6802 384A 1509 B PRINT *
1510 *
0032BE 4020 257A 0003 1511 RT317 MVWI 3,CKPT *
0032C4 8028 25CC 2580 1512 MVB CC7,XIOCC SET 'EXPECTED CC' INDR
0032CA 8828 25CE 2582 1513 MVW CCX,XINCC WIPE OUT 'INT CC' INDRS
0032D0 9028 262A 257C 1514 MVD READ,IDCB SET 'IDCB' INDR
0032D6 680C 262A 1515 IO READ READ
0032DA 4020 257A 0004 1516 MVWI 4,CKPT *
0032DE 402F 262C 0000 1517 CWI 0,ADATA-1 CHECK 'PEAD DATA'
0032E6 1009 1518 JE RT320 IF CORRECT, JUMP
1519 *
0032E8 4124 2949 1520 MVA MSG11,R1 MOVE MESSAGE TO BUFFER
0032EA 4224 258A 1521 MVA BUFR,R2 *
0032EC 4724 0033 1522 MVWI MSG12-MSG11,R7 *
0032F0 2944 1523 MVFN (R1),(R2) *
0032F6 6802 384A 1524 B PRINT *
1525 *
1526 ** TEST 'RECEIVE OVERRUN' CONDITION
1527 *
1528 *
1529 *
1530 *
1531 *
0032FA 4020 257A 0005 1532 RT320 MVWI 5,CKPT *
003300 4020 263C 00FF 1533 MVWI X'00FF',WDATA-1 SET IDCB TO FF
003306 8028 25CC 2580 1534 MVB CC7,XIOCC SET 'EXPECTED CC' INDRS
00330C 8028 25CC 2582 1535 MVB CC7,XINCC *
003312 9028 263A 257C 1536 MVD WRITE,IDCB SET 'IDCB' INDR
003318 680C 263A 1537 IO WRITE WRITE IT
00331C 6F04 3332 1538 BCC 7,RT325 IF ACCEPTED, BRANCH
1539 *
003320 4124 275D 1540 MVA MSG06,R1 MOVE MESSAGE TO BUFFER
003324 4224 258A 1541 MVA BUFR,R2 *
003328 4724 0023 1542 MVWI MSG07-MSG06,R7 *
00332C 2944 1543 MVFN (R1),(R2) *
00332E 6802 384A 1544 B PRINT *
1545 *
003332 6F03 3884 1546 RT325 BAL DEL,R7 WAIT FOR INTERRUPT
1547 *
003336 4020 257A 0003 1548 MVWI 3,CKPT *
00333C C825 25DE 1549 MVWZ INTIN,R0 INTERRUPT OCCUR ?
003340 1809 1550 JNZ RT329 YES, JUMP
1551 *
003342 4124 284A 1552 MVA MSG0B,R1 MOVE MESSAGE TO BUFFER
003346 4224 258A 1553 MVA BUFR,R2 *
00334A 4724 002C 1554 MVWI MSG0C-MSG0B,R7 *
00334E 2944 1555 MVFN (R1),(R2) *
003350 6802 384A 1556 B PRINT *
1557 *
003354 4020 257A 0007 1558 RT329 MVWI 7,CKPT *
00335A C825 263C 1559 MVWZ WDATA-1,R0 SET IDCB TO 00
00335E 8028 25CC 2580 1560 MVB CC7,XIOCC SET 'EXPECTED CC' INDRS
003364 8028 25CC 2582 1561 MVB CC2,XINCC *
00336A 9028 263A 257C 1562 MVD WRITE,IDCB SET 'IDCB' INDR
003370 680C 263A 1563 IO WRITE WRITE IT
003374 6F04 3392 1564 BCC 7,RT32E IF ACCEPTED, BRANCH
1565 *
003378 70AE 1566 CPLSR R5 SAVE COND CODE
00337A 356A 1567 SRL 13,R5 *
00337C C528 2581 1568 MVB R5,RIOCC *
003380 4124 275D 1569 MVA MSG06,R1 MOVE MESSAGE TO BUFFER
003384 4224 258A 1570 MVA BUFR,R2 *
003388 4724 0023 1571 MVWI MSG07-MSG06,R7 *
00338C 2944 1572 MVFN (R1),(R2) *
00338E 6802 384A 1573 B PRINT *
1574 *
003392 6F03 3884 1575 RT32E BAL DEL,R7 WAIT FOR INTERRUPT
1576 *
003396 C825 25DE 1577 MVWZ INTIN,R0 CLEAR INDR
00339A 4020 257A 0008 1578 MVWI 8,CKPT *
0033A0 8028 25CC 2580 1579 MVB CC7,XIOCC SET 'EXPECTED COND CODE' INDRS
0033A6 8828 25CE 2582 1580 MVW CCX,XINCC *
0033AC 9028 262A 257C 1581 MVD READ,IDCB SET 'IDCB' INDR
0033B2 680C 262A 1582 IO READ INSURE NEW DATA (00) DIDNT OVERLAY
0033B6 6F04 33D4 1583 BCC 7,RT333 * OLD DATA
1584 *
0033BA 70AE 1586 CPLSR R5 SAVE COND CODE
0033BC 356A 1587 SRL 13,R5 *
0033BE C528 2581 1588 MVB R5,RIOCC *
0033C2 4124 2A3C 1589 MVA MSG17,R1 MOVE MESSAGE TO BUFFER
0033C6 4224 258A 1590 MVA BUFR,R2 *
0033CA 4724 0022 1591 MVWI MSGND-MSG17,R7 *
0033CC 2944 1592 MVFN (R1),(R2) *
0033D0 6802 384A 1593 B PRINT *
1594 *
0033D4 4020 257A 0009 1595 RT333 MVWI 9,CKPT *
0033DA C020 262D 1596 MVB RDATA,R0 GET READ DATA
0033DE 7801 0001 1597 AWI 1,R0 ADD 1 TO READ DATA
0033E2 1047 1598 JZ RT04 IF ZERO, JUMP
1599 *
0033E4 4124 297C 1600 MVA MSG12,R1 MOVE MESSAGE TO BUFFER
1601 *

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0033E8 4224 258A 1602 MVA BUFR,R2 *
0033EC 4724 002A 1603 MVWI MSG13-MSG12,R7 *
0033F0 2944 1604 MVFN (R1),(R2) *
0033F2 6802 384A 1605 B PRINT *
1606 *
1607 *
1608 *
1609 *
1610 *
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1713 *
1714 *
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1716 *
1717 *
1718 *
1719 *

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NAME: ISS03 (RT03 INTERRUPT SERVICE SUBROUTINE)
PURPOSE: TO SERVICE INTERRUPTS DURING THE EXECUTION OF RT03
METHOD: CONDITION CODES ARE TESTED FOR CORRECT INDICATION AND SEQUENCING. ALL ERRORS ARE TRAPPED.
NOTE: THE ERROR CANNOT BE REPEATED FROM THIS ROUTINE, NOR CAN IT BE TRAPPED VIA NORMAL PROGRAM FACILITIES. THE ERROR SHOULD OCCUR EARLIER IN THE PROGRAM, OR IS ASSOCIATED SPECIFICALLY WITH THE 'DIAGNOSTIC WRAP' MODE OF TTY ATTACHMENT OPERATION.

ISS03 CPLSR R5 SAVE INDRS
BCC 7,S0307 IF 'DVC END' & 'ATTN', BRANCH
BCC 6,S0306 IF 'OVRN RCV' & 'ATTN', BRANCH
BCC 3,S0303 IF 'DVC END', BRANCH
BCC 2,S0302 IF 'OVRN RCV', BRANCH
S0299 SRL 13,R5 SET 'RECEIVED CC' INDR
MVB R5,RINCC *
S0300 MVA MSG0F,R1 MOVE MESSAGE TO BUFFER
MVA BUFR,R2 *
MVWI MSG10-MSG0F,R7 *
MVFN (R1),(R2) *
B PRINT *
OUTPUT THE MESSAGE

S0302 MVB CC2,RINCC SET 'CC 2' IN 'RECEIVED CC' INDR
CB XINCC,RINCC DID WE EXPECT CC 2 ?
JNE S0300 NO, JUMP
MVB CC3,XINCC SET 'CC 3 EXPECTED' INDR
J S030F JUMP
S0303 MVB CC3,RINCC SET 'CC 3' IN 'RECEIVED CC' INDR
CB XINCC,RINCC DID WE EXPECT CC 3 ?
JNE S0300 NO, JUMP
J S030F YES, JUMP
S0306 MVB CC6,RINCC SET 'CC 6' IN 'RECEIVED CC' INDR
CB XINCC,RINCC DID WE EXPECT CC 6 ?
JNE S0300 NO, JUMP
MVB CC2,XINCC SET 'CC 2 EXPECTED' INDR
J S030F JUMP
S0307 MVB CC7,RINCC SET 'CC 7' IN 'RECEIVED CC' INDR
CB XINCC,RINCC DID WE EXPECT CC 7 ?
JNE S0300 NO, JUMP
S030F MVWI 1,INTIN SET 'INTERRUPT OCCURRED' INDR
LEX 3 RETURN

NAME: RT04 (COMMAND REJECT TEST)
PURPOSE: TO INSURE THE TTY ATTACHMENT WILL RESPOND WITH A 'COMMAND REJECT' TO EACH INVALID IO INSTRUCTION.
METHOD: EACH INVALID IO INSTRUCTION IS ISSUED, AND THE RESPONSE TO EACH IS TESTED.

RT04 MVWI 4,RTNE *
MVA ISS04,DDDB SET TRANSFER VECTOR *
MVWI 1,CKPT *
MVB 0,R1 *
MVBI 15,R2 *
JAL RT402,R7 *
GO TEST THEM *
MVWI 3,CKPT *
MVBI X'12',R1 *
MVBI X'1F',R2 *
JAL RT402,R7 *
GO TEST THEM *
MVWI 4,CKPT *
MVBI X'21',R1 *
MVBI X'4F',R2 *
JAL RT402,R7 *
GO TEST THEM *
MVWI 5,CKPT *
MVBI X'52',R1 *
MVBI X'5F',R2 *
JAL RT402,R7 *
GO TEST THEM *
MVWI 6,CKPT *
MVBI X'61',R1 *
MVBI X'6D',R2 *
JAL RT402,R7 *
GO TEST THEM *
MVWI 7,CKPT *
MVBI X'70',R1 *
MVBI X'00FF',R2 *
JAL RT402,R7 *
GO TEST THEM *
J RT05 GO TO NEXT TEST

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1720 *
1721 * RT402
1722 *
1723 * THIS SUBROUTINE WILL ISSUE OIO OPS WITH INVALID FUNC/MODR FIELDS FOR
1724 * FORCING COMMAND REJECTS, AND WILL TEST THE RESULT OF EACH.
1725 *
1726 * ENTRY R1 = FIRST FUNC/MODR BYTE VALUE TO BE TESTED
1727 * R2 = LAST FUNC/MODR BYTE VALUE TO BE TESTED
1728 *
1729 * LINK: R7
1730 *
1731 *****
1732 *
1034CA C128 2622
1034CE 8028 25CA 2580
1034DA 9028 2622 257C
1034DA 680C 2622
1034DE 6804 34FC
1733 RT402 MVB R1,CRST SET TEST VALUE INTO IDCB
1734 MVB CC3,XIOCC SET 'EXPECTED COND CODE' INDRS
1735 MVD CRTST,IDCB SET 'IDCB' INDR
1736 IO CRTST ISSUE THE OIO
1737 BCC 3,RT407 CHECK FOR 'COMMAND REJECT'

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1836 *
1837 * CPLSR R5 SAVE CC
1838 *
1839 * MVB R5,RIOCC
1840 * MVA MSG17,R1
1841 * MVA BUFFER,R2
1842 * MVWI MSGND-MSG17,R7
1843 * MVFN (R1),(R2)
1844 * B PRINT
1845 * PRINT MSG.
1846 * R505 MVWI 4,CKPT
1847 * MVWI X'FFFF',R2
1848 * MVD DCOU,R1
1849 * SW R1,R2
1850 * SRL 1,R2
1851 * MVW R2,DCOU
1852 * BAL OFF,R7
1853 *
1854 * MVWI 5,CKPT
1855 * MVD WRITE,IDCB
1856 * MVA R508,IRTN
1857 * MVWI X'2222',WDATA-1
1858 * IO WRITE
1859 * BCC 7,R506
1860 *
1861 * CPLSR R5
1862 * SRL 13,R5
1863 * MVB R5,RIOCC
1864 * MVA MSG06,R1
1865 * MVA BUFFER,R2
1866 * MVWI MSG07-MSG06,R7
1867 * MVFN (R1),(R2)
1868 * B PRINT
1869 * PRINT MSSG.
1870 * R506 LEX
1871 *
1872 * R508 MVWI X'3333',WDATA-1
1873 * IO WRITE
1874 * BCC 7,R509
1875 *
1876 * CPLSR R5
1877 * SRL 13,R5
1878 * MVB R5,RIOCC
1879 * MVA MSG06,R1
1880 * MVA BUFFER,R2
1881 * MVWI MSG07-MSG08,R7
1882 * MVFN (R1),(R2)
1883 * B PRINT
1884 * PRINT MSG.
1885 * R509 BAL DRTN,R7
1886 *
1887 * MVD READ,IDCB
1888 * IO READ
1889 * BCC 7,R50A
1890 *
1891 * CPLSR R5
1892 * SRL 13,R5
1893 * MVB R5,RIOCC
1894 * MVA MSG17,R1
1895 * MVA BUFFER,R2
1896 * MVWI MSGND-MSG17,R7
1897 * MVFN (R1),(R2)
1898 * B PRINT
1899 * PRINT MSSG.
1900 * R50A MVWI 6,CKPT
1901 * MVB RDATA,R1
1902 * CWI X'0022',R1
1903 * JE R50B
1904 *
1905 * MVA MSG12,R1
1906 * MVA BUFFER,R2
1907 * MVWI MSG13-MSG12,R7
1908 * MVFN (R1),(R2)
1909 * B PRINT
1910 * PRINT MSSG.
1911 * R50B MVA R50C,IRTN
1912 * LEX
1913 * R50C IO READ
1914 * BCC 7,R50D
1915 *
1916 * CPLSR R5
1917 * SRL 13,R5
1918 * MVB R5,RIOCC
1919 * MVA MSG17,R1
1920 * MVA BUFFER,R2
1921 * MVWI MSGND-MSG17,R7
1922 * MVFN (R1),(R2)
1923 * B PRINT
1924 * PRINT MSG
1925 * R50D MVWI 7,CKPT
1926 * MVB RDATA,R1
1927 * CWI X'0033',R1
1928 * JE RT06
1929 *
1930 * MVA MSG12,R1
1931 * MVA BUFFER,R2
1932 * MVWI MSG13-MSG12,R7
1933 * MVFN (R1),(R2)
1934 * B PRINT
1935 * PRINT MSG.
1936 * *****
1937 *
1938 *
1939 * NAME - RTN5 INTERRUPT SERVICE ROUTINES
1940 *
1941 * PURPOSE - TO RETURN TO THE ADDRESS THAT WAS PREVIOUSLY SET
1942 * UP IF THE CC IS OK.
1943 *
1944 * METHOD - BRANCH ON CC INDIRECT IF THE EXPECTED CC WAS RECEIVED.
1945 * OTHERWISE - OUTPUT ERROR MESSAGE.
1946 * *****
1947 *
1948 * ICC7 EQU *
1949 * CPLSR R5
1950 * BCC 7,IRTN* RETURN IF CORRECT CC

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003706 5005 1951 J BDCC7 JUMP IF BAD CC
1952 *
1953 ICC2 EQU *
1954 CBLSR R5
1955 BCC 2,IRTN* RETURN IF CORRECT CC
003708 70AE 3710 1956 BDCC2 JUMP IF BAD CC
00370A 6A14 1957 *
00370E 5006 1958 IRTN DC A(*-*) GOOD RETURN ADDR GOES HERE
1959 *
003710 0000 1960 BDCC7 EQU *
003712 4020 2581 0007 1961 MVWI 7,RIOCC SET 'SB' CC
003718 6802 3408 1962 QUTCC B S0299 >>>> RESET TTY?
1963 *
00371C 4020 2581 0002 1964 BDCC2 EQU *
00371E 50FA 1965 MVWI 2,RIOCC SET 'SB' CC
1966 J QUTCC GO PRINT MSSG
1967 *
1968 *****
1969 *
1970 * NAME - DELAY SUBROUTINE
1971 *
1972 * PURPOSE - TO LOOP IN THE DELAY LOOP THE NUMBER OF COUNTS THAT
1973 * HAS BEEN SET INTO THE LABEL 'DCOU', AND RETURN TO THE
1974 * ADDRESS THAT HAS BEEN SET INTO R7 WHEN THE COUNT GOES
1975 * TO ZERO.
1976 *
1977 * METHOD - LOOP IN THE 2 INSTRUCTION LOOP UNTIL THE COUNT GOES TO
1978 * ZERO. R6 IS USED IN THE LOOP.
1979 *
1980 *****
1981 DRTN MVW DCOU,R6 GET COUNT VALUE
1982 DRTN1 MVW R6,DCOU * DELAY-
1983 JCT DRTN1,R6 * LOOP-
1984 B (R7) RETURN
1985 *
003724 6E08 3732 1986 DCOU DC A(*-*)
003728 6E0D 3732 1987 *****
00372C BEFD 1988 *
00372E 68E2 0000 1989 * NAME: RT06 (TERMINATION)
1990 *
1991 * PURPOSE: TO TERMINATE TESTING OF THE CURRENT DEVICE.
1992 *
1993 * METHOD: THE DEVICE IS RESET, THEN CONTROL IS PASSED TO DCP/MDI.
1994 *
1995 *
1996 *****
1997 *
1998 RT06 MVWI 6,RTNE * >>>> R 5
1999 MVWI 1,CKPT * >>>> CP 1
2000 MVWI 0,PDATA-1 UN-PREPARE THE TTY ATTACHMENT
2001 IO PREPR *
2002 IO RST RESET THE TTY ATTACHMENT
2003 B GDEND GO END IT
2004 *
2005 *****
2006 *
2007 * NAME: EXIT TO LEVEL THREE SUBROUTINE
2008 *
2009 * PURPOSE: TO RESET ANY UPPER LEVEL, RESUMING EXECUTION ON LEVEL 3
2010 *
2011 * CALLING SEQUENCE: BAL OFF,R7
2012 *
2013 * RETURN: NSI
2014 *
2015 *****
2016 *
2017 OFF MVW R7,OFFR+2 SET RETURN LINK
2018 MVBI 3,R0 SAVE LEVEL 3 STUFF
2019 CBLB R0,LSB *
2020 MVA OFFR,LSB SET RE-ENTRY ADDRESS FOR LEVEL 3
2021 OWI X'0000',LSR FORCE 'SS, IPF & SM' BITS ON
2022 SELB R0,LSB SET LEVEL 3 PENDING
2023 ABI -1,R0 RESET LEVEL 2 (IF CURRENT, ENTER AT
2024 SELB R0,DLSB * 'OFFR' ON LEVEL 3)
2025 ABI -1,R0 RESET LEVEL 1 (IF CURRENT, ENTER AT
2026 SELB R0,DLSB * 'OFFR' ON LEVEL 3)
2027 LEX X'0F' EXIT (ENTER AT 'OFFR' ON LEVEL 3)
2028 *
00377A 6802 0000 2029 OFFR B *-* RETURN
2030 *
2031 *****
2032 *
2033 * NAME: ENDING SUBROUTINES
2034 *
2035 * PURPOSE: END EXECUTION AFTER EITHER GOOD OR ERROR RUN
2036 *
2037 * CALLING SEQUENCE: BRANCH TO CORRECT ENTRY POINT
2038 *
2039 * RETURN: DCP
2040 *
2041 *****
2042 *
2043 * 'ERROR END' ROUTINE
2044 *
2045 *
2046 *
2047 EREND DIS 1 DISABLE INTERRUPTS
00377E 6301 2048 MVWI 1,TURESUL SET ERROR CONDITION FOR MDI
003780 4020 18C8 0001 *
2049 *
2050 * 'ERROR STATUS OUTPUT' ROUTINE
2051 *
2052 *
2053 *
2054 *
2055 *
2056 *
2057 *
2058 *
2059 *
2060 *
2061 *
2062 *
2063 *
2064 *
2065 *
2066 *
2067 *
2068 *

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0037CA 6000 2069 SVC OUT *
0037CC 5004 2070 *
2071 J END CLEAN UP AND QUIT
2072 *
2073 ** 'GOOD END' ROUTINE
2074 *
0037CE 6301 2075 GDEND DIS 1 DISABLE INTERRUPTS
0037D0 4020 18C8 0000 2076 MVWI 0,TURESUL SET STATUS WORD TO 0
0037D6 882C 2620 25D6 2077 END MVW SDCP,DAPTR* RESTORE DCP XFER VECTOR
2078 MVW SDCP,R0 RESTORE DCP MCK RTH ADDR AND CLEAR SW
0037E0 680D 000A 2079 MVW R0,MCK *
0037E4 6201 2080 EN 1 ENABLE INTERRUPTS
0037E6 6802 0000 2081 GOBCK B *-* RETURN TO DCP/MDI
2082 *
2083 *****
2084 *
2085 *
2086 * NAME: MACHINE CHECK SUBROUTINE
2087 *
2088 * PURPOSE: TO FIELD MACHINE CHECKS, SHOULD THEY OCCUR, TERMINATE
2089 * THE PROGRAM, PRINT A MESSAGE TO THAT EFFECT, AND RETURN
2090 * TO THE CONTROLLER
2091 *
2092 * CALLING SEQUENCE: HARDWARE BRANCH VIA 'MACHINE CHECK' SIA
2093 *
2094 * RETURN: DCP
2095 *
2096 *****
2097 *
2098 MACHK CPPSR MCPSPW SAVE PSW
2099 MVA PARM1,R7 SET CONTROL BLOCK ADDRESS
2100 MVWI 2,PARM1 CONVERT THE STEP NUMBER FROM HEX TO
2101 MVA STEPNUM,PARM2 * EBCDIC AND INSTALL IT IN THE 'MACHK
2102 MVA STEP,PARM3 * STATUS' MESSAGE
2103 SVC HTOE *
2104 *
2105 *
2106 *
2107 *
2108 *
2109 *
2110 *
2111 *
2112 *
2113 *
2114 *
2115 *
2116 *
2117 *
2118 *
2119 *
2120 *
2121 *
2122 *
2123 *
2124 *
2125 *****
2126 *
2127 * NAME: PRINT SUBROUTINE
2128 *
2129 * PURPOSE: TO ISSUE 'SVC OUT' COMMANDS FOR PRINTING/DISPLAYING
2130 *
2131 * METHOD: ALL POINTERS ARE SET, THE 'SVC OUT' ISSUED, THEN EXIT TO
2132 * 'EREND' SINCE PRINTING/DISPLAYING IS DONE ONLY IN THE
2133 * CASE OF ERRORS.
2134 *
2135 * CALLING SEQUENCE: B PRINT
2136 *
2137 * RETURN: B EREND
2138 *
2139 *****
2140 *
2141 PRINT BAL OFF,R7 GET ON LEVEL 3
2142 MVW STEPNUM,R0 SET STEP NUMBER
2143 MVB STEVADD,R1 * DEVICE ADDRESS,
2144 MVWI 0,R2 * (RESERVED),
2145 MVA TUID,R3 * 'INDRS' POINTER, AND
2146 MVA CTLBK,R7 * CONTROL BLOCK POINTER
2147 *
2148 *
2149 *
2150 *
2151 *
2152 *
2153 *
2154 *
2155 *
2156 *
2157 *
2158 *
2159 *****
2160 *
2161 * NAME: DELAY SUBROUTINE
2162 *
2163 * PURPOSE: TO PROVIDE AT LEAST A 288 MILLISEC DELAY BEFORE
2164 * RETURNING TO THE CALLER.
2165 *
2166 * CALLING SEQUENCE: BAL DEL,R7
2167 *
2168 * RETURN: TO THE ADDRESS CONTAINED IN R7.
2169 *
2170 *****
2171 DEL MVBI -1,R4 *
2172 DEL1 JCT DEL1,R4 * LOOP UNTIL R4 = 0
2173 MVBI -1,R4 *
2174 DEL2 JCT DEL2,R4 * LOOP UNTIL R4 = 0
2175 B (R7) RETURN
2176 *
003884 0CFF 2177 *
003886 BCFF 2178 *
003888 0CFF 2179 *
00388A BCFF 2180 *
00388C 68E2 0000 2181 *
000000 2182 *

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DECLARED	NAME	ATTRIBUTES AND REFERENCES
42	@FIXT	ABSOLUTE. HEX VALUE(0000101)
43	@STOP	ABSOLUTE. HEX VALUE(0000102)
48	@TUXX	ABSOLUTE. HEX VALUE(0000500)
544	ATTID	ADDRESS. HEX LOCATION(00002586) IN CSECT(I4000) LENGTH(1)
1964	BDCC2	ADDRESS. HEX LOCATION(0000371C) IN CSECT(I4000) LENGTH(1)
1960	BDCC7	ADDRESS. HEX LOCATION(00003712) IN CSECT(I4000) LENGTH(1)
545	BPHDR	ADDRESS. HEX LOCATION(00002587) IN CSECT(I4000) LENGTH(1)
549	BUFFR	ADDRESS. HEX LOCATION(0000258A) IN CSECT(I4000) LENGTH(2) 565 836 847 870 906 924 936 952 966 982 998 1012 1027 1039 1064 1076 1094 1106 1127 1142 1154 1171 1186 1205 1220 1238 1250 1271 1286 1303 1318 1335 1352 1366 1382 1394 1427 1439 1451 1494 1506 1523 1541 1553 1570 1591 1602 1636 1743 1770 1801 1819 1826 1841 1865 1880 1895 1906 1920 1931 2065 2120
558	CCX	ADDRESS. HEX LOCATION(000025CE) IN CSECT(I4000) LENGTH(2)
553	CC1	ADDRESS. HEX LOCATION(000025C8) IN CSECT(I4000) LENGTH(1)
554	CC2	ADDRESS. HEX LOCATION(000025C9) IN CSECT(I4000) LENGTH(1)
555	CC3	ADDRESS. HEX LOCATION(000025CA) IN CSECT(I4000) LENGTH(1)
556	CC6	ADDRESS. HEX LOCATION(000025CF) IN CSECT(I4000) LENGTH(1)
557	CC7	ADDRESS. HEX LOCATION(000025CC) IN CSECT(I4000) LENGTH(1)
535	CKPT	ADDRESS. HEX LOCATION(0000257A) IN CSECT(I4000) LENGTH(2) 827 897 913 943 973 989 1050 1051 1084 1117 1133 1195 1228 126 1277 1309 142 1372 1484 1485 1514 1534 1535 1560 1581 1664 1792
607	CRTDA	ADDRESS. HEX LOCATION(00002623) IN CSECT(I4000) LENGTH(1)
606	CRTST	ADDRESS. HEX LOCATION(00002622) IN CSECT(I4000) LENGTH(1)
565	CTLBK	ADDRESS. HEX LOCATION(000025D4) IN CSECT(I4000) LENGTH(2)
564	CTLSW	ADDRESS. HEX LOCATION(000025D3) IN CSECT(I4000) LENGTH(1)
569	DAPTR	ADDRESS. HEX LOCATION(000025D6) IN CSECT(I4000) LENGTH(2)
1986	DCOU	ADDRESS. HEX LOCATION(00003732) IN CSECT(I4000) LENGTH(2)
570	DDB	ADDRESS. HEX LOCATION(000025D8) IN CSECT(I4000) LENGTH(2)
2171	DEL	ADDRESS. HEX LOCATION(00003884) IN CSECT(I4000) LENGTH(2) 805 825 896 1482 1685 1791 929 959 1005 1032 1069 1099 1147 1176 1210 1243 1293 1325 1356 1387 1499 1546 1577
2172	DEL1	ADDRESS. HEX LOCATION(00003886) IN CSECT(I4000) LENGTH(2)
2174	DEL2	ADDRESS. HEX LOCATION(0000388A) IN CSECT(I4000) LENGTH(2)
108	DEVADD	ADDRESS. HEX LOCATION(000019D0) IN CSECT(I4000) LENGTH(1)
576	DLSB	ADDRESS. HEX LOCATION(000025F6) IN CSECT(I4000) LENGTH(2)
1981	DRTN	ADDRESS. HEX LOCATION(00003724) IN CSECT(I4000) LENGTH(4)
1982	DRTN1	ADDRESS. HEX LOCATION(00003728) IN CSECT(I4000) LENGTH(4)
70	DUMMY	ABSOLUTE. HEX VALUE(00000000)
627	DVCID	ADDRESS. HEX LOCATION(00002635) IN CSECT(I4000) LENGTH(1)
2077	END	ADDRESS. HEX LOCATION(000037D6) IN CSECT(I4000) LENGTH(6)
354	ENTPT	ADDRESS. HEX LOCATION(0000252C) IN CSECT(I4000) LENGTH(1)
50	EQ	ABSOLUTE. HEX VALUE(00000000)
2047	EREND	ADDRESS. HEX LOCATION(0000377E) IN CSECT(I4000) LENGTH(2)
373	F00065	ADDRESS. HEX LOCATION(00002532) IN CSECT(I4000) LENGTH(1)
377	F00073	ADDRESS. HEX LOCATION(00002560) IN CSECT(I4000) LENGTH(1)
2075	GDEND	ADDRESS. HEX LOCATION(000037CE) IN CSECT(I4000) LENGTH(2)
2081	GOBCK	ADDRESS. HEX LOCATION(000037E6) IN CSECT(I4000) LENGTH(4)
443	HTOE	ABSOLUTE. HEX VALUE(0000001A)
743	IAR	ADDRESS. HEX LOCATION(00002ABA) IN CSECT(I4000) LENGTH(2)
572	IBIT	ADDRESS. HEX LOCATION(000025DC) IN CSECT(I4000) LENGTH(1)
1948	ICC7	ADDRESS. HEX LOCATION(00003700) IN CSECT(I4000) LENGTH(1)
730	ICP	ADDRESS. HEX LOCATION(00002A86) IN CSECT(I4000) LENGTH(2)
536	IDCB	ADDRESS. HEX LOCATION(0000257C) IN CSECT(I4000) LENGTH(2) 828 898 914 944 974 990 1019 1052 1086 1119 1134 1163 1197 1230 1263 1278 1310 1344 1374 1486 1516 1536 1562 1583 1735 1793 1807 1833 1855 1887 2114
745	IDCBX	ADDRESS. HEX LOCATION(00002AC6) IN CSECT(I4000) LENGTH(2)
541	IDRDA	ADDRESS. HEX LOCATION(00002584) IN CSECT(I4000) LENGTH(1)

DECLARED	NAME	ATTRIBUTES AND REFERENCES
573	INTIN	ADDRESS. HEX LOCATION(000025DE) IN CSECT(I4000) LENGTH(2) 845 868 1420 1447 826 932 962 1008 1035 1072 1102 1150 1179 1213 1246 1296 1328 1362 1390 1461 1502 1549 1579 1668
728	IR	ADDRESS. HEX LOCATION(00002A70) IN CSECT(I4000) LENGTH(2)
733	IRCND	ADDRESS. HEX LOCATION(00002A8A) IN CSECT(I4000) LENGTH(2)
727	IRCPM	ADDRESS. HEX LOCATION(00002A60) IN CSECT(I4000) LENGTH(16)
1958	IRTN	ADDRESS. HEX LOCATION(00003710) IN CSECT(I4000) LENGTH(2)
863	ISS01	ADDRESS. HEX LOCATION(00002B9C) IN CSECT(I4000) LENGTH(2)
1417	ISS02	ADDRESS. HEX LOCATION(000031DC) IN CSECT(I4000) LENGTH(2)
1624	ISS03	ADDRESS. HEX LOCATION(000033F6) IN CSECT(I4000) LENGTH(2)
1766	ISS04	ADDRESS. HEX LOCATION(00003506) IN CSECT(I4000) LENGTH(2)
40	I4000	CSECT. START(00002500) LENGTH(5008) ESDID(1)
542	LEVEL	ADDRESS. HEX LOCATION(00002585) IN CSECT(I4000) LENGTH(1)
575	LSB	ADDRESS. HEX LOCATION(000025E0) IN CSECT(I4000) LENGTH(2)
595	LSR	ADDRESS. HEX LOCATION(000025E4) IN CSECT(I4000) LENGTH(1)
580	LVL0	ADDRESS. HEX LOCATION(0000260E) IN CSECT(I4000) LENGTH(1)
581	LVL1	ADDRESS. HEX LOCATION(0000260F) IN CSECT(I4000) LENGTH(1)
582	LVL2	ADDRESS. HEX LOCATION(00002610) IN CSECT(I4000) LENGTH(1)
2098	HACHK	ADDRESS. HEX LOCATION(000037EA) IN CSECT(I4000) LENGTH(4)
597	NCK	ABSOLUTE. HEX VALUE(0000000A)
584	NCKCD	ADDRESS. HEX LOCATION(00002611) IN CSECT(I4000) LENGTH(2)
748	MCMND	ADDRESS. HEX LOCATION(00002AD0) IN CSECT(I4000) LENGTH(2)
737	NCMSG	ADDRESS. HEX LOCATION(00002A8C) IN CSECT(I4000) LENGTH(14)
585	NCPSW	ADDRESS. HEX LOCATION(00002614) IN CSECT(I4000) LENGTH(2)
645	MG09	ADDRESS. HEX LOCATION(0000263E) IN CSECT(I4000) LENGTH(33)
721	MSGND	ADDRESS. HEX LOCATION(00002A5E) IN CSECT(I4000) LENGTH(2)
677	MSG0A	ADDRESS. HEX LOCATION(0000281E) IN CSECT(I4000) LENGTH(43)
680	MSG0B	ADDRESS. HEX LOCATION(0000284A) IN CSECT(I4000) LENGTH(43)
685	MSG0C	ADDRESS. HEX LOCATION(00002876) IN CSECT(I4000) LENGTH(26)
688	MSG0D	ADDRESS. HEX LOCATION(00002891) IN CSECT(I4000) LENGTH(66)
691	MSG0E	ADDRESS. HEX LOCATION(000028D4) IN CSECT(I4000) LENGTH(30)
694	MSG0F	ADDRESS. HEX LOCATION(000028F3) IN CSECT(I4000) LENGTH(30)
647	MSG00	ADDRESS. HEX LOCATION(00002660) IN CSECT(I4000) LENGTH(36)
650	MSG01	ADDRESS. HEX LOCATION(00002685) IN CSECT(I4000) LENGTH(41)
653	MSG02	ADDRESS. HEX LOCATION(000026AF) IN CSECT(I4000) LENGTH(34)
656	MSG03	ADDRESS. HEX LOCATION(000026D2) IN CSECT(I4000) LENGTH(36)
659	MSG04	ADDRESS. HEX LOCATION(000026F7) IN CSECT(I4000) LENGTH(43)
662	MSG05	ADDRESS. HEX LOCATION(00002723) IN CSECT(I4000) LENGTH(57)
665	MSG06	ADDRESS. HEX LOCATION(0000275D) IN CSECT(I4000) LENGTH(34)
668	MSG07	ADDRESS. HEX LOCATION(00002780) IN CSECT(I4000) LENGTH(43)
671	MSG08	ADDRESS. HEX LOCATION(000027AC) IN CSECT(I4000) LENGTH(62)
674	MSG09	ADDRESS. HEX LOCATION(000027EB) IN CSECT(I4000) LENGTH(50)
697	MSG10	ADDRESS. HEX LOCATION(00002912) IN CSECT(I4000) LENGTH(54)
700	MSG11	ADDRESS. HEX LOCATION(00002949) IN CSECT(I4000) LENGTH(50)
703	MSG12	ADDRESS. HEX LOCATION(0000297C) IN CSECT(I4000) LENGTH(41)
706	MSG13	ADDRESS. HEX LOCATION(000029A6) IN CSECT(I4000) LENGTH(20)
709	MSG14	ADDRESS. HEX LOCATION(000029BB) IN CSECT(I4000) LENGTH(41)
712	MSG15	ADDRESS. HEX LOCATION(000029E5) IN CSECT(I4000) LENGTH(38)
715	MSG16	ADDRESS. HEX LOCATION(00002A0C) IN CSECT(I4000) LENGTH(47)
718	MSG17	ADDRESS. HEX LOCATION(00002A3C) IN CSECT(I4000) LENGTH(33)
336	N00001	ADDRESS. HEX LOCATION(00002510) IN CSECT(I4000) LENGTH(2)
348	N00002	ADDRESS. HEX LOCATION(00002522) IN CSECT(I4000) LENGTH(2)
351	N00003	ADDRESS. HEX LOCATION(00002526) IN CSECT(I4000) LENGTH(2)

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DECLARED	NAME	ATTRIBUTES AND REFERENCES
2018	OFF	324 337 ADDRESS. HEX LOCATION(00003752) IN CSECT(I4000) LENGTH(4)
2030	OFFR	1789 1852 2141 ADDRESS. HEX LOCATION(0000377A) IN CSECT(I4000) LENGTH(4)
417	OUT	2018 2021 ABSOLUTE. HEX VALUE(00000000)
1962	OUTCC	2069 2155 ADDRESS. HEX LOCATION(00003718) IN CSECT(I4000) LENGTH(4)
104	PARHARA	1966 ADDRESS. HEX LOCATION(0000196E) IN CSECT(I4000) LENGTH(1)
587	PARM1	346 ADDRESS. HEX LOCATION(00002616) IN CSECT(I4000) LENGTH(2)
588	PARM2	2052 2053 2058 2099 2100 2113 ADDRESS. HEX LOCATION(00002618) IN CSECT(I4000) LENGTH(2)
589	PARM3	2054 2059 2101 2105 2109 2114 ADDRESS. HEX LOCATION(0000261A) IN CSECT(I4000) LENGTH(2)
613	PDATA	2055 2060 2102 2106 2110 2115 ADDRESS. HEX LOCATION(00002629) IN CSECT(I4000) LENGTH(1)
548	PGMID	912 942 972 1049 1116 1194 1260 1341 1433 ADDRESS. HEX LOCATION(00002588) IN CSECT(I4000) LENGTH(2)
72	PID	2000 2148 ADDRESS. HEX LOCATION(00001800) IN CSECT(I4000) LENGTH(1)
610	PREPR	74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 ADDRESS. HEX LOCATION(00002626) IN CSECT(I4000) LENGTH(1)
2141	PRINT	914 915 944 945 974 975 1052 1053 1119 1120 1197 1198 1263 1264 1344 1345 1793 1794 ADDRESS. HEX LOCATION(0000384A) IN CSECT(I4000) LENGTH(4)
611	PRPDA	839 850 874 909 927 939 955 969 985 1001 1015 1030 1042 1067 1079 1097 1109 1130 1145 1157 1174 1189 1208 1223 1241 1253 1274 1289 1306 1321 1338 1355 1369 1385 1397 1431 1443 1455 1497 1509 1526 1544 1556 1573 1594 1605 1640 1746 1774 1804 1822 1829 1844 1868 ADDRESS. HEX LOCATION(00002627) IN CSECT(I4000) LENGTH(1)
741	PSW	795 ADDRESS. HEX LOCATION(00002AAE) IN CSECT(I4000) LENGTH(2)
618	RDATA	2106 ADDRESS. HEX LOCATION(0000262D) IN CSECT(I4000) LENGTH(1)
616	RDDA	1519 1597 1901 1926 ADDRESS. HEX LOCATION(0000262B) IN CSECT(I4000) LENGTH(1)
624	RDID	796 ADDRESS. HEX LOCATION(00002632) IN CSECT(I4000) LENGTH(1)
620	RDW	828 829 ADDRESS. HEX LOCATION(0000262E) IN CSECT(I4000) LENGTH(1)
621	RDWDA	898 899 2150 ADDRESS. HEX LOCATION(0000262F) IN CSECT(I4000) LENGTH(1)
615	READ	797 ADDRESS. HEX LOCATION(0000262A) IN CSECT(I4000) LENGTH(1)
625	RIDDA	1399 1516 1517 1583 1584 1833 1834 1887 1888 ADDRESS. HEX LOCATION(00002633) IN CSECT(I4000) LENGTH(1)
540	RINCC	798 ADDRESS. HEX LOCATION(00002583) IN CSECT(I4000) LENGTH(1)
538	RIOCC	865 1419 1423 1634 1644 1645 1651 1652 1657 1658 1664 1665 1768 ADDRESS. HEX LOCATION(00002581) IN CSECT(I4000) LENGTH(1)
629	RST	834 904 922 950 980 996 1025 1062 1092 1125 1140 1163 1184 1203 1218 1236 1269 1284 1301 1316 1333 1350 1380 1402 1420 1458 1489 1741 1799 1817 1839 1863 1878 1893 1918 1961 1965 ADDRESS. HEX LOCATION(00002636) IN CSECT(I4000) LENGTH(1)
630	RSTDA	2002 ADDRESS. HEX LOCATION(00002637) IN CSECT(I4000) LENGTH(1)
534	RTNE	799 ADDRESS. HEX LOCATION(00002578) IN CSECT(I4000) LENGTH(2)
823	RT01	785 823 894 1480 1684 1786 1998 2054 ADDRESS. HEX LOCATION(00002B32) IN CSECT(I4000) LENGTH(6)
894	RT02	788 ADDRESS. HEX LOCATION(00002BC0) IN CSECT(I4000) LENGTH(6)
1480	RT03	843 ADDRESS. HEX LOCATION(00003252) IN CSECT(I4000) LENGTH(6)
1684	RT04	1400 ADDRESS. HEX LOCATION(00003472) IN CSECT(I4000) LENGTH(6)
1786	RT05	1599 ADDRESS. HEX LOCATION(00003520) IN CSECT(I4000) LENGTH(6)
1998	RT06	1716 ADDRESS. HEX LOCATION(00003734) IN CSECT(I4000) LENGTH(6)
841	RT105	1928 ADDRESS. HEX LOCATION(00002B76) IN CSECT(I4000) LENGTH(6)
929	RT20A	830 ADDRESS. HEX LOCATION(00002C3A) IN CSECT(I4000) LENGTH(4)
941	RT20C	916 ADDRESS. HEX LOCATION(00002C5C) IN CSECT(I4000) LENGTH(6)
959	RT20H	933 ADDRESS. HEX LOCATION(00002C96) IN CSECT(I4000) LENGTH(4)
971	RT20L	946 ADDRESS. HEX LOCATION(00002CB8) IN CSECT(I4000) LENGTH(6)
987	RT20R	963 ADDRESS. HEX LOCATION(00002CF2) IN CSECT(I4000) LENGTH(6)
1005	RT20W	976 ADDRESS. HEX LOCATION(00002D2C) IN CSECT(I4000) LENGTH(4)
911	RT205	992 ADDRESS. HEX LOCATION(00002C00) IN CSECT(I4000) LENGTH(6)
1048	RT21B	900 ADDRESS. HEX LOCATION(00002DA4) IN CSECT(I4000) LENGTH(6)
1017	RT211	1036 ADDRESS. HEX LOCATION(00002D4E) IN CSECT(I4000) LENGTH(6)
1032	RT216	1009 ADDRESS. HEX LOCATION(00002D82) IN CSECT(I4000) LENGTH(4)
1099	RT22D	1021 ADDRESS. HEX LOCATION(00002E40) IN CSECT(I4000) LENGTH(4)
1069	RT220	1088 ADDRESS. HEX LOCATION(00002DE4) IN CSECT(I4000) LENGTH(4)

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DECLARED	NAME	ATTRIBUTES AND REFERENCES
1083	RT228	ADDRESS. HEX LOCATION(00002E06) IN CSECT(I4000) LENGTH(6)
1147	RT23C	1073 ADDRESS. HEX LOCATION(00002ED6) IN CSECT(I4000) LENGTH(4)
1115	RT231	1136 ADDRESS. HEX LOCATION(00002E62) IN CSECT(I4000) LENGTH(6)
1132	RT236	1103 ADDRESS. HEX LOCATION(00002EA2) IN CSECT(I4000) LENGTH(6)
1210	RT24E	1121 ADDRESS. HEX LOCATION(00002F96) IN CSECT(I4000) LENGTH(4)
1161	RT240	1199 ADDRESS. HEX LOCATION(00002EF8) IN CSECT(I4000) LENGTH(6)
1176	RT245	1151 ADDRESS. HEX LOCATION(00002F2C) IN CSECT(I4000) LENGTH(4)
1193	RT249	1165 ADDRESS. HEX LOCATION(00002F56) IN CSECT(I4000) LENGTH(6)
1227	RT25A	1180 ADDRESS. HEX LOCATION(00002FC0) IN CSECT(I4000) LENGTH(6)
1243	RT25E	1214 ADDRESS. HEX LOCATION(00002FFA) IN CSECT(I4000) LENGTH(4)
1293	RT26C	1232 ADDRESS. HEX LOCATION(00003090) IN CSECT(I4000) LENGTH(4)
1259	RT262	1280 ADDRESS. HEX LOCATION(0000301C) IN CSECT(I4000) LENGTH(6)
1276	RT267	1247 ADDRESS. HEX LOCATION(0000305C) IN CSECT(I4000) LENGTH(6)
1359	RT27E	1265 ADDRESS. HEX LOCATION(00003158) IN CSECT(I4000) LENGTH(4)
1308	RT270	1346 ADDRESS. HEX LOCATION(000030BA) IN CSECT(I4000) LENGTH(6)
1325	RT275	1297 ADDRESS. HEX LOCATION(000030EE) IN CSECT(I4000) LENGTH(4)
1340	RT279	1312 ADDRESS. HEX LOCATION(00003118) IN CSECT(I4000) LENGTH(6)
1371	RT28A	1329 ADDRESS. HEX LOCATION(0000317A) IN CSECT(I4000) LENGTH(6)
1387	RT28F	1363 ADDRESS. HEX LOCATION(000031B4) IN CSECT(I4000) LENGTH(4)
1399	RT290	1376 ADDRESS. HEX LOCATION(000031D6) IN CSECT(I4000) LENGTH(4)
1499	RT313	1391 ADDRESS. HEX LOCATION(0000329C) IN CSECT(I4000) LENGTH(4)
1513	RT317	1488 ADDRESS. HEX LOCATION(000032BE) IN CSECT(I4000) LENGTH(6)
1577	RT32E	1503 ADDRESS. HEX LOCATION(00003392) IN CSECT(I4000) LENGTH(4)
1532	RT320	1564 ADDRESS. HEX LOCATION(000032FA) IN CSECT(I4000) LENGTH(6)
1546	RT325	1520 ADDRESS. HEX LOCATION(00003332) IN CSECT(I4000) LENGTH(4)
1558	RT329	1538 ADDRESS. HEX LOCATION(00003354) IN CSECT(I4000) LENGTH(6)
1596	RT333	1550 ADDRESS. HEX LOCATION(000033D4) IN CSECT(I4000) LENGTH(6)
1733	RT402	1585 ADDRESS. HEX LOCATION(000034CA) IN CSECT(I4000) LENGTH(4)
1748	RT407	1689 1694 1699 1704 1709 1714 1752 ADDRESS. HEX LOCATION(000034FC) IN CSECT(I4000) LENGTH(2)
0	R0	1737 REGISTER. HEX VALUE(00000000)
0	R1	787 792 793 794 795 796 797 798 799 800 801 802 803 804 805 806 807 808 832 862 1008 1035 1072 1102 1150 1179 1213 1248 1296 1328 1367 1390 1483 1502 1549 1559 1578 1597 1598 2019 2020 2023 2024 2025 2026 2027 2078 2079 2142 2152 2153 REGISTER. HEX VALUE(00000001)
0	R2	835 838 846 849 869 872 905 908 923 926 935 938 951 954 965 968 981 984 997 1000 1011 1014 1026 1029 1038 1041 1063 1066 1075 1078 1093 1096 1105 1108 1126 1129 1141 1144 1153 1156 1170 1173 1185 1188 1204 1207 1219 1222 1237 1240 1249 1252 1270 1273 1285 1288 1302 1305 1317 1320 1334 1337 1351 1354 1365 1368 1381 1384 1393 1396 1426 1429 1433 1434 1435 1438 1441 1450 1453 1493 1496 1502 1509 1592 1525 1540 1543 1552 1585 1589 1572 1590 1592 1525 1540 1543 1552 1585 1589 1697 1702 1707 1712 1733 1742 1745 1748 1749 1769 1772 1800 1803 1818 1821 1825 1828 1840 1843 1848 1849 1864 1867 1879 1882 1894 1897 1901 1902 1905 1908 1919 1922 1926 1927 1930 1933 2119 2122 2143 REGISTER. HEX VALUE(00000002)
0	R3	836 838 847 849 870 872 906 908 924 926 936 938 952 954 966 968 982 984 998 1000 1012 1014 1027 1029 1039 1041 1064 1066 1076 1078 1094 1096 1106 1108 1127 1129 1142 1144 1154 1156 1171 1173 1186 1188 1205 1207 1220 1222 1238 1240 1250 1271 1273 1277 1286 1288 1303 1305 1318 1320 1332 1337 1352 1354 1366 1368 1382 1384 1394 1396 1427 1429 1439 1441 1451 1453 1494 1496 1506 1508 1523 1525 1541 1543 1553 1555 1570 1572 1591 1593 1602 1604 1636 1638 1688 1693 1698 1703 1708 1713 1743 1745 1749 1770 1772 1801 1803 1819 1821 1826 1828 1841 1843 1847 1849 1850 1851 1865 1867 1880 1882 1895 1897 1906 1908 1920 1922 1931 1933 2120 2122 2144 REGISTER. HEX VALUE(00000003)
0	R4	806 2145 REGISTER. HEX VALUE(00000004)
0	R5	2064 2067 2171 2172 2173 2174 REGISTER. HEX VALUE(00000005)
0	R5	832 833 834 863 864 865 902 903 904 920 921 922 948 949 950 978 979 980 994 995 996 1023 1024 1025 1060 1061 1062 1090 1091 1092 1123 1124 1125 1138 1139 1140 1167 1168 1169 1182 1183 1184 1201 1202 1203 1216 1217 1218 1234 1235 1236 1267 1268 1269 1282 1283 1284 1299 1300 1301 1314 1315 1316 1331 1332 1333 1348 1349 1350 1378 1379 1380

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DECLARED	NAME	ATTRIBUTES AND REFERENCES
		1417 1418 1419 1457 1490 1491 1492 1566 1567
		1568 1587 1588 1589 1624 1633 1638 1735 1740
		1741 1766 1767 1768 1769 1798 1799 1812 1816
		1817 1837 1838 1839 1861 1862 1863 1876 1877
		1878 1891 1892 1893 1916 1917 1918 1949 1954
		2065 2067
1900	R50A	ADDRESS. HEX LOCATION(00003692) IN CSECT(I4000) LENGTH(6)
		1889
1911	R50B	ADDRESS. HEX LOCATION(000036B4) IN CSECT(I4000) LENGTH(6)
		1903
1913	R50C	ADDRESS. HEX LOCATION(000036BC) IN CSECT(I4000) LENGTH(4)
		1911
1925	R50D	ADDRESS. HEX LOCATION(000036DE) IN CSECT(I4000) LENGTH(6)
		1914
1806	R501	ADDRESS. HEX LOCATION(00003564) IN CSECT(I4000) LENGTH(6)
		1795
1824	R503	ADDRESS. HEX LOCATION(000035A8) IN CSECT(I4000) LENGTH(1)
		1811
1831	R504	ADDRESS. HEX LOCATION(000035BA) IN CSECT(I4000) LENGTH(1)
		1809
1846	R505	ADDRESS. HEX LOCATION(000035E8) IN CSECT(I4000) LENGTH(6)
		1835
1870	R506	ADDRESS. HEX LOCATION(0000363C) IN CSECT(I4000) LENGTH(2)
		1859
1872	R508	ADDRESS. HEX LOCATION(0000363E) IN CSECT(I4000) LENGTH(6)
		1856
1885	R509	ADDRESS. HEX LOCATION(00003666) IN CSECT(I4000) LENGTH(4)
		1874
0	R6	REGISTER. HEX VALUE(00000006)
		1981 1982 1983
0	R7	REGISTER. HEX VALUE(00000007)
		784 837 848 868 871 907 925 929 937
		953 959 967 983 999 1005 1013 1028 1032
		1040 1065 1069 1077 1095 1099 1107 1128 1143
		1147 1155 1172 1176 1187 1206 1210 1221 1239
		1243 1251 1272 1287 1293 1304 1319 1325 1336
		1353 1359 1367 1383 1387 1395 1420 1421 1422
		1428 1440 1452 1493 1493 1507 1524 1542 1546
		1554 1571 1577 1592 1603 1637 1689 1694 1699
		1704 1709 1714 1744 1750 1771 1789 1802 1811
		1820 1827 1842 1852 1866 1881 1885 1896 1907
		1921 1932 1984 2018 2052 2066 2068 2099 2121
		2141 2146 2175
592	SAVER	ADDRESS. HEX LOCATION(0000261E) IN CSECT(I4000) LENGTH(2)
		787 790 2078 2152
593	SDCP	ADDRESS. HEX LOCATION(00002620) IN CSECT(I4000) LENGTH(2)
		804 2077 2151
739	STEP	ADDRESS. HEX LOCATION(00002AA2) IN CSECT(I4000) LENGTH(2)
		2102
74	STEPNUM	ADDRESS. HFX LOCATION(0000180C) IN CSECT(I4000) LENGTH(1)
		2101 2142
1433	S0200	ADDRESS. HEX LOCATION(00003208) IN CSECT(I4000) LENGTH(4)
		1424
1447	S0207	ADDRESS. HEX LOCATION(00003226) IN CSECT(I4000) LENGTH(6)
		1436
1457	S0208	ADDRESS. HEX LOCATION(00003240) IN CSECT(I4000) LENGTH(2)
		1448
1461	S0209	ADDRESS. HEX LOCATION(0000324A) IN CSECT(I4000) LENGTH(6)
		1458
1633	S0299	ADDRESS. HEX LOCATION(00003408) IN CSECT(I4000) LENGTH(2)
		1952
1668	S030F	ADDRESS. HEX LOCATION(0000346A) IN CSECT(I4000) LENGTH(6)
		1649 1655 1662
1635	S0300	ADDRESS. HEX LOCATION(0000340E) IN CSECT(I4000) LENGTH(4)
		1646 1653 1659 1666
1644	S0302	ADDRESS. HEX LOCATION(00003420) IN CSECT(I4000) LENGTH(6)
		1631
1651	S0303	ADDRESS. HEX LOCATION(00003436) IN CSECT(I4000) LENGTH(6)
		1629
1657	S0306	ADDRESS. HEX LOCATION(00003446) IN CSECT(I4000) LENGTH(6)
		1627
1664	S0307	ADDRESS. HEX LOCATION(0000345C) IN CSECT(I4000) LENGTH(6)
		1625
533	TUID	ADDRESS. HEX LOCATION(00002576) IN CSECT(I4000) LENGTH(2)
		806 2145
101	TURESUL	ADDRESS. HEX LOCATION(000018C8) IN CSECT(I4000) LENGTH(1)
		2048 2076
783	T4000	ADDRESS. HEX LOCATION(00002AD2) IN CSECT(I4000) LENGTH(1)
		338
636	WDATA	ADDRESS. HEX LOCATION(0000263D) IN CSECT(I4000) LENGTH(1)
		988 1083 1483 1533 1559 1810 1857 1872
633	WRITE	ADDRESS. HEX LOCATION(0000263A) IN CSECT(I4000) LENGTH(1)
		990 991 1019 1020 1086 1087 1134 1135 1163
		1164 1230 1231 1278 1279 1310 1311 1374 1375
		1486 1487 1536 1537 1562 1563 1807 1812 1855
		1858 1873
634	WRTDA	ADDRESS. HEX LOCATION(0000263B) IN CSECT(I4000) LENGTH(1)
		800
539	XINCC	ADDRESS. HEX LOCATION(00002582) IN CSECT(I4000) LENGTH(1)
		1051 1085 1118 1196 1229 1262 1343 1373 1423
		1460 1485 1515 1535 1561 1582 1645 1648 1652
		1658 1661 1665
537	XIOCC	ADDRESS. HEX LOCATION(00002580) IN CSECT(I4000) LENGTH(1)
		807 827 897 913 943 973 989 1018 1050
		1084 1117 1133 1162 1195 1228 1261 1277 1309
		1342 1372 1484 1514 1534 1560 1581 1734 1792