ITS

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```
001             TITLE ITS 1.0 3/19/67
002             MOBY==1                                                 PAGE 1
003
004             ;AC DEFS
005
006             A=1
007             B=2
008             C=3
009             D=4
010             E=5
011             TT=6
012             I=7
013             Q=10
014             J=11
015             R=12
016             P=15    ;DO NOT CHANGE!
017             T=16    ;"
018             U=17    ;"
019
020
021             IOBIT==1            ;IOBIT IN MAP
022
023
024             TTYIF==1            ;RIGHT HALF BITS IN PIRQC
025             BCNTRZI==2          ;^Z TYPED
026             BPIPI==4            ;BAD LOC 42
027             AROIF==10           ;AROV
028             BILLOP==40          ;ILLEGAL INSTRUCTION
029             BIOADC==20000       ;MEMORY PROTECTION VIOLATION
030             BIOCER==400         ;CHANNEL ERROR
031             VALRTF==200         ;VALUE RETURN
032             ILLUAD==1000        ;USER DOES NOT HAVE THAT MUCH CORE
033             BRKF==2000          ;BREAKPOINT FLAG
034             BUTFUL==4000        ;UTAPE FULL
035             BILM==10000         ;NON-EX MEM
036             ;10000  NON EX MEM
037             ;200000 PDL OV
038             ;20000  MPV
039     001 033 BADBTS=BIOADC+BCNTRZI+BPIPI+BIOCER+BILLOP+BILM+VALRTF+BRKF
040
041             TTYIMI==1           ;IMAGE INPUT    ;BITS IN TTYSTS
042             TTYDDT==2           ;"DDT" MODE
043             TTYIMO==4           ;IMAGE OUTPUT
044
045                                 ;BITS IN RH MSKST
046             BTINTE==1           ;ENABLE TTY INT
047
048             CLKON==2001         ;ABSOLUTE
049             CLKOFF==1001
050             APRCHN==7           ;DO NOT CHANGE
051             BADPC==5037
052             LSRMOD==10000
053             UUOMIN==40000,,
054             UUOMAX==46000,,
055     001 054 AUUO=UUOMAX         ;USE TO SAVE CONDS ON ILLOP
056
```

```
001                                                                     PAGE 2
002     001 002 IFE MOBY,MX1KB==12.     ;MAX SYS 1K BLOCKS
003     001 002 IFN MOBY,MX1KB==250.
004     001 002 IFE MOBY,MXIOB==30.     ;MAX DYN ALLOC ALLOC IO BUFFERS
005     001 002 IFN MOBY,MXIOB==400
006
007             SIOMT==30           ;MAX SIZE TRANSLATION TABLE
008             SIOML==8            ;LENGTH OF ENTRY IN TRANSLATION TABLE
009
010             LUPDL==30           ;LENGTH USER PDL
011             CPDLL==20           ;LENGTH CLOCK CHANNEL PDL
012             DCCHN==1            ;DC CHANNEL
013     002 012 DCCHNA==200+<-DCCHN>
014             UTCCHN==3           ;UTC CHANNEL
015             GETYOC==4           ;GE TYPOUT (DATAPHONE)
016             LPTCHN==5           ;LINE PRINTER CHANNEL
017             TTYCHN==5           ;TTY CHANNEL
018             DISCHN==6
019             SDCHN==5
020             GETYIC==5           ;GE TYPEIN DEV 70
021     002 019 UTCON==2001\200+<-UTCCHN>\200+<-TTYCHN>\200+<-GETYOC>\200+<-DISCHN>\200+<-SDCHN>
022     002 019 UTCOFF==1001\200+<-UTCCHN>\200+<-TTYCHN>\200+<-GETYOC>\200+<-DISCHN>\200+<-SDCHN>
023     002 014 CUINT==5000+UTCCHN
024             SCLKI==15.          ;SLOW CLOCK PER REQ CLOCK
025             MXOPI==8.           ;SLOW CLOCK  MAX UT OP CAN TAKE
026             NINFP==8.           ;MAX. NO. OF INF. PROCED. / PROCED.
027
028
029             METOF=6 ;OFFSET BETWEEN CONTENTS OF MEXTOP AND HIGHEST ACT
030
031
032             GTYI=70 ;DEVICE FOR GE TYPEIN
033             GTYO=750            ;DEVICE FOR GE TYPOUT
                VID=754             ;VIDISUCKER
```

```
001             DEFINE CONC A,B
002             A1B1TERMIN
003             DEFINE SUBTTL A/
004             TERMIN
005
006             GO:
007             LOC 41
008     020 017         JSR UUOH
009     001 050 LOC 40+2*APRCHN
010     005 003         JSR CLKBRK
011
012     002 017 LOC 40+2*TTYCHN
013     066 002         JSR TTYBRK
014
015     002 014 LOC 40+2*UTCCHN
016     109 002         JSR UTCBRK
017
018     002 018 LOC 40+2*DISCHN
019     046 038         BLKO DIS,DBLKOP
020     047 022         JSR DRECYC
021
022     002 015 LOC 40+2*GETYOC
023     074 014         JSR GTYOBK
024     074 014         JSR GTYOBK
025
026     003 007 LOC GO
027
028
```



```
001
002     003 004 SUBTTL TSS INITIALIZATION
003
004                     CONO 533550
005                     CONO PI,120000+11577
006     117 013         SETOM DISUSR
007     047 035         SETOM DISOFF
008                     CONO DIS,100
009     001 006         MOVEI A,4
010     070 021 BAR:    CONO TTY,#TTYLT(A)
011                     DATAI TTY,
012     002 017         CONO TTY,3600+TTYCHN
013     004 010         SOJGE A,BAR
014     117 014         CLEARM USRHI
015     117 011         CLEARB U,USER
016     118 056         MOVE P,USRPDL(U)
017     060 002         PUSHJ P,GEKI        ;INITIALIZE GE CONSOLES
018     001 017         MOVNI T,1
019     012 018         PUSHJ P,USTRA
020                     JRST .-1
021     117 034         MOVEI B,SYSB-1
022     034 004         PUSHJ P,ACORE
023                     JFCL
024     118 027         CLEARM USTP
025     002 021         CONO PI,UTCON+200
026     001 050         CONO 3000+APRCHN
027     116 003         JRST SCOR
028
029             PAT:    BLOCK 200
```

```
001     019 008 SUBTTL PROCESSOR BREAK ROUTINES
002
003             CLKBRK: 0                                       PAGE 5
004
005     006 012         CONSO 1000
006     047 036         JRST CLKB1      ;LOSSAGE
007     047 035         SKIPL CDSOFF
008     005 011         SKIPGE DISOFF
009     046 039         JRST DSTPD
010     005 042         AOSG DISON
011     001 050         JRST DSTRT
012     117 019 DSTPD:  CONO 1000+APRCHN
013     005 003         AOSG CLKFL1
014     117 019         JRST 12,@CLKBRK ;EVERY 1/30 SEC
015     117 018         SETOM CLKFL1
016     117 020         AOS TIME
017     005 003         SOSLE CUQUAN    ;CHECK QUANTUM
018     117 021         JRST 12,@CLKBRK
019     001 017         EXCH P,CPDLP
020     001 018         PUSH P,T
021     117 029         PUSH P,U
022     117 018         MOVE T,SLCLK
023     007 003         CAMGE T,TIME
024     117 011 CLKSR1: JRST SSLCK      ;SERVICE SLOW CLOCK
025     005 003 CLKSR:  MOVE U,USER
026     001 018         SKIPL U
027     118 009         MOVEM T,UPC(U)
028     008 003         PUSHJ P,SEARCH  ;SCHEDULE NEW USER
029     117 011 CLB1B:  CAMN U,USER
030     006 002         JRST CLKB5A
031     001 018         SKIPGE U
032     118 012 CLKSC1: HRROI U,ECPDL-AC16S
033     118 013         POP P,AC17S(U)
034     118 012         POP P,AC16S(U)
035     117 021         EXCH P,CPDLP
036     011 005         JSR SWITCH      ;SWAP USERS
037     005 003         MOVEM T,CLKBRK
038     118 012         MOVE T,AC16S(U)
039     118 013         MOVE U,AC17S(U)
040     005 003         JRST 12,@CLKBRK ;GO AWAY
041
042     047 033 DSTRT:  MOVEM A,DISA
043     046 037         MOVE A,DISPTR
044     046 038         MOVEM A,DBLKOP
045     002 018         CONO DIS,100\SDCHN+3\DISCHN
046     047 033         MOVE A,DISA
047     005 011         JRST DSTPD
```



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001                                                             PAGE 6
002     117 025 CLKB5A: SKIPE SCRFG1
003     005 032         JRST CLKSC1
004     118 009         MOVE T,UPC(U)
005     001 018         SKIPL U
006     005 003         MOVEM T,CLKBRK
007     001 018 CLKB5:  POP P,U
008     001 017         POP P,T
009     117 021 CLKB3:  EXCH P,CPDLP
010     005 003         JRST 12,@CLKBRK ;EXIT WHEN NO SWAP OCCURS
011
012             CLKB1:  CONSZ PI,100000
013     006 030         JRST PARBRK
014     117 021         EXCH P,CPDLP    ;NOT A CLOCK BREAK
015     001 017         PUSH P,T
016     001 018         PUSH P,U
017     117 011         MOVE U,USER
018     005 003         MOVE T,CLKBRK
019                     CONSZ 20
020                     CONSO 10
021     006 038         JRST CLB1A      ;NOT AROV
022     001 017         TLZ T,400000
023     005 003         MOVEM T,CLKBRK
024     118 035         SKIPN PICLR(U)
025     006 007         JRST CLKB5
026     001 027         MOVEI T,AROIF
027     118 033         IORM T,PIRQC(U) ;SET USER AROV INT
028     005 025         JRST CLKSR
029
030             PARBRK: CONO PI,120000
031     006 034         AOS PARERR
032     005 003         JRST 12,@CLKBRK
033
034             PARERR: 0
035
036
037
038             CLB1A:  CONSO 230000
039     006 007         JRST CLKB5      ;NOT PROCESSOR INT
040     001 052         TLNN T,LSRMOD
041                     JRST 4,.        ;ERROR IN EXEC MODE-SYSTEM DEAD!
042     118 009         MOVEM T,UPC(U)
043                     CONI 1(P)
044     001 017         MOVEI T,230000
045     001 017         ANDM T,1(P)
046     001 050         CONO 430000+APRCHN
047     001 039         MOVEI T,BADBTS
048     118 036         IOR T,MSKST(U)
049     001 017         AND T,1(P)
050     006 007         JUMPE T,CLKB5
051     118 033         IORM T,PIRQC(U) ;BLAME IT ON THE USER
052     005 024         JRST CLKSR1
```

```
                ;SLOW CLOCK SERVICE ROUTINE

001
002     002 024 SSLCK:  ADDI T,SCLKI
003     117 029         MOVEM T,SLCLK
004                     CONSO UTC,4000  ;TIME FLG ENB
005     104 017         SKIPGE UIDLE
006     007 014         JRST SSLCK1
007     117 018         MOVE T,TIME
008     104 023         SUB T,LUTOTM
009     002 024         CAIGE T,MXOPT*SCLKI
010     007 014         JRST SSLCK1
011     104 024         SETOM UTHERR
012     002 023         CONO UTC,CUINT
013     104 017 SSLCK1: AOSN UIDLE
014     002 023         CONO UTC,CUINT
015     005 024         JRST CLKSR1
016
017
```



```
001     117 011 SUBTTL USER SCHEDULER
002
003     117 025 SEARCH: CLEARM SCRFG1
004     117 030         CLEARM SRCS
005     117 009         SETOM U0
006     117 026         SKIPL T,UTTYST
007     012 003         JRST USTART     ;NEW USER START HIM UP
008     117 014 USTSCH: SKIPN USRHI
009     001 016         PORJ P,
010     001 018         SKIPGE U
011     001 018         MOVEI U,0
012     118 062 SEARL:  ADDI U,LUBLK    ;FIND NEXT USER COMING OUT OF I-O WAIT
013     117 014         CAML U,USRHI    ;OR, IF NONE, NEXT USER
014     001 018         MOVEI U,0
015     118 044         SKIPE UNAME(U)
016     118 027         SKIPE USTP(U)
017     009 023         JRST SEARW
018     118 033 SEARLP: SKIPN PIRQC(U)
019     009 013         JRST SEAR2
020     001 039         MOVEI T,BADBTS  ;INTERRUPT USER IF REQUESTED
021     118 035         SKIPE PICLR(U)
022     118 036         IOR T,MSKST(U)
023     118 033         AND T,PIRQC(U)
024     009 013         JUMPE T,SEAR2   ;NOT ENABLED & NOT BAD
025     117 011         CAMN U,USER
026     009 038         PUSHJ P,SBRK1   ;WANT TO INT CURRENT LOSER; STORE MACHINE CONDITIONS
027     010 003         PUSHJ P,PCLSR
028     009 021         JRST SEARC      ;CAN'T INTERRUPT NOW
029     118 033         MOVE T,PIRQC(U)
030     118 036         ANDCM T,MSKST(U)
031     001 039         ANDI T,BADBTS
032     118 035         SKIPE PICLR(U)
033     008 037         JUMPE T,SBRK69
034     010 029         PUSHJ P,INTSUP  ;USER LOSES TOO BADLY, INTERRUPT SUP. PROCEDURE
035     009 023         JRST SEARW
036
037     118 035 SBRK69: CLEARM PICLR(U) ;INTERRUPT LOSER
038     001 050         CONO PI,UTCOFF-<200+-<APRCHN?>
039     118 033         PUSH P,PIRQC(U)
040     118 033         CLEARM PIRQC(U)
041     001 050         CONO PI,UTCON-<200+-<APRCHN?>
042     118 024         MOVE T,UPR(U)
043     001 017         HRRZ T,42(T)
044     001 017         CAIL T,20
045     118 041         CAML T,MEMTOP(U)
046     009 033         JRST SERR
047     001 052         TLO T,LSRMOD
048     001 017         PUSH P,T
049     118 024         ADD T,UPR(U)
050     118 009         PUSH T,UPC(U)
051                     AOS (P)
052                     AOS (P)
053     118 009         POP P,UPC(U)
054     001 016         POP P,-1(T)
```