

00010

XLIST

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00030
00040 INTERNAL CLOCK, CLKINI, NULJOB, APRINT, RSCHED
00050 EXTERNAL APRSAV, APRRET, APRCHN, APRILM, APRCHL
00060 EXTERNAL COMCNT, COMMAND, JOB, JOBADR, APRSAC, JOBDAC, JOBPDP, JOBREL
00070 EXTERNAL USRPDP, JOBPFU, JOBPC, JBTADR, JOBADR, JOBDAT, USRPFU, CLDS, NXTJOB
00080 EXTERNAL STOPU, SCHEDF, TIME, JOBLEV, JOBUXT, UUU0, JOBDHI, CLKOFF, JBTSTS
00090
00100 ;CLOCK WILL TIME AN INTERVAL AND PUSHJ PDP, TO AN ADDRESS
00110 ;AFTER THE INTERVAL HAS EXPIRED
00120 ;TO MAKE A REQUEST:
00130 ; CONO PI, PIOFF
00140 ; DPBI AC, CLOCK
00150 ; CONO PI, PION
00160 ;AC MUST CONTAIN- XWD ADDRESS, NUMBER OF CLOCK COUNTS+DATA*10000
00170 ;THE HIGH ORDER SIX BITS OF THE RIGHT HALF(DATA) ARE PLACED IN AC
00180 ;TAC RIGHT JUSTIFIED BEFORE THE PUSHJ PDP, ADDRESS IS DONE
00190
00200 ;SYSTEM FLAGS:
00210 ; STOPU IS SET NON-ZERO AT EITHER INTERRUPT SERVICE LEVEL OR
00220 ; UUU LEVEL AND A CLOCK INTERRUPT IS REQUESTED WHEN CURRENT
00230 ; JOB MUST BE STOPPED AND ANOTHER ONE RUN.
00240 ; SCHEDF IS SET NON-ZERO BY CLOCK ROUTINE WHEN IF IS IN THE PROCESS
00250 ; OF RESCHEDULING. IT IS CLEARED AFTER JOB HAS BEEN SET TO
00260 ; CURRENTLY RUNNING JOB.
00270 ; TIME IS THE TIME SYSTEM HAS RUN IN 60THS OF A SECOND
00280
00290 PION=200
00300 PIOFF=400
00310
00320 STOR=DAT
00330 T=TAC
00340 JA=JDAT
00350
000000 004400 000000' 00360 CLOCK: POINT 36, CIPWT-1, 35 ;BYTE POINTER TO CLOCK QUEUE
00370 CIPWT: BLOCK 12 ;THE QUEUE
00380
000013 201000 000000' 00390 CLKINI: MOVEI CIPWT-1 ;SET UP BYTE POINTER
000014 542000 000000' 00400 HRRM CLOCK
000015 263140 000000' 00410 POPJ PDP,
00420
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000016 254000 000020' 00430
000017 254000 000017' 00440
000020 700340 230000 00450
000021 254000 000024' 00460
000022 264000 000000 00470
000023 254000 000000 00480
000024 700340 002000 00490
000025 254000 000030' 00500
000026 700300 001000 00510
000027 254000 000034' 00520
000030 336000 000000 00530
000031 254000 000017' 00540
000032 264000 000022' 00550
000033 254000 000064' 00560
00570

APRINT: JRST .+2 ;HERE ON APR INTERRUPT
JRST . ;TO OTHER DEVICES ON THIS CHANNEL
CONSO APR,230000 ;IS IT ANY OF THE OTHERS
JRST CIP0 ;NO, GO CHECK CLOCK
JSR APRSAV ;YES, SAVE ACS
JRST APRILM ;AND GO PROCESS ILLEGAL MEMOR
CIP0: CONSO APR, 2000 ;IS CLOCK ENABLED
JRST CIP1 ;NO, GO TO OTHER DEVICES
CONSZ APR, 1000 ;YES, DID CLOCK CAUSE INTERRUPT
JRST CIP2 ;YES
CIP1: SKIPN STOPU ;NO, IS THIS A REQUESTED INTERRUPT
JRST APRINT+1 ;NO, GO TO OTHER DEVICES
CIP1B: JSR APRSAV ;YES, SAVE ACS
JRST CIP6 ;RESCHEDULE BUT DONT TIME

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00580
000034 264000 000032' 00590
000035 350000 000000 00600
000036 200040 000000 00610
000037 370001 000000 00620
000040 700200 000000 00630
00640
00650
000041 550240 000000' 00660
000042 306240 000000' 00670
000043 254000 000062' 00680
000044 370105 000000 00690
000045 602100 007777 00700
000046 364240 000042' 00710
000047 700600 000400 00720
000050 200060 000000' 00730
000051 370000 000000' 00740
000052 700600 000200 00750
000053 202045 000000 00760
000054 135040 000143' 00770
000055 207000 000002 00780
000056 261140 000005 00790
000057 260142 000000 00800
000060 262140 000005 00810
000061 364240 000042' 00820
00830
000062 332000 000000 00840
000063 260140 000000 00850
00860
000064 402000 000030' 00870
000065 476000 000000 00880
000066 260140 000000 00890
000067 316200 000036' 00900
000070 254000 000136' 00910
00920
  
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CIP2: JSR APRSAV ;SAVE ACS
AOS TIME ;INCREMENT TIME
MOVE TAC, JOB ;DECREMENT CURRENT JOBS RUNNING TIME
SOS JBTSTS(TAC)
CONO APR, CLKOFF ;TURN CLOCK FLAG OFF

;PROCESS TIMING REQUESTS STORED IN QUEUE
HRRZ STOR, CLOCK ;GET END OF LIST
CIP4: CAIN STOR, CIPWT-1 ;END YET
JRST CIP5 ;YES
SOS TAC1, (STOR) ;DECREMENT TIMING REQUEST
TRNE TAC1, 7777 ;TIME EXPIRED YET
SOJA STOR, CIP4 ;NO, CONTINUE SCAN
CONO PI, PIOFF ;YES, MOVE LAST ITEM IN LIST TO THS
MOVE TAC, @CLOCK
SOS CLOCK
CONO PI, PION
MOVEM TAC, (STOR)
LDB TAC, [POINT 6, TAC1, 23] ;GET 6 BIT DATA ITEM
MOVSS TAC1 ;SETUP DISPATCH ADDRESS
PUSH PDP, STOR ;SAVE ONLY VALUABLE AC
PUSHJ PDP, (TAC1) ;AND DISPATCH TO TIMING REQUEST ROUTINE
POP PDP, STOR
SOJA STOR, CIP4 ;GO BACK FOR MORE REQUESTS

CIP5: SKIPE COMCNT ;ANY COMMANDS TO PROCESS
PUSHJ PDP, COMMAND ;YES
RSCHED: ;RESCHEDULE, HERE AFTER APRILM
CIP6: SETZM STOPU ;CLEAR INTERRUPT REQUEST FLAG
SETOM SCHEDF ;FLAG THAT SCHEDULING IS IN PROGRESS
PUSHJ PDP, NXTJOB ;RETURN HIGHEST PRIORITY JOB IN AC ITEM
CAMN ITEM, JOB ;IS IT SAME AS CURRENT JOB
JRST CIP8 ;YES, EXIT
  
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			00930		
			00940	;DIFFERENT JOB, SAVE OLD JOB	
000071	336000	000067'	00950	SKIPN JOB	;IS OLD JOB THE NULL JOB
000072	254000	000110'	00960	JRST CIP7	;YES, DONT BOTHER TO SAVE ANYTHING
000073	200440	000000	00970	MOVE JA, JOBADR	;NO, MOVE CHANNEL ACS TO USER JOB AREA
000074	201051	000000	00980	MOVEI T, JOBDAC(JA)	
000075	505040	000000	00990	HRLI T, APRSAC	
000076	251051	000000	01000	BLT T, JOBDHI(JA)	
000077	201051	000000	01010	MOVEI T, JOBPDP(JA)	;MOVE JOB STATE VARIABLES TO JOB DATA A
000100	505040	000000	01020	HRLI T, USRPDP	
000101	251051	000000	01030	BLT T, JOBPDU(JA)	
000102	200040	000040	01040	MOVE T, 40	;SAVE LOC. 40
000103	202051	000000	01050	MOVEM T, JOBLEV(JA)	
000104	200040	000000	01060	MOVE T, UU00	;AND UU0 PC
000105	202051	000000	01070	MOVEM T, JOBUXT(JA)	
000106	200040	000000	01080	MOVE T, APRCHL	;SET C(CHANNEL INTERRUPT LOC.) AS PC
000107	202051	000000	01090	MOVEM T, JOBPC(JA)	
			01100		

			01110	
			01120	;RESTOR NEW JOB
000110	202200	000071'	01130	CIP7: MOVEM ITEM, JOB ;STORE NEW CURRENT JOB NUMBER
000111	403000	000065'	01140	SETZB 0, SCHEDF ;INDICATE SCHEDULING FINISHED
000112	322200	000140'	01150	JUMPE ITEM, NUL0 ;IS NEW JOB NULL JOB
000113	200444	000000	01160	MOVE JA, JBTADR(ITEM) ;SETUP STATE VARIABLES FOR CU
000114	552440	000073'	01170	HRRZM JA, JOBADR ;IN SYSTEM AREA
000115	552440	000000	01180	HRRZM JA, JOB DAT
000116	556451	000000	01190	HLRZM JA, JOBREL(JA) ;SET RELOCATION AND PROTECTIO
000117	700140	000011	01200	DATA0 JA
000120	201040	000100'	01210	MOVEI T, USRPDP
000121	505051	000077'	01220	HRLI T, JOBPDP(JA) ;MOVE JOB STATE VARIABLES TO SYSTEM ARE
000122	251040	000000	01230	BLT T, USRPFU
000123	200051	000103'	01240	MOVE T, JOBLEV(JA) ;RESTORE LOC. 40
000124	202040	000040	01250	MOVEM T, 40
000125	200051	000105'	01260	MOVE T, JOBUXT(JA) ;AND UU0 PC
000126	202040	000104'	01270	MOVEM T, UU00
000127	200051	000107'	01280	MOVE T, JOBPC(JA) ;SET C(CHANNEL LOC.) TO C(JOBPC)
000130	202040	000106'	01290	MOVEM T, APRCHL
000131	205751	000074'	01300	MOVSI 17, JOBDAC(JA) ;RESTORE USER ACS
000132	251740	000017	01310	BLT 17,17
000133	332000	000064'	01320	SKIPE STOPU ;HAS STOPU BEEN SET SINCE CIP6
000134	254000	000032'	01330	JRST CIP1B ;YES, GO RESCHEDULE
000135	254520	000130'	01340	JEN @APRCHL ;NO, DISMISS CHANNEL
			01350	
000136	402000	000111'	01360	CIP8: SETZM SCHEDF ;CLEAR SCHEDULING FLAG
000137	254000	000000	01370	JRST APRRET ;AND DISMISS INTERRUPT
			01380	
			01390	;THE NULL JOB
000140	254400	000141'	01400	NUL0: JRST 10, NULJOB ;RENABLE AND RUN IN EXEC. MODE
			01410	
000141	200040	000142'	01420	NULJOB: MOVE 1, .+1
000142	344000	000001	01430	AOJA 0,1 ;COUNT IN AC0 FOR VISUAL MONITORING
			01440	;ALSO PC = 1
			01450	
000143	140600	000002	01460	END,

THERE ARE NO ERRORS

PROGRAM BREAK IS 000144

CLOCK - CLOCK SERVICE ROUTINE
SYMBOL TABLE

PAGE 8

A	000000	INT
AC1	000015	INT
AC2	000016	INT
AC3	000017	INT
AL	000001	INT
APRCHL	000135'	EXT
APRCHN	000000	EXT
APRILM	000023'	EXT
APRINT	000016'	INT
APRRET	000137'	EXT
APRSAC	000075'	EXT
APRSAV	000034'	EXT
ASSCON	400000	INT
ASSPRG	200000	INT
R	000014	INT
RUFPNT	000012	INT
RUFWRD	000013	INT
CIP0	000024'	
CIP1	000030'	
CIP1B	000032'	
CIP2	000034'	
CIP4	000042'	
CIP5	000062'	
CIP6	000064'	
CIP7	000110'	
CIP8	000136'	
CIPWT	000001'	
CLDS	000000	EXT
CLKINI	000013'	INT
CLKOFF	000040'	EXT
CLOCK	000000'	INT
CLOS8	002000	INT
CLSIN	000002	INT
CLSOUT	000001	INT
COMCNT	000062'	EXT
COMMAN	000063'	EXT
D	000017	INT
DAT	000005	INT
DCL	000001	INT
DCW	020000	INT
DDI	000007	INT
DDO	000006	INT
DDTMEM	000037	INT
DDTSYM	000036	INT
DEN	000004	INT
DEVADR	000007	INT
DEVBUF	000006	INT
DEVCHR	000001	INT
DEVCTR	000011	INT
DEVDAT	000006	INT
DEVIAD	000007	INT
DEVIOS	000002	INT
DEVLOG	000005	INT
DEVMOD	000004	INT
DEVNAM	000000	INT

CLOCK - CLOCK SERVICE ROUTINE
 SYMBOL TABLE

DEVOID	000010	INT
DEVPTR	000010	INT
DEVSER	000003	INT
DGF	000012	INT
DIN	000003	INT
DLK	000005	INT
DOU	000002	INT
DR	000016	INT
DRL	000000	INT
DSI	000011	INT
DSO	000010	INT
DTW	040000	INT
DVAVAL	000040	INT
DVCDR	100000	INT
DVDIR	000004	INT
DVDIRI	400000	INT
DVIN	000002	INT
DVLPT	040000	INT
DVMTA	000020	INT
DVOUT	000001	INT
DVTY	000010	INT
ENTRB	020000	INT
I	000010	INT
IB	000013	INT
IBUFB	200000	INT
INITB	400000	INT
INPB	010000	INT
IO	000020	INT
IOACT	010000	INT
IOREG	000002	INT
IORKTL	040000	INT
IOCON	000040	INT
IODEND	020000	INT
IODERR	200000	INT
IODISC	400000	INT
IODONE	400000	INT
IODTER	100000	INT
IOFND	000040	INT
IOFST	000004	INT
IOIMPM	400000	INT
IONRCK	000100	INT
IORDEL	000100	INT
IORET	000020	INT
IOS	000000	INT
IOSTRT	000010	INT
IOUSE	400000	INT
IOW	000001	INT
IOWC	000020	INT
IOWS	400000	INT
ITEM	000004	INT
JA	000011	
JBFAADR	000000	INT
JBFCR	000002	INT
JBFPTR	000001	INT
JBTADR	000113	EXT

CLOCK - CLOCK SERVICE ROUTINE
SYMBOL TABLE

PAGE 10

JBTSTS	000037'	EXT
JBUF	000005	INT
JDAT	000011	INT
JERR	002000	INT
JIOW	100000	INT
JNA	004000	INT
JOB	000110'	EXT
JORADR	000114'	EXT
JORDAC	000131'	EXT
JORDAT	000115'	EXT
JORDHI	000076'	EXT
JORLEV	000123'	EXT
JORPC	000127'	EXT
JORPDP	000121'	EXT
JORPFU	000101'	EXT
JORREL	000116'	EXT
JORUXT	000125'	EXT
LOOKR	040000	INT
MTW	010000	INT
NUL0	000140'	
NULJOB	000141'	INT
NXTJOB	000066'	EXT
OBUFB	100000	INT
OUTPR	004000	INT
PDP	000003	INT
PICHN	000100	INT
PIOFF	000400	
PION	000200	
PROG	000007	INT
RSCHED	000064'	INT
RUN	200000	INT
RUNABL	204000	INT
SCHEDF	000136'	EXT
STOPU	000133'	EXT
STOR	000005	
T	000001	
TAC	000001	INT
TAC1	000002	INT
TEM	000010	INT
TIME	000035'	EXT
TTYATC	020000	INT
TTYUSE	010000	INT
USRMOD	010000	INT
USRDP	000120'	EXT
USRPFU	000122'	EXT
UUO	000014	INT
UU00	000126'	EXT

END OF ASSEMBLY