```
          109/REF         1766/CW
BYPASS
          260-EQU         2213/AI
C:IDL
         1115/LH          1149-DATA
C:IDLE
          137/REF         1149/DATA
C:IDLES
          136/REF         1149/DATA
C:IDLESW
         1149/DATA        1151/REF
C:IDLEW
         1149/DATA        1151/REF
C:NOPROC
          133/REF         2276/MTW
C:NSP
          138/REF         2614/MTW
C:PROCREQ
          132/REF
C:TINC
          139/REF         1118/LW
CALINT
          257-EQU         2513/CI
CF
          467-EQU          468/DEF
CHKDELTEL
         2224/BAZ         223B-EQU
CHKDT3
         2240/BAZ         2246-BAL
CHKDT4
         2231/BANZ        2243-EQU
CHKPRC
         2558/BAL         2560/BAL        2568-EQU
CHKPROT
         2034/BAL         203B/BAL        2053/BAL        2076/DEF        2078-EQU
CHSEH
         1521/BLZ         1550-LB
```

```
CHSEH1
        1552•CB         1555/BNE
CHSEH2
        1553/BL         1557•STB
CHSEH3
        1559/BNEZ       1564•STB
CHSE0
          40/DEF         855/BAL      1496•STB
CHSE1
        1498/BGE        1500/BAZ      1502/BG       1505•AI       1736/B
CHSE2
        1510•LB         1549/B
CHSE25
        1459/BEZ        1466/BEZ      1524•STB      1551/BEZ
CHSE3
        1523/BNE        1529•CB       1532/BNE
CHSE4
        1530/BGE        1534•STB
CHSE5
        1536/BNEZ       1541•STB
CHSE6
        1506/BG         1571•AI
CHSRT
        1508/BL         1545•RES
CHS1
        1463/B          1470/B        1528/B        1540/B        1544/B        1563/B        1567/B
        1639•STB
CK3EX
        2125/BAZ        2130•PULL
CK3UM1
         378/GEN        2128•T↑PUSHE
CLK4
        2120/DEF        2121•EQU
CLK4PSD
        2119/REF        2123/LW       2128/T↑PUSHE  2131/LPSD
COC↑BRK
         958/SREF        959/B
```

```
C0C:BRKLTR
        962/SREF        963/B
C0C:RDC0MP
        960/SREF        961/B
C0CABRT
       1657/BE         1660/BE         1692-PUSH
C0C0FF
        125/REF        1695/B
C3MP
        378-GEN        2127/LPSD
DASP
       2556/B          2759/DEF        2783-LB
DDB
       2555/BANZ       2782/BANZ       2785-LB
DECR
       2766-MTB        2784/BNEZ       2786/B          2788/B
DELA
       1330/CI
DELN0ASP
       1287/BEZ        1302/BAZ        1308-LW
DELSTBAD
       1314/BAL        1323-LW
DELTAG0
       1269/DEF        1270-RES        1333/B
DELTAG0T
       1281/DEF        1282-RES
DELTAIN
       1284/BANZ       1311-LI
DIC
        946/CI         1283/CI         1285/SETST      2253/CI         2554/CI         2726/CI         2781/CI
       2797/CI
DID$I0
        130/REF        2143/STW
D0LV
        951/B           952-EQU         957/EQU
D0L1
        944/BNE         950-STH
```

```
        683-RESOURCE
E:ERR
        594-ESTS1       609/SET         609/SET
E:IC
        676-ESTS
E:IIP
        522-ESTS        797/LI          1595/AI
E:IP
        523-ESTS
E:KB
        655-ESTS1       2603/LI
E:NC
        663-ESTS
E:ND
        683-RESOURCE    2001/LI
E:NBCR
        681-RESOURCE
E:NQR
        685-RESOURCE
E:NQW
        685-RESOURCE
E:NSYMD
        680-RESOURCE
E:NSYMF
        678/EQU         679-RESOURCE
E:OCR
        681-RESOURCE
E:OFF
        603-ESTS1       609/SET         1896/CI
E:QA
        631-ESTS
E:QE
        671-ESTS
E:QFAC
        684-RESOURCE
E:QFI
        677-ESTS
```

```
I8C8M2
        1616/BE         1626-LW
I8C8M3
        1614/BEZ        1632-MTW
I8C8M4
        1620/BGEZ       1622/BANZ       1636-LB
I8C8M5
        1623-AND        1638/B
I8V
        2242/BAL        2247/BAL        2637/BAL        2803-LB
I8WAIT:MASK
         349/DEF         352-MASK
IPR8CS
        2246/BAL        2758/DEF        2792-LB
ISTEL
        2768-LSETRST    2769/EQU
ISTEL1
        2758/DEF        2769-EQU
ITEL
        2241/BAL        2770-EQU        2791/BANZ
IT8RP
        2636/BAL        2789-LH
J
         498-D8          499/DATA        500/SET
J:ABC
          94/REF          928/LB
J:ACCN
         230/REF         1236/LW         1239/STW
J:BASE
        2428/STW        2469/LW         2470/REF
J:CTIME
         104/REF         995/AW         1222/AW
J:DELTAT
         102/REF         993/LW         1220/LW
J:IDELTAT
         103/REF         996/SW         1011/AW
J:INTENT
```

```
@FF10
      1237/BNEZ       1240-RES
@PNB@@ST
       253-EQU        1493/AI
@PNCLSUS
       232/REF        1873/LW         1878/STW
@PNCLSUSR
       251-EQU        1491/CI
@PNUNBL@CK
       681/RES@URCE   1872-RES
P
       413-SET         415-SET         420-SET        420/SET        425-SET        425/SET        429/DATA
       432-SET         433/ERR@R       435/DATA
P@
       423-SET         424/D@          425/SET
PB!LCT
       151/REF        1293/MTB        1303/MTB       1307/MTB       2745/MTB
PB!PSZ
       146/REF        1295/LB         1305/LB        2279/LB        2386/LB        2575/LB        2743/LB
      2830/LB
PB!UC
       147/REF        1289/MTB        2336/LB        2569/MTB       2766/MTB       2772/MTB       2777/MTB
      2779/MTB        2793/MTB        2795/MTB
PBT!L@CK
       148/REF        2340/LW
PERF@RM
       129-EQU         131/D@         1207/D@        2267/D@1       2275/D@1
PFA
      2323-RES        2335/BEZ        2337/BNEZ      2344/BL
PFRQ
         7-SET         149/D@1        2268/D@        2270/FIN       2822/D@        2829/FIN
PF1
      2328/BGEZ       2330-LD
PF2A
      2327-AI         2331/BEZ
PF3
      2334-L@AD       2347/BDR
```

```
PF3A
        2325/BANZ       2347=BDR
PF3B
        2329/B          2348=SW
PGCHKM
          35/DEF        2423=RES
PGSCR
        2433/B          2439=SCREECH    2465/BNE        2468/BNE
PH!FRQ
         150/REF        2269/MTH        2823/LH
PIKF1
        2157/BEZ        2164=LI
PIKUS1
        2165=LB         2175/BLE
PIKUS2
        2167=CH         2171/BNEZ
PIKUS25
        2169=RES        2184/B
PIKUS3
        2166/BEZ        2172=EQU
PIKUS5
        2180=LI         2211/B
PLH!FLG
        2531/LH         2533/REF
PM8N8FF
            6=EQU        129/EQU
PPR8CS
         143/REF        2302/LI
PPR2
        2431/BEZ        2435/BEZ        2464=CW
PPR3
        2432=BIR        2438/BNE
PPSWP
        1986/8R
PRCAV
        2221/BAL        2258/BAL        2260/BAL        2263=EQU
PRCAVM1
```

```
        2248/B          2269-LI
PRCAV1
        2265/BEZ        2273/BNEZ       2283-RFS
PROCAVL
        2232/B          2252-EQU
PROUT2
        2567/B          2590-EQU
PROUT3
        2205/BEZ        249A/BEZ        2594/BEZ        2598-EQU
PROUT4
        2602-RES        2607/BDR
PROUT5
        2601/LI         2607-BDR
PULLEU
         801-BDR         809/BL          813/BLEZ
PULLE1
         179/REF        2111/STW        2114/LPSD*
PX1HPP
         144/REF        2272/LOAD       2330/LD         2334/LOAD       2379/LOAD       2387/STORE      2573/LOAD
PX1TPP
         145/REF        2380/LOAD
QFORA1
        1711/BAZ        1715-LI
QFORA2
        1704/BANZ       1712-AI
R1CBA
         682/RESOURCE
R1NQW
         685/RESOURCE
R1OCR
         681/RESOURCE
R1SYMD
         680/RESOURCE
R1SYMF
         679/RESOURCE
RAPURGE
        1085/SREF       1087/LI
```

```
RT:INTENTRY
        955/SREF        956/B
RTHOLD
        256=EQU         1346/CI         2513/CI         2682/CI
RTR
       1172/CI          1288/RSETST     1728/AND        1731/AND        2155/LI         2181/LI         2492/LI
       2520/CI          2562/LI
S:ACCW
        211/REF         1164/LD
S:ACORE
        160/REF         2675/LW
S:CLOCK4
        240/REF         1117/STW        1219/STW
S:CUIS
        174/REF         1089/LW         1958/MTW
S:CUN
        175/REF          905/LW         1016/LW         1161/STW        1199/LW         1216/LW         1241/LW
       1397/LW
S:CUP
        182/REF         1023/LW         1084/STW        1185/STW        1497/CW
S:EVF
        169/REF         1062/LW         1409/MTW        1640/MTW        2485/LW         2591/CW
S:EXT
        431/D0
S:FPL
        213/REF         2359/LW         2363/LW         2365/LW         2366/CW         2368/XW         2369/STW
       2376/LW          2378/AND        2820/MTW        2821/LW         2825/STW        2828/STW
S:FPPC
        205/REF         2150/STM        2303/SW         2356/SW         2388/AWM        2396/CW         2398/LCW
       2400/LW          2401/AWM
S:FPPH
        205/REF         2300/STM        2383/STW        2393/LW         2416/STW        2616/LM
S:FPPT
        205/REF         2381/XW         2403/STW
S:FR
        431/D0
S:FSEVF
```

171/REF 2202/CW 2644/STW
S:HIR
168/REF 812/LW 1186/MTW 1501/MTW 1504/STW
S:ISUN
201/REF 2177/STW 2217/STW 2352/LW 2497/LW 2504/CW 2563/LW
2641/LW
S:ISUNF
172/REF 1022/LW 2199/CW 2484/STS 2608/STB 2642/STW 2703/STB
S:LFR
431/D8
S:MAPCW
211/REF 1167/LD
S:OPC
180/REF 1020/LW 2612/MTW
S:OSS
210/REF 2151/STM 2355/SW 2490/STW 2543/AWM
S:OUAIS
166/REF 1918/CW 1921/LW
S:OUIS
167/REF 1917/LW 1926/MTW
S:PCORE
235/REF 2654/CW
S:PCT
204/REF 2149/STM 2292/STW 2354/LW 2684/LW
S:PRIODEC
185/REF 1183/AW
S:PRPC
214/REF 2348/SW 2831/AWM
S:RAD
431/D8
S:RTCORE
120/REF 1297/AWM 1306/AWM 2676/SW
S:RTIR
184/REF 806/CW 811/STW
S:SET
393/EQU 396=CSECT 411/USECT 417/EQU 1413/CW 1415/LW
S:SET1

```
        186/REF         1795/LB         1801/STB        1810/LB         1853/STB
SB:RTUS
        187/REF
SB:SET
        390-CSECT       392/EQU         430/USECT       1438/LB
SB:SET:
        391/DEF         392-EQU
SB:SWP
        394/EQU         774-ESTS2       2494/LB
SB:SWP:
        391/DEF         394-EQU
SB:TQ
        220/REF         1448/STB        1458/LB         1460/STB        1513/STB        1522/LB         1526/STB
       1537/STB         2502/LB
SCHED
          5/DEF           12-EQU
SCOR
        419/D8
SCU
        299-STATE       350/MASK        472/ESTS        522/ESTS        523/ESTS        529/ESTS        537/ESTS
        547/ESTS        555/ESTS        575/ESTS1       586/ESTS1       595/ESTS        604/ESTS        624/ESTS
        631/ESTS        638/ESTS1       647/ESTS1       663/ESTS        671/ESTS        677/ESTS        1179/LI
SC0
        287-STATE       335/EQU         350/MASK        775/ESTS2       1509/LI         1571/AI
SC1
        288-STATE       335/EQU         350/MASK        775/ESTS2
SC10
        297-STATE       335/EQU         350/MASK        774/ESTS2
SC2
        289-STATE       335/EQU         350/MASK        775/ESTS2
SC3
        290-STATE       335/EQU         350/MASK        775/ESTS2
SC4
        291-STATE       335/EQU         350/MASK        775/ESTS2
SC5
        292-STATE       335/EQU         350/MASK        775/ESTS2
SC6
```

```
        293-STATE       335/EQU         350/MASK        775/ESTS2
SC7
        294-STATE       335/EQU         350/MASK        774/ESTS2
SC8
        295-STATE       335/EQU         350/MASK        774/ESTS2
SC9
        296-STATE       335/EQU         350/MASK        774/ESTS2
SEABRT
        922/BCS         1235-RES
SEERR
       1253-RES         1261/BCR        1262/BCR
SEF1
       1065/BEZ         1072-LI
SE0
        857/B           1060-BAL
SE0VRUN
        923/BCS         1261-BCR
SETDL
       1649/BANZ        1663-CW         1691/B
SETDL1
       1664/BAZ         1668/BAZ        1671-RES
SETRNST
       1259/B           1260/REF
SEXU
         42/DEF          298-EQU        1081/CI         1733/CI         2174/CI         2495/CI         2517/CI
SE1
       1077/BANZ        1153-EQU
SE4D
       1192/BAZ         1206-EQU
SE4D1
       1198/BCR         1201-DISABLE
SE4F
       1211/BAZ         1218-LI
SE6
       1329/BANZ        1337-LH
SE6A
       1331/BAZ         1336/BAZ        1340-LW
```

```
SE7
        934/BCS         1327=LI
SE7A
       1334/DEF         1335=CI
SE9
        933/BCS         1343=CI
SH:PINC
        183/REF         1495/SH
SH:RFLG
        470/USECT        481=CSECT      1667/CH         1806/LH         1822/LH
SIC1
       1073=RFS         1082/BLE
SIC2
       1076=CH          1079/BNEZ
SIC3
       1075/BEZ         1080=AI
SI0MF
        310=STATE        353/MASK        555/ESTS        575/ESTS1       586/ESTS1       595/ESTS        604/ESTS
        638/ESTS1        655/ESTS1      1611/CW         1615/CI         1633/CI
SI0W
        309=STATE        352/MASK        555/ESTS        575/ESTS1       586/ESTS1       595/ESTS        604/ESTS
        638/ESTS1        647/ESTS1       655/ESTS1      1112/LH         1595/AI         1611/CW
SJAC
       1174/CI
SL:BIMF
        228/REF         1629/LW
SL:0IMF
        228/REF         1626/LW
SL:0PRI0
        188/REF         1928/LW
SL:QMIN
         65/REF          810/LW
SL:RSVP
        118/REF         2678/SW
SL:SQNT
         67/REF         1001/CW
SL:SQPB
```

```
       2262/LI          2286*EQU
SWP
        774/ESTS2
SYSACT
        158/REF         1238/LW
T:ABORTM
        162/REF         1361/B
T:ACCTEX
        224/REF         1015/BAL        1215/BAL
T:ACCTOV
        876/DEF          898*EQU
T:BLKV
        469/DATA         679/RESOURCE    680/RESOURCE    681/RESOURCE    682/RESOURCE    683/RESOURCE
        684/RESOURCE     685/RESOURCE   1794/BNEZ       1861*EQU
T:CHS
         34/DEF         1569*DISABLE
T:CHSE
       1490*LB          1578/BAL        1579/BAL        1580/BAL        1586/B
T:CHSEO
       1036/BAL         1489*LI
T:DELUSZAP
        198/REF         1197/BCS
T:DLR1
        979/DEF          983/BANZ        987*RFS
T:DOLIST
        916*EQU          990/BNE
T:DOLISTR
        978/DEF          980*EQU
T:ECBSTORE
        953/SREF         954/B
T:ECCP
       1350/B           1351/REF
T:IOREG
        782/DEF          792*PUSH
T:MASTER
        248/REF          900/BAL        1224/BAL
T:OFF
```

```
T:SE0
        856-UNMAP       1594/LI
T:SES
        244/REF         1060/BAL
T:SEXIT
        154/REF         2706/B
T:SGAJIT
        195/REF         1977/BAL
T:SMPFLG
        246/REF         1387/BAL
T:SS
        875/B           1058/BAL        2139-EQU
T:SSE
        871/DEF          873-EQU
T:SSEC
        869/DEF          872-EQU
T:SSEM
        876/DEF          899-EQU        1322/B          1339/BAZ        1344/BANZ       1347/BANZ
T:TELDELCCI
        159/REF          931/BAZ        1251/BNE
T:T0TESZ
         37/EQU         2652/BAL        2720-EQU
T:T0TSZ
         36/DEF           37-EQU
T:UQR
       1669/BAL         1817/BAL        1849-LW
T:UTSXTS
       1313/BAL         1356/BAL        2013/DEF        2014-EQU
TC0R
         431/D0
TEL
         384-RES         777/USECT
TEMP
         340-SET         342-SET         342/SET         344/DATA
TEMPB0T
       1753/STH         1756/LH         1776/REF
TIC
```

1518/STB 1524/STB 1531/LB 1534/STB 1541/STB 1558/LB 1561/STB
1562/STB 1565/STB 1566/STB 2508/LB

UB:DB
79/REF 2257/LB 2740/LB 2785/LB 2801/LB

UB:FL
82/REF 1078/LB 1446/LB 1453/STB 1457/STB 1462/STB 1469/STB
1511/LB 1517/STB 1525/STB 1535/LB 1538/STB 1539/STB 1542/STB
1543/STB 1554/LB 1557/STB 1564/STB 2170/LB

UB:MF
229/REF 1592/LB 1610/MTB 1613/LB 1630/CB 1636/LB 2514/LB

UB:NECB
84/REF

UB:OV
80/REF 2220/LB 2735/LB 2787/LB 2803/LB

UB:PCT
74/REF 1991/STB 2218/LB 2722/LB 2723/LB

UB:PRIO
86/REF 851/LB 1024/CB 1180/LB 1184/STB 1496/STB 1519/LB
1529/CB 1548/STB 1552/CB 1735/LB 1798/STB 1800/STB 1851/LB
1854/STB

UB:PRIOB
87/REF 939/CB 1181/CB 1490/LB 1547/LB 1959/STB

UB:SWAPI
194/REF 1975/STB

UB:US
81/REF 850/LB 1018/LB 1178/LB 1411/LB 1639/STB 1662/LB
1726/LB 1819/LB 1992/LB 2182/LB 2516/LB

UFLAGS
3=SET

UH:AJIT
73/REF 1984/STH

UH:DL
85/REF 907/CH 915/LH 920/STH 950/STH 989/LH 1202/LH
1204/STH 1225/LH 1672/CH 1674/AH 1675/STH 1994/STH

UH:FLG
72/REF 917/LH 1019/LH 1033/STH 1076/CH 1171/LH 1439/LH
1585/STH 1709/LH 1713/STH 1721/STH 1729/STH 1732/STH 1875/LH

```
USBUT9
        2518/BG         2521/BAZ        2526/BAZ        2534*EQU
UX1JIT
          71/REF         827/LOAD       1162/LOAD       2225/LOAD       2527/LOAD       2538/LOAD
WAITIMASK
         349/DEF         351*MASK
WORDCNT
        1762/LH         1764/STH        1777/REF
XFDFF
         249*EQU        1190/AND
XFFEF
        1212/AND        1213*EQU
XFFF
         247/REF         248/EQU
XFFF7
        1007/AND        1214*EQU
XN2
         250/REF         262/EQU         896/AND
X1
          54/REF        1412/LW         1683/OR         1684/LH
X1FE00
        2081/REF        2082/AND
X20
          56/REF        1584/OR         1899/OR
X4000
          57/REF        1203/OR         1720/OR
X8
          55/REF        1876/OR
X8000
          51/REF        2698/OR
X9FFF
        1759/AND        1775*DATA
YFF
          48/REF        1601/CW
Y004
          48/REF        1105/LW
Y008
```

```
        48/REF          982/CW          2124/CW
Y4
        48/REF          852/CW          1003/BR
Y7D
        53/REF          1066/BR         2158/BR
Y7F
        52/REF          1621/CW
YR
        47/REF          1603/BR         1670/BR         1682/BR         1701/BR         1706/BR         2483/LW
19SPD
        380-DATA        1279/LD
!BIG
      1990/LI         2324/CI         2324/CI         2324/CI         2324/CI         2326/SLS        2332/SLS
      2333/AI         2333/AI         2333/AI         2333/AI
```

```
 3          00000001          UFLAGS   SET      1
 4                            SYSTEM   UTS
 5                            DEF      SCHED
 6          00000001          PMONOFF  EQU 1
 7          00000001          PFRQ     SET      1
 8                            *P*************************************************************
 9                            *M*                SCHED - EXECUTION AND SWAP SCHEDULER       *
10                            *P*************************************************************

12          01 00000          SCHED    EQU      $
13                            *************************************************************
14                            *                                                           *
15                            *              C P - V    S C H E D U L E R                 *
16                            *************************************************************
17                            *                                                           *
18                            *        SCHEDULES USERS FOR SWAPPING AND FOR               *
19                            *        EXECUTION.  ALSO HANDLES TRAP AND INTER-           *
20                            *        RUPT EXITS.                                        *
21                            *                                                           *
22                            *************************************************************

24                            *        ORIGINAL IMPLEMENTATION FOR UTS BY:
25                            *                                          G. A. PERRY
26                            *                                          H. L. SCANTLIN
27                            *
28                            *        SPEED-UP ENHANCEMENTS BY: T. W. MARTIN
29                            *
30                            *        MULTI-PRIORITY SCHEDULING FOR REAL TIME BY:
31                            *                                          R. I. HUSTVEDT
32                            *
```

```
34                                  DEF     T:CHS
35                                  DEF     T:PGCHK,TSS2,PGCHKM
36                                  DEF     T:T0TSZ
37          FR          T:T0TSZ     EQU     T:T0TESZ
38                                  DEF     GIVEUP
39                                  DEF     GETJIT
40                                  DEF     CHSE0               CHANGE STATE EXECUTABLE SUB-ENTRY F0
41                                  DEF     ST10CC              10 C0MPLETE TRANSITI0N
42                                  DEF     SEXU                EXECUTABLE STATE NUMBER
43                                  DEF     T:RE                REP0RT EVENT F0R CURRENT USER
44                                  DEF     T:RUE               REP0RT EVENT F0R SPECIFIED USER
45                                  DEF     T:RCE               REP0RT EVENT F0R C0C LINE
46                                  DEF     ALTERR              STACK PR0BLEM F0R ALTERNATE ENTRY
47                                  REF     M7,M8,M17,Y8
48                                  REF     YFF,Y4,Y008,Y004,D0UBLEZER0
49                                  REF     M24
50                                  REF     M21
51                                  REF     X8000
52                                  REF     Y7F
53                                  REF     Y7D                 EXP0NENT F0R FL0ATING SHIFT
54                                  REF     X1
55                                  REF     X8
56                                  REF     X20
57                                  REF     X4000
58                                  REF     NB31T80
```

```
60                      ****************************************
61                      *        ALL REFS                      *
62                      ****************************************
63                      *
64                      * SYSTEM LIMITS FOR SCHEDULER
65                              REF SL:QMIN             MIN. QUANTUM SIZE
66                              REF     SL:SQPB         PRIO BOOST IF INTERRUPT AFTER SQNT
67                              REF     SL:SQNT         THRESHOLD AT WHICH TO EXPEDITE USER
68                      *
69                      * USER TABEL REFS
70                      *
71                              REF     UX:JIT
72                              REF     UH:FLG
73                              REF     UH:AJIT
74                              REF     UB:PCT
75                              REF     UB:ACP
76                              REF     UB:APR
77                              REF     UB:APO
78                              REF     UB:ASP
79                              REF     UB:DB
80                              REF     UB:OV
81                              REF     UB:US
82                              REF     UB:FL
83                              REF     UB:BL
84                              REF     UB:NECB
85                              REF     UH:DL           DO LIST HEAD
86                              REF     UB:PRIO         USER EXECUTION PRIORITY
87                              REF     UB:PRIOB        BASE EXECUTION PRIORITY
88                              REF     U:MISC          MISC CELL FOR RESOURCE SUB-QUEUES
89                              SREF    ECBFBLK         ENTRY POINT TO FREE DO LIST BLOCKS
90                      *
91                      * JIT REFERENCES FOR SCHEDULER
92                      *
93                              REF     J:RNST
94                              REF     J:ABC
95                              REF     ERO
96                              REF     J:INTENT
```

```
                        REF     J:BVHTIM
                        REF     J:UTIMER
                        REF     J:TIMENT
                        REF     J:TCB
                        REF     J:JIT
                        REF     J:DELTAT
                        REF     J:IDELTAT
                        REF     J:CTIME
                        REF     JBPPC PHY PG HEAD, TAIL & COUNT
                        REF     J:TELFLGS
                        REF,1   JB:PNR
                        REF     JTSTACKSZ
                        REF     BUFMASK
                        REF,1   JB:FRS
                *
                * MEM MGMT REFS
                *
                        REF     T:PAC
                        REF     M:FPPH,M:FPPT,M:FPPC
                        REF     MX:PPUT             MONITOR PHYSICAL PAGE TABLES
                       REF     NPMC
                        REF     SL:RSVP             COUNT OF PAGES RESERVED FOR STEALER
                        REF     S:STL#              NUMBER OF CUR STOLEN PAGES
                        REF     S:RTCORE            TOTAL OF REAL TIME HOLD PAGES
                * LINE TABLE REFS
                *
                        SREF    LB:UN               LINE TO USER NO TABLE
                        SREF    LNOL                NO OF LINES
                        REF     COCOFF
                *
                * PERFORMANCE MEASUREMENT REFS
                *
00000001        PERFORM EQU     PMONOFF
                        REF     DID$IO
00000001                DO PERFORM
                        REF     C:PROCREQ
                        REF     C:NOPROC
```

```
134                         REF     ACTIVATE
135                         FIN
136                         REF     C:IDLES
137                         REF     C:IDLE
138                         REF     C:NSP
139                         REF     C:TINC          CLOCK 3 COUNTER CELL
140                 *
141                 * PROC. TABLE REFERENCES
142                 *
143                         REF     PPROCS          NO OF PROCS
144                         REF     PX:HPP          HEAD OF PHYSICAL PAGES
145                         REF     PX:TPP          TAIL
146                         REF     PB:PSZ          PROCEDURE SIZE
147                         REF     PB:UC           USER COUNT
148                         REF     PBT:LOCK        PROC LOCK
149   01 00000              DS1     PFRQ
150                         REF     PH:FRQ          CALL FREQUENCY
151                         REF     PB:LCT          COUNT OF ASSOC LOCKED USERS
152                 *
153                 *
154                         REF     T:SEXIT
155                 *
156                 * STEP REF
157                 *
158                         REF     SYSACT
159                         REF     T:TELDELCCI
160                         REF     S:ACORE         AVAIL CORE
161                         REF     S:STLC          STEALABLE PAGES
162                         REF     T:ABORTM
163                 *
164                 * SCH DATA REFS
165                 *
166                         REF     S:OUAIS
167                         REF     S:OUIS
168                         REF     S:HIR
169                         REF     S:EVF
170                         REF     S:SEVF          SWAP SET CHANGE COUNTER
```

```
171                     REF     S:FSEVF         SEVF AT SWAP SCHED FAIL
172                     REF     S:ISUNF         ISUN AT SWAP SCHED FAIL
173                     REF     ALLOCOUT        ALLOCAT OUTSWAP REQ FLAG
174                     REF     S:CUIS
175                     REF     S:CUN
176                     REF     S:SIP
177                     REF     SPPBASE
178                     REF     SPDBASE
179                     REF     PULLE1
180                     REF     S:OPC           OVERLAY PROTECTION COUNTER
181                     REF     MAXOVLY         HIGHEST OVERLAY NUMBER
182                     REF     S:CUP           CURRENT USER PRIORITY
183                     REF     SH:PINC         PRIORITY INCREMENT TABLE
184                     REF     S:RTIR          REAL TIME IN FLAG
185                     REF     S:PRIODEC       PRIORITY DECREMENT
186                     REF     SB:RQ           HEAD OF RESOURCE SUBQ
187                     REF     SB:RTUS         REAL TIME USER NUMBER
188                     REF     SL:OPRIO        DEFAULT ONLINE PRIORITY
189             * SWAPPER REFS
190             *
191                     REF     M:FREE#GRAN
192                     REF     MB:SPACEJIT
193                     REF     M:JITPAGE
194                     REF     UB:SWAPI
195                     REF     T:SGAJIT
196                     REF     LSWAP
197                     REF     UH:FLG2
198                     REF     T:DELUSZAP
199                     REF     T:SCRATCH$USER
200                     REF     SMAXOUT
201                     REF     S:ISUN
202                     REF     SB:NP
203                     REF     SB:PNL
204                     REF     S:PCT
205                     REF     S:FPPH,S:FPPT,S:FPPC
206                     REF     SB:OSN
207                     REF     SB:OSUL
```

```
208                     REF     SB:FPN
209                     REF     SB:FPL
210                     REF     S:0SS
211                     REF     S:ACCW,S:MAPCW,S:SJACCW
212                     REF     SWAPIN,SWAP0UT
213                     REF     S:FPL
214                     REF     S:PRPC
215                     REF     NSWAP           NO. OF SWAPPERS IN SYSTEM
216             *
217             * SCH Q REFS
218             *
219                     REF     SB:HQ
220                     REF     SB:TQ
221             *
222             *       ACCOUNTING REFS
223             *
224                     REF     T:ACCTEX
225             *
226             * MISC REFS
227             *
228                     REF     SL:0IMF,SL:BIMF
229                     REF     UB:MF
230                     REF     J:ACCN
231                     REF     SL:SQUAN
232                     REF     0PNCLSUS
233                     REF     RCVPSD
234                     REF     SACT
235                     REF     S:PCORE
236                     REF     SNDDX
237                     REF     SSIG
238                     REF     MAXG
239                     REF     SB:GJOBUN
240                     REF     S:CLOCK4        CLOCK4 COUNTER DIRECTOR
241             *
242             *       MP INTERFACE REFS
243             *
244                     REF     T:SES           SCHEDULE EXECUTION FOR SLAVES
```

```
245                                    REF     T:MASTER          CHECK FOR MASTER AND CLR MASTER8
246                                    REF     T:SMPFLG          SET MASTER ONLY FLAG
247                                    REF     XFFF
248         EXT                M12     EQU     XFFF
249         00000006  S        XFDFF   EQU     NB31T80+14
250                                    REF     XN2
251         00000008           OPNCLSUSR EQU   8                 USER IS OPNCLS USER
252         00000004           SPECFILE EQU    4
253         00000004           OPNBOOST EQU    X'04'             PRIORITY BOOST FOR OPNCLSUS
254         00000008           SQUAN   EQU     8                 UH:FLG2 NOT HAD SWAP QUAN BIT
255         00000010           SWAPD   EQU     16                UH:FLG2 JUST SWAPPED IN
256         00000800           RTHOLD  EQU     X'800'            UH:FLG2 REAL TIME OLD
257         00000200           CALINT  EQU     X'200'            UH:FLG2 INTERRUPTED IN A CAL
258         00002000           RMAHOLD EQU     X'2000'           UH:FLG2 RMA HOLD IN CORE
259         00000020           HANGUP  EQU     X'20'             UH:FLG2 COC LINE HANG UP
260         00008000           BYPASS  EQU     X'8000'           UH:FLG SWAP BYPASS FOR PAGE STEALING
261         00000002           INHIBIT EQU     2                 UH:FLG INTENTRY INHIBIT
262         EXT                NREADY  EQU     XN2               UH:FLG MASK TO RESET RTR
```

```
                 *
                 *STATE  NOS
00000000         STATE   CNAME
                         PROC
                 ST$     SET     ST$+1
                 LF      EQU     ST$
                         DISP    ST$
                         DEF     LF
                         PEND
                 ***********************************************************************
                 *
                 *       DEFINE STATE VALUES
                 *
                 *       ORDERING OF EXECUTABLE STATES IS CRITICAL
                 *
                 *       STATES STI,STIO STOB,STOBO SQR,SQRO MUST BE PAIRED
                 *       THIS IS USED BY THE KICKOUT ROUTINE TO COMPUTE THE
                 *       OUT OF CORE STATE.
                 *
                 ***********************************************************************
00000000         ST$     SET     0
                 *
00000001         SRT     STATE                     REAL TIME EXECUTE
00000002         SC0     STATE                     BGRD X'BF'< PRIO < X'F6'
00000003         SC1     STATE                     PRIO = X'F6'
00000004         SC2     STATE                     PRIO = X'F7'
00000005         SC3     STATE                     PRIO = X'F8'
00000006         SC4     STATE                     PRIO = X'F9'
00000007         SC5     STATE                     PRIO = X'FA'
00000008         SC6     STATE                     PRIO = X'FB'
00000009         SC7     STATE                     PRIO = X'FC'
0000000A         SC8     STATE                     PRIO = X'FD'
0000000B         SC9     STATE                     PRIO = X'FE'
0000000C         SC10    STATE                     PRIO = X'FF'
0000000C         SEXU    EQU     ST$               LAST EXECUTABLE STATE
0000000D         SCU     STATE                     CURRENT USER
                 ***********************************************************************
```

```
301                     *       THESE STATES MUST BE PAIRED (ST0B,ST0B0)
302                     *
303         00000005    ST0B    STATE                   TERMINAL OUTPUT BLOCKED
304         00000006    ST0B0   STATE                   TERMINAL OUTPUT BLOCKED - OUT
305                     ********************************************************
306                     *       SI0W AND SI0MF MUST BE ADJACENT STATES
307                     *       AND SI0W MUST BE EVENLY DIVISIBLE BY 4
308                     *
309         00000010    SI0W    STATE                   I/O WAIT
310         00000011    SI0MF   STATE                   MASTER FUNCTION COUNT TOO HIGH
311                     ********************************************************
312         00000012    SW      STATE                   WAIT (ASLEEP)
313         00000013    SQA     STATE                   QUEUED FOR ACCESS
314                     ********************************************************
315                     *       THESE STATES MUST BE PAIRED (SQR,SQR0)
316                     *
317         00000014    SQR     STATE                   QUEUED FOR RESOURCE
318         00000015    SQR0    STATE                   QUEUED FOR RESOURCE OUT OF CORE
319                     ********************************************************
320                     *       THESE STATES MUST BE PAIRED (STI,STI0)
321                     *
322         00000016    STI     STATE                   TERMINAL INPUTTING
323         00000017    STI0    STATE                   TERMINAL INPUTTING - OUT
324                     ********************************************************
325         00000018    SQFI    STATE                   QUEUED FOR INTERRUPT
326         0000001E    SNULL   EQU     30              NULL STATE FOR EMPTY USER SLOTS
327         0000001F    SNSTS   EQU     31              NUMBER OF STATES
328                             DEF     SNSTS
329                             DEF     SNULL
330                     ********************************************************
331                     *
332                     *       LIST OF EXECUTABLE STATES FOR STATE EVENT
333                     *       TRANSITION TABLE FORMATION.
334                     *
335         LIST        EXECUTE EQU     SRT,SC0,SC1,SC2,SC3,SC4,SC5,SC6,SC7,SC8,SC9,SC10
336                     ********************************************************
337                     *
```

```
     338          00000000            MASK      CNAME
     339                                        PROC
     340                              TEMP      SET       0
     341                              I         DO        NUM(AF)
     342                              TEMP      SET       TEMP|1**AF(I)
     343                                        FIN
     344                              LF        DATA      TEMP
     345                                        PEND
     346                              *
     347                              *
     348                              *
     349                                        DEF       EXU:MASK,WAIT:MASK,IOWAIT:MASK,BLCKD:MASK
     350    01 00000     00003FFE A   EXU:MASK       MASK SRT,SC0,SC1,SC2,SC3,SC4,SC5,SC6,SC7,SC8,SC9,SC10,SCU
     351    01 00001     01040000 A   WAIT:MASK     MASK SW,SQFI
     352    01 00002     00C1C000 A   IOWAIT:MASK   MASK ST0B,ST0B0,SIOW,STI,STIO
     353    01 00003     003A0000 A   BLCKD:MASK    MASK SIOMF,SQA,SQR,SQR0
     354                              *
```

```
                              *
          00000000            R0        EQU       0
          00000001            R1        EQU       1
          00000002            R2        EQU       2
          00000003            R3        EQU       3
          00000004            R4        EQU       4
          00000005            R5        EQU       5
          00000006            R6        EQU       6
          00000007            R7        EQU       7
          00000008            R8        EQU       8
          00000009            R9        EQU       9
          0000000A            R10       EQU       10
          0000000B            R11       EQU       11
          0000000C            R12       EQU       12
          0000000D            R13       EQU       13
          0000000E            R14       EQU       14
          0000000F            R15       EQU       15
```

```
                                              *
                                              * EVENT   NOS
                                              *
                                                        BOUND     8
01 00004     0040037D          C3MP             GEN,10,22  1,CK3UM1
01 00005     17000000 A                         DATA      X'17000000'
01 00006     00000014 N        19SPD            DATA      TSTACK+1+19           TSTACK SPD WITH 19 WORDS IN IT.
01 00007     FFED0013 N                         GEN,16,16 -TSTACKSZ-19,19        (MUST BE ON DW BOUNDARY).
01 00008     00C00000 A        SMPSD            DATA      X'00C00000'           PSD WHICH SAYS SLAVE, MAPPED,
01 00009     00000000 A                         DATA      0                       WK=0.
01 0000A                       TEL              RES       0
```

```
387                                *
388                                * TRANSITION TABLES
389                                *
390   02 00000                     SB:SET   CSECT   0                  BYTE TABLE GIVING OPERATION TO BE
391                                         DEF     SB:SET:,S:SET:,SB:SWP:
392         02 00000               SB:SET:  EQU     SB:SET
393         FR                     S:SET:   EQU     S:SET
394         FR                     SB:SWP:  EQU     SB:SWP
395                                *                                   DONE GIVEN EVENT AND STATE
396   03 00000                     S:SET    CSECT   0                  WORD TABLE CORRESPONDING TO SB:SET
397                                *
398                                *        THESE PROCS DEEFINE EVENT STATE RELATIONSHIPS
399                                *
400                                *        THE EVENT NUMBER IS THE STARTING POSITION IN
401                                *        S:SET AT WHICH TO BEGIN THE SEARCH FOR A STATE MATCH
402                                *        THE RESULT OBTAINED FROM SB:SET WILL BE EITHER A STATE
403                                *        NUMBER IF LESS THAN X'20' OR A DISPLACEMENT FROM
404                                *        S:TRNSVEC.  AN ERROR WILL BE FLAGGED IF THE OFFSET FROM
405                                *        S:TRNSVEC IS TOO LARGE(>X'E0').
406                                *
407         00000000               ESTS     CNAME   0                  NO CONTINUATION
408         00000001               ESTS1    CNAME   1                  CONTINUATION
409                                         PROC
410                                U        SET     *                  REMEMBER CUR*ENT CS POSITION
411                                         USECT   S:SET
412                                         DO      NAME
413                                P        SET     X'80000000'        SET CONTINUATION BIT(BIT 0)
414                                         ELSE
415                                P        SET     0
416                                         FIN
417                                LF       EQU     *-S:SET
418                                         DEF     LF
419                                         DO      SCOR(AF(2),ALL)
420                                P        SET     P!X'7FFFFFFF'
421                                         ELSE
422                                I        DO      NUM(AF)-1
423                                P*       SET     AF(I+1)
```

```
424                         I$      DO      NUM(P$)
425                         P       SET     P1(1**P$(I$))
426                                 FIN
427                                 FIN
428                                 FIN
429                                 DATA    P                       GENERATE S:SET WORD
430                                 USECT   SB:SET
431                                 DO      TCOR(AF(1),S:RAD,S:SUM,S:EXT,S:FR,S:LFR)>0
432                         P       SET     AF(1)-S:TRNSVEC+X'20'
433                                 ERROR,7,P>X'FF' 'SPECIAL TRANSITION ROUTINE TOO FAR FROM',,
434                                         ' S:TRNSVEC'
435                                 DATA,1  P
436                                 ELSE
437                                 DATA,1  AF(1)
438                                 FIN
439                                 USECT   U
440                                 PEND
```

```
                                *
                                *       THIS PROC DEFINES THE EVENTS FOR BLOCKING ON
                                *       UNAVAILABLE RESOURCES AND RESTARTING WHEN RELEASED
                                *       EACH CALL DEFINES TWO EVENTS; THE BLOCK EVENT(LF(1))
                                *       AND THE UNBLOCK EVENT(LF(2)).
                                *       FLAGS MAY BE SPECIFIED FOR EACH RESOURCE DEFINING
                                *       WHETHER OR NOT TO CHANGE STATE UPON THE RECEIPT OF
                                *       AN ERR,ABRT,EC OR BRK.  ANOTHER FLAG PERMITS THE ENTIRE
                                *       SUB-QUEUE TO BE FLUSHED WHEN AN UNBLOCK EVENT IS REPORTED.
                                *       A FLAG WILL ALTER THE MEANING OF THE UNBLOCK EVENT SUCH
                                *       THAT THE USER TO BE UNBLOCKED IS THAT FOR WHOM THE
                                *       EVENT IS REPORTED.  NORMALLY THE USER NUMBER ASSOCIATED
                                *       WITH THE UNBLOCK REPORT IS IGNORED AND THE CORRECT USER
                                *       NUMBERS ARE OBTAINED FROM THE RESOURCE SUB-QUEUE.
                                *
                                *
                                *       OPTIONAL EXITS ARE PROVIDED AT BOTH BLOCK AND UBLOCK
                                *       EVENTS TO PERFORM SPECIAL CHECKING ETC.
                                *
                                *E:BLK,E:REL RESOURCE        RTBLK,RTREL,FLAGS
                                *
00000000                        RESOURCE CNAME    0
                                         PROC
                                U$       SET      $
                                         USECT    SB:RBLK
                                CF(2)    EQU      BA($)-BA(SB:RBLK)
                                         DEF      CF(2)
                                         DATA,1   AF(1)-T:BLKV
                                         USECT    SH:RFLG
                                         DATA,2   (AF(2)-T:RELV)+AF(3)
                                LF(1)    ESTS     T:RES,SCU
                                LF(2)    ESTS     T:RES,ALL
                                         USECT    U$
                                         PEND
                                *
                                *       BLOCK CALLS SHOULD ONLY BE MADE VIA T:REG
                                *       RELEASE EVENTS MAY BE REPORTED VIA T:RUE OR T:RE
```

```
479                                *
480    04 00000                    SB:RBLK  CSECT   0
481    05 00000                    SH:RFLG  CSECT   0
482                                *
483                                *
484                                         OPEN    EC,BRK,ABRT,ERR,FLUSH
485          00008000              ABRT     EQU     X'8000'          ABORT FLAG
486          00004000              ERR      EQU     X'4000'          ERR FLAG
487          00002000              EC       EQU     X'2000'          CONTROL-Y FLAG
488          00001000              BRK      EQU     X'1000'          BREAK FLAG
489          00000100              SPECIFIC EQU     X'100'           SPECIFIC USER ONLY
490          00000200              FLUSH    EQU     X'200'           FLUSH ALL
491          00000400              NULL     EQU     X'400'           DO RELEASE ACTION IF NULL QUEUE
492                                *
493          00000000              ESTS2    CNAME
494                                         PROC
495                                         BOUND   4
496                                LF       DATA,1  0
497                                K        SET     0
498                                J        DO      NUM(AF)-1
499                                         DATA,1  AF(J+1)
500                                K        SET     K+(1**(AF(J+1)))
501                                         FIN
502                                         DATA,1  0
503                                AF(1)    SET     0
504                                L        DO      31
505                                         DO      (K&(1**L))=((K&(1**(L-1)))**1)
506                                         ELSE
507                                AF(1)    SET     AF(1)+(1**(32-L))
508                                         FIN
509                                         FIN
510                                         BOUND   4
511                                         PEND
```

```
513                                    *
514                                    * STATE  EVENT TRANSITIONN TABLES.  FISRT ARGUMENT  OF PROC  IS
515                                    *        ACTION TO TAKE. OTHER ARGS ARE THE STATES,
516                                    *        GIVEN THE EVENT, THAT SHOULD CAUSE THE ACTION
517                                    **********************************************************************
518                                    *
519                                    *        THESE EVENTS(E:IIP,E:QMF) MUST APPEAR FIRST AND IN THIS  ORDER
520                                    *
521                                    *
522   03 00000    00002000 A    E:IIP    ESTS     STIIP,SCU
      02 00000    28       A
523   03 00001    00002000 A    E:QMF,E:IP ESTS   STIOMF,SCU
      02 00000 1  27       A
524                                    *
525                                    *
526                                    *
527                                    **********************************************************************
528                                    *
529   03 00002    00002000 A    E:CRD    ESTS     STCRD,SCU          TERMINAL READ EVENT
      02 00000 2  76       A
530                                    *
531                                    *        REPORTED BY: COC
532                                    *
533                                    **********************************************************************
534                                    *
535                                    *
536   03 00003    80C00000 A    E:CIC    ESTS1    STIRC,STI,STIO     TERMINAL INPUT COMPLETE
      02 00000 3  23       A
537   03 00004    00002000 A             ESTS     STIRCU,SCU         TERMINAL INPUT COMPLETE FOR CU
      02 00001    80       A
538                                    *
539                                    *        REPORTED BY: COC
540                                    *
541                                    *        SPECIAL CASE REQUIRED TO HANDLE COMPLETION BEFORE E:CRD
542                                    *        IS REPORTED.
543                                    *
544                                    **********************************************************************
```

```
545                                     *
546                                     *
547   03 00005    00002000 A    E:CBL   FSTS    ST0B,SCU          TERMINAL OUTPUT BLOCK
      02 00001 1  0E       A
548                                     *
549                                     *       REPORTED BY: C0C
550                                     *
551                                     ************************************************************
552                                     *
553                                     *
554   03 00006    80000000 A    E:CUB   FSTS1   ST0C,ST0B,ST0B0   TERMINAL OUTPUT CONTINUE
      02 00001 2  22       A
555                                             FSTS    STNOP,EXECUTE,SCU,STI,SW,SI0W,SI0MF,SQA,SQR,)
556   03 00007    01DF3FFE A                              STI0,SQFI
      02 00001 3  54       A
557                                     *
558                                     *       REPORTED BY: C0C
559                                     *
560                                     ************************************************************
```

```
                            ***********************************************************************
                            *
                            *       WARNING! THE EVENT E:CBK MUST BE AN EVEN NUMBER AND
                            *                MUST BE FOLLOWED BY THE EVENTS E:CEC,E:ERR
                            *                AND E:OFF IN THAT ORDER.
                            *
                            *                THE SEQUENCE OF EVENT NUMBERS IN THIS SERIES
                            *                WILL BE USED TO SELECT PROPER FLAG BITS FOR UH:DL
                            *
                            *
                            ***********************************************************************
                            *
                            *
03 00008     C03B2000 A     E:CBK   FSTS1   STBEEA,SCU,SIOW,SIOMF,SQA,SQR,SQRO,SNULL
02 00002     74       A
03 00009     01C4DFFE A             ESTS    STBEEAC,EXECUTE,SW,STI,STIO,STOB,STOBO,SQFI
02 00002 1   73       A
                            *
                            *       REPORTED BY: COC
                            *
                            ***********************************************************************
                            *
                            *
03 0000A     C03B2000 A     E:CEC   ESTS1   STBEEA,SCU,SIOW,SIOMF,SQA,SQR,SQRO,SNULL
02 00002 2   74       A
03 0000B     01C4DFFE A             ESTS    STBEEAC,EXECUTE,SW,STI,STIO,STOBO,SQFI,STOB
02 00002 3   73       A
                            *
                            *       REPORTED BY: COC
                            *
                            ***********************************************************************
                            *
                            *
03 0000C     81041FFE A     E:ERR   ESTS1   STBEEAC,EXECUTE,SW,SQFI
02 00003     73       A
                                    ESTS    STBEEA,SCU,SIOW,STOB,STOBO,SIOMF,;
03 0000D     40FBF000 A                     SQA,SQR,SQRO,SNULL,STIO,STI
```

```
        02 00003 1  74          A
                                    *
                                    *         REPORTED BY: KEYIN
                                    *
                                    ******************************************************************
                                    *
                                    *
        03 0000E    81CC1FFE A      E:OFF,E:ABRT ESTS1 STBEEAC,EXECUTE,SW,STI,STIO,SQFI,SQA
        02 00003 2  73          A
                                              ESTS      STBEEA,SCU,SIOMF,SIOW,STOB,STOBO,SQR,SQRO,;
        03 0000F    4033F000 A                          SNULL
        02 00003 3  74          A
                                    *
                                    *         REPORTED BY: COC,KEYIN
                                    *
                                    ******************************************************************
                                    *
                                    *
        03 00010    81040000 A      E:WU      ESTS1     STSC,SW,SQFI        WAKE UP
        02 00004    21          A
                                    *
                                    *         REPORTED BY: CLOCK4
                                    *
        03 00011    7FFFFFFF A                ESTS      STNOP,ALL           IGNORE
        02 00004 1  54          A
                                    ******************************************************************
                                    *
                                    *
        03 00012    0000P000 A      E:SL      ESTS      SW,SCU              SLEEP
        02 00004 2  12          A
                                    *
                                    *         REPORTED BY: UCAL,RBBAT,TYPR
                                    *
                                    ******************************************************************
                                    *
                                    *
        03 00013    0000P000 A      E:QA      ESTS      STQA,SCU            Q FOR ACCESS
```

```
     02 00004 3  83          A
                                  *
                                  *          REPORTED BY: COOP
                                  *
                                  ******************************************************************
                                  *
                                  *
                                  E:ART      ESTS1      STN0P,SCU,SI0W,SI0MF,SQR,SQR0,SQA,STI,ST0B,STI0,/
     03 00014    C0FBF000    A                          ST000,SNULL
     02 00005    54          A
     03 00015    01041FFE    A               ESTS       STSC0M,SQFI,SW,EXECUTE
     02 00005 1  20          A
                                  *
                                  *          REPORTED BY: RTR00T
                                  *
                                  ******************************************************************
                                  *
                                  *
     03 00016    80093FFE    A    E:UQA      ESTS1      STUQA,SQA,SI0W,SCU,EXECUTE
     02 00005 2  86          A
     03 00017    7FFFFFFF    A               ESTS       STN0P,ALL
     02 00005 3  54          A
                                  *
                                  *          REPORTED BY: RB0AT
                                  *
                                  ******************************************************************
                                  *
                                  *
     03 00018    810F1FFE    A    E:K0       ESTS1      STK0,SW,SQFI,EXECUTE,SQA,SI0MF,SI0W
     02 00006    95          A
     03 00019    00504000    A               ESTS       STK0T,ST0B,STI,SQR
     02 00006 1  90          A
                                  *
                                  *          REPORTED BY: SWAPPER
                                  *
                                  ******************************************************************
                                  *
```

```
662                                         *
663   03 0001A    00002000 A    E:AP,E:NC ESTS    STASP,SCU          ASSOCIATE SHARED PROCESSOR
      02 00006 2  7C       A
664                                         *
665                                         *        REPORTED BY: E:NC - MM
666                                         *                     E:AP - STEP,SCHED,UCAL
667                                         *
668                                         ************************************************************
669                                         *
670                                         *
671   03 0001B    00002000 A    E:QE      ESTS      STSCOM,SCU
      02 00006 3  2D       A
672                                         *
673                                         *        REPORTED BY: LBLT(MOVE CAL)
674                                         *
675                                         ************************************************************
676   03 0001C    7FFFFFFF A    E:IC      ESTS      STIOC,ALL          I/O COMPLETE
      02 00007    3B       A
677   03 0001D    00002000 A    E:QFI     ESTS      SQFI,SCU           QUEUE FOR INTERRUPT
      02 00007 1  1B       A
678         FR                        E:REL     EQU       E:NSYMF            BASE EVENT FOR RESOURCES
679   04 00000    00       A    E:NSYMF,E:SYMF RESOURCE,R:SYMF T:BLKV,T:RELV,FLUSH
      05 00000    0200     A
      03 0001E    00002000 A
      02 00007 2  BA       A
      03 0001F    7FFFFFFF A
      02 00007 3  BA       A
680   04 00000 1  00       A    E:NSYMD,E:SYMD RESOURCE,R:SYMD T:BLKV,T:RELV,FLUSH
      05 00000 2  0200     A
      03 00020    00002000 A
      02 00008    BA       A
      03 00021    7FFFFFFF A
      02 00008 1  BA       A
681   04 00000 2  00       A    E:IOCR,E:NOCR   RESOURCE,R:IOCR T:BLKV,OPNUNBLOCK
      05 00001    0002     A
      03 00022    00002000 A
      02 00008 2  BA       A
```

```
        03 00023     7FFFFFFF A
        02 00008 3   BA       A
   682  04 00000 3   00       A   E:CFB,E:CBA     RESOURCE,R:CBA T:BLKV,T:RELV,FLUSH
        05 00001 2   0200     A
        03 00024     00002000 A
        02 00009     BA       A
        03 00025     7FFFFFFF A
        02 00009 1   BA       A
   683  04 00001     00       A   E:ND,E:DPA      RESOURCE T:BLKV,T:RELV,FLUSH
        05 00002     0200     A
        03 00026     00002000 A
        02 00009 2   BA       A
        03 00027     7FFFFFFF A
        02 00009 3   BA       A
   684  04 00001 1   00       A   E:QFAC,E:UQFAC RESOURCE T:BLKV,UQFAC,FLUSH+NULL
        05 00002 2   0601     A
        03 00028     00002000 A
        02 0000A     BA       A
        03 00029     7FFFFFFF A
        02 0000A 1   BA       A
   685  04 00001 2   00       A   E:NQW,E:NQR RESOURCE,R:NQW  T:BLKV,T:RELV,ERR+ABRT+EC+BRK+SPECIFIC
        05 00003     F100     A
        03 0002A     00002000 A
        02 0000A 2   BA       A
        03 0002B     7FFFFFFF A
        02 0000A 3   BA       A
```

```
687                    *
688                    *        FIRST HALF WORD OF USER FLAGS
689                    *
690                    *
691                    * UH:FLG |-------------------------------|
692                    *        |       |       |     1 1|1 1 1 1|
693                    *        | 0 1 2 3|4 5 6 7|8 9 0 1|2 3 4 5|
694                    *        |-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-|
695                    *          | | | | | | | | | | | | | | | |
696                    *          | | | | | | | | | | | | | | | | > READY -READY TO RUN
697                    *          | | | | | | | | | | | | | | | > INTENTRY INHIBIT(RT)
698                    *          | | | | | | | | | | | | | | > !ACCTLG OR !USERS OPEN
699                    *          | | | | | | | | | | | | | > OPNCLS USER
700                    *          | | | | | | | | | | | | > PPSWAP-PURE PROCEDURE MUST BE SWAPPED
701                    *          | | | | | | | | | | | > INTERACTIVE USER
702                    *          | | | | | | | | | | > DELIC -DELTA IS IN CONTROL
703                    *          | | | | | | | | | > TELIC -TEL IS IN CONTROL
704                    *          | | | | | | | | > BATJOB-JOB IS A BATCH JOB
705                    *          | | | | | | | > JITIC -JIT IS IN CORE
706                    *          | | | | | | > DELASS-DELTA IS ASSOCIATED
707                    *          | | | | | > INIT -INITIALIZATION MUST BE DONE
708                    *          | | | | > SPEC. JIT ACCESS
709                    *          | | | > DCBS - INITIAL DCBS ARE BEING SWAPPED IN
710                    *          | | > STEP IN PROGRESS OR UNBLOCK RECEIVED BEFORE BLOCK EVENT
711                    *          | > BYPASS - AVAILABLE CORE IS TEMPORARILY TOO SMALL FOR USER
712                    *
```

```
*
*       SECOND HALF-WORD OF USER FLAGS
*
*       FLAGS IN THIS GROUP ARE MOSTLY SWAPPER RELATED
*
*
* UH:FLG2|-------------------------------|
*        |       |       |   1 1|1 1 1 1 |
*        | 0 1 2 3|4 5 6 7|8 9 0 1|2 3 4 5 |
*        |-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-|
*          | | | | | | | | | | | | | | | |
*          | | | | | | | | | | | | | | | > JIT SWAP ERROR
*          | | | | | | | | | | | | | | > CONTEXT SWAP ERROR
*          | | | | | | | | | | | | | > USER SWAP ERROR
*          | | | | | | | | | | | | > SWAP QUANTUM NOT SATISFIED
*          | | | | | | | | | | | > JUST SWAPPED IN
*          | | | | | | | | | | > COC LINE HANG-UP
*          | | | | | | | | | > 9
*          | | | | | | | | > 8
*          | | | | | | | > TP FUNCTION
*          | | | | | | > INTERRUPTED DURING A CAL
*          | | | | | > SYSTEM GHOST LOCKED OUT (REAL TIME LOCK IN CORE)
*          | | | | > REAL TIME LOCK IN CORE (ABSOLUTE)
*          | | | > COC EVENT FOR TRANSACTION PROCESSING
*          | | > LOCK IN CORE FOR RMA (GENTLE)
*          | > COMMAND PROCESSOR BREAK
*          > 0
```

```
742                     *
743                     *       'DB' LIST POINTER - POINTS TO THE HEAD OF A SERIES OF
744                     *                           LINKED FOUR WORD ENTRIES DEFINING
745                     *                           SPECIAL ACTION TO TAKE WHEN RESCHEDULING
746                     *                           USER OR EXITING A CAL.
747                     *
748                     *       FLAGS FOR ERROR, ABORT, CONTROL-Y AND BREAK ARE CONTAINED IN
749                     *       BITS 0-3.
750                     *       BITS 1,2, AND 3 ALL ON INDICATES DATA OVERUN WHILE THIS JOB WAS
751                     *       CURRENT USER.
752                     *
753                     *
754                     * UH#DL |-------------------------------|
755                     *       |       |       |   1 1|1 1 1 1 |
756                     *       | 0 1 2 3|4 5 6 7|8 9 0 1|2 3 4 5 |
757                     *       |-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-|
758                     *         | | | |
759                     *         | | | | <..... DA(DB LIST) .....>
760                     *         | | | |
761                     *         | | | > BRK - BREAK RECEIVED
762                     *         | | > EC - CONTROL-Y RECEIVED
763                     *         | > ERR - JOB IS TO BE ERRORED
764                     *         > ABORT - JOB IS TO BE ABORTED
765                     *         1>>>DAQV-JOB IS TO BE PUT TO SLEEP
766                     *
```

```
768                                     *
769                                     * LISTS OF Q'S FOR SELECTIONS
770                                     *
771                                     * Q'S TO CHOSE EXECUTION FROM
772                                             BOUND   4
773                                     *                                       RL3
774                                     SB;SWP  ESTSP   SWP,SW,STI,SC10,STOB,SQR,SQFI,SQA,SC9,SC8,SC7,;
775   05 00004     00          A                       SC6,SC5,SC4,SC3,SC2,SC1,SC0,SRT
      05 00004 1   12          A
      05 00004 2   16          A
      05 00004 3   0L          A
      05 00005     0K          A
      05 00005 1   14          A
      05 00005 2   18          A
      05 00005 3   13          A
      05 00006     0B          A
      05 00006 1   0A          A
      05 00006 2   09          A
      05 00006 3   08          A
      05 00007     07          A
      05 00007 1   06          A
      05 00007 2   05          A
      05 00007 3   04          A
      05 00008     03          A
      05 00008 1   02          A
      05 00008 2   01          A
      05 00008 3   00          A
```

```
777   05 00009                          USECT   TEL
778                                     BOUND   4
779                                     DEF     REG1
780                                     REF     REG1PSD
781                                     REF     REGIPSD         PSD FOR IOREG(MAPPED)
782                                     DEF     T:IOREG
783                             *
784                             *       T:IOREG IS ENTERED VIA AN XPSD TO REGIPSD WITH
785                             *               THE DCB ADDRESS IN R6.
786                             *
787                             *       ALL REGISTERS ARE PRESERVED.
788                             *
789                             *       DEPENDING ON CIRCUMSTANCE, THE USER MAY BE
790                             *       SUSPENDED OR PERMITTED TO CONTINUE.
791                             *
792   01 0000A  02200060 A    T:IOREG PUSH    6,13            SAVE REGS
      01 0000B  05D00000 N
793   01 0000C  12000000 X            LD,0    REGIPSD         GET CALLING PSD
794   01 0000D  6A200000 X            BAL,2   T:SAVE          SAVE ENVIRONMENT
795   01 0000E  2211FFFF A            LI,1    X'1FFFF'        SCRUB DCB ADDRESS
796   01 0000F  4B100006 A            AND,1   6               GET DCB ADDRESS
797   01 00010  22600000 A            LI,6    E:IIP           IO IN PROGRESS EVENT
798   01 00011  68000197              B       REG2            REPORT IT
```

```
801   01 00012   64000369     PULLEU   BDR,0    T:PULLE          BRANCH IF ENV IN MAPPED STACK
802   01 00013   22100369              LI,1     T:PULLE          SET RETURN TO PULL EXIT
803   01 00014   68000000 X            B        UNMAP            UNMAP THEN PULLEXIT



805   01 00015   38D80000 X   SSE41    SW,R13   U:MISC,R4        COMPUTE TIME SINCE SCHEDULED
806   01 00016   31D00000 X            CW,R13   S:RTIR           AND CHECK FOR QMIN
807                           *                                  S:RTIR WILL BE SET ZERO IF A
808                           *                                  REAL TIME USER IS WAITING
809   01 00017   69100012              BL       PULLEU           NOT HAD IT AND NO RT USER WAITING
810   01 00018   32F00000 X            LW,R15   SL:QMIN          RESET FLAG TO NORMAL QMIN VALUE
811   01 00019   35F00000 X            STW,R15  S:RTIR           SINCE WE MAY HAVE HAD A RT USER
812   01 0001A   32F00000 X   SSE42    LW,15    S:HIR
813   01 0001B   68200012              BLEZ     PULLEU           NO HIGHER PRIORITY DUDES
814   01 0001C   64000035              BDR,0    SSE43
815   01 0001D   22000035              LI,0     SSE43            RETURN
816                           *
817                           *        MOVE USER'S ENVIRONMENT FROM UNMAPPED STACK
818                           *        TO USER'S JIT BEFORE PARKING HIM.
819                           *
820                           *        R0 = LINK
821                           *        R4 = USER NUMBER (PRESERVED)
822                           *        ALL OTHER REGISTERS VOLATILE
823                           *
824                           *        EXITS MAPPED
825                           *
826   01 0001E   6A100000 X   SSE12    UNMAP
827   01 0001F   72280000 N            LOAD,2   UX:JIT,4
828   01 00020   25200009 A            SLS,2    9
829   01 00021   223001FF A            LI,3     X'1FF'           MASK FOR PAGE DISP
830   01 00022   20200000 N            AI,2     TSTACK=J:JIT
831   01 00023   22800013 A            LI,8     19
```

```
832   01 00024   93800002 A              MSP,8     *2
833   01 00025   4A240000 A              LS,2      0,2
834   01 00026   223FFFEF A              LI,3      -17
835   01 00027   202FFFEF A              AI,2      -17
836   01 00028   30300000 X              AW,3      TSTACK
837   01 00029   022000A0 A              LCI       10
838   01 0002A   AA560000 X              LM,5      *M24,3
839   01 0002B   AB540000 X              STM,5     *M24,2
840   01 0002C   02200090 A              LCI       9
841   01 0002D   2A560009 A              LM,5      9,3
842   01 0002E   2B540009 A              STM,5     9,2
843   01 0002F   92800003 A              LD,8      *3
844   01 00030   225FFFED A              BUMP      -19,5
      01 00031   13500000 X
845   01 00032   95800002 A              STD,8     *2
846   01 00033   32100000 A              LW,1      0
847   01 00034   68000000 X              B         MAP
848   01 00035                  SSE43    RES       0
849   01 00035   6D000037 A              DISABLE                        ***** DISABLE *****
850   01 00036   72380000 X              LB,R3     UB:US,R4         GET CURRENT STATE
851   01 00037   72280000 X              LB,R2     UB:PRIO,R4       GET CURRENT PRIO
852   01 00038   31400000 X              CW,R4     Y4               TEST FOR BOOST FLAG
853   01 00039   6840003B                BAZ       *+2              NO, DONT ADD PRIO BOOST
854   01 0003A   38200000 X              SW,R2     SL:SQPB          ADD SWAP QUAN THRESH BOOST
855   01 0003B   6AB001D1                BAL,R11   CHSEO            AND PARK HIM
856   01 0003C   6A100000 X     TISEO    UNMAP                      SCHEDULE EXECUTION ONLY
857   01 0003D   680000AD                B         SEO              NO SWAP SCHEDULE NEEDED ON PARK
```

```
                                  ***********************************************
                                  *                                             *
                                  *            INTERRUPT EXIT PØINTS            *
                                  *                                             *
                                  *            T:SSE  = ALL INTERRUPTS BUT      *
                                  *                     CLØCK 3                 *
                                  *                                             *
                                  *            T:SSEC = CLØCK 3                 *
                                  *                                             *
                                  ***********************************************
                                           DEF      T:SSEC
                                           DEF      SSEO
                                           DEF      T:SSE
           01 0003E               T:SSEC   EQU      $
           01 0003E               T:SSE    EQU      $
01 0003E      22B00044                     LI,11    SSEO                SET RETURN FRØM T:SS
01 0003F      68000384                     B        T:SS                SWAP SCHEDULE
                                           DEF      TRAPEXIT,T:ACCTØV,T:SSEM
```

```
878                          ****************************************************
879                          *                                                  *
880                          *          CAL AND TRAP EXIT POINT                 *
881                          *                                                  *
882                          *        TRAPEXIT - BUMPS RETURN ADDRESS           *
883                          *                   IN PSD                         *
884                          *                                                  *
885                          *        T:SSEM - PSD IS ALREADY CORRECT           *
886                          *                                                  *
887                          ****************************************************
888                          *                                                  *
889                          *        SSEO - ALTERNATIVE TO T:SSE FOR           *
890                          *               I/O INTERRUPT TO AVOID             *
891                          *               SUPERFLUOUS SWAP SCHEDULE          *
892                          *                                                  *
893                          ****************************************************
894  01 00040  32100000 X  TRAPEXIT LW,1    TSTACK          TOP OF STACK ADDRESS
895  01 00041  201FFFEF A           AI,1     -17             POINT BACK TO PSD IN ENVIRONMENT
896  01 00042  4B100000 X           AND,1    XN2             SCRUB OFF TO DOUBLE WORD BOUND
897  01 00043  33120000 A           MTW,1    0,1             ADVANCE TO CAL PLUS ONE
898        01 00044         T:ACCTOV EQU      $
899        01 00044         T:SSEM   EQU      $
900  01 00044  6A200000 X  SSEO     BAL,2    T:MASTER        CHECK FOR IMMEDIATE PULLE
901  01 00045  3B000000 X  SSE1     LAW,0    J:JIT           CHECK FOR UNMAPPED
902  01 00046  69300048           BNE      SSE11           MAPPED
903  01 00047  6A100000 X           MAP                      GO MAPPED IF WE WERE UNMAPPED
904  01 00048                  SSE11    RES      0
905  01 00048  32400000 X           LW,4     S:CUN           GET CURRENT USER NUMBER
906  01 00049  72100000 X           LB,R1    J:RNST          GET RUN STATUS, CHECK IT AND
907  01 0004A  51180000 X           CH,R1    UH:DL,R4        USER'S DO-LIST FOR THINGS TO DO.
908  01 0004B  68700084           BCR,7    SSE5A           ***> NO ABNS OR DO-ITEMS (BOTH=0).
909  01 0004C  22200000 N           LI,2     JB:FRS          GET FINAL RUN STATUS INDEX
910  01 0004D  75140000 A           STB,1    0,2             SAVE RUN STATUS IN JIT FOR
911                          *                                ACCTSUM
912  01 0004E  64000050           BDR,0    $+2             CHECK FOR UNMAPPED ENV
913  01 0004F  6A00001E           BAL,0    SSE12           MOVE ENV FROM MTS TO UTS
914  01 00050  6D000037 A           DISABLF                       ***** DISABLE *****
```

```
915  01 00051  52580000 X          LH,5     UH:DL,4          GET D8 LIST
916     01 00052           T:D8LIST EQU      *
917  01 00052  52F80000 X          LH,R15   UH:FLG,R4        GET USER'S FLAGS IN R15.
918  01 00053  55500000 A          STH,R5   R13              R13(0-3)= ABRT,ERR,YC,BRK FLAGS.
919  01 00054  46500000 X          AND,5    M12              CLEAR FLAGS
920  01 00055  55580000 X          STH,5    UH:DL,4          REPLACE
921  01 00056  70200000 A          LC       13               GET FLAGS TO CONDITION CODES
922  01 00057  69800128           BCS,8    SEABRT           ABORT
923  01 00058  69400142           BCS,4    SE8VRUN          CHECK FOR DATA OVERUN USER
924  01 00059  72100000 X          LB,1     J:RNST
925  01 0005A  68300061           BEZ      SSE8
926  01 00058  222000FF A          LI,2     X'FF'
927  01 0005C  46200000 F          AND,2    J:JIT+ER8
928  01 0005D  72E00000 X          LB,14    J:ABC
929  01 0005E  75200000E A         STB,2    14
930  01 0005F  21F00080 A          CI,15    TIC
931  01 00060  68400000 X          BAZ      T:TELDELCCI
932  01 00061  70200000 A  SSE8    LC       13               GET FLAGS AGAIN
933  01 00062  69200186           BC8,2    SE9              CONTROL-Y
934  01 00063  69100178           BCS,1    SE7              BREAK
935  01 00064  20500000 A          AI,5     0                CHECK FOR D8LIST ITEMS
936  01 00065  68300083           BEZ      SSE5             NO
937  01 00066  126A0000 A          LD,6     0,5              GET FIRST DW OF ENTRY
938  01 00067  72000006 A          LB,0     6                GET PRIORITY
939  01 00068  71080000 X          CB,0     UB:PRIOB,4       CHECK IT
940  01 00069  69200083           BG       SSE5             NOT NOW
941  01 0006A  52100006 A          LH,1     6                GET TYPE
942  01 0006B  46100000 X          AND,1    M7               SCRUB
943  01 0006C  21100002 A          CI,1     INTENT           CHECK FOR INTENTRY
944  01 0006D  69300071           BNE      D8L1             NO
945                        *      NOTE THAT CONTENT OF UH:FLG IS IN R15
946  01 0006E  21F000C2 A          CI,R15   INHIBIT+TIC+DIC  ARE INTERRUPT ENTRIES ALLOWED
947  01 0006F  69400083           BANZ     SSE5             NO
948                        *                               ALL OK, GO DO IT
949  01 00070  46600000 X          AND,R6   M12              SCRUB TO FLINK
950  01 00071  55680000 X  D8L1    STH,R6   UH:DL,R4         STORE
951  01 00072  68020072           B        D8LV,1           SWITCH ON TYPE
```

```
          01 00072                DOLV      EQU      $-1                DO LIST TYPE VECTOR
                                            SREF     T:ECBSTORE
01 00073       68000000 X                   B        T:ECBSTORE         1 => STORE ECB IN USER
                                            SREF     RT:INTENTRY
01 00074       68000000 X         INTENTL   B        RT:INTENTRY        2 =.> INTERRUPT ENTRY
          00000002                INTENT    EQU      INTENTL-DOLV       INTENTRY CODE
                                            SREF     COC:BRK
01 00075       68000000 X                   B        COC:BRK            3 =.> SLAVELINE BREAK.
                                            SREF     COC:RDCOMP
01 00076       68000000 X                   B        COC:RDCOMP         4 =.> SLAVELINE READ COMPLETE.
                                            SREF     COC:BRKLTR
01 00077       68000000 X                   B        COC:BRKLTR         5 =.> SLAVELINE BREAK LATER.
                                  *
01 00078       00000000 A                   DATA     0                  6 **** UNUSED & ILLEGAL; SUA.***
                                  *
01 00079       E8000007 A                   B        *R7                7 =.> SPECIAL ACTION ROUTINE.
                                  *
                                  *         DO-LIST PROCESSING ROUTINES ARE CALLED WITH:
                                  *                  R4 = S:CUN (CURRENT USER NUMBER).
                                  *                  R5 = DA(DO-LIST BLOCK).
                                  *                  R6/7 = FIRST DW OF DO-LIST BLOCK,
                                  *                          (EXCEPT FOR R/T INTENTRY ROUTINE)
                                  *                  R15 = UH:FLG (USER'S FLAGS).
                                  *         REGISTERS 4 AND 5 MUST BE PRESERVED BY PROCESSING ROUTINE.
                                  *         PROCESSING ROUTINE SHOULD RETURN TO T:DOLISTR.
                                  *
                                            DEF      T:DOLISTR
                                            DEF      T:DLR1
          01 0007A                T:DOLISTR EQU      $                  RETURN FROM DO LIST PROCESSOR
01 0007A       126A0000 A                   LD,6     0,5                GET FIRST DW AGAIN
01 0007B       31600000 X                   CW,6     Y008               TEST INHIBIT RELEASE BIT
01 0007C       69400080                     BANZ     T:DLR1             SET, DONT RELEASE
01 0007D       32200005 A                   LW,2     5                  POINT TO BLOCK
01 0007E       25200001 A                   SLS,2    1                  WORD ADDRESS
01 0007F       6A100000 X                   BAL,1    ECBFBLK            RETURN BLOCK TO POOL
01 00080                          T:DLR1    RES      0
01 00080       60000037 A                   DISABLF                            ***** DISABLE *****
```

```
 989  01 00081  525800000 X          LH,5     UH:DL,4          GET D8 LIST AGAIN
 990  01 00082  693000052            BNE      T:D8LIST         D8 IT
 991  01 00083  220000004 A  SSE5     LI,0     4                SET D8NT-C8PY-C8NTEXT FLAG AGAIN.
 992  01 00084  6U000027 A  SSE5A    ENABLE                      ***** ENABLE *****
 993  01 00085  32D00000 X           LW,13    J:DELTAT
 994  01 00086  30D00000 X           AW,13    J:8VHTIM
 995  01 00087  30D00000 X           AW,13    J:CTIME
 996  01 00088  38D00000 X           SW,13    J:IDELTAT
 997  01 00089  6U000037 A           DISABLE                     ***** INHIBIT *****
 998  01 0008A  52E80000 X           LH,R14   UH:FLG2,R4       GET SEC8ND USER FLAGS
 999  01 0008B  21E00008 A           CI,R14   SQUAN            CHECK F8R ALREADY PAST SQUAN
1000  01 0008C  684000096            BAZ      SSE6             YES, SKIP
1001  01 0008D  31D00000 X           CW,R13   SL:SQNT          ARE WE NEARING THE END 8F SQUAN
1002  01 0008E  691000096            BL       SSE6             N8
1003  01 0008F  494000000 X          8R,R4    Y4               SET FLAG T8 TRIGGER PRI8 B88ST
1004  01 00090  31D00000 X           CW,13    SL:SQUAN
1005  01 00091  691000096            BL       SSE6             N8T HAD SQUAN YET
1006  01 00092  331000000 X          MTW,+1   S:SEVF           SWAP SET CHANGED
1007  01 00093  4BE00004 N           AND,R14  XFFF7            RESET SQUAN FLAG
1008  01 00094  55E80000 X           STH,R14  UH:FLG2,R4       AND SAVE NEW FLAGS
1009  01 00095  4B4000000 X          AND,R4   M8               RESET B88ST FLAG
1010  01 00096  6U000027 A  SSE6     ENABLE                      ***** ENABLE *****
1011  01 00097  30D00000 X           AW,R13   J:IDELTAT        N8W CHECK F8R QUANTUM END
1012  01 00098  691000015            BLZ      SSE41            N8T YET
1013  01 00099  640000988            BDR,R0   *+2              CHECK F8R ENV IN UNMAPPED JIT
1014  01 0009A  6A00001E            BAL,R0   SSE12            YES, M8VE T8 USER JIT
1015  01 0009B  6A3000000 X          BAL,R3   T:ACCTEX         GIVE NEW QUAN
1016  01 0009C  324000000 X          LW,4     S:CUN            RESTERE CURRENT USER NUMBER
1017  01 0009D  6U000037 A           DISABLE                     ***** DISABLE ****
1018  01 0009E  723800000 X          LB,3     UB:US,4          GET UUSERS CURRENT STATE
1019  01 0009F  52F80000 X           LH,15    UH:FLG,4         GET USER FLAGS.
1020  01 000A0  32B00000 X           LW,R11   S:8PC            CHECK F8R SWAP PR8BLEM
1021  01 000A1  681000A8            BGEZ     SSE7             N8NE, JUST N8RMAL PARK
1022  01 000A2  322000000 X          LW,R2    S:ISUNF          GET FAILING INSWAP USER
1023  01 000A3  32B00000 X           LW,R11   S:CUP            GET CURRENT USER PRI8
1024  01 000A4  71B400000 X          CB,R11   UB:PRI8,R2       AND C8MPARE WITH INSWAP CANDIDATE
1025  01 000A5  682000A8            BLE      SSE7             WE ARE EQUAL 8R BETTER
```

```
1026                                    *
1027                                    *       IN ORDER TO PERMIT THE SWAP SCHEDULER TO PROPERLY
1028                                    *       OBSERVE PRIORITIES, WE WILL MARK THE CURRENT USER
1029                                    *       WHO HAS JUST QUANTUM-ENDED AS NOT READY-TO-RUN
1030                                    *       WHICH WILL FORCE HIM THROUGH AN I/O-LESS INSWAP.
1031                                    *
1032  01 000A6  4BF00000 X                     AND,R15  NREADY          RESET READY-TO-RUN FLAG
1033  01 000A7  55F80000 X                     STH,R15  UH!FLG,R4       AND SAVE UPDATED FLAGS
1034  01 000A8                          SSE7  RES      0
1035  01 000A8  33100000 X                     MTW,+1   S!SEVF          BUMP SWAP SET CHANGE CTR
1036  01 000A9  6AB001CA                       BAL,11   T!CHSEQ         TAIL OF HIS COMPUTE Q
1037                                    *       B        T!SE            FALL THROUGH TO SCHEDULE
1038                                    *
1039                                    *
1040                                    *       USER HAS QUANTUM ENDED AND BEEN DROPPED BACK TO HIS
1041                                    *       BASE EXECUTION PRIORITY.
1042                                    *
```

```
1044                                    DEF     T:SE
1045          01 000AA          T:SE    EQU     *

1047                            ********************************************************
1048                            *                                                      *
1049                            *              SCHEDULE FOR EXECUTION                  *
1050                            *                                                      *
1051                            *        BOTH A SWAP SCHEDULE ATTEMPT AND              *
1052                            *        A CALL TO SACT ARE MADE BEFORE                *
1053                            *        SCHEDULING ANOTHER USER.                      *
1054                            *                                                      *
1055                            ********************************************************

1057    01 000AA    6A100000 X          UNMAP
1058    01 000AB    6AB00384            BAL,11  T:SS
1059    01 000AC    6AB00000 X          BAL,11  SACT            GOOSE THE SYMBIONTS
1060    01 000AD    6AB00000 X  SEO     BAL,R11 T:SES           SCHEDULE EXECUTION FOR SLAVES
1061    01 000AE    22F00001 A          LI,15   1
1062    01 000AF    32E00000 X          LW,R14  S:EVF           GET EVENT FLAG COUNTER
1063                                    REF     M6
1064    01 000B0    12200000 X          LD,2    SB:HQ           GET FIRST SEVEN STATES
1065    01 000B1    683000B8            BEZ     SEF1            NONE, SKIP FIRST SEVEN
1066    01 000B2    49200000 X          OR,2    Y7D             SET EXPONENT FOR FLOATING SHIFT
1067    01 000B3    24200110 A          SFL,2   16              DO NORMALIZE TO FIND FIRST FULL STAT
1068    01 000B4    25200207 A          SCS,2   7               COUNT=COUNT/2
1069    01 000B5    48200000 X          AND,2   M6              SCRUB
1070    01 000B6    48200000 X          EOR,2   M6              INVERT TO FORM INDEX
1071    01 000B7    680000B9            B       *+2
1072    01 000B8    22200008 A  SEF1    LI,2    8               START WITH EIGHTH STATE
1073    01 000B9                SIC1    RES     0
1074    01 000B9    72440000 X          LB,4    SB:HQ,2         GET HEAD OF STATE QUEUE
1075    01 000BA    683000BF            BEZ     SIC3
1076    01 000BB    51F80000 X  SIC2    CH,15   UH:FLG,4        IN CORE
1077    01 000BC    694000E9            BANZ    SE1             IF SO LETS RUN HIM
1078    01 000BD    72480000 X          LB,R4   UB:FL,R4        NEXT USER IN QUEUE
1079    01 000BE    693000BB            BNEZ    SIC2
1080    01 000BF    20200001 A  SIC3    AI,2    1               NEXT STATE
```

```
01 000C0   2120000C A         CI,2      SEXU              ONLY LOOK AT EXU STATES
01 000C1   682000B9           BLE       SIC1              CONTINUE
01 000C2   221000FF A         LI,1      X'FF'             CLEAR CURRENT PRIORITY
01 000C3   35100000 X         STW,1     S:CUP             FOR S:HIR TESTS
                              SREF      RAPURGE
01 000C4   220000C7           LI,0      $+3               SET RETURN
01 000C5   22200000 N         LI,2      RAPURGE
01 000C6   69340000 A         BNEZ      0,2               GO RELEASE READ-AHEAD PAGES IF POSSI
01 000C7   32100000 X         LW,1      S:CUIS
01 000C8   30100000 X         AW,1      GOODNGT
                              REF       GOODNGT
01 000C9   692000D8           BG        IDL1
01 000CA   72500000 X         LB,5      SNDDX
01 000CB   205FFFFE A         AI,5      -2
                              REF       SSTAT
        01 000CC        IDLO  EQU       $
01 000CC   727A0000 X         LB,7      SSTAT,5
01 000CD   683000D0           BEZ       $+3
01 000CE   21700001 A         CI,7      1
01 000CF   683000D8           BE        IDL1
01 000D0   727A0000 X         LB,7      SSIG,5
01 000D1   217000C9 A         CI,7      'I'
01 000D2   683000D8           BE        IDL1
01 000D3   645000CC           BDR,5     IDLO
01 000D4   32500000 X         LW,R5     Y004              GET DELAY COUNT
01 000D5   645000D5           BDR,R5    $                 AND WAIT 5 SECONDS
                        *                                 TO PERMIT COC OUTPUT
01 000D6   0F000000 X         SCREECH   X'404'
01 000D7   04040000 A
        01 000D8        IDL1  EQU       $
01 000D8   60000027 A         ENABLE
01 000D9   32100000 X         LW,1      S:SIP             CHECK FOR SWAP IN PROGRESS
01 000DA   52200004 N         LH,2      SB:HQ+(S:OW/4)    CHECK FOR BOTH KINDS OF I/O WAIT
01 000DB   683000DD           BEZ       $+2               NO I/O WAIT
01 000DC   20100002 A         AI,1      2                 SET I/O BIT
01 000DD   520200E6           LH,0      C:IDL,1           GET COUNTER ADDRESS
01 000DE   701200E8           LF        F:IDL,1           SET FLOATING MODE BITS
```

```
1117   01 000DF   35000000 X        STW,R0   S:CLOCK4        SET CLOCK TO ACCOUNT IDLE
1118   01 000E0   32000000 X        LW,0     C:TINC          CHECK TIME OF DAY CLOCK
1119   01 000E1   692000E4          BG       $+3             =POSITIVE,YUP ASK
1120   01 000E2   22500080 A        LI,5     X'80'           =NEG,BAD  SO
1121   01 000E3   6U501700 A        WD,5     X'1700'         ... TRIGGER HIM
1122                          *                              FALL THROUGH TO IDLE LOOP
```

```
                                    *************************************************************************
                                    *                                                                       *
                                    *                    I D L E     L O O P                                *
                                    *                                                                       *
                                    *                THE REASON FOR BEING IDLE IS DISPLAYED                 *
                                    *                IN THE FLOATING MODE CONTROL BITS OF                   *
                                    *                THE PROGRAM STATUS DOUBLEWORD:                         *
                                    *                                                                       *
                                    *                    F  F  F                                            *
                                    *                    S  Z  N                                            *
                                    *                    -  -  -                                            *
                                    *                    1  0  0     =>    PURE IDLE, NOTHING TO DO
                                    *                    0  0  1     =>    IDLE WITH SWAP IN PROGRESS       *
                                    *                    0  1  1     =>    IDLE WITH I/O AND SWAP IN PROGRESS
                                    *                    1  1  0     =>    IDLE WITH I/O IN PROGRESS        *
                                    *                                                                       *
                                    *************************************************************************

 01 000E4      2E000000 A                 WAIT,0    0                     *** IDLE LOOP ***

                                    *                                     DRIVEN OUT OF WAIT BY INTERRUPTS
                                    *                                     AT LEAST EVERY 2 MILLISECONDS
                                    *                                     FALLING THROUGH TO SCHEDULE FOR
                                    *                                     BOTH SWAPS AND EXECUTION
 01 000E5      680000AA                   B         T:SE                  GO SCHEDULE AGAIN
 01 000E6      0000     N         C:IDL   DATA,2    C:IDLE,C:IDLES,C:IDLEW,C:IDLESW
 01 000E6 2    0000     N
 01 000E7      0000     N
 01 000E7 2    0000     N
 01 000E8      04       A         F:IDL   DATA,1    4,1,6,3
 01 000E8 1    01       A
 01 000E8 2    06       A
 01 000E8 3    03       A
                                          REF       C:IDLEW,C:IDLESW
```

```
1153          01 000E9                SE1     EQU     *               RETURN HERE FROM SIC WITH A USER
1154                                  *
1155                                  ***************************************************
1156                                  *                                                 *
1157                                  *              LOAD MAP AND ACCESS                *
1158                                  *                                                 *
1159                                  ***************************************************

1161    01 000E9    354000000 X               STW,R4  S:CUN           DECLARE CURRENT USER NUMBER
1162    01 000EA    728800000 N               LOAD,11 UX:JIT,4        GET JIT PAGE NUMBER
1163    01 000EB    258000009 A               SLS,11  9               AND MAKE IT WORD ADDRESS
1164    01 000EC    128000000 X               LD,8    S:ACCW          GET SKELETON CW FOR ACCES
1165    01 000ED    498000008 A               OR,8    11              MERGE IN PHYS PAGE
1166    01 000EE    6F8400000 A               LPC,8   0               LOAD ACCESS LOCKS
1167    01 000EF    128000000 X               LD,8    S:MAPCW         GET SKELETON FOR LOADING MAP
1168    01 000F0    498000008 A               OR,8    11              MERGE PAGE OF JIT
1169    01 000F1    6F8800000 N               LDMAP,8 0               LOAD ENTIRE MAP
1170    01 000F2    600000037 A               DISABLF
1171    01 000F3    52F800000 X               LH,R15  UH:FLG,R4       GET FLAGS
1172    01 000F4    21F000001 A               CI,R15  RTR             MAKE SURE SWAPPER DIDN'T STEAL HIM
1173    01 000F5    684000AA                  BAZ     T:SE            YES IT DID, RECYCLE
1174    01 000F6    21F001000 A               CI,15   SJAC            CHECK FOR SPECIAL JIT ACCESS
1175    01 000F7    684000FA                  BAZ     *+3             NONE
1176    01 000F8    128000000 X               LD,8    S:SJACCW        GET CONTROL WORD
1177    01 000F9    6F8400000 A               LPC,8   0               AND LOAD JIT ACCESS
1178    01 000FA    723800000 X               LB,3    UB:US,4         GET CURRENT STATE
1179    01 000FB    222000000 A               LI,2    SCU
1180    01 000FC    725800000 X               LB,5    UB:PRIO,4       GET USERS PRIORITY
1181    01 000FD    715800000 X               CB,R5   UB:PRIOB,R4     IS HE AT BASE
1182    01 000FE    681001001                 BGE     *+3             YES, DONT DECREMENT
1183    01 000FF    305000000 X               AW,R5   S:PRIODEC       DECREMENT CURRENT PRIO
1184    01 00100    755800000 X               STB,R5  UB:PRIO,R4      SAVE NEW PRIO
1185    01 00101    355000000 X               STW,5   S:CUP           ANNOUNCE IT
1186    01 00102    33F000000 X               MTW,-1  S:HIR           ONE LES HIR
1187    01 00103    6AB001B0                  BAL,11  RCE4            CHANGE STATE TO SCU  ***** ENABLE **
1188    01 00104    6A1000000 X               MAP
```

```
1189  01 00105  52E80000 X          LH,14   UH:FLG2,4        GET SECOND FLAGS
1190  01 00106  48E0000E N          AND,14  XFDFF            RESET CAL INTERRUPT BIT
1191  01 00107  21E00007 A          CI,14   7                CHECK FOR SWAP ERRORS
1192  01 00108  68400116            BAZ     SE4D             NONE
1193  01 00109  25E0017D A          SLD,14  =3               ERROR FLAGS TO R15
1194  01 0010A  25E00003 A          SLS,14  3                CLEAR FLAGS
1195  01 0010B  55E80000 X          STH,14  UH:FLG2,4        SAVE NEW FLAGS
1196  01 0010C  7020000F A          LC      15               GET SWAP ERROR FLAGS
1197  01 0010D  69400000 X          BCS,4   T:DELUSZAP       OFF THIS USER - CONTEXT ERROR
1198  01 0010E  68200111            BCR,2   SE4D1            USER AREA ERROR
1199  01 0010F  32500000 X          LW,5    S:CUN            USER NUMBER
1200  01 00110  68000000 X          B       T:SCRATCH+USER
1201  01 00111  6D000037 A  SE4D1   DISABLE                          ***** DISABLE *****
1202  01 00112  52680000 X          LH,R6   UH:DL,R4         GET DO LIST
1203  01 00113  49600000 X          OR,6    X4000            SET ERROR FLAG
1204  01 00114  55680000 X          STH,6   UH:DL,4          SAVE
1205  01 00115  6D000027 A          ENABLE                           ***** ENABLE *****
1206        01 00116        SE4D    EQU     $
1207        00000001                DO      PERFORM
1208  01 00116  6A600000 X          BAL,6   ACTIVATE
1209                                FIN
1210  01 00117  21E00010 A          CI,R14  SWAPD            CHECK FOR JUST SWAPPED IN
1211  01 00118  68400011D           BAZ     SE4F             NO
1212  01 00119  48E00005 N          AND,R14 XFFEF            CLEAR THE JUST SWAPPED IN FLAG
1213        00000005  S     XFFEF   EQU     NB31T80+5
1214        00000004  S     XFFF7   EQU     NB31T80+4
1215  01 0011A  6A300000 X          BAL,3   T:ACCTEX         ACCOUNT EXEC TIME UP TO NOW
1216  01 0011B  32400000 X          LW,4    S:CUN
1217  01 0011C  55E80000 X          STH,14  UH:FLG2,4        SAVE SECOND FLAGS
1218  01 0011D  22000000 N  SE4F    LI,RO   J:OVHTIM         SET CLOCK TO OVERHEAD
1219  01 0011E  35000000 X          STW,RO  S:CLOCK4         AND SET IN CLOCK POINTER
1220  01 0011F  32D00000 X          LW,R13  J:DELTAT         COMPUTE
1221  01 00120  30D00000 X          AW,R13  J:OVHTIM          EFFECTIVE
1222  01 00121  30D00000 X          AW,R13  J:CTIME            QUANTUM
1223  01 00122  35D80000 X          STW,R13 U:MISC,R4        SAVE IN MISC
1224  01 00123  6A200000 X          BAL,2   T:MASTER
1225  01 00124  52580000 X          LH,5    UH:DL,4          GET DO LIST
```

```
1226  01 00125  693 00045          BNE     SSE1            GO DECODE
1227  01 00126  32A 00000 X       LW,10   J:TIMENT        GET STIMER ENTRY ADDRESS.
1228  01 00127  683 00369          BEZ     T:PULLE         NONE
1229  01 00128  322 00000 X       LW,2    J:UTIMER        CHECK TIMER
1230  01 00129  692 00369          BGZ     T:PULLE         NOT UP YET
1231  01 0012A  220 00000 A       LI,0    0
1232  01 0012B  350 00000 X       STW,0   J:TIMENT        ONLY ONE ENTRY PER CAL.
1233  01 0012C  680 0018E          B       ALTENT          GO TO STIMER ENTRY ADDRESS
```

```
01 0012D                  SEABRT   RES      0
01 0012D  32100000 X      T:OFF    LW,1     J:ACCN
01 0012E  69300131                 BNEZ     OFF10
01 0012F  32100001 N               LW,1     SYSACT+1        GET BLANKS
01 00130  35100000 X               STW,1    J:ACCN
01 00131                  OFF10    RES      0
01 00131  32400000 X               LW,4     S:CUN           CHECK IF THIS IS
01 00132  52180000 X               LH,1     UH:FLG2,4       A LINE-HANGUP USER
01 00133  21100020 A               CI,R1    HANGUP          CHECK FOR HANGUP FLAG
01 00134  22100010 A               LI,R1    X'10'           ASSUME NOT (CC2 UNCHANGED)
01 00135  68400137                 BAZ      NOTLNF          NOT HANGUP, RNST = X'10'
01 00136  22100008 A               LI,R1    8               LINE HANGUP, RNST = X'08'
01 00137                  NOTLNF   RES      0
01 00137  75100000 X               STB,1    J:RNST
01 00138  22D00180 A               LI,R13   TIC+BAT         TEL IN CONTROL AND BATCH FLAGS
01 00139  45D0000F A               CS,R13   R15             CHECK FOR PRE CCI ABORT
01 0013A  69300000 X               BNE      T:TELDELCCI     NO, EXIT.
01 0013B  68000083                 B        SSE5            YES, IGNORE FOR NOW
01 0013C                  SEERR    RES      0
01 0013C  60000027 A               ENABLE
01 0013D  22100003 A               LI,1     3
01 0013E  35100000 F               STW,1    J:JIT+ERO
01 0013F  22E000B4 A               LI,14    X'B4'
01 00140  22100020 A               LI,1     X'20'
01 00141  68000000 X               B        SETRNST
                                   REF      SETRNST
01 00142  6820013C        SEOVRUN  BCR,2    SEERR           MUST HAVE ALL THREE BITS SET
01 00143  6810013C                 BCR,1    SEERR
01 00144  22100003 A               LI,R1    3               SLEEP FOR 3 TICKS
01 00145  35180000 X               STW,R1   U:MISC,4
01 00146  22600012 A               LI,R6    SW              WAIT STATE
01 00147  6AB00195                 BAL,11   T:REG
01 00148  68000044                 B        SSE0            START OVER
```

```
1269                                        DEF     DELTAGO
1270   01 00149                  DELTAGO    RES     0
1271                             *                  GO TO DELTA.  BRING DELTA INTO CORE IF NECESSARY.
1272                             *                  ASSUMES DELTA ASSOCIATED, NOT TEL-IN-CONTROL.
1273                             *                  REGISTERS MUST BE SET AS FOLLOWS:
1274                             *                  R10 = DELTA ENTRY ADDRESS.
1275                             *                  R4  = USER NUMBER. (CURRENT USER).
1276                             *                  R15 = USER'S FLAGS (UH:FLG).  DELA SET, TIC RESET.
1277                             *                  R0 CONTENTS GO INTO TOP WORD OF DELTA'S STACK AFTER
1278                             *                      COPYING TSTACK CONTEXT TO DELTA'S STACK.
1279   01 00149  12C00006                        LD,R12  19SPD
1280   01 0014A  15C00000 X                     STD,R12 TSTACK          CRANK STACK DOWN TO 1 ENVIRONMENT.
1281                                        DEF     DELTAGOT
1282   01 0014B                  DELTAGOT   RES     0                    (DONT CRANK STACK ON TRAPS)
1283   01 0014B  21F00040 A                     CI,15   DIC             DIC = DELTA IN CORE & ACCESSIBLE.
1284   01 0014C  69400169                       BANZ    DELTAIN         ===> SO JUST DO THE STACK COPY.
1285   01 0014D  20F00040 A                     SETST   DIC             IF NOT DIC, WE'LL MAKE IT SO.
       01 0014E  55F80000 X
1286   01 0014F  72280000 X                     LB,2    UB:ASP,4        ASP NONZERO = DELTA NOT AROUND.
1287   01 00150  68300166                       BEZ     DELNOASP        ===> NO ASP; DELTA'S IN CORE NOW.
1288   01 00151  20FFFFFF A             RSETST  RTR                     HAVE ASP, SO MUST FETCH DELTA.
       01 00152  55F80000 X
1289   01 00153  73F40000 X                     MTB,-1  PB:UC,2         DECREMENT ASP (LIBRARY) USE COUNT.
1290   01 00154  52E80000 X                     LH,14   UH:FLG2,4
1291   01 00155  21E00800 A                     CI,14   X'800'          LOCKED IN CORE
1292   01 00156  68400158                       BAZ     NOLCT           NO
1293   01 00157  73F40000 X                     MTB,-1  PB:LCT,2        STILL LOCKED
1294   01 00158  69200158                       BG      NOLCT           YES
1295   01 00159  72240000 X                     LB,2    PB:PSZ,2        NO, GET PSZ
1296   01 0015A  3A200002 A                     LCW,2   2               AND TAKE IT
1297   01 0015B  66200000 X                     AWM,2   S:RTCORE        FROM RTCORE
1298   01 0015C  6A200559                 NOLCT BAL,2   IDB
1299   01 0015D  22600001A A                    LI,6    E:AP
1300   01 0015E  6AB00195                       BAL,11  T:REG           READ DELTA INTO CORE.
1301   01 0015F  21E00800 A                     CI,14   X'800'          LOCKED IN CORE
1302   01 00160  68400166                       BAZ     DELNOASP        NO
1303   01 00161  73020000 X                     MTB,0   PB:LCT,1        ALREADY LOCKED
```

```
01 00162  69200165              BG        *+3              YES
01 00163  72E20000 X            LB,14     PB:PSZ,1         NO, GET PSZ
01 00164  66E00000 X            AWM,14    S:RTCORE         AND ADD IT IN
01 00165  73120000 X            MTB,1     PB:LCT,1
01 00166  32600000 A  DELNOASP  LW,6      0                 (SAVE R0 ACROSS T:PAC)
01 00167  6AB00000 X            BAL,11    T:PAC            LOAD DELTA'S ACCESS-PROTECTION.
01 00168  32000006 A            LW,0      6                 (RESTORE R0)
01 00169  22100000 N  DELTAIN   LI,1      SPDBASE          R1 => DELTA'S STACK.
01 0016A  3260000A A            LW,6      10               SAVE ENTRY ADDR ACROSS T:UTSXTS.
01 0016B  6A400332              BAL,4     T:UTSXTS         COPY TSTACK TO DELTA STACK.
01 0016C  6A400175              BAL,R4    DELSTBAD          (BAD-STACK RETURN; GO TIDY IT UP).
01 0016D  49600008              OR,6      SMPSD            BUILD A   R E L I A B L E   PSD
01 0016E  32700009              LW,7      SMPSD+1          AROUND DELTA'S ENTRY ADDRESS
01 0016F  95600003 A            STD,6     *3               AND INSTALL IN TSTACK.
01 00170  72800000 X            LB,R8     J:RNST
01 00171  3586000A A            STW,R8    R8+2,3           PUT RNST INTO R8 IN TSTACK.
01 00172  22800000 A            LI,R8     0
01 00173  75800000 X            STB,R8    J:RNST           ZERO OUT RNST.
01 00174  68000044              B         T:SSEM         -----> RESCHEDULE, THEN GOTO DELTA.
01 00175  32300000 X  DELSTBAD  LW,R3     TSTACK           ** DELTA'S STACK IS BAD. FIX R3
01 00176  203FFFEF A            AI,R3     -17              ** TO POINT TO PSD IN TSTACK.
01 00177  68080000 A            B         0,R4
                      *
01 00178  220FFFFF A  SE7       LI,0      -1               BREAK. R0= CODE FOR BREAK (-1).
01 00179  21F00080 A            CI,15     TIC              TIC = COMMAND PROCESSOR IN CONTROL
01 0017A  69400181              BANZ      SE6              ---> GO IF C.P. IN CONTROL.
01 0017B  21F00400 A            CI,15     DELA             DELA = DELTA ASSOCIATED.
01 0017C  68400184              BAZ       SE6A             ---> GO IF USERCONTROL, NODELTA.
01 0017D  22A0000D N            LI,10     SPPBASE+X'D'     R10= DELTA BREAK ENTRY ADDRESS.
01 0017E  68000149              B         DELTAGO        -----> GO TO DELTA.
                                DEF       SE7A             SLAVELINE BREAK. R0= LINE NUMBER.
01 0017F  21F00080 A  SE7A      CI,15     TIC              TIC = COMMAND PROCESSOR IN CONTROL.
01 00180  68400184              BAZ       SE6A             ---> GO IF USER IN CONTROL.
01 00181  52280000 X  SE6       LH,2      UH:FLG2,4        SEE IF CP
01 00182  21204000 A            CI,2      X'4000'          HAS BREAK CONTROL
01 00183  68400044              BAZ       T:SSEM           ---> NO, IGNORE BREAK
01 00184  32A00000 X  SE6A      LW,10     J:INTENT         R10= USER/C.P. BREAK ADDRESS.
```

```
01 00185  6930018E                BNEZ    ALTENT              ===> IF M:INT, GO TO USER/C.P.
                        *
01 00186  21F00080 A    SE9       CI,15   TIC                 CTL-Y, OR BREAK WITH NO M:INT.
01 00187  69400044                BANZ    T:SSEM              ==> IGNORE IF C.P. IN CONTROL.
01 00188  52280000 X              LH,2    UH:FLG2,4
01 00189  21200800 A              CI,2    RTHOLD              IS USER 'LOCKED-IN-CORE'
01 0018A  69400044                BANZ    T:SSEM              YES...IGNORE 'YC'/'BREAK'
01 0018B  22100002 A              LI,1    2                   TELL C.P. THAT
01 0018C  47100000 X              STS,1   J:TELFLGS             BRK/YC RECEIVED.
01 0018D  68000000 X              B       T:ECCP
                                  REF     T:ECCP
                        *
01 0018E                ALTENT    RES     0        (R0=USERSTACK FLAGWORD, R10=USERROUTINE ADDR)
01 0018E  32100000 X              LW,1    J:TCB               BREAK/TIMEOUT WITH USER CONTROL.
01 0018F  22B1FFFF A              LI,11   X'1FFFF'            COPY ADDR ONLY INTO TSTACK PSD.
01 00190  6A400332                BAL,4   T:UTSXTS            COPY TSTACK TO USER TCB STACK.
01 00191  68000193                B       ALTERR              ===> ERROR IN USER STACK.
01 00192  68000369                B       T:PULLE             GO TO USER.
                        *
01 00193  22E000A3 A    ALTERR    LI,14   X'A3'               *** ERROR IN BREAK/STIMER.
01 00194  68000000 X              B       T:ABORTM            ***
```

```
1363                                    *
1364                                    *       T:REG   REPORT EVENT AND GIVE UP
1365                                    *
1366                                    *       R6 = EVENT NUMBER
1367                                    *       R11 = LINK
1368                                    *       ALL REGISTERS PRESERVED
1369                                    *
1370                                    *       T:REG MUST BE CALLED MAPPED AS IT ASSUMES THAT
1371                                    *       WE MAY BLOCK THE CURRENT USER FOR SOME UNSATISFIED
1372                                    *       CONDITION.  THE ENVIRIONMENT EXISTING AT THE TIME
1373                                    *       T:REG IS CALLED IS SAVE IN THE CURRENT USER'S JIT
1374                                    *       AND THEN THE EVENT IS REPORTED.  SOME EVENT-
1375                                    *       CIRCUMSTANCE COMBINATIONS WILL CAUSE AN IMMEDIATE
1376                                    *       T:PULLF.  NORMALLY, HOWEVER THE USER WILL BE SUSPENDED
1377                                    *       AND A NEW USER SCHEDULED AT T:SE.
1378                                    *
1379                                            DEF     T:REG
1380  01 00195  0F000000 X  T:REG       XPSD,0  REG1PSD         GET CURRENT PSD AND GO MAPPED
1381  01 00196  02200060 A  REG1        PUSH    6,13            SAVE 13,14,15,0,1,2
      01 00197  0BD00000 N
1382  01 00198  3200000B A              LW,R0   R11             RETURN
1383  01 00199  221E0000 A              LI,R1   X'E0000'        MASK IT INTO
1384  01 0019A  4A000000 X              LS,R0   REG1PSD         PSD
1385  01 0019B  32100001 N              LW,R1   REG1PSD+1       GET SECOND HALF
1386  01 0019C  6A200000 X              BAL,R2  T:SAVE          SAVE ENVIRIONMENT
1387  01 0019D  6A200000 X  REG2        BAL,R2  T:SMPFLG        SET MASTER ONLY FLAG
1388  01 0019E  22B000AA              LI,R11  T:SE            SET RETURN TO SCHEDULE
1389                                    *                       RE-SCHEDULE
1390                                    *
1391                                    *       T:RE  REPORT EVENT FOR CURRENT USER
1392                                    *
1393                                    *       R11 = LINK
1394                                    *       R6 = EVENT (MODIFIED)
1395                                    *       ALL OTHER REGISTERS VOLATILE
1396                                    *
1397  01 0019F  32400000 X  T:RE        LW,R4   S:CUN           GET CURRENT USER NUMBER
1398                                    *       B       RCEO            WADE INTO EVENT REPORTING
```

```
                                          *                                       T:RCE - REPORT CUC EVENT
                                          *                                       T:RE - REPORT EVENT FOR CURRENT
                                          *                                                USER
                                          *                                       T:RUE - REPORT EVENT FOR SPECIFIED
                                          *                                                USER
                                          *                                       7 = LINE# (RCE ONLY)
                                          *                                       6 = EVENT#
                                          *                                       5 = USER# (RUE ONLY)
      01 001A0     6D000037 A    RCE0      DISABLE                                EVENT REPORTING MUST BE DONE
      01 001A1     33100000 X              MTW,+1     S:EVF                       SET EVENT FLAG-COUNTER
                                          *                                       DISABLED
      01 001A2     72380000 X              LB,3       UB:US,4                     GET CURRENT STATE
      01 001A3     32C60000 X              LW,12      X1,3                        GET BIT CORRESPONDING TO IT
      01 001A4     31CC0000 03   RCE1      CW,12      S:SET,6                     ARE WE AT THE RIGHT PLACE
      01 001A5     694001AC                BANZ       RCE3                        YES
      01 001A6     32FC0000 03             LW,15      S:SET,6                     CHECK FOR CONTINUATION
      01 001A7     691001AA                BLZ        RCE2                        YES
      01 001A8     0F000000 X              SCREECH    X'02'                       BAD STATE EVENT COMBINATION
      01 001A9     00020000 A
                                          *S*******************************************************************
                                          *S*                                                                 *
                                          *S*       SCREECH CODE: 02              CALLED FROM SCHED           *
                                          *S*       MESSAGE: USER'S STATE AND EVENT ARE INCONSISTENT          *
                                          *S*       SIGNIFICANT REGISTERS:                                    *
                                          *S*                R3 - USER'S CURRENT STATE                        *
                                          *S*                R4 - USER NUMBER                                 *
                                          *S*                R6 - EVENT NUMBER (MAY HAVE BEEN INCREMENTED)    *
                                          *S*               R11 - RETURN ADDRESS FOR EVENT REPORTING          *
                                          *S*               R12 - BIT CORRESPONDING TO CURRENT STATE          *
                                          *S*               R15 - REGISTER USED FOR CONTINUATION CHECK        *
                                          *S*                      BIT 0 WILL BE EQUAL TO ZERO                *
                                          *S*       REMARKS: USUALLY A SOFTWARE CHECK 02 INDICATES THAT SOME  *
                                          *S*                PIECE OF THE SYSTEM PASSED BAD ARGUMENTS TO T:RE, *
                                          *S*                T:REG OR T:RUE.  THE SOLUTION TO THE PROBLEM WILL *
                                          *S*                GENERALLY COME FROM DETERMINING WHO CALLED THE    *
                                          *S*                EVENT REPORTING LOGIC AND WHY.                   *
                                          *S*******************************************************************
```

```
01 001AA   20600001 A    RCE2     AI,6      1                   NEXT ENTRY
01 001AB   680001A4                B         RCE1                CONTINUE
01 001AC   722C0000 02   RCE3     LB,2      SB:SET,6            GET ACTION CODE
01 001AD   52F80000 X              LH,15     UH:FLG,4            GET FLAGS FOR MANY ST EVENTS
01 001AE   2120001F A              CI,2      SNSTS               CHECK FOR SPECIAL ACTION
01 001AF   692401FC                BG        S:TRNSVEC-X'20',2   YES GO TO IT
                         *
                         *        STATE CHANGE FOR NON-EXECUTABLE STATES
                         *
01 001B0   72580000 X    RCE4     LB,5      UB:BL,4             GET BACK LINK
01 001B1   72180000 X              LB,1      UB:FL,4             AND FORWARD LINK
01 001B2   693001B4                BNEZ      $+2                 NOT TAIL
01 001B3   75560000 X              STB,5     SB:TQ,3             SET NEW TAIL
01 001B4   20500000 A              AI,5      0                   CHECK FOR HEAD
01 001B5   693001B7                BNEZ      $+2                 NO
01 001B6   75160000 X              STB,1     SB:HQ,3             SET NEW HEAD
01 001B7   75520000 X              STB,5     UB:BL,1             CROSS LINK
01 001B8   751A0000 X              STB,1     UB:FL,5             REMAINING QUEUE MEMBERS
01 001B9   22100000 A              LI,1      0                   ZAPPER
01 001BA   20400000 A              AI,4      0                   CHECK FOR QUEUE TO HEAD
01 001BB   691001C3                BLZ       T:QH                YES
01 001BC   75180000 X    T:QT     STB,1     UB:FL,4             ZAP FLINK SINCE WE ARE AT TAIL
01 001BD   72140000 X              LB,1      SB:TQ,2             GET PREVIOUS TAIL
01 001BE   683001ED                BEZ       CHSE25              EMPTY QUEUE
01 001BF   75440000 X              STB,4     SB:TQ,2             SET NEW TAIL
01 001C0   75180000 X              STB,1     UB:BL,4             BACK LINK TO PREVIOUS TAIL
01 001C1   75420000 X              STB,4     UB:FL,1             AND MAKE HIM POINT TO NEW GUY
01 001C2   6800024E                B         CHS1                DONE
01 001C3   75180000 X    T:QH     STB,1     UB:BL,4             SET BACK LINK TO ZERO
01 001C4   72140000 X              LB,1      SB:HQ,2             GET CURRENT HEAD
01 001C5   683001ED                BEZ       CHSE25              EMPTY QUEUE
01 001C6   75440000 X              STB,4     SB:HQ,2             AND SET NEW HEAD
01 001C7   75420000 X              STB,4     UB:BL,1             SET BLINK TO PREVIOUS HEAD
01 001C8   75180000 X              STB,1     UB:FL,4             SET FLINK TO PREVIOUS  HEAD
01 001C9   6800024E                B         CHS1                DONE
```

```
1472                                *
1473                                *       CHANGE STATE FOR EXECUTABLE STATES
1474                                *
1475                                *       R1 = PRIORITY INCREMENT INDEX, DESTROYED
1476                                *             0 => NONE  (OLD SCOM)
1477                                *             1 => S:SCPINC (OLD SC)
1478                                *             2 => S:IOCPINC (OLD SIOC)
1479                                *             3 => S:IRPINC (OLD SIR,SEC,SBK,SON,SOFF)
1480                                *       R2 = TEMP, NEW STATE
1481                                *       R3 = OLD STATE
1482                                *       R4 = USER NUMBER
1483                                *             QUEUE TO HEAD IF BIT 0 IS SET
1484                                *       R5 = TEMP, USER PRIORITY
1485                                *       R11 = LINK  EXIT WILL ENABLE
1486                                *       R15 = USER FLAGS (UH:FLG)
1487                                *       THESE ROUTINES MUST BE CALLED DISABLED
1488                                *
1489  01 001CA 22100021D    T:CHSE0  LI,1     STSC              SET INDEX TO ZERO (BASE COMPUTE)
1490  01 001CB 72280000 X   T:CHSE   LB,2     UB:PRIOB,4        GET CURRENT PRIORITY
1491  01 001CC 21F0000C A            CI,R15   OPNCLSUSR+SPECFILE   CHECK FOR EXTRA BOOST
1492  01 001CD 684001CF              BAZ      $+2               NO, NOTHING SPECIAL FOR HIM
1493  01 001CE 202FFFFC A            AI,2     -OPNBOOST         YES, GIVE HIM AN EXTRA SHOT
1494  01 001CF 201FFDE3 N            AI,1     -STSC             SUBTRACT BASE ADDRESS
1495  01 001D0 58220000 X            SH,2     SH:PINC,1         ADD PROPER PRIORITY INCREMENT
1496  01 001D1 72280000 X   CHSE0    STB,2    UB:PRIO,4         REMEMBER NEW VALUE
1497  01 001D2 31200000 X            CW,2     S:CUR             GREATER THAN CURRENT USER
1498  01 001D3 681001DA              BGE      CHSE1             NO, DONT SET S:HIR
1499  01 001D4 21F00001 A            CI,15    1                 IF HE IS IN CORE
1500  01 001D5 684001DA              BAZ      CHSE1             NO
1501  01 001D6 33100000 X            MTW,1    S:HIR             GOT A HIGH PRIO GUY
1502  01 001D7 692001DA              BG       CHSE1             POSITIVE IS OK
1503  01 001D8 22100001 A            LI,1     1                 ELSE FORCE TO ONE
1504  01 001D9 35100000 X            STW,1    S:HIR             IF 0 OR NEGATIVE
1505  01 001DA 202FFF0B A   CHSE1    AI,2     -X'F5'            PRIO FOR STATE SC0
1506  01 001DB 6920021A              BG       CHSE6             CHANGE STATE TO SC1 = SC10
1507  01 001DC 20200035 A            AI,2     X'F5'-X'C0'       CHECK FOR REAL TIME
1508  01 001DD 69100202              BL       CHSRT             YES
```

```
1509  01 001DE  22200002 A          LI,2    SCO             QUEUE INTO SCO FOR HIGH PRIO BGRD
1510  01 001DF  72580000 X  CHSE2   LB,5    UB!BL,4         GET BLINK *
1511  01 001E0  72180000 X          LB,1    UB!FL,4         AND FLINK  *
1512  01 001E1  693001E3            BNEZ    *+2             NOT AT TAIL * UNLINK
1513  01 001E2  75560000 X          STB,5   SB!TQ,3         SET NEW TAIL *
1514  01 001E3  20500000 A          AI,5    0               CHECK FOR AT HEAD
1515  01 001E4  693001E6            BNEZ    *+2             NO
1516  01 001E5  75160000 X          STB,1   SB!HQ,3         YES, SET NEW HEAD
1517  01 001E6  751A0000 X          STB,1   UB!FL,5         CROSS LINK REMAINING MEMBERS
1518  01 001E7  75520000 X          STB,5   UB!BL,1         IN OLD STATE QUEUE
1519  01 001E8  72580000 X          LB,5    UB!PRIO,4       GET PRIORITY
1520  01 001E9  20400000 A          AI,4    0               CHECK FOR QUEUE TO HEAD
1521  01 001EA  69100206            BLZ     CHSEH           YES
1522  01 001EB  72140000 X          LB,1    SB!TQ,2         GET TAIL OF NEW QUEUE
1523  01 001EC  693001F2            BNE     CHSE3           NOT EMPTY
1524  01 001ED  75180000 X  CHSE25  STB,1   UB!BL,4         NULL QUEUE
1525  01 001EE  75180000 X          STB,1   UB!FL,4         ZAP LINKS
1526  01 001EF  75440000 X          STB,4   SB!TQ,2         SET HEAD AND
1527  01 001F0  75440000 X          STB,4   SB!HQ,2         TAIL POINTERS
1528  01 001F1  6800024E            B       CHS1            EXIT
1529  01 001F2  71520000 X  CHSE3   CB,5    UB!PRIO,1       COMPARE PRIORITIES
1530  01 001F3  681001F7            BGE     CHSE4           THIS IS THE PLACE
1531  01 001F4  72120000 X          LB,1    UB!BL,1         BLINK BACK
1532  01 001F5  693001F2            BNE     CHSE3           AND TRY AGAIN
1533  01 001F6  680001C3            B       T!QH            AT THE HEAD OF THIS Q
1534  01 001F7  75180000 X  CHSE4   STB,1   UB!BL,4         SET BACK LINK
1535  01 001F8  72520000 X          LB,5    UB!FL,1         GET FORWARD
1536  01 001F9  693001FE            BNEZ    CHSE5           NOT AT TAIL
1537  01 001FA  75440000 X          STB,4   SB!TQ,2         SET NEW TAIL
1538  01 001FB  75580000 X          STB,5   UB!FL,4         ZAP FORWARD LINK
1539  01 001FC  75420000 X          STB,4   UB!FL,1         LINK TO PREVIOUS TAIL
1540  01 001FD  6800024E            B       CHS1            EXIT
1541  01 001FE  754A0000 X  CHSE5   STB,4   UB!BL,5         SET BLINK FOR NEXT GUY
1542  01 001FF  75580000 X          STB,5   UB!FL,4         AND POINT TO HIM
1543  01 00200  75420000 X          STB,4   UB!FL,1         LINK TO PREVIOUS GUY
1544  01 00201  6800024E            B       CHS1
1545  01 00202          CHSRT   RES     0               GOT  A REAL TIME GUY
```

```
1546  01 00202  22200001 A            LI,2     $RT              STATE REAL TIME
1547  01 00203  72580000 X            LB,5     UB:PRIBB,4       GET BASE PRIORITY
1548  01 00204  75580000 X            STB,5    UB:PRIB,4        AND MAKE IT CURRENT * DONT FLOAT RT
1549  01 00205  680001DF               B        CHSE2            CHAIN HIM IN
1550  01 00206  72140000 X  CHSEH     LB,1     SB:HQ,2          GET CURRENT HEAD
1551  01 00207  683001ED               BEZ      CHSE25           NULL QUEUE
1552  01 00208  71520000 X  CHSEH1    CB,5     UB:PRIB,1        COMPARE PRIORITIES
1553  01 00209  69100020D              BL       CHSEH2           AT THE RIGHT SPOT NOW
1554  01 0020A  72120000 X            LB,1     UB:FL,1          FLINK ON
1555  01 0020B  693000208              BNE      CHSEH1           AND COMPARE AGAIN
1556  01 0020C  680001BC               B        T:QT             WE GO ON THE TAIL
1557  01 0020D  75180000 X  CHSEH2    STB,1    UB:FL,4          SET NEW FORWARD LINK
1558  01 0020E  72520000 X            LB,5     UB:BL,1          GET HIS OLD BACK LINK
1559  01 0020F  693000214              BNEZ     CHSEH3           NOT AT HEAD
1560  01 00210  75440000 X            STB,4    SB:HQ,2          SET NEW HEAD
1561  01 00211  75580000 X            STB,5    UB:BL,4          ZAP BLINK
1562  01 00212  75420000 X            STB,4    UB:BL,1          MAKE HIM POINT BACK
1563  01 00213  6800024E               B        CHS1             EXIT
1564  01 00214  754A0000 X  CHSEH3    STB,4    UB:FL,5          MAKE PREVIOUS GUY POINT TO US
1565  01 00215  75580000 X            STB,5    UB:BL,4          POINT BACK AT HIM
1566  01 00216  75420000 X            STB,4    UB:BL,1          SET NEXT GUYS BLINK TO US
1567  01 00217  6800024E               B        CHS1             EXIT
1568                      *
1569  01 00218  6U000037 A  T:CHS     DISABLE
1570  01 00219  680001B0               B        RCE4
1571  01 0021A  20200002 A  CHSE6     AI,R2    SC0              ADD IN BASE STATE NUMBER
1572  01 0021B  680001B0               B        RCE4             AND DO SIMPLE STATE CHANGE
```

```
1574                                    *
1575                                    * SPECIAL ROUTINES FOR RE
1576                                    *
1577          01 0021C                  STRNSVEC EQU     *
1578    01 0021C    6A1001CB            STSCOM   BAL,1    TICHSE          COMPUTE
1579    01 0021D    6A1001CB            STSC     BAL,1    TICHSE          SPECIAL COMPUTE
1580    01 0021E    6A1001CB            STIOCC   BAL,1    TICHSE          I/O COMPLETE
1581    01 0021F    6A100220            STIRC    BAL,1    INTERACTIVE     INTERACTIVE
1582          01 00221                  STOC     EQU      STIOCC          TERMINAL OUTPUT CONTINUE
1583          01 00220                  INTERACTIVE EQU   *
1584    01 00220    49F00000 X                   OR,15    X20             SET INTERACTIVE BIT
1585    01 00221    55F80000 X                   STH,15   UH:FLG,4        IN FLAGS
1586    01 00222    680001CB                     B        TICHSE          AND CHANGE STATE

1588                                    *         BLOCK FOR I/O IN PROGRESS OR MF TOO HIGH

1590    01 00223    22100000 A  STIOMF   LI,R1    0                       ZERO DCB TO FORCE BLOCK
1591          01 00224                  STIIP    EQU      *               I/O IN PROGRESS
1592    01 00224    72280000 X                   LB,2     UB:MF,4
1593    01 00225    68300369                     BEZ      GRANT           I/O IS ALLREADY DONE
1594    01 00226    22B0003C                     LI,R11   TISEO           CHANGE RETURN TO AVOID TISS
1595    01 00227    20600010 A                   AI,6     SIOW-E:IIP      FORM PROPER STATE NUMBER
1596    01 00228    32200006 A                   LW,2     6               MOVE TO PROPER REGISTER
1597    01 00229    20100000 A                   AI,1     0               CHECK FOR NEWQ (DCBADDR =0)
1598    01 0022A    68300180                     BEZ      RCE4            NEWQ
1599          00000007                  FCN      EQU      7
1600    01 0022B    32820007 A                   LW,8     FCN,1           GET FUNCTION COUNT WORD
1601    01 0022C    31800000 X                   CW,8     YFF             TEST FOR ZERO FUNCTIO COUNT
1602    01 0022D    68400369                     BAZ      GRANT           YES, LET HIM GO
1603    01 0022E    49800000 X                   OR,8     Y8              SET MARKER BIT IN FCN WORD OF DCB
1604    01 0022F    35820007 A                   STW,8    FCN,1           AND REPLACE IT
1605    01 00230    68000180                     B        RCE4            PARK HIM

1607                                    *         I/O COMPLETE REPORT HANDLING

1609          01 00231                  STIOC    EQU      *               I/O COMPLETE
1610    01 00231    73F80000 X                   MTB,-1   UB:MF,4          DECREMENT MASTER FUNCTION COUNT
```

```
1611  01 00232  31C00566          CW,12    *(1**SIOW)+(1**SIOMF)
1612  01 00233  68400250          BAZ      ENBISR4          NOT WAITING, GET OUT
1613  01 00234  72080000 X        LB,R0    UB!MF,R4         CHECK FOR ALL I/O COMPLETE
1614  01 00235  68300247          BEZ      IOCOM3           YES
1615  01 00236  21300011 A        CI,3     SIOMF            CHECK FO MASTER FUNCTION COUNT BLOCK
1616  01 00237  68300241          BE       IOCOM2           YES, WITH I/O GOING
1617  01 00238  4B100000 X  IOCOM1 AND,R1   M21              SCRUB DCB PHYSICAL ADDRESS
1618  01 00239  6830021E          BEZ      STIOCC           NO DCB, NEWQ
1619  01 0023A  32220007 A        LW,R2    FCN,R1           GET FUNCTION COUNT WORD
1620  01 0023B  6810024B          BGEZ     IOCOM4           NOT WAITING ON THIS ONE
1621  01 0023C  31200000 X        CW,R2    Y7F              CHECK FOR ZERO FCN
1622  01 0023D  6940024B          BANZ     IOCOM4           NO, DONT UNBLOCK YET
1623  01 0023E  4B200000 X  IOCOM5 AND,R2   M24              SCRUB FLAG OFF
1624  01 0023F  35220007 A        STW,R2   FCN,R1           REPLACE FCN WORD WITH FLAG OFF
1625  01 00240  6800021E          B        STIOCC           AND UNBLOCK
1626  01 00241  32200000 X  IOCOM2 LW,2     SL!OIMF          GET ONLINE UNBLOCK
1627  01 00242  21F00100 A        CI,15    BAT              CHECK FOR BATCH
1628  01 00243  68400245          BAZ      $+2              NO
1629  01 00244  32200000 X        LW,2     SL!BIMF          YES, USE BATCH LIMIT
1630  01 00245  71280000 X        CB,2     UB!MF,4          SHOULD WE RESTART HIM
1631  01 00246  69100250          BL       ENBISR4          NO
1632  01 00247  33100000 X  IOCOM3 MTW,+1    S:SEVF           SWAP SET CHANGED
1633  01 00248  21300011 A        CI,R3    SIOMF            BLOCKED FOR MASTER FUNCTION COUNT
1634  01 00249  69300238          BNE      IOCOM1           NO
1635  01 0024A  6800021E          B        STIOCC           TURN HIM LOOSE
1636  01 0024B  72080000 X  IOCOM4 LB,R0    UB!MF,R4         GET MF AGAIN
1637  01 0024C  69300250          BNE      ENBISR4          STILL GOT I/O GOING
1638  01 0024D  6800023E          B        IOCOM5           AND REPLACE IN DCB
1639  01 0024E  75280000 X  CHS1  STB,2    UB!US,4          REMEMBER NEW STATE
1640  01 0024F  33100000 X        MTW,+1   S:EVF            SET EVENT FLAG COUNTER
1641  01 00250            STNOP  RES      0
1642  01 00250  6D000027 A  ENBISR4 ENABLE
1643  01 00251            BISR4  RES      0
1644  01 00251  E8000008 A        B        *11
```

```
1646                                    *       ABORT OR OFF EVENT HANDLER

1648    01 00252    21F00100 A  STABRT  CI,15    BAT             CHECK FOR BATCH
1649    01 00253    69400261            BANZ     SETDL           SET DO LIST
1650    01 00254    22300000 N          LI,3     MAXG            CHECK FOR GHOST
1651    01 00255    60000027 A          ENABLE                   ALLOW INTERRUPTS   ** ENABLE **
1652    01 00256    71460000 X          CB,4     SB:GJOBUN,3     IS HIS USER NUMBER A GHOST
1653    01 00257    68300025F           BE       STABRT1         YES, NO COC LINE
1654    01 00258    64300256            BDR,3    *-2             CONTINUE
1655    01 00259    227FFFFF N          LI,7     LNOL-1          MUST BE ONLINE, FIND HIS LINE #
1656    01 0025A    714E0000 X          CB,4     LB:UN,7         HIS USER NUMBER
1657    01 0025B    68300274            BE       COCABRT         YES
1658    01 0025C    64700025A           BDR,7    *-2             NO, KEEP SEARCHING
1659    01 0025D    71400000 X          CB,4     LB:UN           MIGHT BE LINE ZERO
1660    01 0025E    68300274            BE       COCABRT         YES
1661    01 0025F    60000037 A  STABRT1 DISABLE                  BLOCK INTERRUPTS   ** DISABLE**
1662    01 00260    72380000 X          LB,3     UB:US,4         GET USERS STATE
1663    01 00261    31C00567    SETDL   CW,12    *(1**SQR)+(1**SQR0)  CHECK FOR SQR OR SQR0
1664    01 00262    68400269            BAZ      SETDL1          NEITHER
1665    01 00263    32180000 X          LW,1     U:MISC,4        GET RESOURCE
1666    01 00264    72100001 A          LB,1     1               INDEX
1667    01 00265    51E20000 05         CH,14    SH:RFLG,1       SHOULD WE CHANGE STATE
1668    01 00266    68400269            BAZ      SETDL1          NO
1669    01 00267    6A0002DE            BAL,0    T:UQR           UNQ FROM RESOURCE CHAIN
1670    01 00268    49600000 X          OR,6     YS              SET STATE CHANGE FLAG
1671    01 00269                SETDL1  RES      0
1672    01 00269    51E80000 X          CH,14    UH:DL,4         IS THIS FLAG ALREADY SET
1673    01 0026A    69400250            BANZ     ENBISR4         YES, GET OUT
1674    01 0026B    50E80000 X          AH,14    UH:DL,4         MERGE IN NEW FLAG
1675    01 0026C    55E80000 X          STH,14   UH:DL,4         AND PUT AWAY
1676    01 0026D    65600021F           BIR,6    STIRC           TEST FLAG FOR STATE CHANGE
1677    01 0026E    68000250            B        ENBISR4         NO STATE CHANGE
```

```
1679                                   *        COMMON PROCESSING FOR E:OFF,E:ERR,E:CBK,E:CEC
1680                                   *        ONLY E:OFF REQUIRES SPECIAL ADDITIONAL ACTION

1682   01 0026F   49600000 X   STBEEAC  OR,6     Y8                  SET STATE CHANGE FLAG
1683   01 00270   49600000 X   STBEEA   OR,6     X1                  SELECT RIGHT HALFWORD
1684   01 00271   52EC0008 N            LH,14    X1*(12-E:CBK/2),6   PICK PROPER FLAG
1685                                   *                             E:CBK => X1000
1686                                   *                             E:CEC => X2000
1687                                   *                             E:ERR => X4000
1688                                   *                             E:OFF => X8000 (NEGATIVE HALFWORD)
1689                                   *
1690   01 00272   69100252            BLZ      STABRT              SPECIAL ABORT PROCESSING
1691   01 00273   68000261            B        SETDL               SET DOLIST
1692   01 00274   09B00000 N   COCABRT PUSH     11                  SAVE RETURN
1693   01 00275   6AB0025F            BAL,11   STABRT1             SET FLAGS AND MAYBE CHANGE STATE
1694   01 00276   08B00000 N            PULL     11                  POP RETURN
1695   01 00277   68000000 X            B        COCOFF              AND MARK LINE OFF(7-LINE #)
1696                                   *
1697                                   *        ASSOCIATE PROCESSOR
1698                                   *
1699                                   *        QUEUES USER TO HEAD OF SPECIAL COMPUTE QUEUE
1700                                   *
1701   01 00278   49400000 X   STASP    OR,4     Y8                  SET HEAD OF Q FLAG
1702   01 00279   68000021D           B        STSC                AND MAKE HIM SPECIAL COMPUTE
1703   01 0027A   21F04000 A   STCRD    CI,15    X'4000'             TEST FOR UNBLOCK BEFORE BLOCK
1704   01 0027B   69400282            BANZ     QFORA2              YES
1705   01 0027C   22200016 A            LI,2     STI                 STATE TERMINAL INPUTTING
1706   01 0027D   49400000 X            OR,R4    Y8                  SET HEAD OF QUEUE FLAG
1707   01 0027E   680001B0            B        RCE4                GO CHANGE STATE
1708        01 0027F           STQA     EQU      $
1709   01 0027F   52F80000 X            LH,15    UH:FLG,4
1710   01 00280   21F04000 A            CI,15    X'4000'
1711   01 00281   68400285            BAZ      QFORA1
1712   01 00282   20FFC000 A   QFORA2   AI,15    -X'4000'            TURN OFF FLAG
1713   01 00283   55F80000 X            STH,15   UH:FLG,4
1714   01 00284   68000369            B        T:PULLE
1715   01 00285   22200013 A   QFORA1   LI,2     SQA
```

```
01 00286   680001B0            B        RCE4
01 00287   21300013 A  STUQA   CI,3     SQA              IS HE QUEUED FOR ACCES
01 00288   6830021D            BE       STSC             YES SPECIAL COMPUTE
01 00289               STIRCU  RES      0
01 00289   49F00000 X          OR,15    X4000
01 0028A   55F80000 X          STH,R15  UH:FLG,R4        SAVE NEW FLAGS
01 0028B   68000250            B        ENBISR4          ENABLE AND EXIT
                       *
                       *       KICKOUT USER SPECIAL TRANSITION
                       *
01 0028C   72280000 X  STKOT   LB,2     UB:US,4          FORM NEW STATE
01 0028D   20200001 A          AI,2     STOBO-STOB       FOR TERMINAL I/O OUT OF CORE
01 0028E   4BF00568            AND,15   =(RTR+JIC)       RESET JIC AND RTR
01 0028F   55F80000 X          STH,R15  UH:FLG,R4        SAVE NEW FLAGS
01 00290   680001B0            B        RCE4             AND CHANGE STATE
01 00291   4BF00568    STKO    AND,15   =(RTR+JIC)       RESET JIC AND RTR
01 00292   55F80000 X          STH,15   UH:FLG,4         SAVE FLAGS
01 00293   2130000C A          CI,3     SEXU             CHECK FOR EXECUTABLE
01 00294   69200250            BG       ENBISR4          NO, SKIP STATE CHANGE
01 00295   72280000 X          LB,2     UB:PRIO,4        GET PRIORITY
01 00296   680001DA            B        CHSE1            WADE INTO STATE CHANGE
```

```
1739                                * UNQUEUE FOR ALLYCAT... RESIDENT PORTION OF ALLYCAT

1741          01 00297              STUQFAC  EQU     $
1742    01 00297    22100004 A              LI,R1    4                 INDEX FOR BUFFERS
1743    01 00298    201FFFFF A    UNQNEXT   AI,R1    -1                DECREMENT INDEX
1744    01 00299    691002CD                BLZ      UNQXIT            EXIT IF NO MORE
1745    01 0029A    6U000037 A              DISABLE
1746    01 0029B    52220000 X              LH,R2    BUFLAGS,R1        GET FLAGS
1747    01 0029C    25200010 A              SLS,R2   16                POSITION
1748    01 0029D    70200002 A              LC       R2                GET MSG
1749    01 0029E    694002A1                BCS,4    UNQEMPTY          JUST EMPTIED
1750    01 0029F    692002A4                BCS,2    UNQFILL           JUST FILLED
1751    01 002A0    680002A6                B        UNQSETFL          DO ARITHMETIC ON EMPTH HGP
1752    01 002A1    52220000 X    UNQEMPTY  LH,R2    BOTTOM,R1         UPDATE THE POINTERS
1753    01 002A2    55220000 X              STH,R2   TEMPBOT,R1
1754    01 002A3    680002A6                B        UNQSETFL          RESET THE FLAGS

1756    01 002A4    52220000 X    UNQFILL   LH,R2    TEMPBOT,R1        UPDATE THE POINTERS
1757    01 002A5    55220000 X              STH,R2   BOTTOM,R1
1758    01 002A6    52220000 X    UNQSETFL  LH,R2    BUFLAGS,R1        RESET THE FLAGS
1759    01 002A7    4B2002B5                AND,R2   X'9FFF'
1760    01 002A8    55220000 X              STH,R2   BUFLAGS,R1

1762    01 002A9    52220000 X              LH,R2    WORDCNT,R1        ADJUST WORD COUNT
1763    01 002AA    50220000 X              AH,R2    ADJSTCNT,R1       TO NEW VALUE
1764    01 002AB    55220000 X              STH,R2   WORDCNT,R1
1765    01 002AC    202FFFFF A              AI,R2    -1                DECREMENT COUNT
1766    01 002AD    31220000 X              CW,R2    BUFMASK,R1        COMPARE TO MAX POSSIBLE
1767    01 002AE    6B2002B1                BLE      UNQNEXT1          OKAY
1768    01 002AF    0F000000 X              SCREECH  X'88'             BUMMER
        01 002B0    00880000 A
1769    01 002B1    22200000 A    UNQNEXT1  LI,R2    0                 NOW ZAP
1770    01 002B2    55220000 X              STH,R2   ADJSTCNT,R1       ADJUSTED COUNTER
1771    01 002B3    6U000027 A              ENABLE                     LET EM RIP

1773    01 002B4    68000298                B        UNQNEXT
```

```
1775   01 00285    00009FFE A   X9FFF    DATA    X'9FFE'
1776                                     REF     BOTTOM,TEMPBOT,BUFLAGS
1777                                     REF     WORDCNT,ADJSTCNT

1779          FR                 UNQXIT   EQU     T:REL1
```

```
1781                                    *
1782                                    *       BLOCK AND RELEASE FOR RESOURCES
1783                                    *
1784                                    *       SB:RQ CONTAINS THE RESOURCE SUB QUEUE HEADS
1785                                    *       SB:RQ IS INDEXED BY RESOURCE NUMBER(E:XXX,E:REL)
1786                                    *
1787                                    *       ODD NUMBERED RESOURCE EVENT DIFFERENCES MEAN RELEASE
1788                                    *
1789  01 002B6  206FFFE2 A  T:RES   AI,6    -E:REL          TAKE OFF BASE
1790  01 002B7  2560027F A          SCS,6   -1              HALVE AND POSITION FLAG
1791  01 002B8  20600000 A          AI,6    0               TEST FOR RELEASE
1792  01 002B9  691002C5            BLZ     T:REL           YES
1793  01 002BA  722C0000 04         LB,2    SB:RBLK,6       GET BLOCK TRANSFER INDEX
1794  01 002BB  693402E5            BNEZ    T:BLKV,2        GO TO IT
1795  01 002BC  722C0000 X          LB,2    SB:RQ,6         GET HEAD OF RESOURCE Q
1796  01 002BD  75600002 A          STB,6   2               SAVE RESOURCE INDEX
1797  01 002BE  35280000 X          STW,2   U:MISC,4        SET FLINK
1798  01 002BF  75440000 X          STB,R4  UB:PRIO,R2      AND BLINK TO CURRENT HEAD
1799  01 002C0  22200000 A          LI,2    0               ZAP
1800  01 002C1  75280000 X          STB,2   UB:PRIO,4        BLINK
1801  01 002C2  754C0000 X          STB,4   SB:RQ,6         SET NEW HEAD
1802  01 002C3  22200014 A          LI,2    SQR             NEW STATE
1803  01 002C4  680001B0            B       RCE4
1804                                    *
1805                                    *
1806  01 002C5  522C0000 05 T:REL   LH,2    SH:RFLG,6       GET FLAGS AND INDEX
1807  01 002C6  21200100 A          CI,2    SPECIFIC        SPECIFIED USER ONLY
1808  01 002C7  694002DA            BANZ    RELB            YES
1809  01 002C8  21200400 A          CI,2    NULL            CHECK FOR ACTION ON NULL Q
1810  01 002C9  724C0000 X          LB,4    SB:RQ,6         GET HEAD OF SUBQUEUE
1811  01 002CA  68700250            BCR,7   ENBISR4         NONE IN Q AND NO NULL FLAG
1812  01 002CB  48200000 X  RELA    AND,2   M8              SCRUB TO INDEX
1813  01 002CC  693402E5            BNE     T:RELV,2        GO TO SPECIAL ROUTINE
1814  01 002CD  60000037 A  T:REL1  DISABLE                 MERGE POIN FOR SPECIAL UNBLOCK ROUTI
1815  01 002CE  20400000 A          AI,4    0               CHECK FOR NULL Q
1816  01 002CF  68300250            BEZ     ENBISR4         YES, GET OUT
1817  01 002D0  6A0002DE            BAL,0   T:UQR           UNQUEUE FOR RESOURCE
```

```
1818  01 002D1  09B00000 N          PUSH    11              SAVE RETURN
1819  01 002D2  72380000 X          LB,3    UB:US,4         GET CURRENT STATE
1820  01 002D3  6AB0021D            BAL,11  STSC            SPECIAL COMPUTE
1821  01 002D4  08B00000 N          PULL    11              RESTORE RETURN
1822  01 002D5  522C0000 05         LH,2    SH:RFLG,6       GET FLAGS
1823  01 002D6  21200200 A          CI,2    FLUSH           FLUSH ALL>
1824  01 002D7  68400250            BAZ     ENBISR4         NO
1825  01 002D8  60000037 A          DISABLE                         ***** DISABLE *****
1826  01 002D9  680002C5            B       T:REL           CONTINUE FLUSHING
1827  01 002DA  31C00567      RELB  CW,R12  *(1**SQR)+(1**SQR0)  CHECK THAT HE IS SQR OR SQR0
1828  01 002DB  694002CB            BANZ    RELA            YES, OK
1829  01 002DC  22400000 A          LI,R4   0               OTHERWISE ZAP USER NO
1830  01 002DD  680002CB            B       RELA            TO SKIP UNQ
```

```
1832                                    *
1833                                    *
1834                                    *       UNQUEUE FOR RESOURCE
1835                                    *
1836                                    *            CALLED DISABLED
1837                                    *
1838                                    *       R0 = LINK
1839                                    *       R1 = TEMP
1840                                    *       R4 = USER NUMBER
1841                                    *       R5 = TEMP
1842                                    *       R6 = FORCED TO RESOURCE INDEX FOR USER(R4)
1843                                    *
1844                                    *       UB:PRIO IS USED AS A BACK LINK
1845                                    *       BYTE(3) OF U:MISC IS FORWARD LINK
1846                                    *       BYTE(0) OF U:MISC IS RESOURCE INDEX
1847                                    *       SB:RQ(R6) CONTAINS HEAD OF SUB-QUEUE
1848                                    *
1849  01 002DE  32580000 X  T:UQR       LW,5    U:MISC,4        GET FORWARD LINK
1850  01 002DF  72600005 A              LB,6    5               RESOURCE INDEX
1851  01 002E0  72180000 X              LB,1    UB:PRIO,4       GET BLINK
1852  01 002E1  693002E3               BNEZ    *+2
1853  01 002E2  755C0000 X              STB,5   SB:RQ,6         SET NEW HEAD
1854  01 002E3  751A0000 X              STB,1   UB:PRIO,5       CROSS LINK REMAINING
1855  01 002E4  35520000 X              STW,5   U:MISC,1        ENTRIES
1856  01 002E5  E8000000 A              B       *0              RETURN
```

```
1858                                *
1859                                *       SPECIAL ACTION VECTOR FOR RESOURCE BLOCK
1860                                *
1861          01 002E5              T:BLKV  EQU     *-1             BASE
1862                                *
1863                                *
1864                                *
1865                                *
1866                                *
1867                                *
1868                                *       SPECIAL ACTION VECTOR FOR RESOURCE UNBLOCK
1869                                *
1870          01 002E5              T:RELV  EQU     *-1             BASE
1871    01 002E6    68000297        UQFAC   B       STUQFAC         UNQUEUE FOR ALLOCAT
1872    01 002E7                    OPNUNBLOCK RES  0
1873    01 002E7    32F00000 X              LW,R15  OPNCLSUS        DID ANY GET THERE BEFORE US
1874    01 002E8    69300250                BNEZ    ENBISR4         YES GET OUT
1875    01 002E9    52F80000 X              LH,R15  UH:FLG,R4       GET HIS FLAGS
1876    01 002EA    49F00000 X              OR,R15  X8              SET OPNCLSUSR FLAG
1877    01 002EB    55F80000 X              STH,R15 UH:FLG,R4       AND SAVE NEW FLAGS
1878    01 002EC    35400000 X              STW,R4  OPNCLSUS        CLEAR, MAKE HIM OPNCLS USER
1879    01 002ED    68000ZCD                B       T:REL1          AND UNBLOCK HIM
1880                                *
1881                                *
```

```
1883                                    *
1884                                    *       T:RCE    REPORT C0C EVENT
1885                                    *
1886                                    *       R11 = LINK
1887                                    *       R6 = EVENT (MAY BE ALTERED)
1888                                    *       R7 = LINE # (LINE TABLE INDEX)
1889                                    *
1890                                    *       ALL OTHER REGISTERS VOLATILE
1891                                    *
1892                                    *       RETURNS ENABLED
1893                                    *
1894  01 002EE  724E0000 X  T:RCE       LB,4    LB:UN,7         USER #
1895  01 002EF  683002F7              BEZ     L0G0N
1896  01 002F0  2160000E A            CI,6    E:0FF           SEE IF 0FF EVENT FROM C0C
1897  01 002F1  693002F5              BNE     N0T0FF
1898  01 002F2  52280000 X            LH,2    UH:FLG2,4       BIT 10 IN UH:FLG2 TO
1899  01 002F3  49200000 X            OR,2    X20             .INDICATE A REAL
1900  01 002F4  55280000 X            STH,2   UH:FLG2,4       ..LINE HANGUP
1901  01 002F5                  N0T0FF  RES     0
1902  01 002F5  214000FF A            CI,4    X'FF'
1903  01 002F6  693001A0              BNE     RCE0
1904        01 002F7            L0G0N   EQU     $
1905                                    *
1906                                    *                       THIS ROUTINE FINDS AN AVAILABLE USE
1907                                    *                       SLOT FOR A GUY WHO IS ATTEMPTING TO
1908                                    *                       ON.  IT THEN GETS A PAGE FOR HIS JI
1909                                    *                       SETS SOME FLAGS,  AND Q'S HIM UP.
1910                                    *
1911  01 002F7  21600008 A            CI,6    E:CBK
1912  01 002F8  69300251              BNE     BISR4
1913  01 002F9  60000037 A            DISABLE
1914  01 002FA  2210001E A            LI,1    SNULL           GET HEAD OF
1915  01 002FB  72420000 X            LB,4    SB:HQ,1         NULL STATE
1916  01 002FC  68300250              BEZ     L0GN0           CAN'T L0G0N - NO AVAIL USERS
1917  01 002FD  32100000 X            LW,1    S:0UIS
1918  01 002FE  31100000 X            CW,1    S:0UAIS
1919  01 002FF  68100250              BGE     L0GN0
```

```
1920   01 00300   222 00001 N    LI,2     LSWAP+1
1921   01 00301   32F 00000 X    LW,15    S:OUAIS
1922   01 00302   31F 5FFFF N    CW,15    M:FREE#GRAN-1,2
1923   01 00303   691 00306      BL       *+3
1924   01 00304   642 00302      BDR,2    *-2
1925   01 00305   680 00250      B        LOGNO
1926   01 00306   331 00000 X    MTW,1    S:OUIS
1927   01 00307   754 E0000 X    STB,4    LB:UN,7
1928   01 00308   32F 00000 X    LW,15    SL:OPRIO          GET DEFAULT ONLINE PRIO
1929                              DEF      ADD1
```

```
1931                    ****************************************************
1932                    *                                                  *
1933                    *          ADD A USER TO THE SYSTEM                *
1934                    *                                                  *
1935                    *                                                  *
1936                    *        CALLED BY MBS AND TIGJOBSTRT TO           *
1937                    *        START BATCH AND GHOST USERS.              *
1938                    *        IN-LINE PIECE OF LOGON WHICH STARTS       *
1939                    *        ON-LINE USERS.                            *
1940                    *                                                  *
1941                    *        R11 = LINK                                *
1942                    *        R4 = USER NUMBER (IN)                     *
1943                    *                                                  *
1944                    *       THE NEW USER WILL BE PLACED IN AN          *
1945                    *       EXECUTABLE STATE IF A DISC PAGE IS         *
1946                    *       AVAILABLE FOR HIS JIT.  IF NOT, HE         *
1947                    *       WILL BE PUT IN SQR AND QUEUED FOR          *
1948                    *       A DISC PAGE.  WHEN A DISC PAGE IS          *
1949                    *       AVAILABLE AND HE IS SCHEDULED FOR          *
1950                    *       INSWAP, THE SWAPPER WILL RE-ENTER          *
1951                    *       ADD1 AT GETJIT WHICH WILL AGAIN TRY        *
1952                    *       TO GET A SPOT FOR HIS JIT BEFORE HIS       *
1953                    *       INITIAL INSWAP.                            *
1954                    *                                                  *
1955                    ****************************************************

1957          01 00309              ADD1    EQU     *
1958    01 00309    33100000 X              MTW,1   S:CUIS          INCREMENT NO. OF USERS IN SYSTEM
1959    01 0030A    75F80000 X              STB,R15 UB:PRIOB,R4     PUT AWAY USER PRIORITY
1960                          *  GET GRAN FOR JIT AFTER DECIDING WHICH RAD AND GRAN POS ON THAT RAD
1961    01 0030B    09B00000 N    GETJIT    PUSH    11
1962    01 0030C    6U000037 A              DISABLE
1963    01 0030D    32200000 X              LW,R2   NSWAP           NO. OF SWAPPERS IN SYSTEM
1964    01 0030E    32100000 X              LW,R1   NSWAP
1965    01 0030F    32F3FFFF N              LW,15   M:FREE#GRAN-1,1 GET # OF GRAN AVAIL ON 1ST SWAP RAD
1966          01 00310              GJG1    EQU     *
1967    01 00310    31F3FFFF N              CW,15   M:FREE#GRAN-1,1 IS # IN HAND GREATER THAN BUSH
```

```
1968  01 00311  68100314          BGE     GJG2            SURE IS, KEEP IT AND TRY NEXT
1969  01 00312  32F3FFFF N        LW,15   M:FREE#GRAN-1,1 NAA, HEAD FOR THE BUSHES
1970  01 00313  32200001 A        LW,2    1               AND POINT TO NEW ONE
1971        01 00314          GJG2    EQU     *
1972  01 00314  64100310          BDR,1   GJG1            TRY NEXT
1973  01 00315  202FFFFF A        AI,2    -1
1974                      *  2 POINTS TO THE MOST AVAILABLE RAD  GET NXT GRAN POS
1975  01 00316  75280000 X        STB,2   UB:SWAPI,4      ALLOCATE USER TO RAD
1976  01 00317  32140000 X        LW,1    M:JITPAGE,2     NEXT GRAN POS
1977  01 00318  6AB00000 X        BAL,11  T:SGAJIT
1978  01 00319  69100032E         BCS,1   GJG4            NONE AVAEIL
1979  01 0031A  72140000 X        LB,1    MB:SPACEJIT,2   INCR VALUE TO SPACE AROUND THIS RAD
1980  01 0031B  66140000 X        AWM,1   M:JITPAGE,2     UPDATA FOR NXT
1981  01 0031C  2220021F          LI,2    STIRC           MAKE HIM INTERACTIVELY EXECUTABLE
1982  01 0031D          GJG3    RES     0
1983  01 0031D  08B00000 N        PULL    11              RESTORE RETURN
1984  01 0031E  55F80000 X        STH,15  UH:AJIT,4       ESTABLISH USERS JIT DISC ADDR.
1985  01 0031F  52F80000 X        LH,R15  UH:FLG,R4       GET USER FLAGS
1986  01 00320  49F00569          OR,R15  =TIC+PPSWP      SET TEL IN CONTROL AND PPSWAP
1987  01 00321  55F80000 X        STH,R15 UH:FLG,R4       STORE FLAGS
1988  01 00322  22300018 A        LI,R3   SQUAN+SWAPD     SET SQUAN AND JUST SWAPPED BIT
1989  01 00323  55380000 X        STH,R3  UH:FLG2,R4      IN SECOND FLAGS
1990  01 00324  22300001 N        LI,R3   1+:BIG          INITIAL PAGE COUNT
1991  01 00325  75380000 X        STB,3   UB:PCT,4        USER NEEDS 1 PAGE FOR HIS JIT
1992  01 00326  72380000 X        LB,3    UB:US,4         GET CURRENT STATE
1993  01 00327  22100000 A        LI,1    0
1994  01 00328  55180000 X        STH,1   UH:DL,4         MAKE SURE DOLIST EMPTY.
1995  01 00329  7300000A A        MTB,0   R10             WAS RESOURCE PASSED
1996  01 0032A  68340000 A        BEZ     0,R2            NO - EXIT
1997  01 0032B  22100000 N        LI,R1   RESCNCT         DOES RAS HANDLER EXIST
1998  01 0032C  68340000 A        BEZ     0,R2            NO - IGNORE THIS
1999  01 0032D  68020000 A        B       0,R1            DISPATCH RAS HANDLER - RETURN VIA R2
2000  01 0032E          GJG4    RES     0
2001  01 0032E  22600026 A        LI,6    E:ND            RESOURCE INDEX
2002  01 0032F  22200286          LI,2    T:RES           SET TO BLOCK FOR DISC PAGE
2003  01 00330  22FFFFFF A        LI,15   -1              SET FLAG FOR SWAPPER
2004  01 00331  6800031D          B       GJG3            MERGE WITH COMMON
```

```
        01 00250        L0GN0     EQU       ENBISR4
                        *
                        *
                                  SREF      RESCNCT             EXISTS 0NLY IN 560 SYSTEMS
                        *
                        *
```

```
2013                                        DEF     T:UTSXTS
2014          01 00332          T:UTSXTS    EQU     *
2015                            *                   COPY ENVIRONMENT FROM TSTACK TO USER STACK.
2016                            *                   MAPPED.  INTERRUPT INHIBITS UNCHANGED.
2017                            *                   R1 = ADDRESS OF USER STACK POINTER DOUBLEWORD.
2018                            *                   R0 CONTENTS WILL BE ON TOP OF USER STACK AFTER COPY.
2019                            *                   R10/R11 ARE CONTENTS/MASK TO REPLACE PSW0 IN TSTACK
2020                            *                         AFTER COPY.
2021                            *                   R4 = LINK.  RETURNS 1,R4 IF COPY IS SUCCESSFUL.
2022                            *                                 R0,R1,R4,R6 PRESERVED.
2023                            *                                 R2 = ADDRESS OF PSW0 IN USERSTACK.
2024                            *                                 R3 = MID-ADDRESS OF PSD IN TSTACK.
2025                            *                                 R5 = JITCB.
2026                            *                                 R0 IN TSTACK = JITCB.
2027                            *                                 R1 IN TSTACK => PSW0 IN USERSTACK.
2028                            *                                 PSW0 IN TSTACK MODIF. PER R10/R11.
2029                            *                           RETURNS 0,R4 IF USER STACK IS BAD.
2030                            *                                 R0,R1,R4,R6 PRESERVED.
2031                            *                                 R10,R11,R14 PRESERVED.
2032                            *
2033  01 00332  323 00001 A               LW,3    1
2034  01 00333  6A7 0035B                 BAL,7   CHKPROT-1           CHECK SPD IN 00 SPACE.
2035  01 00334  92C 00001 A               LD,12   *1                  12/13 ARE SPD.
2036  01 00335  323 0000C A               LW,3    12
2037  01 00336  203 00001 A               AI,3    1
2038  01 00337  6A7 0035C                 BAL,7   CHKPROT             CHECK STACK BOTTOM IN 00 SPACE.
2039  01 00338  21C 00001 A               CI,12   1
2040  01 00339  684 0033D                 BAZ     *+4                 IF STACKBOTTOM IS EVEN,
2041  01 0033A  223 00015 A               LI,3    21                    PUSH 21 WORDS
2042  01 0033B  225 FFFFF A               LI,5    -1                    STARTING WITH A -1.
2043  01 0033C  680 0033F                 B       *+3                 IF STACKBOTTOM IS ODD,
2044  01 0033D  223 00014 A               LI,3    20                    PUSH 20 WORDS
2045  01 0033E  225 00000 A               LI,5    0                     STARTING WITH A 0.
2046  01 0033F  329 0056A                 LW,9    L(X'80008000')
2047  01 00340  4A8 0000D A               LS,8    13                  REMEMBER SPD TRAP BITS.
2048  01 00341  49D 0056A                 OR,13   L(X'80008000')
2049  01 00342  133 0000C A               MSP,3   12                  MODIFY SPD IN 12/13.
```

```
2050  01 00343  69A80000 A          BCS,10   0,4              *****> EVIL STACK....
2051  01 00344  4780000D A          STS,8    13               RESTORE SPD TRAP BITS.
2052  01 00345  3230000C A          LW,3     12
2053  01 00346  6A70035C            BAL,7    CHKPROT          CHECK STACK TOP IN 00 SPACE.
2054  01 00347  95C00001 A          STD,12   *1               STORE UPDATED SPD.
2055  01 00348  3220000C A          LW,2     12
2056  01 00349  202FFFEE A          AI,2     -18              2 => PLACE FOR PSD.
2057  01 0034A  32300000 X          LW,3     TSTACK
2058  01 0034B  203FFFEF A          AI,3     -17              3 => PSD IN TSTACK.
2059  01 0034C  92E00003 A          LD,14    *3
2060  01 0034D  95E00002 A          STD,14   *2               STORE PSD IN OTHER STACK.
2061  01 0034E  47A0000E A          STS,10   14                 FIX UP PSWO
2062  01 0034F  95E00003 A          STD,14   *3                 IN TSTACK.
2063  01 00350  3555FFFF A          STW,5    -1,2             STORE -1 OR 0 IN OTHER STACK.
2064  01 00351  02200080 A          LCI      8
2065  01 00352  2A860002 A          LM,8     2,3
2066  01 00353  2B840002 A          STM,8    2,2              STORE REGS 0-7 IN OTHER STACK.
2067  01 00354  2A86000A A          LM,8     10,3
2068  01 00355  02200090 A          LCI      9
2069  01 00356  2B84000A A          STM,8    10,2             STORE REGS 8-15 IN OTHER STACK.
2070  01 00357  32500000 X          LW,5     JITCB
2071  01 00358  35560002 A          STW,5    2,3              STORE TCBADDR IN R0 IN TSTACK.
2072  01 00359  35260003 A          STW,2    3,3              STORE => PSD  IN R1 IN TSTACK.
2073  01 0035A  68080001 A          B        1,4              *****> OKAY RETURN...
2074                                *
2075                                *
2076                                DEF      CHKPROT
2077  01 0035B  22FFFFFF A          LI,15    -1               GARBAGE PAGE # FOR FIRST CALL.
2078        01 0035C                CHKPROT  EQU      $
2079                                *        CHECK STOREABILITY IN *R3. USES R2,R3,R15.
2080                                *        RETURN 0,R7 IF OKAY,  0,R4 IF BAD.
2081                                REF      X1FE00
2082  01 0035C  4B300000 X          AND,3    X1FE00           CONVERT ARG TO PAGE ADDRESS.
2083  01 0035D  3130000F A          CW,3     15               SAME PAGE...
2084  01 0035E  683E0000 A          BE       0,7              ***> YES. MUST STILL BE OKAY.
2085                                REF      JOVVPA
2086  01 0035F  21300000 N          CI,3     JOVVPA           OUTSIDE THE MONITOR ROOT...
```

```
2087   01 00360   68100362          BGE     *+2             ***> YES.
2088   01 00361   68080000 A        B       0,4             ***> NO. MUST BE BAD.
2089   01 00362   32F00003 A        LW,15   3               REMEMBER PAGE ADDRESS.
2090   01 00363   25200115 A        SLD,2   21              R2= PAGE#/4.
2091   01 00364   25300202 A        SCS,3   2               R3= PAGE# MOD 4.
2092                                REF     J:JAC
2093   01 00365   72240000 X        LB,2    J:JAC,2         GET BYTE OF ACCESS CODES.
2094   01 00366   71260568          CB,2    L(X'C0300C03'),3 COMPARE THE PROPER TWO BITS.
2095   01 00367   684E0000 A        BAZ     0,7             ***> STOREABLE. RETURN OKAY.
2096   01 00368   68080000 A        B       0,4             ***> NOT STOREABLE. RETURN BAD.
```

```
2098                                        DEF     T:PULLE
2099          01 00369              T:PULLE EQU     *
2100    01 00369    6U000037 A              DISABLE
2101    01 0036A    222FFFED A              BUMP    *19,2
        01 0036B    13200000 X
2102    01 0036C    68100371                BCR,1   T:PULLE1        B/STACK NOT EMPTY
2103    01 0036D    32200000 X              LW,2    J:JIT           L/WD 0 OF JIT
2104    01 0036E    68300371                BEZ     T:PULLE1        BEZ; MONITOR JIT, DON'T TOUCH TSTACK
2105    01 0036F    22200000 N              LI,2    JTSTACKSZ       L/USER JIT'S TSTACK SIZE
2106    01 00370    55200001 N              STH,2   TSTACK+1        PURGE STACK; RESET SPACE COUNT
2107          01 00371              T:PULLE1 EQU    *
2108          01 00369              GRANT   EQU     T:PULLE
2109    01 00371    22200002 A              LI,2    2
2110    01 00372    30200000 X              AW,2    TSTACK
2111    01 00373    35200001 N              STW,2   PULLE1+1
2112    01 00374    02200000 A              LCI     0
2113    01 00375    2A040002 A              LM,0    2,2
2114    01 00376    8E800001 N              LPSD,8  *PULLE1+1
```

```
2116                                    *
2117                                    *       CLOCK4 INTERRUPT ROUTINE
2118                                    *
2119                                            REF     CLK4PSD
2120                                            DEF     CLK4
2121          01 00377                  CLK4    EQU     *
2122    01 00377    099000000 N                 PUSH    9
2123    01 00378    329000000 X                 LW,9    CLK4PSD
2124    01 00379    319000000 X                 CW,9    Y008
2125    01 0037A    684000382                   BAZ     CK3EX
2126    01 0037B    089000000 N                 PULL    9
2127    01 0037C    0EB000004                   LPSD,11 CMP             CLEAR INT,PUSHE AND SSE1
2128    01 0037D    022000060 A       CK3UM1    T:PUSHE CLK4PSD
        01 0037E    00D000000 N
        01 0037F    120000000 X
        01 00380    6A2000000 X
2129    01 00381    680000045                   B       SSE1
2130    01 00382    089000000 N       CK3EX     PULL    9
2131    01 00383    0EB000000 X                 LPSD,11 CLK4PSD         CLEAR INT AND RETURN
```

```
                                 ************************************
                                 *        SWAP SCHEDULER            *
                                 ************************************


                                          DEF       TSS1
                01 00384         T:SS     EQU       $
01 00384     22000001 A                   LI,0      1
01 00385     46000000 X                   XW,0      S:SIP          SWAPPER BUSY
01 00386     69300251                     BNE       BISR4          YUP AND NOT RE-ENTRANT
01 00387     35000000 X                   STW,0     DID*I8
                01 00388         TSS1     EQU       $
01 00388     09B00000 N                   PUSH      11
                01 00389         TSS2     EQU       $
01 00389     12E00000 X                   LD,14     DOUBLEZERO     GET MORE ZEROES
01 0038A     02200030 A                   LCI       3              SET TO STORE 3 WORDS
01 0038B     2BE00000 X                   STM,14    S:PCT          CLEAR S:PCT,S:FPPH,S:FPPT
01 0038C     2BE00000 X                   STM,14    S:FPPC         CLEAR S:FPPC,S:AJP,SB:OSN
01 0038D     2BE00000 X                   STM,R14   S:OSS          ZAP COUNT OF PROCESSORS
                                 *
                                 * PICK A USER TO SWAP IN.
                                 *
01 0038E     22F00001 A                   LI,15     RTR
01 0038F     12200000 X                   LD,2      SB:HQ          GET PRESENCE INDICATORS FOR FIRST 7
01 00390     68300397                     BEZ       PIKF1          NONE, SKIP FIRST SEVEN
01 00391     49200000 X                   OR,2      Y7D            SET EXPONENT FOR FLOATING SHIFT
01 00392     24200110 A                   SFL,2     16             DO NORMALIZE TO FIND FIRST FULL STAT
01 00393     25200207 A                   SCS,2     7              COUNT=COUNT/2
01 00394     4B200000 X                   AND,2     M6             SCRUB
01 00395     48200000 X                   EOR,2     M6             INVERT TO FORM INDEX
01 00396     68000398                     B         $+2
01 00397     22200008 A          PIKF1    LI,2      8              START WITH EIGHTH STATE
01 00398     72440000 X          PIKUS1   LB,4      SB:HQ,2        PICK UP QUEUE HEAD
01 00399     6830039E                     BEZ       PIKUS3
01 0039A     51F80000 X          PIKUS2   CH,15     UH:FLG,4
```

```
01 0039B   684003A8            BAZ       SSIN           GOT ONE WHO NEEDS TO COME IN
01 0039C             PIKUS25   RES       0
01 0039C   72480000 X          LB,4      UB:FL,4        MOVE TO NEXT IN W
01 0039D   6930039A            BNEZ      PIKUS2
       01 0039E      PIKUS3    EQU       *
01 0039E   20200001 A          AI,2      1              NEXT STATE
01 0039F   2120000C A          CI,2      SEXU           MUST BE EXECUTABLE
01 003A0   68200398            BLE       PIKUS1         IT IS, GET HEAD AND LOOK
01 003A1   22E00000 A NO1IN    LI,14     0
01 003A2   35E00000 X          STW,14    S:ISUN
01 003A3   68000464            B         USERSOUT
                      *
01 003A4   22000000 A PIKUS5   LI,0      0              ZERO ZERO
01 003A5   22F00001 A          LI,R15    RTR            RESTORE READY TO RUN BIT
01 003A6   72280000 X          LB,R2     UB:US,R4       RESTORE USER STATE NUMBER
                      *                                 BEFORE CONTINUING SCAN
01 003A7   6800039C            B         PIKUS25        TRY ANOTHER
```

```
2186                                *  AT THIS POINT WE KNOW WHO WE WANT TO BRING IN.
2187                                *  REGISTERS ARE:
2188                                *     0 = 0
2189                                *     4 = USER #
2190                                *     3 = Q HE IS IN.
2191                                *
2192                                *  OTHER REGISTERS USED CONSISTANTLY ARE:
2193                                *     1 = UB:APR          ASSOCIATED PROCESSOR ROOT
2194                                *     2 = UB:APR          ASSOCIATED PROCESSOR OVRLAY SEG.
2195                                *    15 = PAGES NEEDED
2196                                *    14 = UH:FLG,4
2197                                *
2198                                *
2199  01 003A8  314OOOOO X  SSIN    CW,R4     S:ISUNF         DID WE FAIL ON THIS GUY
2200  01 003A9  693003B0            BNE       SSIN12           NO
2201  01 003AA  32700000 X          LW,R7     S:SEVF          HAS SWAP SET CHANGE
2202  01 003AB  31700000 X          CW,R7     S:FSEVF         OCCURRED SINCE WE FAILED
2203  01 003AC  693003B0            BNE       SSIN12          YES GO ON
2204  01 003AD  32700000 X          LW,R7     ALLOOUT         DOES ALLYCAT NEED TO GO OUT
2205  01 003AE  683004C6            BEZ       PROUT3          NO
2206  01 003AF  680003A1            B         NO1IN           YES
2207  01 003B0                SSIN12 RES       0
2208  01 003B0  53080000 X          MTH,0     UH:FLG,4        CHECK FOR BYPASS FLAG
2209  01 003B1  681003B8            BGE       SSIN1           NO
2210  01 003B2  6A6004F2            BAL,R6    GIVEUP7         TRIGGER PAGE STEALER RETURN
2211  01 003B3  680003A4            B         PIKUS5          STILL WONT FIT
2212  01 003B4  52780000 X          LH,R7     UH:FLG,R4       GET FLAGS
2213  01 003B5  207F8000 A          AI,R7     -BYPASS         RESET BYPASS BIT
2214  01 003B6  55780000 X          STH,R7    UH:FLG,R4       PUT AWAY UPDATED FLAGS
2215  01 003B7  22000000 A          LI,0      0               ZERO ZERO
2216  01 003B8                SSIN1  RES       0
2217  01 003B8  35400000 X          STW,4     S:ISUN          SAVE USERS #
2218  01 003B9  72E80000 X          LB,14     UB:PCT,4        PICK UP # OF PAGES USER NEEDS
2219  01 003BA  75000000 X          STB,0     SB:NP
2220  01 003BB  72680000 X          LB,6      UB:OV,4
2221  01 003BC  6A1003DB            BAL,1     PRCAV+1
2222  01 003BD  52F80000 X          LH,15     UH:FLG,4
```

```
2223  01 003BE  21F00200 A  CI,15    JIC          SEE IF THE GUYS PARTIALLY IN CORE
2224  01 003BF  684003C8    BAZ      CHKDELTEL      NOPE!
2225  01 003C0  72680000 N  LOAD,6   UX!JIT,4     SUBTRACT THE PAGES HE HAS
2226  01 003C1  25600008 A  SLS,6    11            FROM OUR REQUIREMENT
2227  01 003C2  20600000 N  AI,6     JBPPC
2228  01 003C3  727C0000 A  LB,7     0,6
2229  01 003C4  38E00007 A  SW,14    7
2230  01 003C5  21F00080 A  CI,15    TIC          IS TEL IN CONTROL
2231  01 003C6  694003CC    BANZ     CHKDT4        YES GET TEL
2232  01 003C7  680003D0    B        PROCAVL       NO GET OTHER PROCS
```

```
2234                                *
2235                                *  CHECK TO SEE IF DEL OR TEL NEED TO BE
2236                                *  ASSOCIATED OR DE-ASSOCIATED
2237                                *
2238          01 003C8              CHKDELTEL   EQU     $
2239    01 003C8    21F00080 A              CI,15       TIC             IS TEL IN CONTROL
2240    01 003C9    684003CE                BAZ         CHKDT3
2241    01 003CA    6A20053B                BAL,2       ITEL            INC TEL
2242    01 003CB    6A20055B                BAL,2       IOV
2243          01 003CC              CHKDT4    EQU     $
2244    01 003CC    72680000 X              LB,6        UB:ACP,4        GET COMMAND PROC #
2245    01 003CD    680003D9                B           PRCAVM1
2246    01 003CE    6A200550      CHKDT3    BAL,2       IPROCS          COUNT UP PROCS
2247    01 003CF    6A20055B                BAL,2       IOV
```

```
                                   *
                                   *  NOW MAKE SURE THE NECESSARY PROCESSORS ARE AVAILABLE
                                   *
          01 003D0                 PROCAVL  EQU      $
   01 003D0     21F00040 A                  CI,15    DIC
   01 003D1     694003D4                    BANZ     $+3
   01 003D2     72680000 X                  LB,6     UB:ASP,4
   01 003D3     693003D5                    BNEZ     $+2
   01 003D4     72680000 X                  LB,6     UB:DB,4
   01 003D5     6A1003DB                    BAL,1    PRCAV+1
   01 003D6     72680000 X                  LB,6     UB:APR,4         MAKE PROC ROOT AVAIL
   01 003D7     6A1003DB                    BAL,1    PRCAV+1
   01 003D8     72680000 X                  LB,6     UB:APO,4         MAKE PROC OVERLAY AVAIL
   01 003D9     221003E6           PRCAVM1  LI,1     SWIPEPGS
          01 003DA                 PRCAV    EQU      $
   01 003DA     20600000 A                  AI,6     0
   01 003DB     683003E5                    BEZ      PRCAV1
                                   *
   01 003DC                                 DO1      PERFORM
          00000001                          DO       PFRQ
   01 003DC     531C0000 X                  MTH,+1   PH:FRQ,R6        BUMP REQUEST COUNT
                                            FIN      PFRQ
                                   *
   01 003DD     728C0000 N                  LOAD,8   PX:HPP,6
   01 003DE     693003E5                    BNEZ     PRCAV1
                                   *
   01 003DF                                 DO1      PERFORM
   01 003DF     33100000 X                  MTW,1    C:NOPROC         COUNT UP # TIMES NOT AVAIL
                                   *
   01 003E0     73100000 X                  MTB,1    SB:NP
   01 003E1     727C0000 X                  LB,7     PB:PSZ,6
   01 003E2     30E00007 A                  AW,14    7
   01 003E3     72700000 X                  LB,7     SB:NP            PUT PROC  INTO INSWAP LIST
   01 003E4     756E0000 X                  STB,6    SB:PNL,7
   01 003E5                        PRCAV1   RES      0
   01 003E5     68020000 A                  B        0,1
```

```
2286          01 003E6          SWIPEPGS EQU     *
2287                            *
2288                            *  NOW WE KNOW EXACTLY HOW MANY PAGES WE NEED.
2289                            *  FIRST WE'LL GET THE FREE ONES, THEN TRY TO SWIPE
2290                            *  SOME FROM UNUSED PROCESSORS
2291                            *
2292   01 003E6   35E00000 X    *       STW,14   S:PCT
2293   01 003E7   20E00000 A            AI,14    0
2294   01 003E8   68300000 X            BE       GOTEXAC
2295   01 003E9   60000037 A            DISABLE
2296   01 003EA   02200030 A            LCI      3                PICK UP ALL FREE PAGES
2297   01 003EB   2A100000 X            LM,1     DOUBLEZERO          (ASSUMES M AND S:FPPH,T,C IN
2298   01 003EC   2A500000 X            LM,5     M:FPPH               SEQUENCE)
2299   01 003ED   28000000 X            STM,0    M:FPPH
2300   01 003EE   28500000 X            STM,5    S:FPPH
2301   01 003EF   60000027 A            ENABLE
2302   01 003F0   22300000 N            LI,3     PPROCS
2303   01 003F1   38E00000 X            SW,R14   S:FPPC           CHECK FOR FIT WITH FREE PAGES
2304   01 003F2   69100406              BLZ      GOTNUF           YES
2305   01 003F3   68300000 X            BEZ      SWAPIN           EXACTLY EVEN
2306                            *       B        PFA              FALL THROUGH TO PFA
```

```
2308                                    *
2309                                    *       ACCUMULATE A LIST OF ALL FREE, IN-CORE SHARED PROCESSORS
2310                                    *
2311                                    *       THE SHARED PROCESSOR TABLE, PX:HPP, WILL BE SCANNED A
2312                                    *       DOUBLEWORD AT A TIME TO QUICKLY SKIP OVER THE MAJORITY
2313                                    *       CASE OF PROCESSORS WHICH ARE NOT IN CORE.  A NON-ZERO
2314                                    *       DOUBLEWORD LOOK WILL TRIGGER A DETAIL SCAN OF THAT AREA.
2315                                    *       THOSE IN-CORE PROCESSORS WITH ZERO USE COUNT(PB:UC) WILL
2316                                    *       BE ADDED TO THE LIST OF ACQUIRABLE PROCESSORS(S:FPL) BY
2317                                    *       GETPRCPG AND THE TOTAL PAGES WHICH MAY BE ACQUIRED FROM
2318                                    *       UNUSED SHARED PROCESSORS ACCUMULATED IN S:PRPC.
2319                                    *       NO PROCESSORS WILL ACTUALLY BE KICKED OUT UNTIL IT
2320                                    *       HAS BEEN DETERMINED THAT A SUCCESSFUL SWAP MAY BE
2321                                    *       SCHEDULED.
2322                                    *
2323   01 003F4                         PFA     RES     0
2324   01 003F4   21300007 N                    CI,R3   7-:BIG-:BIG-:BIG-:BIG   :BIG=1 FOR SIGMA9; 0=SIGMA6
2325   01 003F5   69400403                      BANZ    PF3A                    STAY IN SLO LOOP
2326   01 003F6   25300070 N                    SLS,R3  :BIG-3                  ALIGN  FOR FAST LOOP SCAN
2327   01 003F7   203FFFFF A     PF2A           AI,3    -1                      NEXT GROUP
2328   01 003F8   681003FA                      BGEZ    PF1                     THERE IS 1
2329   01 003F9   68000404                      B       PF3B                    THAT'S ALL, SEE IF SUFFICIENT
2330   01 003FA   12660000 X     PF1            LD,6    PX:HPP,3                4 OR 8 ENTITIES
2331   01 003FB   683003F7                      BEZ     PF2A                    NONE ARE IN
2332   01 003FC   25300003 N                    SLS,R3  3-:BIG                  ALIGN FOR SLO LOOP
2333   01 003FD   20300007 N                    AI,R3   7-:BIG-:BIG-:BIG-:BIG
2334   01 003FE   72860000 N     PF3            LOAD,8  PX:HPP,3                IS IT IN CORE
2335   01 003FF   683003F4                      BEZ     PFA                     NOT THIS ONE
2336   01 00400   72260000 X                    LB,2    PB:UC,3                 HOW MANY USERS
2337   01 00401   693003F4                      BNEZ    PFA                     AT LEAST 1
2338         00000000                          DO      0
2339                          *S*               SCS,3   -5
2340                          *S*               LW,8    PBT:LOCK,3
2341                          *S*               SLD,2   5
2342                          *S*               SLS,8   0,2
2343                          *S*               AW,3    2
2344                          *S*               BL      PFA                     IT'S LOCKED IN
```

```
                                   FIN
01 00402  6A60055D                 BAL,6     GETPRCPG         LINK IT'S PAGES TO S:FPPH
01 00403  643003FE     PF3A        BDR,R3    PF3              NEXT PROCESSOR
01 00404  38E00000 X   PF3B        SW,R14    S:PRPC           SUBTRACT PROCESSOR TOTAL PAGES
01 00405  69200464                 BGZ       USERSOUT         NOT ENOUGH, TRY FOR USERS TOO
01 00406               GOTNUF      RES       0
01 00406  33100000 X               MTW,+1    S:SEVF           BUMP SWAP SET CHANGE COUNTER
01 00407  32E00000 X               LW,R14    S:ISUN           ANY BODY COMING IN
01 00408  68300000 X               BEZ       SWAPOUT          NO, THEN WE HAVE NO PAGES
01 00409  32E00000 X               LW,R14    S:PCT            GET PAGE COUNT REQUIRED
01 0040A  38E00000 X               SW,R14    S:OSS            SUBTRACT USER PAGES
01 0040B  38E00000 X               SW,R14    S:FPPC           AND FREE PAGES
01 0040C  6910042D                 BLZ       RETXCS           RETURN EXCESS IF ANY
01 0040D  68300446                 BEZ       DOSWAP           EXACTLY, DOSWAP
01 0040E  32300000 X               LW,R3     S:FPL            GET COUNT OF PROCSIN LIST
01 0040F  21300001 A               CI,R3     1                SKIP SORT IF ONLY ONE
01 00410  6820041C                 BLE       KOPROC           YES
01 00411  22800000 A   SORTL       LI,R8     0                CLEAR SWITCH FLAG
01 00412  32300000 X               LW,R3     S:FPL            GET COUNT
01 00413  203FFFFF A               AI,R3     -1               CORRECT INDEX
01 00414  32960000 X   SL1         LW,R9     S:FPL,R3         GET AN ELEMENT
01 00415  31960001 N               CW,R9     S:FPL+1,R3       CHECK ORDER
01 00416  6810041A                 BGE       SL2              OK SKIP SWITCH
01 00417  46960001 N               XW,R9     S:FPL+1,R3       XCHANGE
01 00418  35960000 X               STW,R9    S:FPL,R3          THEM
01 00419  22800004 A               LI,R8     4                AND SET FLAG TO SAY WE DID
01 0041A  64300414     SL2         BDR,R3    SL1              CONTINUE SCAN
01 0041B  64800411                 BDR,R8    SORTL            ANOTHER PASS IF ANY SWITCHES
01 0041C               KOPROC      RES       0
                       *           KICKOUT NECESSARY FREE PROCESSORS
                       *
01 0041C  32100000 X               LW,R1     S:FPL            GET COUNT IN LIST
01 0041D  223000FF A   KOPRL       LI,R3     X'FF'            MASK FOR PROCESSOR NUMBER
01 0041E  4B320000 X               AND,R3    S:FPL,R1         GET LOWEST FREQ PROCESSOR
01 0041F  72860000 N               LOAD,R8   PX:HPP,R3        GET HEAD OF ITS PAGE CHAIN
01 00420  72760000 N               LOAD,R7   PX:TPP,R3        GET TAIL OF PROCS CHAIN
01 00421  46700000 X               XW,R7     S:FPPT           SWAP WITH SWAPPER CHAIN TAIL
```

```
01 00422   69300425            BNEZ       $+3           GOT SOME ALREADY
01 00423   35800000 X          STW,R8     S:FPPH        ELSE ESTABLISH HEAD
01 00424   68000426            B          $+2
01 00425   758E0000 N          STORE,R8   MX:PPUT,R7    OTHERWISE CHAIN TO TAIL OF SWAPPER C
01 00426   72760000 X          LB,R7      PB:PSZ,R3     ADD SIZE
01 00427   75060000 N          STORE,R0   PX:HPP,R3       (ZAP CHAIN HEAD)
01 00428   66700000 X          AWM,R7     S:FPPC        TO PAGE COUNT
01 00429   201FFFFF A          AI,R1      -1            NEXT PROCESSOR
01 0042A   38E00007 A          SW,R14     R7            AND SUBTRACT FROM REQUIREMENT
01 0042B   6920041D            BGZ        KOPRL         STILL NEED MORE
01 0042C   68300446            BEZ        DOSWAP        EXACTLY
01 0042D   32500000 X RETXCS   LW,R5      S:FPPH        GET HEAD OF CHAIN
01 0042E   6D000037 A          DISABLE
01 0042F   3A60000E A          LCW,R6     R14           GET POSITIVE NUMBER TO RETURN
01 00430   31600000 X          CW,R6      S:FPPC        AND COMPARE WITH CURRENT FREE POOL
01 00431   68200435            BLE        RETOK         ALL OK, NOT MORE THAN ARE THERE
01 00432   3AE00000 X          LCW,R14    S:FPPC        TOO MANY, DEFAULT TO ALL
01 00433   68300445            BEZ        RETXCS1       NONE TO RETURN
01 00434   32600000 X          LW,R6      S:FPPC        POSITIVE RETURN COUNT
01 00435   66E00000 X RETOK    AWM,R14    S:FPPC        DECREMENT SWAPPER PAGE COUNT
01 00436   69300438            BNE        $+2           SOME LEFT
01 00437   35000000 X          STW,R0     S:FPPT        RETURNING ALL, ZAP TAIL
01 00438   66600000 X          AWM,R6     M:FPPC        ADD COUNT TO FREE PAGE POOL
01 00439   32600000 X          LW,6       M:FPPT
01 0043A   6930043D            BNEZ       $+3           DOES FREE PAGE CHAIN EXIST
01 0043B   35500000 X          STW,5      M:FPPH        NO, ESTABLISH HEAD
01 0043C   68000440            B          $+4
01 0043D   755C0000 N          STORE,5    MX:PPUT,6     YES, LINK TO TAIL
01 0043E   68000440            B          $+2
01 0043F   725A0000 N          LOAD,5     MX:PPUT,5     FIRST BIR,14 FOR CASE OF 1 PAGE
01 00440   65E0043F            BIR,14     $-1
01 00441   35500000 X          STW,5      M:FPPT        UPDATE TAIL
01 00442   726A0000 N          LOAD,6     MX:PPUT,5
01 00443   750A0000 N          STORE,0    MX:PPUT,5     ZERO TAIL OF CHAIN
01 00444   35600000 X          STW,6      S:FPPH        UPDATE SWAPPER HEAD
01 00445              RETXCS1  RES        0
01 00445   6D000027 A          ENABLE
```

```
2419  01 00446  22100000 N  DBSWAP   LI,R1     SWAPIN            ASSUME BEST CASE
2420  01 00447  72E00000 X           LB,R14    SB:DSN            ANY TO OUTSWAP
2421  01 00448  68300044A            BEZ       *+2               NO
2422  01 00449  22100000 N           LI,R1     SWAPOUT           YES
2423  01 0044A                PGCHKM  RES       0
2424  01 0044A  22700000 N           LI,7      M:FPPH
2425  01 0044B  60000000 A  T:PGCHK  RD,0      0
2426  01 0044C  68120000 A           BCR,1     0,1
2427  01 0044D  60000037 A           DISABLE
2428  01 0044E  35200000 X           STW,2     J:BASE
2429  01 0044F  220FFC00 A           LI,0      =1024        MAX POSSIBLE CHAIN LENGTH
2430  01 00450  322E0000 A           LW,2      0,7
2431  01 00451  68300045B            BEZ       PPR2
2432  01 00452  65000454     PPR3    BIR,0     *+2
2433  01 00453  68000459            B         PGSCR             LOOP
2434  01 00454  72B40000 N           LOAD,11   MX:PPUT,2
2435  01 00455  68300045B            BEZ       PPR2
2436  01 00456  72240000 N           LOAD,2    MX:PPUT,2
2437  01 00457  20B00000 N           AI,11     -NPMC
2438  01 00458  69300452            BNE       PPR3
2439  01 00459  0F000000 X  PGSCR    SCREECH   X'01'
      01 0045A  00010000 A
```

```
2441                    *S*************************************************************
2442                    *S*                                                           *
2443                    *S*     SCREECH CODE: 01          CALLED FROM SCHED AND SWAPPER   *
2444                    *S*     MESSAGE: PAGE CHAIN INCONSISTENCY                     *
2445                    *S*     SIGNIFICANT REGISTERS:                                *
2446                    *S*              R0 - NEGATIVE COUNT OF MAX CHAIN LENGTH REMAINING *
2447                    *S*              R1 - RETURN ADDRESS FOR T:PGCHK              *
2448                    *S*              R2 - CURRENT PAGE NUMBER IN CHAIN            *
2449                    *S*              R7 - ADDRESS OF CHAIN BEING CHECKED(S:FPPH,M:FPPH) *
2450                    *S*             R11 - TEMP FOR CURRENT PAGE BEING CHECKED     *
2451                    *S*     REMARKS: THIS CHECK IS ONLY PERFORMED IS SENSE SWITCH  *
2452                    *S*              FOUR IS SET AS IT COSTS MUCH CPU TIME.  SINCE *
2453                    *S*              THERE ARE MANY REASONS FOR DECLARING A PAGE   *
2454                    *S*              CHAIN INCONSISTENT OR DEFECTIVE, AN INSPECTION *
2455                    *S*              OF THE APPROPRIATE CHAIN WILL BE NECESSARY TO *
2456                    *S*              ASCERTAIN THE DEFECT PRESENT.                 *
2457                    *S*              T:PGCHK WILL REJECT A CHAIN IF:               *
2458                    *S*              A.) LINKING FROM HEAD FOR COUNT PAGES DOES NOT *
2459                    *S*                  YIELD TAIL.                               *
2460                    *S*              B.) ANY PAGE IS LESS THAN NPMC (NO PAGE MAP CONST) *
2461                    *S*              C.) THE CHAIN LENGTH EXCEEDS MAXIMUM INDICATING *
2462                    *S*                  A CIRCULAR CHAIN.                         *
2463                    *S*************************************************************
2464  01 00458  312E0001 A  PPR2    CW,2    1,7
2465  01 00459  693000459          BNE     PGSCR
2466  01 0045D  20000400 A          AI,0    1024
2467  01 0045E  310E0002 A          CW,0    2,7
2468  01 0045F  693000459          BNE     PGSCR
2469  01 00460  32200000 X          LW,2    J:BASE          RESTORE R2
2470                          REF     J:BASE
2471  01 00461  600000027 A         ENABLE
2472  01 00462  680200000 A         B       0,1
2473        EXT               GOTEXAC EQU     SWAPIN
```

```
01 00463   6A5004E1     USERØR    BAL,R5   GIVEUP3          GIVEUP AND RETRY
     01 00464           USERSØUT  EQU      $
                        *
                        *  WE HAVE TØ CHØØSE SØME ØNE TØ GØ ØUT.
                        *  WE'LL TRY FØR JUST 1 USER, BUT ALSØ FØRM A LIST ØF
                        *  A SET TØ SWAP ØUT IF NECESSARY
                        *
                        *
01 00464   32700000 X             LW,R7    Y8               SET USERØUT IN PRØG FLAG
01 00465   47700000 X             STS,R7   S:ISUNF          BIT 0 ØF S:SIP
01 00466   32D00000 X             LW,R13   S:EVF            GET EVENT FLAG CØUNTER
01 00467   22B00000 A             LI,11    0
01 00468   22700000 A             LI,7     0
01 00469   75700000 X             STB,7    SB:FPN           # FREED
01 0046A   75700000 X             STB,7    SB:ØSN
01 0046B   35700000 X             STW,7    S:ØSS            PGS ACQRD FRM USERS
01 0046C   22900000 A             LI,9     0                TØTAL PAGES ACCUMULATED
01 0046D   22F00201 A             LI,15    JIC+RTR
01 0046E   20700001 A   USØUT4    AI,7     1
01 0046F   723E0004 05            LB,3     SB:SWP,7
01 00470   2130000C A             CI,3     SEXU             ARE WE AT QUEUES WØRTH KEEPING
01 00471   69200476               BG       USØUT2           NØT YET
01 00472   32B00000 X             LW,11    S:ISUN           MEAKE 11 NØN-ZERØ
01 00473   683004C6               BEZ      PRØUT3           NØ ISUN HAVE ALL ØUTSWAP PEØPLE
01 00474   20300000 A             AI,3     0                TEST FØR END
01 00475   683004D0               BE       GIVEUP
                        *
01 00476   72460000 X   USØUT2    LB,4     SB:TQ,3          SEARCH Q'S BACKWARD
01 00477   6830046E               BEZ      USØUT4
01 00478   31400000 X             CW,R4    S:ISUN           IS HE THE GUY WE ARE BRINGING IN
01 00479   683004D0               BE       GIVEUP
01 0047A   51F80000 X             CH,15    UH:FLG,4
01 0047B   6940047E               BANZ     USØUT5
01 0047C   72480000 X   USØUT7    LB,4     UB:BL,4
01 0047D   68000477               B        USØUT2+1
     01 0047E           USØUT5    EQU      $                DØN'T SWAP THE ØNLY USER WILL
                        *                                   WILL SCHEDULE
```

```
2512  01 0047E  52680000 X        LH,6    UH!FLG2,4
2513  01 0047F  21600A00 A        CI,6    RTHOLD+CALINT      REAL TIME LOCK IN CORE OR CAL INTERR
2514  01 00480  72580000 X        LB,5    UB!MF,4            DOES HE HAVE I/O GOING
2515  01 00481  69700047C         BCS,7   USOUT7             YES, LOCKED OR I/O GOING
2516  01 00482  72280000 X        LB,2    UB!US,4
2517  01 00483  2120000C A        CI,2    SEXU               IS HE EXECUTABLE
2518  01 00484  69200492          BG      USOUT9             NO
2519  01 00485  52580000 X        LH,5    UH:FLG,4
2520  01 00486  21500001 A        CI,5    RTR
2521  01 00487  68400492          BAZ     USOUT9             NOPE
2522  01 00488  21602008 A        CI,6    RMAHOLD+SQUAN      RMA LOCK OR NOT HAD SWAP QUAN
2523  01 00489  6940047C          BANZ    USOUT7             YUP...PASS HIM BY
2824                              REF,1   JIT
2525  01 0048A  21500100 A        CI,5    BAT                IS HE BATCH
2526  01 0048B  68400492          BAZ     USOUT9             NO, OK TO SWAP HIM
2527  01 0048C  72580000 N        LOAD,5  UX!JIT,4           GET HIS JIT
2528  01 0048D  2550000B A        SLS,5   11                 MAKE IT A BYTE ADDRESS
2529  01 0048E  20500000 N        AI,5    BA(JB:PNR)=BA(JIT)
2530  01 0048F  725A0000 A        LB,5    0,5                GET PARTITION NUMBER
2531  01 00490  525A0000 X        LH,5    PLH:FLG,5          CHECK FOR HOLD
2532  01 00491  6910047C          BLZ     USOUT7             HE IS HELD. DONT SWAP HIM
2533                              REF     PLH:FLG
2534     01 00492                 USOUT9  EQU     *
2535  01 00492  72600000 X        LB,6    SB!OSUL            DONT EXCEED TABLE
2536  01 00493  216FFFFF N        CI,6    SMAXOUT-1          SIZE
2537  01 00494  6810047C          BGE     USOUT7
2538  01 00495  72680000 N        LOAD,6  UX!JIT,4           PHYS JIT ADR TO FIND
2539  01 00496  2560000B A        SLS,6   11                  HOW MANY PAGES HE HAS
2540  01 00497  20600000 N        AI,6    JBPPC
2541  01 00498  728C0000 A        LB,8    0,6                USER PAGE COUNT
2542  01 00499  30900008 A        AW,9    8                  ADD TO TOTAL PAGES ACCUM.
2543  01 0049A  66800000 X        AWM,R8  S!OSS              ACCUMULATE TOTAL OF USER PAGES
2544  01 0049B  73100000 X        MTB,1   SB!OSN
2545  01 0049C  72200000 X        LB,2    SB!OSN
2546  01 0049D  75440000 X        STB,4   SB!OSUL,2          ADD HIM TO THE OUS SWAP LIST
2547  01 0049E  22200483          LI,2    ADDPRC             NOW LETS GET ANY PROCESSORS
2548  01 0049F  6A300548          BAL,3   DOV                THAT COME FREE BECOUSE
```

```
2549   01 004A0   223004AC          LI,3    USOUT10          THIS GUY IS GETTING SWAPPED
2550   01 004A1   52F80000 X        LH,15   UH!FLG,4
2551   01 004A2   21F00080 A        CI,15   TIC
2552   01 004A3   69400535          BANZ    DTEL
2553   01 004A4   223004A8          LI,3    $+4
2554   01 004A5   21F00040 A        CI,15   DIC
2555   01 004A6   69400549          BANZ    DDB
2556   01 004A7   68000547          B       DASP
2557   01 004A8   72180000 X        LB,1    UB!APR,4
2558   01 004A9   6A3004B2          BAL,3   CHKPRC
2559   01 004AA   72180000 X        LB,1    UB!APB,4
2560   01 004AB   6A3004B2          BAL,3   CHKPRC
2561      01 004AC                  EQU     $
2562   01 004AC   22F00201 A        LI,15   JIC+RTR
2563   01 004AD   32600000 X        LW,6    S!ISUN
2564   01 004AE   68300478          BEZ     USOUT7
2565   01 004AF   3190000E A        CW,9    14
2566   01 004B0   69100478          BL      USOUT7           NOT ENOUGH PAGES YET
2567   01 004B1   6800004BF         B       PROUT2
2568      01 004B2                  EQU     $
2569   01 004B2   73F20000 X        MTB,=1  PB!UC,1          COUNT IT DOWN
2570   01 004B3   69360000 A        BNEZ    0,3              NOT 0 YET
2571   01 004B4   3190000E A        CW,9    14
2572   01 004B5   68160000 A        BGE     0,3
2573   01 004B6   72620000 N        LOAD,6  PX!HPP,1
2574   01 004B7   68360000 A        BEZ     0,3              NOT IN CORE
2575   01 004B8   72620000 X        LB,6    PB!PSZ,1         # PAGE
2576   01 004B9   68360000 A        BEZ     0,3              NONE
2577   01 004BA   3090000C A        AW,9    6                TOTAL PAGES ACCUM.
2578   01 004BB   73100000 X        MTB,1   SB!FPN           ADD TO FREE PROC LIST
2579   01 004BC   72600000 X        LB,6    SB!FPN
2580   01 004BD   751C0000 X        STB,1   SB!FPN,6
2581   01 004BE   68060000 A        B       0,3
```

```
2583                                    *
2584                                    *  DECREMENT ANY ASSOCIATED PROCESSORS FOR USER LIST
2585                                    *  IF WE HAVE ENOUGH PAGE SWAP THE LIST.
2586                                    *  IF NOT, SEE IF THE USERS WE CHOSE MADE ANY PROCESSORS FREE
2587                                    *  IF SO, TAKE THEIR PAGES
2588                                    *  IF NOT GIVE UP. WE CANT FIND A SWAP SET
2589                                    *
2590          01 004BF                  PROUT2   EQU     *
2591   01 004BF   31D00000 X                     CW,R13   S:EVF           TEST FOR ANY EVENTS
2592   01 004C0   69300463                       BNE      USERQR          YES
2593   01 004C1   72500000 X                     LB,5     SB:FPN
2594   01 004C2   68300406                       BEZ      PROUT3
2595   01 004C3   723A0000 X                     LB,3     SB:FPL,5
2596   01 004C4   6A60055D                       BAL,6    GETPRCPG        GET THEIR PAGES
2597   01 004C5   645004C3                       BDR,5    *-2
2598          01 004C6                  PROUT3   EQU     *
2599   01 004C6   72700000 X                     LB,7     SB:QSN
2600   01 004C7   68300512                       BEZ      SSEXIT
2601   01 004C8   22B004CD                       LI,11    PROUT5
2602   01 004C9                         PROUT4   RES      0
2603   01 004C9   22600018 A                     LI,6     E:KB
2604   01 004CA   725E0000 X                     LB,5     SB:QSUL,7       KICK THE USERS OUT
2605   01 004CB   32400005 A            TRUE     LW,4     5
2606   01 004CC   680001A0                       B        RCEQ
2607   01 004CD   647004C9              PROUT5   BDR,7    PROUT4
2608   01 004CE   75700000 X                     STB,R7   S:ISUNF         CLEAR USEROUT FLAG
2609                                    *                                 (R7 CONTAINS ZERO FROM BDR)
2610   01 004CF   68000406                       B        GOTNUF          GO TO RETURN EXCESS AND PERFORM SWAP
2611          01 004D0                  GIVEUP   EQU     *
2612   01 004D0   33F00000 X                     MTW,-1   S:QPC           DECREMENT CTR OF CONSECUTIVE
2613                                    *                                 SWAP SCHEDULE FAILURES
2614   01 004D1   33100000 X                     MTW,1    C:NSP           COUNT NO SWAP BY ANY MEANS
2615   01 004D2   02200030 A                     LCI      3               CANT SWAP *
2616   01 004D3   2A500000 X                     LM,5     S:FPPH
2617   01 004D4   20600000 A                     AI,6     0
2618   01 004D5   68300DF                        BEZ      GIVEUP6
2619   01 004D6   6D000037 A                     DISABLE
```

```
01 004D7  32400000 X            LW,4     M:FPPT        ANY IN CHAIN
01 004D8  683004DD              BEZ      GIVEUP5       NO
01 004D9  75580000 N            STORE,5  MX:PPUT,4     HEAD=>TAIL
01 004DA  35600000 X            STW,6    M:FPPT        TAIL => TAIL
01 004DB  66700000 X            AWM,7    M:FPPC        COUNT => COUNT
01 004DC  680004DF              B        GIVEUP6
   01 004DD         GIVEUP5     EQU      $
01 004DD  02200030 A            LCI      3
01 004DE  25500000 X            STM,5    M:FPPH        ALL BACK AT ONCE
   01 004DF         GIVEUP6     EQU      $
01 004DF  6D000027 A            ENABLE
01 004E0  225004E8              LI,5     GIVEUP4
   01 004E1         GIVEUP3     EQU      $
01 004E1  72700000 X            LB,7     SB:OSN
01 004E2  683A0000 A            BEZ      0,5
01 004E3  724E0000 X            LB,4     SB:OSUL,7     INCREMENT THEIR PROCESSORS SINCE
01 004E4  6A20054D              BAL,2    ITORP
01 004E5  6A20055B              BAL,2    IOV
01 004E6  647004E3              BDR,7    $-3
01 004E7  680A0000 A            B        0,5
   01 004E8         GIVEUP4     EQU      $
01 004E8  32400000 X            LW,4     S:ISUN
01 004E9  35400000 X            STW,R4   S:ISUNF       SAVE FAILING USER
01 004EA  32F00000 X            LW,R15   S:SEVF        AND SWAP SET COUNTER
01 004EB  35F00000 X            STW,R15  S:FSEVF       TO DEFINE FAILURE
01 004EC  52F80000 X            LH,15    UH:FLG,4
01 004ED  21F00200 A            CI,15    JIC
01 004EE  694004F1              BANZ     GIVEUP1
01 004EF  6A20054B              BAL,2    DOV
01 004F0  6A20053E              BAL,R2   DTORP         DECREMENT TEL OR PROCESSORS
   01 004F1         GIVEUP1     EQU      $
01 004F1  22600511              LI,R6    GIVEUPA       SET RETURN
01 004F2  6A700517  GIVEUP7     BAL,R7   T:TOTESZ
01 004F3  202FFFFA A            AI,R2    -6            ACCOUNT FOR MONITOR OVERLAY
01 004F4  31200000 X            CW,R2    S:PCORE       CHECK FOR FIT EVER
01 004F5  682004F8              BLE      GIVEUP8       YES
01 004F6  0F000000 X            SCREECH  X'62'         NO. IMPOSSIBLE SWAP
```

01 004F7 00620000 A

```
                                   *S*****************************************************************
                                   *S*                                                               *
                                   *S*     SCREECH CODE: 62            CALLED FROM SCHED             *
                                   *S*     MESSAGE: IMPOSSIBLE SWAP CONDITION                        *
                                   *S*     SIGNIFICANT REGISTERS:                                    *
                                   *S*              R0 = USER SIZE IN PAGES LESS LOCKED PROCESSORS   *
                                   *S*              R2 = GROSS USER SIZE IN PAGES                    *
                                   *S*              R4 = USER NUMBER                                 *
                                   *S*              R6 = RETURN ADDRESS FOR GIVEUP7                  *
                                   *S*             R15 = USER FLAGS (UH:FLG)                         *
                                   *S*     REMARKS: THE USER CHOSEN TO INSWAP WILL NEVER FIT INTO    *
                                   *S*              AVAILABLE PHYSICAL MEMORY.  THIS MAY BE DUE TO   *
                                   *S*              EITHER AN OPERATING SYSTEM SOFTWARE PROBLEM OR  *
                                   *S*              ABORTING WITHOUT FIRST RELEASING LOCK.          *
                                   *S*****************************************************************
01 004F8                           GIVEUP8  RES      0
01 004F8      6D000037 A                    DISABLE                      *** INHIBIT ***
01 004F9      32700000 X                    LW,R7    S:ACORE         GET AVAIL FLUID PAGES
01 004FA      38700000 X                    SW,R7    S:RTCORE        SUBTRACT RTHOLD PAGES
01 004FB      32500000 X                    LW,R5    S:STL#          NUMBER OF STOLEN PAGES
01 004FC      38500000 X                    SW,R5    SL:RSVP         RESERVED PAGES
01 004FD      681004FF                      BGEZ     $+2             ALL ARE RESERVED
01 004FE      22500000 A                    LI,R5    0               SET RESERVED CONTRIBUTION TO ZERO
01 004FF      52380000 X                    LH,R3    UH:FLG2,R4      GET SECOND FLAGS FOR USER
01 00500      21300800 A                    CI,R3    RTHOLD          CHECK FOR REAL TIME LOCK IN CORE
01 00501      68400503                      BAZ      $+2             NO
01 00502      32000000 X                    LW,R0    S:PCT           YES, USE SWAPPER REQUIRMENT
01 00503      38000007 A                    SW,R0    R7              FIND REQUIREMENT DEFICIT
01 00504      682C0001 A                    BLEZ     1,R6            HE FITS, RETURN SKIPPING
01 00505      31000005 A                    CW,R0    R5              CAN IT BE SATISFIED BY STOLEN
01 00506      69200508                      BG       GIVEUP9         NO, JUST SET BYPASS FLAG
01 00507      3A000000 A                    LCW,0    0               INVERT
01 00508      31000000 X                    CW,0     S:STLC          REMEMBER MOST NEGATIVE
01 00509      6810050B                      BGE      $+2
01 0050A      35000000 X                    STW,0    S:STLC
01 0050B                           GIVEUP9  RES      0
01 0050B      6D000027 A                    ENABLE
```

```
2695   01 0050C   680C0000 A            B       0,R6            NORMAL RETURN
2696   01 0050D              GIVEUPB    RES     0
2697   01 0050D   52780000 X            LH,7    UH:FLG,4        GET FLAGS
2698   01 0050E   49700000 X            OR,7    X8000           SET BYPASS BIT
2699   01 0050F   55780000 X            STH,7   UH:FLG,4        PUT AWAY
2700   01 00510   68000512              B       SSEXIT          EXIT SWAP SCHEDULER
2701   01 00511   6800050D   GIVEUPA    B       GIVEUPB
2702   01 00512   22000000 A SSEXIT     LI,0    0
2703   01 00513   75000000 X            STB,R0  S:ISUNF         CLEAR USEROUT FLAG
2704   01 00514   35000000 X            STW,0   S:SIP           RESET THE SWAP-IN-PROGRESS FLAG
2705   01 00515   60000027 A            ENABLE
2706   01 00516   68000000 X            B       T:SEXIT
```

```
2708                                *
2709                                *       SUM TOTAL USER SIZE
2710                                *
2711                                *       R0 = TOTAL USER SIZE (OUTPUT) LESS LOCKED PROCS
2712                                *       R1 = TEMP            (VOL)
2713                                *       R2 = TOTAL USER SIZE (OUTPUT) INCLUSIVE
2714                                *       R3 = TEMP            (VOL)
2715                                *       R4 = USER NUMBER     (INPUT)
2716                                *       R5 = TEMP            (VOL)
2717                                *       R7 = LINK
2718                                *       R15 = TEMP = FLAGS   (VOL)
2719                                *
2720          01 00517              T:TOTESZ EQU     *
2721    01 00517   52F80000 X               LH,15    UH:FLG,4        GET USER FLAGS
2722    01 00518   72080000 X               LB,0     UB:PCT,4        DATA PAGE COUNT
2723    01 00519   72280000 X               LB,R2    UB:PCT,R4       AND AGAIN
2724    01 0051A   21F00080 A               CI,15    TIC             CHECK FOR TEL
2725    01 0051B   69400528                 BANZ     TOTE1           YES
2726    01 0051C   21F00040 A               CI,15    DIC             CHECK FOR DELTA
2727    01 0051D   69400052A                BANZ     TOTE2           YES
2728    01 0051E   72180000 X               LB,1     UB:APR,4        PROCESSOR ROOT
2729    01 0051F   6A50052C                 BAL,5    TOTE            ADD PSZ
2730    01 00520   72180000 X               LB,1     UB:APO,4        PROCESSOR OVERLAY
2731    01 00521   6A50052C                 BAL,5    TOTE            ADD ITS PAGES
2732    01 00522   72180000 X               LB,1     UB:ASP,4        GET SPECIAL SHARED PROC
2733    01 00523   68300052A                BEZ      TOTE2           ---> (OR DEBUGGER IF NO ASP)
2734    01 00524   6A50052C      TOTE3      BAL,5    TOTE            ADD
2735    01 00525   72180000 X               LB,1     UB:OV,4         MONITOR OVERLAY
2736    01 00526   6A50052C                 BAL,5    TOTE            ADD
2737    01 00527   680E0000 A               B        0,7             RETURN
2738    01 00528   72180000 X     TOTE1     LB,1     UB:ACP,4        COMMAND PROCESSOR
2739    01 00529   68000524                 B        TOTE3
2740    01 0052A   72180000 X     TOTE2     LB,1     UB:DB,4         DEBUGGER
2741    01 0052B   68000524                 B        TOTE3
2742    01 0052C   683A0000 A     TOTE      BEZ      0,5             RETURN IF NO
2743    01 0052D   72320000 X               LB,R3    PB:PSZ,R1       GET PROCEDURE SIZE
2744    01 0052E   30200003 A               AW,R2    R3              ADD TO INCLUSIVE TOTAL
```

```
2745   01 0052F   73020000 X   MTB,0    PB:LCT,R1        TEST FOR LOCK
2746   01 00530   693A0000 A   BNEZ     0,R5             YES, DONT ADD TO NET TOTAL
2747   01 00531   30000003 A   AW,R0     R3               ADD SIZE TO NET TOTAL
2748   01 00532   680A0000 A   B        0,5              RETURN
```

```
2750                                *
2751                                * MISC ROUTINES
2752                                *
2753                                *
2754                                *  INCREMENT ASSOCIATED PROCESSOR COUNTS  (DECREMENT)
2755                                *  BAL 0N 2, USER IS 4
2756                                *
2757                                *
2758                                        DEF     IPROCS,DRTEL1,ISTEL1
2759                                        DEF     DASP
2760                                        DEF     IDB
2761                                        DEF     DTEL
2762                                        DEF     DPROCS
2763  01 00533  20FFFF80 A  DRTEL1  RSETST  TIC                 DECR/RESET TEL
      01 00534  55F80000 X
2764        01 00535          DTEL    EQU     *
2765  01 00535  72180000 X            LB,1    UB!ACP,4        GET COMMAND PROC #
2766  01 00536  73F20000 X  DECR     MTB,-1  PB!UC,1
2767  01 00537  68040000 A            B       0,2
2768  01 00538  52F80000 X  ISTEL    LSETRST TIC             INCR/SET TEL
      01 00539  49F00008 N
      01 0053A  55F80000 X
2769        01 00539          ISTEL1  EQU     ISTEL+1         ENTRY IF GLAGS IN 15
2770        01 00538          ITEL    EQU     *
2771  01 00538  72180000 X            LB,1    UB!ACP,4        GET COMMAND PROC #
2772  01 0053C  73120000 X  INCR     MTB,1   PB!UC,1
2773  01 0053D  68040000 A            B       0,2
2774  01 0053E  21F00080 A  DTORP    CI,R15  TIC             CHECK FOR TEL IN CONTROL
2775  01 0053F  69400535            BANZ    DTEL            YES
2776  01 00540  72180000 X  DPROCS   LB,1    UB!APR,4
2777  01 00541  73F20000 X            MTB,-1  PB!UC,1
2778  01 00542  72180000 X            LB,1    UB!APB,4
2779  01 00543  73F20000 X            MTB,-1  PB!UC,1
2780  01 00544  52F80000 X            LH,15   UH!FLG,4
2781  01 00545  21F00040 A            CI,15   DIC
2782  01 00546  69400549            BANZ    DDB
2783  01 00547  72180000 X  DASP     LB,1    UB!ASP,4        DECR ASP
```

```
2784   01 00548   69300536              BNEZ     DECR
2785   01 00549   72180000 X   DDB      LB,1     UB:DB,4
2786   01 0054A   68000536              B        DECR
2787   01 0054B   72180000 X   DOV      LB,1     UB:OV,4
2788   01 0054C   68000536              B        DECR
2789   01 0054D   52F80000 X   ITORP    LH,15    UH:FLG,4
2790   01 0054E   21F00080 A            CI,15    TIC
2791   01 0054F   6940053B              BANZ     ITEL
2792   01 00550   72180000 X   IPROCS   LB,1     UB:APR,4          INCCR PROCS
2793   01 00551   73120000 X            MTB,1    PB:UC,1
2794   01 00552   72180000 X            LB,1     UB:APO,4
2795   01 00553   73120000 X            MTB,1    PB:UC,1
2796   01 00554   52F80000 X            LH,15    UH:FLG,4
2797   01 00555   21F00040 A            CI,15    DIC
2798   01 00556   69400559              BANZ     IDB
2799   01 00557   72180000 X            LB,1     UB:ASP,4          INC ASP
2800   01 00558   6930053C              BNEZ     INCR
2801   01 00559   72180000 X   IDB      LB,1     UB:DB,4
2802   01 0055A   6800053C              B        INCR
2803   01 0055B   72180000 X   IOV      LB,1     UB:OV,4
2804   01 0055C   6800053C              B        INCR
```

```
2806          01 0055D            GETPRCPG EQU     *
2807                              *
2808                              *        ADD PROCESSOR PAGES TO CURRENT TOTAL AND PLACE PROCESSOR
2809                              *        IN LIST OF PROCESSORS TO BE FREED.
2810                              *
2811                              *        INPUT :  R3 = PROCESSOR NUMBER
2812                              *        OUTPUT:  S:FPL = S:FPL+1
2813                              *                 S:FPL(S:FPL(0)) = PH:FRQ(R3),0,R3
2814                              *                 S:PRPC = S:PRPC+PB:PSZ(R3)
2815                              *        SCRATCH: R7,R8,BITS 0-23 OF R3
2816                              *        CALL:    BAL,R6 GETPRCPG
2817                              *                 NORMAL RETURN ONLY
2818                              *
2819                              *
2820   01 0055D    33100000 X             MTW,+1   S:FPL            BUMP COUNT OF PROCS IN LIST
2821   01 0055E    32700000 X             LW,R7    S:FPL            GET COUNT
2822         00000001                    DO       PFRQ
2823   01 0055F    52860000 X             LH,R8    PH:FRQ,R3        GET PROCESSOR FREQ
2824   01 00560    55800003 A             STH,R8   R3               MERGE WITH PROC NUMBER
2825   01 00561    353E0000 X             STW,R3   S:FPL,R7         ADD TO LIST
2826   01 00562    45300000 X             AND,R3   M8               SCRUB BACK TO PROCESSOR NUMBER
2827                                      ELSE
2828                         *S*          STW,R3   S:FPL,R7         ADD TO LIST
2829                                      FIN      PFRQ
2830   01 00563    72760000 X             LB,R7    PB:PSZ,R3        GET SIZE OF PROCESSOR
2831   01 00564    66700000 X             AWM,R7   S:PRPC           ADD TO PAGE TOTAL
2832   01 00565    680C0000 A             B        0,R6             RETURN
2833                                      END
       01 00566    00030000 A
       01 00567    00300000 A
       01 00568    FFFFFDFE A
       01 00569    00000090 A
       01 0056A    8000R000 A
       01 0056B    C0300C03 A

CONTROL SECTION SUMMARY: 01 0056C  PT 0    02 0000B  PT 0    03 0002C  PT 0    04 00001 3 PT 0
                         05 00009  PT 0
```

* SYMBOL VALUES

```
ABRT/00008000          ADDPRC/01 004B3        ALTENT/01 0018E        ANSPROC/00000000
BAT/00000100           BISR4/01 00251         BITS/00000000          BRK/00001000
BYPASS/00008000        C:IDL/01 000E6         CALINT/00000200        CHKDELTEL/01 003C8
CHKDT3/01 003CE        CHKDT4/01 003CC        CHKPRC/01 004B2        CHSEH/01 00206
CHSEH1/01 00208        CHSEH2/01 0020D        CHSEH3/01 00214        CHSE1/01 001DA
CHSE2/01 001DF         CHSE25/01 001ED        CHSE3/01 001F2         CHSE4/01 001F7
CHSE5/01 001FE         CHSE6/01 0021A         CHSRT/01 00202         CHS1/01 0024E
CK3EX/01 00382         CK3UM1/01 0037D        COCABRT/01 00274       C3MP/01 00004
DCBPROC/00000000       DCBS/00002000          DDB/01 00549           DECR/01 00536
DELA/00000400          DELNOASP/01 00166      DELSTBAD/01 00175      DELTAIN/01 00169
DIC/00000040           DISCBPROC/00000000     DOLV/01 00072          DOL1/01 00071
DOSWAP/01 00446        DOV/01 0054B           DTORP/01 0053E         E:REL/0000001E
EC/00002000            ENBISR4/01 00250       ERR/00004000           EXECUTE/LIST
F:IDL/01 000E8         FCN/00000007           FLUSH/00000200         GETPRCPG/01 0055D
GIVEUPA/01 00511       GIVEUPB/01 0050D       GIVEUP1/01 004F1       GIVEUP3/01 004E1
GIVEUP4/01 004E8       GIVEUP5/01 004DD       GIVEUP6/01 004DF       GIVEUP7/01 004F2
GIVEUP8/01 004F8       GIVEUP9/01 0050B       GJG1/01 00310          GJG2/01 00314
GJG3/01 0031D          GJG4/01 0032E          GOTEXAC/EXT            GOTNUF/01 00406
GRANT/01 00369         HANGUP/00000020        I/00000001             I$/00000001
IDLO/01 000CC          IDL1/01 000D8          INCR/01 0053C          INHIBIT/00000002
INIT/00000800          INTENT/00000002        INTENTL/01 00074       INTERACTIVE/01 00220
IOCOM1/01 00238        IOCOM2/01 00241        IOCOM3/01 00247        IOCOM4/01 0024B
IOCOM5/01 0023E        IOV/01 0055B           ISTEL/01 00538         ITEL/01 0053B
ITORP/01 0054D         J/00000012             JIC/00000200           K/015C5FFE
KOPRL/01 0041D         KOPROC/01 0041C        L/0000001F             LOGNO/01 00250
LOGON/01 002F7         MONPROC/00000000       MPBITS/00000000        M12/EXT
NOLCT/01 0015C         NOTLNF/01 00137        NOTOFF/01 002F5        NO1IN/01 003A1
NREADY/EXT             NULL/00000400          OFF10/01 00131         OPNBOOST/00000004
OPNCLSUSR/00000008     OPNUNBLOCK/01 002F7    P/000000BA             P$/0000000D
PERFORM/00000001       PFA/01 003F4           PFRQ/00000001          PF1/01 003FA
PF2A/01 003F7          PF3/01 003FE           PF3A/01 00403          PF3B/01 00404
PGSCR/01 00459         PIKF1/01 00397         PIKUS1/01 00398        PIKUS2/01 0039A
PIKUS25/01 0039C       PIKUS3/01 0039E        PIKUS5/01 003A4        PMONOFF/00000001
PPR2/01 0045B          PPR3/01 00452          PPSWP/00000010         PRCAV/01 003DA
PRCAVM1/01 003D9       PRCAV1/01 003E5        PROCAVL/01 003DO       PROUT2/01 004BF
PROUT3/01 004C6        PROUT4/01 004C9        PROUT5/01 004CD        PULLEU/01 00012
```

QF0RA1/01 00285 QF0RA2/01 00282 RCE0/01 001A0 RCE1/01 001A4
RCE2/01 001AA RCE3/01 001AC RCE4/01 001B0 REG2/01 0019D
RELA/01 002CB RELB/01 002DA RET0K/01 00435 RETXCS/01 0042D
RETXCS1/01 00445 RMAH0LD/00002000 RTH0LD/00000800 RTR/00000001
R0/00000000 R1/00000001 R10/0000000A R11/0000000B
R12/0000000C R13/0000000D R14/0000000E R15/0000000F
R2/00000002 R3/00000003 R4/00000004 R5/00000005
R6/00000006 R7/00000007 R8/00000008 R9/00000009
S:SET/03 00000 S:TRNSVEC/01 0021C SB:RBLK/04 00000 SB:SET/02 00000
SB:SWP/05 00004 SEABRT/01 0012D SEERR/01 0013C SEF1/01 000B8
SE0/01 000A0 SE0VRUN/01 00142 SETDL/01 00261 SETDL1/01 00269
SE1/01 000E9 SE4D/01 00116 SE4D1/01 00111 SE4F/01 0011D
SE6/01 00181 SE6A/01 00184 SE7/01 00178 SE9/01 00186
SH:RFLG/05 00000 SIC1/01 000B9 SIC2/01 000BB SIC3/01 000BF
SJAC/00001000 SL1/01 00414 SL2/01 0041A SMPSD/01 00008
S0RTL/01 00411 SPECFILE/00000004 SPECIFIC/00000100 SQUAN/00000008
SSEXIT/01 00512 SSE1/01 00045 SSE11/01 00048 SSE12/01 0001E
SSE41/01 00015 SSE42/01 0001A SSE43/01 00035 SSE5/01 00083
SSE5A/01 00084 SSE6/01 00096 SSE7/01 000A8 SSE8/01 00061
SSIN/01 003A8 SSIN1/01 003B8 SSIN12/01 003B0 ST$/00000018
STABRT/01 00252 STABRT1/01 0025F STASP/01 00278 STBEEA/01 00270
STBEEAC/01 00266 STCRD/01 0027A STIIP/01 00224 STI0C/01 00231
STI0MF/01 00223 STIRC/01 0021F STIRCU/01 00289 STK0/01 00291
STK0T/01 0028C STN0P/01 00250 ST0C/01 0021E STQA/01 0027F
STSC/01 0021D STSC0M/01 0021C STUQA/01 00287 STUQFAC/01 00297
SWAPD/00000010 SWIPEPGS/01 003E6 SWP/DPI S69PR0C/00000001
T:BLKV/01 002E5 T:CHSE/01 001CB T:CHSE0/01 001CA T:D0LIST/01 00052
T:0FF/01 0012D T:PULLE1/01 00371 T:QH/01 001C3 T:QT/01 001BC
T:REL/01 002C5 T:RELV/01 002E5 T:REL1/01 002CD T:RES/01 002B6
T:SE0/01 0003C T:SS/01 00384 T:T0TESZ/01 00517 T:UQR/01 002DE
TEL/01 0000A TEMP/003A0000 TIC/00000080 T0TE/01 0052C
T0TE1/01 00528 T0TE2/01 0052A T0TE3/01 00524 U/05 00003 2
U$/05 00003 UFLAGS/00000001 UNQEMPTY/01 002A1 UNQFILL/01 002A4
UNQNEXT/01 00298 UNQNEXT1/01 002B1 UNQSETFL/01 002A6 UNQXIT/01 002CD
UQFAC/01 002E6 USER0R/01 00463 USERS0UT/01 00464 US0UT10/01 004AC
US0UT2/01 00476 US0UT4/01 0046E US0UT5/01 0047E US0UT7/01 0047C
US0UT9/01 00492 UTSPR0C/00000001 XFDFF/0000000E S XFFEF/00000005 S

```
      XFFF7/00000004  S       X9FFF/01 002B5          19SPD/01 00006
*     EXTERNAL DEFINITIONS
      ADD1/01 00309           ALTERR/01 00193         BLCKD:MASK/01 00003     CHKPROT/01 0035C
      CHSE0/01 001D1          CLK4/01 00377           DASP/01 00547           DELTAG0/01 00149
      DELTAGOT/01 0014B       DPROCS/01 00540         DRTEL1/01 00533         DTEL/01 00535
      E:ABRT/0000000E         E:AP/0000001A           E:ART/00000014          E:CBA/00000025
      E:CBK/00000008          E:CBL/00000005          E:CEC/0000000A          E:CFB/00000024
      E:CIC/00000003          E:CRD/00000002          E:CUB/00000006          E:DPA/00000027
      E:ERR/0000000C          E:IC/0000001C           E:IIP/00000000          E:IP/00000001
      E:KB/00000018           E:NC/0000001A           E:ND/00000026           E:NOCR/00000023
      E:NQR/0000002B          E:NQW/0000002A          E:NSYMD/00000020        E:NSYMF/0000001E
      E:OCR/00000022          E:OFF/0000000E          E:QA/00000013           E:QE/0000001B
      E:QFAC/00000028         E:QFI/0000001D          E:QMF/00000001          E:SL/00000012
      E:SYMD/00000021         E:SYMF/0000001F         E:UQA/00000016          E:UQFAC/00000029
      E:WU/00000010           EXU:MASK/01 00000       GETJIT/01 0030B         GIVEUP/01 004D0
      IDB/01 00559            IOWAIT:MASK/01 00002                            IPROCS/01 00550
      ISTEL1/01 00539         PGCHKM/01 0044A         R:CBA/00000003          R:NQW/00000006
      R:OCR/00000002          R:SYMD/00000001         R:SYMF/00000000         REG1/01 00196
      S:SET:/03 00000         SB:SET:/02 00000        SB:SWP:/05 00004        SCHED/01 00000
      SCU/00000000            SC0/00000002            SC1/00000003            SC10/0000000C
      SC2/00000004            SC3/00000005            SC4/00000006            SC5/00000007
      SC6/00000008            SC7/00000009            SC8/0000000A            SC9/0000000B
      SEXU/0000000C           SE7A/01 0017F           SIOMF/00000011          SIOW/00000010
      SNSTS/0000001F          SNULL/0000001E          SQA/00000013            SQFI/00000018
      SQR/00000014            SQR0/00000015           SRT/00000001            SSE0/01 00044
      STI/00000016            STI0/00000017           STIOCC/01 0021E         ST0B/0000000E
      ST0B0/0000000F          SW/00000012             T:ACCTOV/01 00044       T:CHS/01 00218
      T:DLR1/01 00080         T:DOLISTR/01 0007A      T:IOREG/01 0000A        T:PGCHK/01 0044B
      T:PULLE/01 00369        T:RCE/01 002EE          T:RE/01 0019F           T:REG/01 00195
      T:RUE/01 004CB          T:SE/01 000AA           T:SSE/01 0003E          T:SSEC/01 0003E
      T:SSEM/01 00044         T:TOTSZ/01 00517        T:UTSXTS/01 00332       TRAPEXIT/01 00040
      TSS1/01 00388           TSS2/01 00389           WAIT:MASK/01 00001
*     PRIMARY REFERENCES
      ACTIVATE        ADJSTCNT        ALLOOUT         BOTTOM          BT31TO0         BUFLAGS         BUFMASK
      C:IDLE          C:IDLES         C:IDLESW        C:IDLEW         C:NOPROC        C:NSP           C:PROCREQ
      C:TINC          CLK4PSD         COCOFF          DID$IO          DOUBLEZERO      ERO             GOODNOT
      J:ABC           J:ACCN          J:BASE          J:CTIME         J:DELTAT        J:IDELTAT       J:INTENT
```

```
        J:JAC           J:JIT           J:OVHTIM        J:RNST          J:TCB           J:TELFLGS       J:TIMENT
        J:UTIMER        JB:FRS          JB:PNR          JBPPC           JIT             JOVVPA          JTSTACKSZ
        LSWAP           M:FPPC          M:FPPH          M:FPPT          M:FREE#GRAN     M:JITPAGE       MAP
        MAXG            MAXOVLY         MB:SPACEJIT     MX:PPUT         M17             M21             M24
        M6              M7              M8              NB31TOO         NPMC            NSWAP           OPNCLSUS
        PB:LCT          PB:PSZ          PB:UC           PBT:LOCK        PH:FRQ          PLH:FLG         PPROCS
        PULLE1          PX:HPP          PX:TPP          RCVPSD          REGIPSD         REG1PSD         S:ACCW
        S:ACORE         S:CLOCK4        S:CUIS          S:CUN           S:CUP           S:EVF           S:FPL
        S:FPPC          S:FPPH          S:FPPT          S:FSEVF         S:HIR           S:ISUN          S:ISUNF
        S:MAPCW         S:OPC           S:OSS           S:OUAIS         S:OUIS          S:PCORE         S:PCT
        S:PRIODEC       S:PRPC          S:RTCORE        S:RTIR          S:SEVF          S:SIP           S:SJACCW
        S:STL#          S:STLC          SACT            SB:FPL          SB:FPN          SB:GJOBUN       SB:HQ
        SB:NP           SB:OSN          SB:OSUL         SB:PNL          SB:RQ           SB:RTUS         SB:TQ
        SETRNST         SH:PINC         SL:BIMF         SL:OIMF         SL:OPRIO        SL:QMIN         SL:RSVP
        SL:SQNT         SL:SGPB         SL:SQUAN        SMAXOUT         SNDDX           SPDBASE         SPPBASE
        SSIG            SSTAT           SWAPIN          SWAPOUT         SYSACT          T:ABORTM        T:ACCTEX
        T:DELUSZAP      T:ECCP          T:MASTER        T:PAC           T:SAVE          T:SCRATCH$USER
        T:SES           T:SFXIT         T:SGAJIT        T:SMPFLG        T:TELDELCCI     TEMPBOT         TSTACK
        U:MISC          UB:ACP          UB:APO          UB:APR          UB:ASP          UB:BL           UB:DB
        UB:FL           UB:MF           UB:NECB         UB:OV           UB:PCT          UB:PRIO         UB:PRIOB
        UB:SWAPI        UB:US           UH:AJIT         UH:DL           UH:FLG          UH:FLG2         UNMAP
        UX:JIT          WORDCNT         XFFF            XN2             X1              X1FEOO          X20
        X4000           X8              X8000           YFF             Y004            Y008            Y4
        Y7D             Y7F             Y8              !BIG
*     SECONDARY REFERENCES
        COC:BRK         COC:BRKLTR      COC:RDCOMP      ECBFBLK         LB:UN           LNOL            RAPURGE
        RESCNCT         RT:INTENTRY     T:ECBSTORE
* NO UNDEFINED SYMBOLS
*     ERROR SEVERITY LEVEL: 0
* NO ERROR LINES
```

XEROXEROXEROXEROXEROXEROXEROXEROXEROXEROXEROXEROXEROXEROXEROXEROXEROXEROXEROXEROXEROXEROXEROXEROXEROXEROXEROXEROXEROXEROXEROXEROXEROXEROX
XEROXEROXEROXEROXEROXEROXEROXEROXEROXEROXEROXEROXEROXEROXEROXEROXEROXEROXEROXEROXEROXEROXEROXEROXEROXEROXEROXEROXEROXEROXEROXEROXEROXEROX

```
13:45 SEP 08,'75 ID=00E2
ELAPSED JOB TIME                      :10
PARTITION NUMBER                       10
TOTAL CPU TIME                     2.4145
  PROCESSOR EXECUTION TIME         2.2568
  PROCESSOR SERVICE TIME            .1578
CARDS:  CARDS READ                      7
PAGES:  PROCESSOR PAGES               144
CORE:   PEAK CORE(PAGES)               27
        PAGE.MINUTES              79.3350
I/O:    OPERATIONS                    928
        CALS                         5843
FILE SPACE
  PEAK RAD TEMPORARY                  153
  AVLBL DISK PERMANENT                607
NUMBER OF SWAPS                         5
RESOURCES ALLOCATED
  CO= 32(PAGES)
```