SDS 940 OLDS DIAGNOSTIC SYSTEM

UNIT 1 CPU EXERCISER LISTING

SDS 870031-51A February 1969

SDS

SCIENTIFIC DATA SYSTEMS • 701 South Aviation Boulevard • El Segundo, Calif., 90245 • 213/772-4511

```
                00010          OCTAL
                               *
0 01 00000      ONE     OPD    01000000,1
0 02 00000      TWO     OPD    02000000,1
0 03 00000      THREE   OPD    03000000,1
0 04 00000      FOUR    OPD    04000000,1
0 05 00000      FIVE    OPD    05000000,1
0 06 00000      SIX     OPD    06000000,1
0 07 00000      SEVEN   OPD    07000000,1
0 10 00000      EIGHT   OPD    010000000,1
                               *
00000242        INT31   EQU    242
00000243        I31     EQU    243
00000246        INT33   EQU    246
00000247        I33     EQU    247
00000332        FLAGS   EQU    332
00000400        UAW     EQU    400
00000401        STATUS  EQU    401
00000402        LOCKS   EQU    402
00000403        RADSIZ  EQU    403
00000404        DSCSIZ  EQU    404
00000405        SYSIZE  EQU    405
00000406        SEED    EQU    406
00000407        TIME    EQU    407
00000410        AREG    EQU    410
00000411        BREG    EQU    411
00000412        XREG    EQU    412
00000413        OVRFLO  EQU    413
00000414        ERRORS  EQU    414
00000415        RL1     EQU    415
00000416        RL2     EQU    416
00000417        RL4     EQU    417
00000420        UNIT    EQU    420
00000424        FUNCTN  EQU    424
00000430        OBJECT  EQU    430
00000434        END     EQU    434
```



```
00000440        RETURN  EQU    440
00000450        DIVERT  EQU    450
00000452        DONE    EQU    452
00000454        REPORT  EQU    454
00000456        FDONE   EQU    456
00000460        ERROR   EQU    460
```

```
CPU1    TAP.3.0                        PAGE 3

                 00010           OCTAL
                         CPU1    IDENT
        1 00 00000       POPS    OPD      10000000,1
          00000261       T40     EQU      261
00000          04000             BSS      4000
04000   0 43 00420               BRM      UNIT
04001   0 20 22002               NOP      UPT
04002   0 76 00401               LDA      STATUS
04003   0 72 22251               SKA      =4
04004   0 01 04006               BRU      *+2
04005   0 43 00452               BRM      DONE
```

```
CPU1    TAP.3.0                        PAGE 4

04006   0 43 00424     FUNCO     BRM      FUNCTN
04007   0 20 22010               NOP      FPTC
04010   0 43 00440               BRM      RETURN
04011   0 20 04050               NOP      POP
04012   0 76 22252               LDA      =00010203
04013   0 35 00415               STA      RL1
04014   0 02 20400               EOM      20400
04015   0 13 00415               POT      RL1                 SET RL1
04016   0 76 22253               LDA      =04050607
04017   0 35 00416               STA      RL2
04020   0 02 21000               EOM      21000
04021   0 13 00416               POT      RL2                 SET RL2
04022   0 76 22062               LDA      FIW
04023   0 43 05045               BRM      CNASIM
04024   0 46 00400               CAX
04025   0 37 22151     AGAINO    STX      IW
```

```
04026  0 71 22163  MODLUP LDX     MODULE
04027  0 43 00430          BRM     OBJECT
04030  0 06 20332          EOD     20332          SET EM REGISTERS TO NORMAL
04031  0 22 00001          ROV
04032  2 75 00001          LDB     1,2
04033  0 36 22067          STB     INST           PUT IN VARIABLE TABLE
04034  0 36 04074          STB     SKIP+2         EXECUTION CELL
04035  0 36 04102          STB     NOSKIP+2
04036  2 75 00010          LDB     10,2
04037  0 36 04046          STB     MEMORY         OPERAND
04040  0 36 22063          STB     CCC            PUT IN VARIABLE TABLE
04041  2 76 00002          LDA     2,2            A(0)
04042  0 35 22064          STA     AAA            PUT IN VARIABLE TABLE
04043  2 75 00004          LDB     4,2            B(0)
04044  0 36 22065          STB     BBB            PUT IN OPERAND TABLE
04045  2 51 00012          BRR     12,2           SET OVERFLOW AND BRANCH
```



```
                    * EXECUTION
04046  0 00 00000  MEMORY PZE
04047  0 01 04106          BRU     NOERR
                    *
04050  0 02 20004  POP     DIR
04051  0 35 22070          STA     A2
04052  0 76 00450          LDA     DIVERT         GET POP LOCATION
04053  0 14 22254          ETR     =37777
04054  0 50 22255          SKE     =T40
04055  0 01 04061          BRU     POPTST
04056  0 76 22070          LDA     A2
04057  0 02 20002          EIR
04060  0 01 04106          BRU     NOERR
04061  0 73 22256  POPTST SKG     =100
04062  0 73 22257          SKG     =77
04063  0 43 05736          BRM     SPURI          NOT A 100 POP
04064  0 20 22256          NOP     =100
04065  0 76 00000          LDA     0
04066  0 35 04046          STA     MEMORY
04067  0 76 22070          LDA     A2
04070  0 02 20002          EIR
04071  0 01 04106          BRU     NOERR
                    *
04072  2 71 00006  SKIP    LDX     6,2            X(0)
04073  0 37 22066          STX     XXX            PUT IN VARIABLE TABLE
04074  0 00 00000          PZE     0              INSTRUCTION
04075  0 43 00460          BRM     ERROR
04076  0 20 21644          NOP     SKPER
04077  0 01 04106          BRU     NOERR
                    *
04100  2 71 00006  NOSKIP LDX     6,2            X(0)
04101  0 37 22066          STX     XXX            PUT IN VARIABLE TABLE
04102  0 00 00000          PZE     0              INSTRUCTION
04103  0 01 04106          BRU     NOERR
04104  0 43 00460          BRM     ERROR
04105  0 20 21653          NOP     NSKPER
```

```
                              * RESULT TEST
04106  0 02 22000  NØERR   EØM      22000
04107  0 35 22070          STA      A2
04110  0 36 22071          STB      B2
04111  0 37 22104          STX      X2
04112  0 71 22163          LDX      MØDULE
                              *
04113  2 75 00003  TESTA   LDB      3,2              CØRRECT A RESULT
04114  2 50 00003          SKE      3,2
04115  0 43 00460          BRM      ERRØR
04116  4 20 21664          NØP      AERRØR,4
04117  2 20 21630          NØP      ISSBX,2
04120  0 76 22071  TESTB   LDA      B2
04121  2 75 00005          LDB      5,2              CØRRECT B RESULT
04122  2 50 00005          SKE      5,2
04123  0 43 00460          BRM      ERRØR
04124  4 20 21671          NØP      BERRØR,4
04125  2 20 21630          NØP      ISSBX,2
04126  0 76 22104  TESTX   LDA      X2
04127  2 75 00007          LDB      7,2              CØRRECT X RESULT
04130  2 50 00007          SKE      7,2
04131  0 43 00460          BRM      ERRØR
04132  4 20 21676          NØP      XERRØR,4
04133  2 20 21630          NØP      ISSBX,2
```



```
04134  0 76 04046  TESTM   LDA      MEMØRY
04135  2 75 00011          LDB      11,2             CØRRECT M RESULT
04136  2 50 00011          SKE      11,2
04137  0 43 00460          BRM      ERRØR
04140  4 20 21703          NØP      MERRØR,4
04141  2 20 21630          NØP      ISSBX,2
04142  2 01.00013          BRU.     13,2             BRU TØ PRØPER ØVERFLØW TEST
04143  0 22 00100  NØVFLØ  ØTØ
04144  0 01 04146          BRU      *+2
04145  0 01 04163          BRU      ØK
04146  0 76 22260          LDA      =40000000
04147  0 75 22261          LDB      =0
04150  0 43 00460          BRM      ERRØR
04151  4 20 21707          NØP      NØVERR,4
04152  2 20 21630          NØP      ISSBX,2
04153  0 01 04163          BRU      ØK
                              *
04154  0 22 00100  ØVFLØ   ØTØ
04155  0 01 04163          BRU      ØK
04156  0 76 22261          LDA      =0
04157  0 75 22260          LDB      =40000000
04160  0 43 00460          BRM      ERRØR
04161  4 20 21716          NØP      ØERRØR,4
04162  2 20 21630          NØP      ISSBX,2
```

```
CPU1    TAP-3.0                                 PAGE 9

04163   0 43 00434  OK      BRM     END
04164   2 71 00014          LDX     14,2
04165   0 37 22163          STX     MODULE
04166   0 41 04026          BRX     MODLUP
04167   0 71 22151          LDX     IW
04170   0 41 04025          BRX     AGAINO          ;TERATE ON EXERC;SE
04171   0 43 00456          BRM     FDONE
```

```
CPU1    TAP-3.0                                 PAGE 10

04172   0 43 00424  FUNC1   BRM     FUNCTN
04173   0 20 22016          NOP     FPT1
04174   0 43 00440          BRM     RETURN
04175   0 20 05731          NOP     SPUR
04176   0 76 22062          LDA     FIW
04177   0 43 05045          BRM     CNASIM
04200   0 46 00400          CAX
```

```
04201  0 37 22151  AGAIN1 STX     IW
04202  0 76 00406          LDA     SEED
04203  0 43 05053          BRM     RAND8M
04204  0 35 22064          STA     AAA
04205  0 43 05053          BRM     RAND8M
04206  0 35 22065          STA     BBB
04207  0 43 05053          BRM     RAND8M
04210  0 35 22066          STA     XXX
04211  0 43 05053          BRM     RAND8M
04212  0 35 22063          STA     CCC
04213  0 43 00430          BRM     8BJECT
04214  0 76 22064          LDA     AAA
04215  0 75 22065          LDB     BBB
04216  0 71 22066          LDX     XXX
04217  0 22 00001          R8V
04220  0 55 22063          ADD     CCC
04221  0 35 22142          STA     AIS             A IS
04222  0 36 22145          STB     BIS             B IS
04223  0 37 22157          STX     XIS             X IS
04224  0 46 00001          CLA
04225  0 22 00101          8VT
04226  0 76 22262          LDA     •1
04227  0 35 22152          STA     8FIS            8VERFL8W IS
```



```
04230  0 76 22064          LDA     AAA
04231  0 75 22065          LDB     BBB
04232  0 71 22066          LDX     XXX
04233  0 43 04756          BRM     ADDSIM          SIMULATE ADD
04234  0 20 22063          SBP     CCC
04235  0 35 22143          STA     ASB             A SH8ULD BE
04236  0 36 22146          STB     BSB             B SH8ULD BE
04237  0 37 22160          STX     XSB             X SH8ULD BE
04240  0 46 00001          CLA
04241  0 22 00101          8VT
04242  0 76 22262          LDA     •1
04243  0 35 22153          STA     8FSB            8VERFL8W SH8ULD BE
```

```
04244  2 46 00000        CLX
04245  0 75 22143        LDB     A$B
04246  0 76 22142        LDA     AI$
04247  0 50 22143        $KE     A$B             I$ A OK
04250  0 43 00460        BRM     ERROR
04251  4 20 21424        NOP     AADD,4
04252  2 20 21630        NOP     I$$BX,2
04253  0 75 22146        LDB     B$B
04254  0 76 22145        LDA     BI$
04255  0 50 22146        $KE     B$B             I$ B OK
04256  0 43 00460        BRM     ERROR
04257  4 20 21434        NOP     BADD,4
04260  2 20 21630        NOP     I$$BX,2
04261  0 75 22160        LDB     X$B
04262  0 76 22157        LDA     XI$
04263  0 50 22160        $KE     X$B             I$ X OK
04264  0 43 00460        BRM     ERROR
04265  4 20 21444        NOP     XADD,4
04266  2 20 21630        NOP     I$$BX,2
04267  0 75 22153        LDB     0F$B
04270  0 76 22152        LDA     0FI$
04271  0 50 22153        $KE     0F$B            I$ OVERFLOW OK
04272  0 43 00460        BRM     ERROR
04273  4 20 21454        NOP     0FADD,4
04274  2 20 21630        NOP     I$$BX,2
04275  0 43 00434        BRM     END             LOOP IF BP1 SET
```



```
04276  0 71 22151        LDX     IW
04277  0 76 22063        LDA     CCC
04300  0 35 00406        STA     SEED
04301  0 41 04201        BRX     AGAIN1
04302  0 43 00456        BRM     FDONE
```

```
CPU1    TAP=3.0                                 PAGE 15

04303   0 43 00424  FUNC2   BRM     FUNCTN
04304   0 20 22024          XBP     FPTR
04305   0 43 00440          BRM     RETURN
04306   0 20 05731          XBP     SPUR
04307   0 76 22062          LDA     FIN
04310   0 43 05045          BRM     CNASIM
04311   0 46 00400          CAX
```

```
CPU1    TAP=3.0                                 PAGE 16

04312   0 37 22151  AGAIN2  STX     IX
04313   0 76 00406          LDA     SPEED
04314   0 43 05053          BRM     RANDOM
04315   0 35 22064          STA     AAA
04316   0 43 05053          BRM     RANDOM
04317   0 35 22065          STA     BBB
04320   0 43 05053          BRM     RANDOM
04321   0 35 22066          STA     XXX
04322   0 43 05053          BRM     RANDOM
04323   0 35 22063          STA     CCC
04324   0 14 22263          ETR     =06720777
04325   0 16 22264          MRG     =06600000
04326   0 75 22265          LDB     =700
04327   0 70 22265          SKM     =700
04330   0 01 04333          BRU     *+3
04331   0 14 22257          ETR     =00000077
04332   0 16 22266          MRG     =06710000
04333   0 70 22267          SKM     =600
04334   0 01 04337          BRU     ETRIT
04335   0 14 22257          ETR     =00000077
04336   0 16 22270          MRG     =06624000
04337   0 14 22271  ETRIT   ETR     =06734077
04340   0 35 04350          STA     SHIFT1
04341   0 35 04364          STA     SHIFT2
04342   0 35 22067          STA     INST
```

```
CPU1    TAP=3.0                          PAGE 17

04343  0 43 00430          BRM     OBJECT
04344  0 76 22064          LDA     AAA
04345  0 75 22065          LDB     BBB
04346  0 71 22066          LDX     XXX
04347  0 22 00001          ROV
04350  0 20 00000  SHIFT1  NOP     0               REPLACED BY SHIFT
04351  0 35 22142          STA     AIS             A IS
04352  0 36 22145          STB     BIS             B IS
04353  0 37 22157          STX     XIS             X IS
04354  0 46 00001          CLA
04355  0 22 00101          OVT
04356  0 76 22262          LDA     =1
04357  0 35 22152          STA     OFIS            OVERFLOW IS
```

```
CPU1    TAP=3.0                          PAGE 18

04360  0 76 22064          LDA     AAA
04361  0 75 22065          LDB     BBB
04362  0 71 22066          LDX     XXX
04363  0 43 05071          BRM     SFTSIM          SIMULATE THE SHIFT
04364  0 20 00000  SHIFT2  NOP     0               REPLACED BY SHIFT
04365  0 35 22143          STA     ASB             A SHOULD BE
04366  0 36 22146          STB     BSB             B SHOULD BE
04367  0 37 22160          STX     XSB             X SHOULD BE
04370  0 46 00001          CLA
04371  0 22 00101          OVT
04372  0 76 22262          LDA     =1
04373  0 35 22153          STA     OFSB            OVERFLOW SHOULD BE
```

```
04374  2 46 00000        CLX
04375  0 75 22143        LDB     ASB
04376  0 76 22142        LDA     AIS
04377  0 50 22143        SKE     ASB             IS A OK
04400  0 43 00460        BRM     ERROR
04401  4 20 21463        NOP     ASFT,4
04402  2 20 21430        NOP     ISSBX,2
04403  0 75 22146        LDB     BSB
04404  0 76 22145        LDA     BIS
04405  0 50 22146        SKE     BSB             IS B OK
04406  0 43 00460        BRM     ERROR
04407  4 20 21473        NOP     BSFT,4
04410  2 20 21430        NOP     ISSBX,2
04411  0 75 22160        LDB     XSB
04412  0 76 22157        LDA     XIS
04413  0 50 22160        SKE     XSB             IS X OK
04414  0 43 00460        BRM     ERROR
04415  4 20 21504        NOP     XSFT,4
04416  2 20 21430        NOP     ISSBX,2
04417  0 75 22153        LDB     OFSB
04420  0 76 22152        LDA     OFIS
04421  0 50 22153        SKE     OFSB            IS OVERFLOW OK
04422  0 43 00460        BRM     ERROR
04423  4 20 21515        NOP     OFSFT,4
04424  2 20 21430        NOP     ISSBX,2
04425  0 43 00434        BRM     END             LOOP IF BP1 SET
```



```
04426  0 71 22151        LDX     I=
04427  0 76 22063        LDA     CCC
04430  0 35 00406        STA     SEED
04431  0 41 04312        BRX     AGAIN2
04432  0 43 00456        BRM     DONE
```

```
CPU1    TAP=3.0                                 PAGE 21

04433   0 43 00424  FUNC3   BRM     FUNCTN
04434   0 20 22032          NOP     FPT3
04435   0 43 00440          BRM     RETURN
04436   0 20 05731          NOP     SPUR
04437   0 76 22272          LDA     =1
04440   0 35 22156          STA     OUTFLG
04441   0 76 22062          LDA     FIW
04442   0 43 05045          BRM     CNASIM
04443   0 46 00400          CAX
```

```
CPU1    TAP=3.0                                 PAGE 22

04444   0 37 22151  AGAIN3  STX     IW
04445   0 76 00406          LDA     SEED            STARTING RANDOM NUMBER
04446   0 43 05053          BRM     RANDOM
04447   0 35 22064          STA     AAA
04450   0 43 05053          BRM     RANDOM
04451   0 35 22065          STA     BBB
04452   0 43 05053          BRM     RANDOM
04453   0 35 22066          STA     XXX
04454   0 43 05053          BRM     RANDOM
04455   0 35 22063          STA     CCC
04456   0 43 00430          BRM     OBJECT          START OF LOOP
04457   0 76 22064          LDA     AAA
04460   0 75 22065          LDB     BBB
04461   0 71 22066          LDX     XXX
04462   0 22 00001          ROV
04463   0 64 22063          MUL     CCC
04464   0 35 22142          STA     AIS             A IS
04465   0 36 22145          STB     BIS             B IS
04466   0 37 22157          STX     XIS             X IS
04467   0 46 00001          CLA
04470   0 22 00101          OVT
04471   0 76 22262          LDA     =1
04472   0 35 22152          STA     OFIS            OVERFLOW IS
```

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CPU1   TAP=3,C                          PAGE 23

04473  0 76 22064        LDA     AAA
04474  0 75 22065        LDB     BBB
04475  0 71 22066        LDX     XXX
04476  0 43 06067        BRM     ^ULSIM          SIMULATE MULTIPLY
04477  0 20 22063        NOP     CCC
04500  0 35 22143        STA     ASB             A SHOULD BE
04501  0 36 22146        STB     BSB             B SHOULD BE
04502  0 37 22160        STX     XSB             X SHOULD BE
04503  0 46 00001        CLA
04504  0 22 00101        OVT
04505  0 76 22062        LDA     =1
04506  0 35 22153        STA     OFSB            OVERFLOW SHOULD BE
```

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CPU1   TAP=3,C                          PAGE 24

04507  2 46 00000        CLX
04510  0 75 22143        LDB     ASB
04511  0 76 22142        LDA     AIS
04512  0 50 22143        SKE     ASB             IS A OK
04513  0 43 00460        BRM     ERROR
04514  4 20 21525        NOP     AMUL,4
04515  2 20 21630        NOP     ISSBX,2
04516  0 75 22146        LDB     BSB
04517  0 76 22145        LDA     BIS
04520  0 50 22146        SKE     BSB             IS B OK
04521  0 43 00460        BRM     ERROR
04522  4 20 21536        NOP     BMUL,4
04523  2 20 21630        NOP     ISSBX,2
04524  0 75 22160        LDB     XSB
04525  0 76 22157        LDA     XIS
04526  0 50 22160        SKE     XSB             IS X OK
04527  0 43 00460        BRM     ERROR
04530  4 20 21547        NOP     XMUL,4
04531  2 20 21630        NOP     ISSBX,2
04532  0 75 22153        LDB     OFSB
04533  0 76 22152        LDA     OFIS
04534  0 50 22153        SKE     OFSB            IS OVERFLOW OK
04535  0 43 00460        BRM     ERROR
04536  4 20 21560        NOP     OFMUL,4
04537  2 20 21630        NOP     ISSBX,2
04540  0 43 00434        BRM     END
```

```
04541  0 71 22151          LDX     IW
04542  0 76 22063          LDA     CCC
04543  0 35 00406          STA     SEED
04544  0 41 04444          BRX     AGAIN3          LOOP IF NOT DONE
04545  0 43 00456          BRM     FDONE
```



```
04546  0 43 00424  FUNC4    BRM     FUNCTN
04547  0 20 22040          NOP     FPT4
04550  0 43 00440          BRM     RETURN
04551  0 20 05731          NOP     SPUR
04552  0 76 22272          LDA     =1
04553  0 35 22156          STA     OUTFLG
04554  0 76 22062          LDA     FIW
04555  0 43 05045          BRM     CNASIM
04556  0 46 00400          CAX
```

```
CPU1    TAP=3.0                          PAGE 27

04557   0 37 22151  AGAIN4 STX    1=
04560   0 76 00406         LDA    SEED          STARTING RANDOM NUMBER
04561   0 43 05053         BRM    RANDOM
04562   0 35 22064         STA    AAA
04563   0 43 05053         BRM    RANDOM
04564   0 35 22065         STA    BBB
04565   0 43 05053         BRM    RANDOM
04566   0 35 22066         STA    XXX
04567   0 43 05053         BRM    RANDOM
04570   0 35 22063         STA    CCC
04571   0 43 00430         BRM    OBJECT        START OF LOOP
04572   0 76 22064         LDA    AAA
04573   0 75 22065         LDB    BBB
04574   0 71 22066         LDX    XXX
04575   0 22 00001         ROV
04576   0 65 22063         DIV    CCC
04577   0 35 22142         STA    AIS           A IS
04600   0 36 22145         STB    BIS           B IS
04601   0 37 22157         STX    XIS           X IS
04602   0 46 00001         CLA
04603   0 22 00101         OVT
04604   0 76 22262         LDA    =1
04605   0 35 22152         STA    OFIS          OVERFLOW IS
```

```
CPU1    TAP=3.0                          PAGE 28

04606   0 76 22064         LDA    AAA
04607   0 75 22065         LDB    BBB
04610   0 71 22066         LDX    XXX
04611   0 43 06175         BRM    DIVSIM        SIMULATE DIVIDE
04612   0 20 22063         NOP    CCC
04613   0 35 22143         STA    ASB           A SHOULD BE
04614   0 36 22146         STB    BSB           B SHOULD BE
04615   0 37 22160         STX    XSB           X SHOULD BE
04616   0 46 00001         CLA
04617   0 22 00101         OVT
04620   0 76 22262         LDA    =1
04621   0 35 22153         STA    OFSB          OVERFLOW SHOULD BE
```

```
04622  2 46 00000          CLX
04623  0 75 22143          LDB     A8B
04624  0 76 22142          LDA     A1B
04625  0 50 22143          SKE     A8B             IS A OK
04626  0 43 00460          BRM     ERROR
04627  4 20 21570          NOP     ADIV,4
04630  2 20 21630          NOP     ISSBX,2
04631  0 75 22146          LDB     B8B
04632  0 76 22145          LDA     B1B
04633  0 50 22146          SKE     B8B             IS B OK
04634  0 43 00460          BRM     ERROR
04635  4 20 21600          NOP     BDIV,4
04636  2 20 21630          NOP     ISSBX,2
04637  0 75 22160          LDB     X8B
04640  0 76 22157          LDA     X1B
04641  0 50 22160          SKE     X8B             IS X OK
04642  0 43 00460          BRM     ERROR
04643  4 20 21610          NOP     XDIV,4
04644  2 20 21630          NOP     ISSBX,2
04645  0 75 22153          LDB     OFSB
04646  0 76 22152          LDA     OF1B
04647  0 50 22153          SKE     OFSB            IS OVERFLOW OKIS OVERFLOW OK
04650  0 43 00460          BRM     ERROR
04651  4 20 21620          NOP     OFDIV,4
04652  2 20 21630          NOP     ISSBX,2
04653  0 43 00434          BRM     END
```



```
04654  0 71 22151          LDX     IW
04655  0 76 22063          LDA     CCC
04656  0 35 00406          STA     SEED
04657  0 41 04557          BRX     AGAIN4          LOOP IF NOT DONE
04660  0 43 00456          BRM     FDONE
```

```
04661  0 43 00424  FUNC22 BRM     FUNCTN
04662  0 20 22046         NOP     FPT22
04663  0 43 00440         BRM     RETURN
04664  0 20 05731         NOP     SPUR
04665  0 76 00414         LDA     ERRORS
04666  0 43 04756         BRM     ADDSIM
04667  0 20 22272         NOP     ••1
04670  0 35 00414         STA     ERRORS
04671  0 43 00460         BRM     ERROR
04672  0 20 20717         NOP     FIM22
04673  0 43 00430         BRM     OBJECT
04674  0 22 00001         REV
04675  0 76 22064         LDA     AAA
04676  0 75 22065         LDB     BBB
04677  0 71 22066         LDX     XXX
04700  0 43 06067         BRM     MULSIM
04701  0 20 22063         NOP     CCC
04702  0 43 00454         BRM     REPORT
04703  2 20 21747         NOP     RESULT,2
```



```
04704  0 46 00001         CLA
04705  0 35 22156         STA     OUTFLG
04706  0 76 22064         LDA     AAA
04707  0 75 22065         LDB     BBB
04710  0 71 22066         LDX     XXX
04711  0 43 06067         BRM     MULSIM
04712  0 20 22063         NOP     CCC
04713  0 76 22272         LDA     ••1
04714  0 35 22156         STA     OUTFLG
04715  0 43 00434         BRM     END
04716  0 01 04661         BRU     FUNC22
```

```
CPU1    TAP=3.0                                 PAGE 33

04717   0 43 00424  FUNC23 BRM      FUNCTN
04720   0 20 22054         NOP      FPT23
04721   0 43 00440         BRM      RETURN
04722   0 20 05731         NOP      SPUR
04723   0 76 00414         LDA      ERRORS
04724   0 43 04756         BRM      ADDSIM
04725   0 20 22272         NOP      +=1
04726   0 35 00414         STA      ERRORS
04727   0 43 00460         BRM      ERROR
04730   0 20 21161         NOP      FIM23
04731   0 43 00430         BRM      OBJECT
04732   0 22 00001         REV
04733   0 76 22064         LDA      AAA
04734   0 75 22065         LDB      BBB
04735   0 71 22066         LDX      XXX
04736   0 43 06175         BRM      DIVSIM
04737   0 20 22063         NOP      CCC
04740   0 43 00454         BRM      REPORT
04741   2 20 21747         NOP      RESULT,2
```

```
CPU1    TAP=3.0                                 PAGE 34

04742   0 46 00001         CLA
04743   0 35 22156         STA      OUTFLG
04744   0 76 22064         LDA      AAA
04745   0 75 22065         LDB      BBB
04746   0 71 22066         LDX      XXX
04747   0 43 06175         BRM      DIVSIM
04750   0 20 22063         NOP      CCC
04751   0 76 22272         LDA      +=1
04752   0 35 22156         STA      OUTFLG
04753   0 43 00434         BRM      END
04754   0 01 04717         BRU      FUNC23
04755   0 43 00452  FUCEND BRM      DONE
```

```
                         * THIS SUBROUTINE SIMULATES AN ADD
04756   0 00 00000  ADDSIM PZE
04757   0 35 22100         STA     A1             SAVE A
04760   0 36 22101         STB     B1             SAVE B
04761   0 37 22103         STX     X1             SAVE X
04762   0 76 22103         LDA     X1
04763   0 14 22273         ETR     =37777777      PICK OFF BIT 0
04764   0 35 22103         STA     X1
04765   0 61 04756         MIN     ADDSIM
04766   0 76*04756         LDA*    ADDSIM         GET FOLLOWING NOP
04767   0 35 22155         STA     TEMP
04770   0 76*22155         LDA*    TEMP           GET OPERAND
04771   0 35 22102         STA     C1
04772   0 46 00001         CLA
04773   0 35 22150         STA     CRYOUT         CLEAR CARRY OUT
04774   0 76 22100         LDA     A1
04775   0 17 22102         EOR     C1
04776   0 35 22154         STA     SUM
04777   0 76 22100         LDA     A1
05000   0 14 22102         ETR     C1
05001   0 46 00004  ADLUP  CAB
05002   0 76 22150         LDA     CRYOUT
05003   0 43 05326         BRM     LSHAB1
05004   0 35 22150         STA     CRYOUT
05005   0 36 22147         STB     CARRY
05006   0 46 00010         CBA
05007   0 17 22154         EOR     SUM
05010   0 46 00004         CAB
05011   0 76 22147         LDA     CARRY
05012   0 14 22154         ETR     SUM
05013   0 36 22154         STB     SUM
05014   0 50 22261         SKE     =0             IS ADD DONE
05015   0 01 05001         BRU     ADLUP          NO,GO BACK
```



```
05016   0 46 00003         CLAB
05017   0 75 22150         LDB     CRYOUT
05020   0 52 22272         SKB     =-1            WAS THERE A CARRY
05021   0 76 22260         LDA     =40000000      YES
05022   0 16 22103         MRG     X1             PUT CARRY IN X
05023   0 35 22103         STA     X1
05024   0 76 22100         LDA     A1
05025   0 17 22102         EOR     C1
05026   0 17 22272         EOR     =-1            NEGATIVE IF SIGNS SAME
05027   0 35 22155         STA     TEMP
05030   0 76 22100         LDA     A1
05031   0 17 22154         EOR     SUM            NEGATIVE IF SIGNS DIFFERENT
05032   0 14 22155         ETR     TEMP           NEGATIVE IF OVERFLOW
05033   0 46 00004         CAB
05034   0 76 04756         LDA     ADDSIM
05035   0 52 22260         SKB     =40000000      SKIP IF POSITIVE
05036   0 16 05473         MRG     BIT2
05037   0 35 04756         STA     ADDSIM
05040   0 22 00001         ROV                    RESET OVERFLOW
05041   0 76 22154         LDA     SUM
05042   0 75 22101         LDB     B1
05043   0 71 22103         LDX     X1
05044   0 51 04756         BRR     ADDSIM
```

```
CPU1    TAP=3.0                         PAGE 37

05045   0 00 00000  CNASIM PZE
05046   0 17 22272         EOR     *+1
05047   0 43 04756         BRM     ADD$IM
05050   0 20 22262         NOP     *1
05051   0 22 00001         ROV
05052   0 51 05045         BRR     CNASIM
```

```
CPU1    TAP=3.0                         PAGE 38

05053   0 00 00000  RAND0M PZE
05054   0 35 22141         STA     AAAA
05055   0 36 22144         STB     BBBB            SAVE B
05056   0 37 22161         STX     XXXX            SAVE X
05057   0 46 00005         ABC
05060   0 43 05071         BRM     SFTSIM
05061   0 67 00013         LBH     13
05062   0 43 04756         BRM     ADD$IM          SIMULATE ADD
05063   0 20 22141         NOP     AAAA
05064   0 43 04756         BRM     ADD$IM          SIMULATE ADD
05065   0 20 22274         NOP     *83577045
05066   0 75 22144         LDB     BBBB
05067   0 71 22161         LDX     XXXX
05070   0 51 05053         BRR     RAND0M
```

```
CPU1   TAP=3.C                          PAGE 39

05071  0 00 00000  SFTSIM PZE
05072  0 35 22110          STA     A4
05073  0 36 22111          STB     B4
05074  0 37 22113          STX     X4
05075  0 61 05071          MIN     SFTSIM
05076  0 76*05071          LDA*    SFTSIM          GET INSTRUCTION
05077  0 14 22275          ETR     =777            GET SHIFT COUNT
05100  0 72 22272          SKA     =77777777       IS COUNT 0
05101  0 01 05104          BRU     SFT9K           NO
05102  0 76 22110          LDA     A4              YES, EXIT
05103  0 75 22111          LDB     B4
05104  0 71 22113          LDX     X4
05105  0 51 05071          BRR     SFTSIM
05106  0 43 05045  SFT9K   BRM     CNASIM
05107  0 43 04756          BRM     ADDSIM
05110  0 20 22276          NOP     =48D            ADD 48 DECIMAL
05111  0 35 22112          STA     C4
05112  0 76*05071          LDA*    SFTSIM          GET INSTRUCTION
05113  0 53 22112          SKN     C4              SKIP IF COUNT > 48D
05114  0 01 05116          BRU     **2
05115  0 43 04756          BRM     ADDSIM
05116  0 20 22112          NOP     C4              REDUCE TO 48 OR LESS
05117  0 35 22112          STA     C4
05120  0 14 22275          ETR     =777            GET COUNT
05121  0 43 05045          BRM     CNASIM
05122  0 46 00400          CAX
05123  0 22 00001          ROV
05124  0 76 22112          LDA     C4
```

```
CPU1   TAP=3.C                          PAGE 40

05125  0 72 22277          SKA     =00100000       IS IT A LEFT OR RIGHT SHIFT
05126  0 01 05155          BRU     LEFT
05127  0 72 22300  RIGHT   SKA     =0037000        IS IT A RSH
05130  0 01 05137          BRU     RC              NO
05131  0 76 22110          LDA     A4
05132  0 75 22111          LDB     B4
05133  0 43 05221          BRM     RSHAB1          RSH 1
05134  0 41 05133          BRX     **1
05135  0 71 22113          LDX     X4
05136  0 51 05071          BRR     SFTSIM          EXIT
05137  0 72 22301  RC      SKA     =00004000       IS IT A RCY
05140  0 01 05147          BRU     LRS             NO, ITS A LRSH
05141  0 76 22110          LDA     A4
05142  0 75 22111          LDB     B4
05143  0 43 05457          BRM     RCYAB1          RCY A
05144  0 41 05143          BRX     **1
05145  0 71 22113          LDX     X4
05146  0 51 05071          BRR     SFTSIM
05147  0 76 22110  LRS     LDA     A4
05150  0 75 22111          LDB     B4
05151  0 43 05441          BRM     LRSHA1
05152  0 41 05151          BRX     **1
05153  0 71 22113          LDX     X4
05154  0 51 05071          BRR     SFTSIM
```

```
CPU1    TAP=3.0                                 PAGE 41

05155   0 72 22302  LEFT    SKA     =00077000       IS IT A LSH
05156   0 01 05165          BRU     LC              NO, LCY OR NOD
05157   0 76 22110          LDA     A4
05160   0 75 22111          LDB     B4
05161   0 43 05326          BRM     LSHAB1
05162   0 41 05161          BRX     *-1
05163   0 71 22113          LDX     X4
05164   0 51 05071          BRR     SFTSIM
05165   0 72 22303  LC      SKA     =00010000       IS IT A LCY
05166   0 01 05175          BRU     ND              NO, NOD
05167   0 76 22110          LDA     A4
05170   0 75 22111          LDB     B4
05171   0 43 05445          BRM     LCYAB1
05172   0 41 05171          BRX     *-1
05173   0 71 22113          LDX     X4
05174   0 51 05071          BRR     SFTSIM          EXIT
```

```
CPU1    TAP=3.0                                 PAGE 42

05175   0 76 22110  ND      LDA     A4
05176   0 75 22111          LDB     B4
05177   0 43 05326          BRM     LSHAB1
05200   0 35 22155          STA     TEMP
05201   0 17 22110          EOR     A4
05202   0 72 22260          SKA     =40000000       IS NOD DONE
05203   0 01 05214          BRU     NODONE          YES
05204   0 76 22155          LDA     TEMP            NO
05205   0 35 22110          STA     A4
05206   0 36 22111          STB     B4
05207   0 76 22113          LDA     X4
05210   0 43 04756          BRM     ADDSIM
05211   0 20 22272          NOP     *+1
05212   0 35 22113          STA     X4
05213   0 41 05175          BRX     ND
05214   0 22 00001  NODONE  ROV
05215   0 76 22110          LDA     A4
05216   0 75 22111          LDB     B4
05217   0 71 22113          LDX     X4
05220   0 51 05071          BRR     SFTSIM
```

```
                    * THIS SUBROUTINE SIMULATES A RSH 1
05221  0 00 00000 RSHAB1 PZE
05222  0 35 22105        STA     A3
05223  0 36 22106        STB     B3
05224  0 37 22107        STX     X3
05225  0 46 00001        CLA
05226  0 75 22105        LDB     A3              INITIAL A
05227  0 43 05246        BRM     BTBAR1
05230  0 52 05471        SKB     BIT0
05231  0 16 05471        MRG     BIT0            EXTEND SIGN
05232  0 35 22105        STA     A3
05233  0 46 00001        CLA
05234  0 52 05520        SKB     BIT23           A23 TO B0
05235  0 16 05471        MRG     BIT0
05236  0 75 22106        LDB     B3              OLD B
05237  0 43 05246        BRM     BTBAR1
05240  0 35 22106        STA     B3              NEW B
05241  0 22 00001        RBV
05242  0 76 22105        LDA     A3
05243  0 75 22106        LDB     B3
05244  0 71 22107        LDX     X3
05245  0 51 05221        BRR     RSHAB1
```



```
05246  0 00 00000 BTBAR1 PZE
05247  0 52 05471        SKB     BIT0
05250  0 16 05472        MRG     BIT1
05251  0 52 05472        SKB     BIT1
05252  0 16 05473        MRG     BIT2
05253  0 52 05473        SKB     BIT2
05254  0 16 05474        MRG     BIT3
05255  0 52 05474        SKB     BIT3
05256  0 16 05475        MRG     BIT4
05257  0 52 05475        SKB     BIT4
05260  0 16 05476        MRG     BIT5
05261  0 52 05476        SKB     BIT5
05262  0 16 05477        MRG     BIT6
05263  0 52 05477        SKB     BIT6
05264  0 16 05500        MRG     BIT7
05265  0 52 05500        SKB     BIT7
05266  0 16 05501        MRG     BIT8
05267  0 52 05501        SKB     BIT8
05270  0 16 05502        MRG     BIT9
05271  0 52 05502        SKB     BIT9
05272  0 16 05503        MRG     BIT10
05273  0 52 05503        SKB     BIT10
05274  0 16 05504        MRG     BIT11
05275  0 52 05504        SKB     BIT11
05276  0 16 05505        MRG     BIT12
```

```
05277  0 52 05505          SKB     BIT12
05300  0 16 05506          MRG     BIT13
05301  0 52 05506          SKB     BIT13
05302  0 16 05507          MRG     BIT14
05303  0 52 05507          SKB     BIT14
05304  0 16 05510          MRG     BIT15
05305  0 52 05510          SKB     BIT15
05306  0 16 05511          MRG     BIT16
05307  0 52 05511          SKB     BIT16
05310  0 16 05512          MRG     BIT17
05311  0 52 05512          SKB     BIT17
05312  0 16 05513          MRG     BIT18
05313  0 52 05513          SKB     BIT18
05314  0 16 05514          MRG     BIT19
05315  0 52 05514          SKB     BIT19
05316  0 16 05515          MRG     BIT20
05317  0 52 05515          SKB     BIT20
05320  0 16 05516          MRG     BIT21
05321  0 52 05516          SKB     BIT21
05322  0 16 05517          MRG     BIT22
05323  0 52 05517          SKB     BIT22
05324  0 16 05520          MRG     BIT23
05325  0 51 05246          BRR     BTBAR1
```



```
                       * THIS SUBROUTINE SIMULATES A LSH 1
05326  0 00 00000  LSHAB1 PZE
05327  0 35 22105          STA     A3
05330  0 35 22155          STA     TEMP
05331  0 36 22106          STB     B3
05332  0 37 22107          STX     X3
05333  0 46 00001          CLA
05334  0 75 22105          LDB     A3              BLD A
05335  0 43 05361          BRM     BTBAL1
05336  0 75 22106          LDB     B3              BLD B
05337  0 52 05471          SKB     BITC
05340  0 16 05520          MRG     BIT23           BO TO A23
05341  0 35 22105          STA     A3
05342  0 17 22155          EBR     TEMP            DID IT OVERFLOW
05343  0 35 22155          STA     TEMP
05344  0 76 05326          LDA     LSHAB1          GET MARK
05345  0 53 22155          SKN     TEMP
05346  0 01 05350          BRU     **2
05347  0 16 05479          MRG     BIT2
05350  0 35 05326          STA     LSHAB1          PUT MARK BACK
05351  0 46 00001          CLA
05352  0 43 05361          BRM     BTBAL1
05353  0 35 22106          STA     B3
05354  0 76 22105          LDA     A3
05355  0 75 22106          LDB     B3
05356  0 71 22107          LDX     X3
05357  0 22 00001          RBV
05360  0 51 05326          BRR     LSHAB1
```

```
05361  0 00 00000  BTBAL1 PZE
05362  0 52 05520         SKB     BIT23
05363  0 16 05517         MRG     BIT22
05364  0 52 05517         SKB     BIT22
05365  0 16 05516         MRG     BIT21
05366  0 52 05516         SKB     BIT21
05367  0 16 05515         MRG     BIT20
05370  0 52 05515         SKB     BIT20
05371  0 16 05514         MRG     BIT19
05372  0 52 05514         SKB     BIT19
05373  0 16 05513         MRG     BIT18
05374  0 52 05513         SKB     BIT18
05375  0 16 05512         MRG     BIT17
05376  0 52 05512         SKB     BIT17
05377  0 16 05511         MRG     BIT16
05400  0 52 05511         SKB     BIT16
05401  0 16 05510         MRG     BIT15
05402  0 52 05510         SKB     BIT15
05403  0 16 05507         MRG     BIT14
05404  0 52 05507         SKB     BIT14
05405  0 16 05506         MRG     BIT13
05406  0 52 05506         SKB     BIT13
05407  0 16 05505         MRG     BIT12
```



```
05410  0 52 05505         SKB     BIT12
05411  0 16 05504         MRG     BIT11
05412  0 52 05504         SKB     BIT11
05413  0 16 05503         MRG     BIT10
05414  0 52 05503         SKB     BIT10
05415  0 16 05502         MRG     BIT9
05416  0 52 05502         SKB     BIT9
05417  0 16 05501         MRG     BIT8
05420  0 52 05501         SKB     BIT8
05421  0 16 05500         MRG     BIT7
05422  0 52 05500         SKB     BIT7
05423  0 16 05477         MRG     BIT6
05424  0 52 05477         SKB     BIT6
05425  0 16 05476         MRG     BIT5
05426  0 52 05476         SKB     BIT5
05427  0 16 05475         MRG     BIT4
05430  0 52 05475         SKB     BIT4
05431  0 16 05474         MRG     BIT3
05432  0 52 05474         SKB     BIT3
05433  0 16 05473         MRG     BIT2
05434  0 52 05473         SKB     BIT2
05435  0 16 05472         MRG     BIT1
05436  0 52 05472         SKB     BIT1
05437  0 16 05471         MRG     BIT0
05440  0 51 05361         BRR     BTBAL1
```

```
05441  0 00 00000  LRSHA1 PZE
05442  0 43 05221         BRM     RSHAB1          RSH1
05443  0 14 22273         ETR     =37777777       CLEAR BIT 0
05444  0 51 05441         BRR     LRSHA1
                  *
05445  0 00 00000  LCYAB1 PZE
05446  0 35 22114         STA     A5
05447  0 43 05326         BRM     LSHAB1          LSH 1
05450  0 46 00014         XAB
05451  0 53 22114         SKN     A5
05452  0 01 05454         BRU     *+2
05453  0 16 05520         MRG     BIT23           A0 TO B23
05454  0 46 00014         XAB
05455  0 22 00001         ROV
05456  0 51 05445         BRR     LCYAB1
                  *
05457  0 00 00000  RCYAB1 PZE
05460  0 36 22115         STB     B5
05461  0 43 05441         BRM     LRSHA1          LRSH 1
05462  0 36 22155         STB     TEMP
05463  0 75 22115         LDB     B5              GET OLD B
05464  0 52 05520         SKB     BIT23
05465  0 16 05471         MRG     BIT0            B23 TO A0
05466  0 75 22155         LDB     TEMP
05467  0 51 05457         BRR     RCYAB1
```



```
                  * SHIFT TABLE
05470    00000000         DATA    0
05471    40000000  BIT0   DATA    40000000        BIT 0
05472    20000000  BIT1   DATA    20000000        BIT 1
05473    10000000  BIT2   DATA    10000000        BIT 2
05474    04000000  BIT3   DATA    04000000        BIT 3
05475    02000000  BIT4   DATA    02000000        BIT 4
05476    01000000  BIT5   DATA    01000000        BIT 5
05477    00400000  BIT6   DATA    00400000        BIT 6
05500    00200000  BIT7   DATA    00200000        BIT 7
05501    00100000  BIT8   DATA    00100000        BIT 8
05502    00040000  BIT9   DATA    00040000        BIT 9
05503    00020000  BIT10  DATA    00020000        BIT 10
05504    00010000  BIT11  DATA    00010000        BIT 11
05505    00004000  BIT12  DATA    00004000        BIT 12
05506    00002000  BIT13  DATA    00002000        BIT 13
05507    00001000  BIT14  DATA    00001000        BIT 14
05510    00000400  BIT15  DATA    00000400        BIT 15
05511    00000200  BIT16  DATA    00000200        BIT 16
05512    00000100  BIT17  DATA    00000100        BIT 17
05513    00000040  BIT18  DATA    00000040        BIT 18
05514    00000020  BIT19  DATA    00000020        BIT 19
05515    00000010  BIT20  DATA    00000010        BIT 20
05516    00000004  BIT21  DATA    00000004        BIT 21
05517    00000002  BIT22  DATA    00000002        BIT 22
05520    00000001  BIT23  DATA    00000001        BIT 23
05521    00000000  SFTBL  DATA    0
```

```
05522  0 00 00000  RSA    PZE
05523  0 75 22117         LDB     B00
05524  0 76 22071         LDA     B2
05525  0 17 22075         EOR     BCREG
05526  0 43 05457         BRM     RCYAB1
05527  0 35 22127         STA     WK30
05530  0 17 22072         EOR     C2
05531  0 35 22130         STA     WK31
05532  0 43 05445         BRM     LCYAB1
05533  0 14 22304         ETR     .66666666
05534  0 35 22131         STA     WK32
05535  0 43 05445         BRM     LCYAB1
05536  0 14 22304         ETR     .66666666
05537  0 35 22132         STA     WK33
05540  0 76 22072         LDA     C2
05541  0 43 05445         BRM     LCYAB1
05542  0 14 22304         ETR     .66666666
05543  0 16 22075         MRG     BCREG
05544  0 14 22071         ETR     B2
05545  0 35 22133         STA     WK34
05546  0 43 05445         BRM     LCYAB1
05547  0 14 22304         ETR     .66666666
05550  0 35 22134         STA     WK35
05551  0 43 05445         BRM     LCYAB1
05552  0 14 22304         ETR     .66666666
05553  0 14 22132         ETR     WK33
05554  0 16 22134         MRG     WK35
05555  0 14 22131         ETR     WK32
05556  0 16 22133         MRG     WK34
05557  0 35 22135         STA     WK36
05560  0 17 22130         EOR     WK31
05561  0 35 22071         STA     B2
05562  0 76 22072         LDA     C2
05563  0 17 22123         EOR     IX
05564  0 46 00005         ABC
05565  0 76 22127         LDA     WK30
```



```
05566  0 14 22072         ETR     C2
05567  0 62 22135         XMA     WK36
05570  0 14 22130         ETR     WK31
05571  0 16 22135         MRG     WK36
05572  0 53 22162         SKN     IFLG
05573  0 46 00002         CLB
05574  0 43 05445         BRM     LCYAB1
05575  0 14 22305         ETR     .11111111
05576  0 35 22075         STA     BCREG
05577  0 75 22272         LDB     ..1
05600  0 53 22072         SKN     C2
05601  0 46 00002         CLB
05602  0 36 22117         STB     B00
05603  0 51 05522         BRR     RSA
```

```
05604  0 00 00000  AR1    PZE
05605  0 75 22071         LDB     B2
05606  0 76 22070         LDA     A2
05607  0 43 05457         BRM     RCYAB1
05610  0 35 22070         STA     A2
05611  0 51 05604         BRR     AR1
```



```
05612  0 00 00000  BR1    PZE
05613  0 75 22117         LDB     B00
05614  0 76 22071         LDA     B2
05615  0 14 22075         ETR     BCREG
05616  0 62 22071         XMA     B2
05617  0 17 22075         EOR     BCREG
05620  0 43 05457         BRM     RCYAB1
05621  0 62 22071         XMA     B2
05622  0 35 22075         STA     BCREG
05623  0 53 22162         SKN     IFLG
05624  0 51 05612         BRR     BR1
05625  0 76 22272         LDA     =1
05626  0 53 22124         SKN     KO
05627  0 46 00001         CLA
05630  0 35 22117         STA     B00
05631  0 51 05612         BRR     BR1
```

```
05632  0 00 00000  AL2     PZE
05633  0 75 22070          LDB     A2
05634  0 76 22071          LDA     B2
05635  0 17 22075          EOR     BCREG
05636  0 43 05445          BRM     LCYAB1
05637  0 43 05445          BRM     LCYAB1
05640  0 62 22071          XMA     B2
05641  0 36 22070          STB     A2
05642  0 46 00002          CLB
05643  0 14 22075          ETR     BCREG
05644  0 43 05445          BRM     LCYAB1
05645  0 43 05445          BRM     LCYAB1
05646  0 43 05445          BRM     LCYAB1
05647  0 35 22075          STA     BCREG
05650  0 46 00012          BAC
05651  0 17 22070          EOR     A2
05652  0 72 22262          SKA     =1
05653  0 75 22272          LDB     ==1
05654  0 36 22117          STB     B00
05655  0 51 05632          BRR     AL2
```



```
05656  0 00 00000  SETBZ0  PZE
05657  0 76 22071          LDA     B2
05660  0 14 22273          ETR     =37777777
05661  0 43 04756          BRM     ADDSIM
05662  0 20 22075          NOP     BCREG
05663  0 35 22120          STA     BZ0
05664  0 51 05656          BRR     SETBZ0
```

```
CPU1   TAP=3.C                          PAGE 57

05665  0 00 00000  REGOUT PZE
05666  0 53 22156          SKN     OUTFLG
05667  0 01 05671          BRU     *+2
05670  0 51 05665          BRR     REGOUT
05671  0 37 22136          STX     WK40
05672  0 76 22126          LDA     FORMAT
05673  0 73 22306          SKG     =2
05674  0 01 05677          BRU     OUT1
05675  0 43 00454          BRM     REPORT
05676  0 20 21726          NOP     MTITLE
05677  0 73 22262  OUT1    SKG     =1
05700  0 01 05703          BRU     OUT2
05701  0 43 00454          BRM     REPORT
05702  0 20 21725          NOP     CARRET
05703  2 76 22247  OUT2    LDA     DTIME+240,2
05704  0 53 22162          SKN     IFLG
05705  2 76 22214          LDA     MTIME+230,2
05706  0 35 22077          STA     TIMOUT
05707  0 43 00454          BRM     REPORT
05710  0 20 22077          NOP     TIMOUT
05711  0 76 22260          LDA     =40000000
05712  0 53 22116          SKN     A00
05713  0 46 00001          CLA
05714  0 35 22073          STA     A00DSP
05715  0 76 22260          LDA     =40000000
05716  0 53 22117          SKN     B00
05717  0 46 00001          CLA
05720  0 35 22074          STA     B00DSP
05721  0 76 22260          LDA     =40000000
05722  0 53 22140          SKN     8F
05723  0 76 22261          LDA     =0
05724  0 35 22076          STA     LINE8
05725  0 43 00454          BRM     REPORT
05726  0 07 22070          SEVEN   A2
05727  0 71 22136          LDX     WK40
05730  0 51 05665          BRR     REGOUT
```

```
CPU1   TAP=3.0                          PAGE 58

05731  0 02 20004  SPUR    DIR
05732  0 76 00450          LDA     DIVERT
05733  0 14 22254          ETR     =37777
05734  0 43 05736          BRM     SPURI
05735  0 20 22272          NOP     *+1
                    *
                    *       PROCESS SPURIOUS POP, INTERRUPT, OR TRAP
                    *
05736  0 00 00000  SPURI   PZE     0
05737  0 73 22257          SKG     =77             WAS SPIT LEGAL
05740  0 01 05751          BRU     IEXT            NO
05741  0 73 22307          SKG     =177            WAS IT A POP
05742  0 01 05757          BRU     BIGPOP          YES
05743  0 73 22310          SKG     =237            WAS IT LEGAL
05744  0 01 05751          BRU     IEXT            NO
05745  0 73 22311          SKG     =273            WAS IT 130 = T44
05746  0 01 05765          BRU     I30T44          YES
05747  0 73 22312          SKG     =377            WAS IT 156 = I74
05750  0 01 05764          BRU     I56I74          YES
                    *
                    *       PROCESS ILLEGAL OR EXTERNAL INTERRUPT
                    *
05751  0 76 22272  IEXT    LDA     *+1
05752  0 35 06024          STA     ITABLE+1        RECEIVED
05753  0 76 00450          LDA     DIVERT          MARK
05754  0 43 00454          BRM     REPORT
05755  0 20 06027          NOP     ILLEXT
05756  0 01 05775          BRU     COMMON
```

```
                    •
                    •       PROCESS SPURIOUS POPS
                    •
05757  0 35 06024   BIGPOP  STA     ITABLE•1        RECEIVED
05760  0 76 00000           LDA     0               MARK
05761  0 43 00454           BRM     REPORT
05762  0 20 06042           NOP     POPED
05763  0 01 05775           BRU     COMMON
                    •
                    •       PROCESS I56 THROUGH I74
                    •
05764  0 55 22313   I56I74  ADD     •20
                    •
                    •       PROCESS I30 THROUGH T44
                    •
05765  0 54 22314   I30T44  SUB     •161
05766  0 66 00001           RSH     1
05767  0 35 06024           STA     ITABLE•1        RECEIVED
05770  0 77•00450           EAX•    DIVERT
05771  2 77 37777           EAX     •1,2
05772  2 76 00000           LDA     0,2
05773  0 43 00454           BRM     REPORT
05774  0 20 06046           NOP     SPRINT
```



```
                    •
                    •       COMMON INTERRUPT ROUTINE
                    •
05775  0 35 06025   COMMON  STA     ITABLE•2        MARK
05776  0 76•06025           LDA•    ITABLE•2
05777  0 35 06026           STA     ITABLE•3        INSTRUCTION
06000  0 61 05736           MIN     SPURI
06001  0 71•05736           LDX•    SPURI
06002  2 76 00000           LDA     0,2
06003  0 35 06023           STA     ITABLE          EXPECTED
06004  0 43 00454           BRM     REPORT          REPORT ERROR
06005  4 20 06055           NOP     IMSG,4          MESSAGE
06006  0 04 06023           FOUR    ITABLE          DATA
06007  0 43 06013           BRM     CLEAR           CLEAR PRESENT INTERRUPT
06010  0 43 00460           BRM     ERROR           GO TO CONTROL
06011  0 20 21725           NOP     CARRET          (NO MESSAGE)
06012  0 01•00430           BRU•    OBJECT
```

```
                    *
                    *       CLEAR PRESENT INTERRUPT
                    *
06013  0 00 00000  CLEAR   PZE     0
06014  0 74 00401          LDA     STATUS
06015  0 72 22251          SKA     •4              SKIP IF NOT 940
06016  0 11 06020          BRI     ••2             940
06017  0 01•06020          BRU•    ••1             925/930
06020  0 20 06020          NOP     •
06021  0 02 20002          EIR                     ENABLE INTERRUPTS
06022  0 51 06013          BRR     CLEAR           RETURN
                    *
                    *       MESSAGES
                    *
06023  0 00 00000  ITABLE  PZE     0               INTERRUPTS EXPECTED
06024  0 00 00000          PZE     0               INTERRUPT RECEIVED
06025  0 00 00000          PZE     0               LOCATION AT TIME OF INTERRUPT/TRAP
06026  0 00 00000          PZE     0               INSTRUCTION BEING EXECUTED
06027    52526445  ILLEXT  BCD     '  UNDEFINED ILLEGAL OR EXTERNAL INTERRUPT!!
06030    24252431
06031    45252412
06032    31434325
06033    27214312
06034    46511225
06035    67632551
06036    45214312
06037    31456325
06040    51516447
06041    63371212
06042    52624764  POPED   BCD     ' SPURIOUS POP!!
06043    51314464
06044    62124746
06045    47371212
06046    52624764  SPRINT  BCD     ' SPURIOUS INTERRUPT OR TRAP!!
06047    51314464
06050    62123145
```



```
06051    63255151
06052    64476312
06053    46511263
06054    51214737
06055    52256747  IMSG    BCD     ' EXPECTED RECEIVED LOCATION CONTENTS !!
06056    25236325
06057    24125125
06060    23253165
06061    25241243
06062    46232163
06063    31464512
06064    23464563
06065    25456362
06066    52371212
```

```
CPU1    TAP=3,C                                 PAGE 63

06067   0 00 00000  MULSIM PZE
06070   0 35 22070          STA     A2
06071   0 35 22116          STA     A00
06072   0 36 22071          STB     B2
06073   0 37 22104          STX     X2
06074   0 61 06067          MIN     MULSIM
06075   0 76*06067          LDA*    MULSIM
06076   0 35 22155          STA     TEMP
06077   0 76*22155          LDA*    TEMP
06100   0 35 22072          STA     C2
06101   0 76 22315          LDA     =3
06102   0 35 22126          STA     FORMAT
06103   0 46 00001          CLA
06104   0 35 22162          STA     IFLG
06105   0 36 22071          STA     B2
06106   0 35 22075          STA     BCREG
06107   0 35 22117          STA     B00
06110   0 76 22262          LDA     =1
06111   0 35 22137          STA     MK20
06112   0 71 22316          LDX     =-240
06113   0 01 06125          BRU     MULT2
06114   0 43 05668  MULT4    BRM     REGOUT
06115   0 76 22262          LDA     =1
06116   0 35 22126          STA     FORMAT
06117   0 43 05404          BRM     AR1
06120   0 52 22262          SKB     =040000000
06121   0 01 06165          BRU     MULT1
06122   0 43 05412          BRM     BR1
06123   0 46 00001          CLA
06124   0 35 22140          STA     OF
```

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CPU1    TAP=3,C                                 PAGE 64

06125   0 41 06114  MULT2   BRX     MULT4
06126   0 60 22137          SKR     MK20
06127   0 01 06170          BRU     MULT3
06130   0 53 22116  CLENUP  SKN     A00
06131   0 01 06133          BRU     *+2
06132   0 61 22075          MIN     BCREG
06133   0 43 05665          BRM     REGOUT
06134   0 76 22071          LDA     B2
06135   0 43 04756          BRM     ADDSIM
06136   0 20 22075          NBP     BCREG
06137   0 62 22070          XMA     A2
06140   0 35 22071          STA     B2
06141   0 41 06142          BRX     *+1
06142   0 72 22072          SKA     *+1
06143   0 01 06146          BRU     CLROF
06144   0 76 22070          LDA     A2
06145   0 50 22260          SKE     =40000000
06146   0 46 00001  CLROF    CLA
06147   0 35 22140          STA     OF
06150   0 76 22306          LDA     =2
06151   0 35 22126          STA     FORMAT
06152   0 43 05665          BRM     REGOUT
06153   0 76 06067          LDA     MULSIM
06154   0 16 05473          MRG     BIT2
06155   0 53 22140          SKN     OF
06156   0 01 06160          BRU     *+2
06157   0 35 06067          STA     MULSIM
06160   0 22 00001          RBV
06161   0 76 22070          LDA     A2
06162   0 75 22071          LDB     B2
06163   0 71 22104          LDX     X2
06164   0 51 06067          BRR     MULSIM
```

```
06165  0 43 05522  MULT1  BRM     R$A
06166  0 76 22262         LDA     =1
06167  0 01 06124         BRU     MULT2=1
06170  0 76 22072  MULT3  LDA     C$
06171  0 17 22272         EOR     =-1
06172  0 35 22072         STA     C2
06173  0 43 05665         BRM     REGOUT
06174  0 01 06116         BRU     MULT4+2
```



```
06175  0 00 00000  DIVSIM PZE
06176  0 35 22070         STA     A2
06177  0 35 22116         STA     A00
06200  0 36 22071         STB     B2
06201  0 37 22104         STX     X2
06202  0 76 22315         LDA     =3
06203  0 35 22126         STA     FORMAT
06204  0 76 22272         LDA     =-1
06205  0 35 22162         STA     IFLG
06206  0 61 06175         MIN     DIVSIM
06207  0 76*06175         LDA*    DIVSIM
06210  0 35 22155         STA     TEMP
06211  0 76*22155         LDA*    TEMP
06212  0 35 22072         STA     C2
06213  0 35 22123         STA     IX
06214  2 46 00002         RCH     2,2             CLB, CLX
06215  0 72 22260         SKA     =40000000
06216  0 01 06221         BRU     *+3
06217  0 17 22272         EOR     =-1
06220  0 75 22262         LDB     =1
06221  0 36 22121         STB     CZ
06222  0 35 22072         STA     C2
06223  0 76 22070         LDA     A2
06224  0 75 22071         LDB     B2
06225  0 53 22116         SKN     A00
06226  0 01 06237         BRU     SETB0
06227  0 17 22272         EOR     =-1
06230  0 46 00014         XAB
06231  0 14 22317         ETR     =77777776
06232  0 43 05045         BRM     CNASIM
06233  0 72 22272         SKA     =-1
06234  0 01 06236         BRU     *+2
06235  0 71 22262         LDX     =1
06236  0 46 00014         XAB
```

```
06237  0 37 22075  SETBO  STX     BCREG
06240  0 36 22070         STB     A2
06241  0 43 04756         BRM     ADDSIM
06242  0 20 22072         NOP     C2
06243  0 43 04756         BRM     ADDSIM
06244  0 20 22121         NOP     CZ
06245  0 35 22071         STA     B2
06246  0 16 22075         MRG     BCREG
06247  0 16 22070         MRG     A2
06250  0 72 22272         SKA     =-1
06251  0 16 22272         MRG     =-1
06252  0 35 22122         STA     RF
06253  0 43 05656         BRM     SETBZO
06254  0 75 22260         LDB     =40000000
06255  0 70 22071         SKM     B2
06256  0 01 06264         BRU     TESTBO
06257  0 53 22122         SKN     RF
06260  0 01 06267         BRU     TESTAO
06261  0 72 22260         SKA     =40000000
06262  0 01 06267         BRU     TESTAO
06263  0 01 06272         BRU     TESTAO+3
```



```
06264  0 53 22120  TESTBO SKN     BZO
06265  0 01 06271         BRU     TESTAO+2
06266  0 01 06272         BRU     TESTAO+3
06267  0 76 22116  TESTAO LDA     AOO
06270  0 70 22123         SKM     IX
06271  0 46 00002         CLB
06272  0 36 22125         STB     BFLAG
06273  0 71 22316         LDX     =-24D
06274  0 01 06276         BRU     BEGIN
06275  0 43 05522         BRM     RSA
```

```
06276  0 76 22272  BEGIN  LDA    *=1
06277  0 53 22120         SKN    BZ0
06300  0 46 00001         CLA
06301  0 35 22140         STA    0F
06302  0 43 05665         BRM    REGOUT
06303  0 76 22262         LDA    =1
06304  0 35 22126         STA    FORMAT
06305  0 43 05656         BRM    SETBZ0
06306  0 17 22071         EOR    B2
06307  0 17 22072         EOR    C2
06310  0 46 00004         CAB
06311  0 76 22072         LDA    C2
06312  0 52 22260         SKB    =40000000
06313  0 17 22272         EOR    *=1
06314  0 17 22272         EOR    *=1
06315  0 35 22072         STA    C2
06316  0 76 22071         LDA    B2
06317  0 14 22320         ETR    =70000000
06320  0 43 04756         BRM    ADDSIM
06321  0 20 22075         NOP    BCREG
06322  0 46 00005         ABC
06323  0 46 00300         RCH    300
06324  0 50 22275         SKE    =0777
06325  0 46 00002         CLB
06326  0 36 22124         STB    K0
06327  0 43 05632         BRM    AL2
06330  0 43 05604         BRM    AR1
06331  0 14 22317         ETR    =077777776
06332  0 53 22072         SKN    C2
06333  0 01 06335         BRU    *+2
06334  0 16 22262         MRG    =1
06335  0 35 22070         STA    A2
06336  0 41 06275         BRX    BEGIN=1
06337  0 43 05612         BRM    BR1
06340  0 43 05665         BRM    REGOUT
06341  0 53 22072         SKN    C2
```



```
06342  0 01 06402         BRU    LAST
06343  0 43 05612         BRM    BR1
```

```
CPU1    TAP=3.0                                 PAGE 71

06344   0 76 22075  FINISH LDA     BCREG
06345   0 43 04756         BRM     ADDSIM
06346   0 20 22071         NBP     B2
06347   0 53 22116         SKN     A00
06350   0 01 06352         BRU     *+2
06351   0 43 05045         BRM     CNASIM
06352   0 35 22071         STA     B2
06353   0 76 22116         LDA     A00
06354   0 17 22123         EOR     IX
06355   0 46 00004         CAB
06356   0 76 22070         LDA     A2
06357   0 52 22260         SKB     *40000000
06360   0 43 05045         BRM     CNASIM
06361   0 35 22070         STA     A2
06362   0 76 22306         LDA     *2
06363   0 35 22126         STA     FORMAT
06364   0 41 06365         BRX     *+1
06365   0 76 22125         LDA     OFLAG
06366   0 35 22140         STA     OF
06367   0 43 05665         BRM     REGOUT
06370   0 76 06175         LDA     DIVSIM
06371   0 16 05473         MRG     BIT2
06372   0 53 22125         SKN     OFLAG
06373   0 01 06375         BRU     *+2
06374   0 35 06175         STA     DIVSIM
06375   0 76 22070         LDA     A2
06376   0 75 22071         LDB     B2
06377   0 71 22104         LDX     X2
06400   0 22 00001         RBV
06401   0 51 06175         BRR     DIVSIM
06402   0 43 05522  LAST   BRM     RSA
06403   0 01 06344         BRU     FINISH
```

```
CPU1    TAP=3.0                                 PAGE 72

06404   0 20*06404  NBP1   NBP*    *
06405   0 20*04134         NBP*    TESTM               IA
06406     77700070         DATA    77700070
06407     77700070         DATA    77700070
06410     33344434         DATA    33344434
06411     33344434         DATA    33344434
06412     44433343         DATA    44433343
06413     44433343         DATA    44433343
06414     66611161         DATA    66611161
06415     66611161         DATA    66611161
06416   0 01 04077         BRU     NBSKIP+1
06417   0 01 04143         BRU     NBVFLO
06420   0 20*06420  NBP2   NBP*    *
06421   0 20*04134         NBP*    TESTM               IA
06422     00077707         DATA    00077707
06423     00077707         DATA    00077707
06424     22255525         DATA    22255525
06425     22255525         DATA    22255525
06426     55522252         DATA    55522252
06427     55522252         DATA    55522252
06430     11166616         DATA    11166616
06431     11166616         DATA    11166616
06432   1 01 04077         BRU     NBSKIP+1,1          SET OVERFLOW
06433   0 01 04154         BRU     OVFLO               OVERFLOW
```

```
CPU1   TAP=3.0                                  PAGE 73

06434  0 20*06434  NOP3   NOP=    *
06435  4 20 04046         NOP     MEMORY,4
06436    55522252         DATA    55522252
06437    55522252         DATA    55522252
06440    11166616         DATA    11166616
06441    11166616         DATA    11166616
06442    66611161         DATA    66611161
06443    66611161         DATA    66611161
06444    33344434         DATA    33344434
06445    33344434         DATA    33344434
06446  4 01 04077         BRU     NOSKIP=1,4
06447  0 01 04143         BRU     NOVFLO
06450  0 20*06450  NOP4   NOP=    *
06451  4 20 04046         NOP     MEMORY,4
06452    22255525         DATA    22255525
06453    22255525         DATA    22255525
06454    00077707         DATA    00077707
06455    00077707         DATA    00077707
06456    77700070         DATA    77700070
06457    77700070         DATA    77700070
06460    11166616         DATA    11166616
06461    11166616         DATA    11166616
06462  5 01 04077         BRU     NOSKIP=1,5      SET OVERFLOW
06463  0 01 04154         BRU     OVFLO           OVERFLOW
```

```
CPU1   TAP=3.0                                  PAGE 74

06464  0 20*06464  ETR1   NOP=    *
06465  0 14 04046         ETR     MEMORY
06466    14631463         DATA    14631463
06467    04210421         DATA    04210421
06470    77700070         DATA    77700070
06471    77700070         DATA    77700070
06472    00077707         DATA    00077707
06473    00077707         DATA    00077707
06474    25252525         DATA    25252525
06475    25252525         DATA    25252525
06476  0 01 04077         BRU     NOSKIP=1
06477  0 01 04143         BRU     NOVFLO
06500  0 20*06500  ETR2   NOP=    *
06501  0 14 04046         ETR     MEMORY
06502    63146314         DATA    63146314
06503    21042104         DATA    21042104
06504    66611161         DATA    66611161
06505    66611161         DATA    66611161
06506    11166616         DATA    11166616
06507    11166616         DATA    11166616
06510    25252525         DATA    25252525
06511    25252525         DATA    25252525
06512  0 01 04077         BRU     NOSKIP=1
06513  0 01 04143         BRU     NOVFLO
```

```
06514 0 20*06514  ETR3   N0P*    *
06515 4 14*04134         ETR*    TESTM,4          IA
06516   31463146         DATA    31463146
06517   10421042         DATA    10421042
06520   55522252         DATA    55522252
06521   55522252         DATA    55522252
06522   22255525         DATA    22255525
06523   22255525         DATA    22255525
06524   52525252         DATA    52525252
06525   52525252         DATA    52525252
06526 4 01 04077         BRU     N0SKIP=1,4
06527 0 01 04143         BRU     N0VFL0
06530 0 20*06530  ETR4   N0P*    *
06531 4 14 04046         ETR     MEM0RY,4
06532   46314631         DATA    46314631
06533   42104210         DATA    42104210
06534   44433343         DATA    44433343
06535   44433343         DATA    44433343
06536   33344434         DATA    33344434
06537   33344434         DATA    33344434
06540   52525252         DATA    52525252
06541   52525252         DATA    52525252
06542 5 01 04077         BRU     N0SKIP=1,5
06543 0 01 04154         BRU     0VFL0            0VERFL0W
```



```
06544 0 20*06544  MRG1   N0P*    *
06545 0 16 04046         MRG     MEM0RY
06546   14631463         DATA    14631463
06547   35673567         DATA    35673567
06550   33344434         DATA    33344434
06551   33344434         DATA    33344434
06552   44433343         DATA    44433343
06553   44433343         DATA    44433343
06554   25252525         DATA    25252525
06555   25252525         DATA    25252525
06556 0 01 04077         BRU     N0SKIP=1
06557 0 01 04143         BRU     N0VFL0
06560 0 20*06560  MRG2   N0P*    *
06561 0 16 04046         MRG     MEM0RY
06562   63146314         DATA    63146314
06563   67356735         DATA    67356735
06564   22255525         DATA    22255525
06565   22255525         DATA    22255525
06566   55522252         DATA    55522252
06567   55522252         DATA    55522252
06570   25252525         DATA    25252525
06571   25252525         DATA    25252525
06572 0 01 04077         BRU     N0SKIP=1
06573 0 01 04143         BRU     N0VFL0
```

```
06574  0 20•06574  MRG3   N0P•    •
06575  4 16•04134         MRG•    TEST%,4          !A
06576    31463146         DATA    31463146
06577    73567354         DATA    73567354
06600    11166616         DATA    11166616
06601    11166616         DATA    11166616
06602    66611161         DATA    66611161
06603    66611161         DATA    66611161
06604    52525252         DATA    52525252
06605    52525252         DATA    52525252
06606  5 01 04077         BRU     N0SKIP•1,5       SET 0VERFL0W
06607  0 01 04154         BRU     0VFL0            0VERFL0W
06610  0 20•06610  MRG4   N0P•    •
06611  4 16 04046         MRG     MEMORY,4
06612    46314631         DATA    46314631
06613    56735673         DATA    56735673
06614    00077707         DATA    00077707
06615    00077707         DATA    00077707
06616    77700070         DATA    77700070
06617    77700070         DATA    77700070
06620    52525252         DATA    52525252
06621    52525252         DATA    52525252
06622  4 01 04077         BRU     N0SKIP•1,4
06623  0 01 04143         BRU     N0VFL0
```



```
06624  0 20•06624  E0R1   N0P•    •
06625  0 17 04046         E0R     MEMORY
06626    14631463         DATA    14631463
06627    31463146         DATA    31463146
06630    77700070         DATA    77700070
06631    77700070         DATA    77700070
06632    00077707         DATA    00077707
06633    00077707         DATA    00077707
06634    25252525         DATA    25252525
06635    25252525         DATA    25252525
06636  0 01 04077         BRU     N0SKIP•1
06637  0 01 04143         BRU     N0VFL0
06640  0 20•06640  E0R2   N0P•    •
06641  0 17 04046         E0R     MEMORY
06642    31463146         DATA    31463146
06643    63146314         DATA    63146314
06644    66611161         DATA    66611161
06645    66611161         DATA    66611161
06646    11166616         DATA    11166616
06647    11166616         DATA    11166616
06650    52525252         DATA    52525252
06651    52525252         DATA    52525252
06652  1 01 04077         BRU     N0SKIP•1,1       SET 0VERFL0W
06653  0 01 04154         BRU     0VFL0            0VERFL0W
```

```
06654  0 20•06654  EBR3   \BP•    •
06655  0 17•04134         EBR•    TESTM                IA
06656    46314631         DATA    46314631
06657    14631463         DATA    14631463
06660    55522252         DATA    55522252
06661    55522252         DATA    55522252
06662    22255525         DATA    22255525
06663    22255525         DATA    22255525
06664    52525252         DATA    52525252
06665    52525252         DATA    52525252
06666  0 01 04077         BRU     \BSKIP•1
06667  0 01 04143         BRU     \BVFL0
06670  0 20•06670  EBR4   \BP•    •
06671  0 17 04046         EBR     MEMORY
06672    63146314         DATA    63146314
06673    46314631         DATA    46314631
06674    44433343         DATA    44433343
06675    44433343         DATA    44433343
06676    33344434         DATA    33344434
06677    33344434         DATA    33344434
06700    25252525         DATA    25252525
06701    25252525         DATA    25252525
06702  0 01 04077         BRU     \BSKIP•1
06703  0 01 04143         BRU     \BVFL0
```



```
06704  0 20•06704  CLX    \BP•    •
06705  2 46 00000         CLX
06706    77700070         DATA    77700070
06707    77700070         DATA    77700070
06710    66611161         DATA    66611161
06711    66611161         DATA    66611161
06712    77777777         DATA    77777777
06713    00000000         DATA    0
06714    00000000         DATA    0
06715    00000000         DATA    0
06716  0 01 04077         BRU     \BSKIP•1
06717  0 01 04143         BRU     \BVFL0
06720  0 20•06720  CLA    \BP•    •
06721  0 46 00001         CLA
06722    77777777         DATA    77777777
06723    00000000         DATA    0
06724    55522252         DATA    55522252
06725    55522252         DATA    55522252
06726    44433343         DATA    44433343
06727    44433343         DATA    44433343
06730    00000000         DATA    0
06731    00000000         DATA    0
06732  0 01 04077         BRU     \BSKIP•1
06733  0 01 04143         BRU     \BVFL0
```

```
CPU1    TAP=3,0                                 PAGE 81

06734  0 20*06734  CLB     NOP*    *
06735  0 46 00002          CLB
06736    55522252          DATA    55522252
06737    55522252          DATA    55522252
06740    77777777          DATA    77777777
06741    00000000          DATA    0
06742    33344434          DATA    33344434
06743    33344434          DATA    33344434
06744    00000000          DATA    0
06745    00000000          DATA    0
06746  0 01 04077          BRU     NOSKIP=1
06747  0 01 04143          BRU     NOVFLO
06750  0 20*06750  CLR     NOP*    *
06751  0 46 00003          CLAB
06752    77777777          DATA    77777777
06753    00000000          DATA    0
06754    77777777          DATA    77777777
06755    00000000          DATA    0
06756    22255525          DATA    22255525
06757    22255525          DATA    22255525
06760    00000000          DATA    0
06761    00000000          DATA    0
06762  4 01 04077          BRU     NOSKIP=1,4
06763  0 01 04143          BRU     NOVFLO
```

```
CPU1    TAP=3,0                                 PAGE 82

06764  0 20*06764  CAB     NOP*    *
06765  0 46 00004          CAB
06766    33344434          DATA    33344434
06767    33344434          DATA    33344434
06770    44433343          DATA    44433343
06771    33344434          DATA    33344434
06772    11166616          DATA    11166616
06773    11166616          DATA    11166616
06774    00000000          DATA    0
06775    00000000          DATA    0
06776  1 01 04077          BRU     NOSKIP=1,1          SET OVERFLOW
06777  0 01 04154          BRU     OVFLO               OVERFLOW
07000  0 20*07000  CBA     NOP*    *
07001  0 46 00010          CBA
07002    66611161          DATA    66611161
07003    11166616          DATA    11166616
07004    11166616          DATA    11166616
07005    11166616          DATA    11166616
07006    00077707          DATA    00077707
07007    00077707          DATA    00077707
07010    00000000          DATA    0
07011    00000000          DATA    0
07012  0 01 04077          BRU     NOSKIP=1
07013  0 01 04143          BRU     NOVFLO
```

```
07014  0 20•07014  XAB     %8P•    •
07015  0 46 00014          XAB
07016    77700070          DATA    77700070
07017    00077707          DATA    00077707
07020    00077707          DATA    00077707
07021    77700070          DATA    77700070
07022    11166616          DATA    11166616
07023    11166616          DATA    11166616
07024    00000000          DATA    0
07025    00000000          DATA    0
07026  0 01 04077          BRU     %8SKIP•1
07027  0 01 04143          BRU     %8VFL8
07030  0 20•07030  BAC     %8P•    •
07031  0 46 00012          BAC
07032    00077707          DATA    00077707
07033    77700070          DATA    77700070
07034    77700070          DATA    77700070
07035    00000000          DATA    0
07036    66611161          DATA    66611161
07037    66611161          DATA    66611161
07040    00000000          DATA    0
07041    00000000          DATA    0
07042  4 01 04077          BRU     %8SKIP•1,4
07043  0 01 04143          BRU     %8VFL8
```



```
07044  0 20•07044  ABC     %8P•    •
07045  0 46 00005          ABC
07046    77700070          DATA    77700070
07047    00000000          DATA    0
07050    00077707          DATA    00077707
07051    77700070          DATA    77700070
07052    55522252          DATA    55522252
07053    55522252          DATA    55522252
07054    00000000          DATA    0
07055    00000000          DATA    0
07056  4 01 04077          BRU     %8SKIP•1,4
07057  0 01 04143          BRU     %8VFL8
07060  0 20•07060  CXA     %8P•    •
07061  0 46 00200          CXA
07062    33344434          DATA    33344434
07063    44433343          DATA    44433343
07064    55522252          DATA    55522252
07065    55522252          DATA    55522252
07066    44433343          DATA    44433343
07067    44433343          DATA    44433343
07070    00000000          DATA    0
07071    00000000          DATA    0
07072  0 01 04077          BRU     %8SKIP•1
07073  0 01 04143          BRU     %8VFL8
```

```
07074  0 20*07074  CAX    NOP*     *
07075  0 46 00400         CAX
07076    55522252         DATA     55522252
07077    55522252         DATA     55522252
07100    44433343         DATA     44433343
07101    44433343         DATA     44433343
07102    22255525         DATA     22255525
07103    55522252         DATA     55522252
07104    00000000         DATA     0
07105    00000000         DATA     0
07106  1 01 04077         BRU      NOSKIP*1,1          SET OVERFLOW
07107  0 01 04154         BRU      OVFLO               OVERFLOW
07110  0 20*07110  XXA    NOP*     *
07111  0 46 00600         XXA
07112    77700070         DATA     77700070
07113    00077707         DATA     00077707
07114    33344434         DATA     33344434
07115    33344434         DATA     33344434
07116    00077707         DATA     00077707
07117    77700070         DATA     77700070
07120    00000000         DATA     0
07121    00000000         DATA     0
07122  4 01 04077         BRU      NOSKIP*1,4
07123  0 01 04143         BRU      NOVFLO
```



```
07124  0 20*07124  CBX    NOP*     *
07125  0 46 00020         CBX
07126    33344434         DATA     33344434
07127    33344434         DATA     33344434
07130    22255525         DATA     22255525
07131    22255525         DATA     22255525
07132    55522252         DATA     55522252
07133    22255525         DATA     22255525
07134    00000000         DATA     0
07135    00000000         DATA     0
07136  0 01 04077         BRU      NOSKIP*1
07137  0 01 04143         BRU      NOVFLO
07140  0 20*07140  CXB    NOP*     *
07141  0 46 00040         CXB
07142    22255525         DATA     22255525
07143    22255525         DATA     22255525
07144    77700070         DATA     77700070
07145    00077707         DATA     00077707
07146    00077707         DATA     00077707
07147    00077707         DATA     00077707
07150    00000000         DATA     0
07151    00000000         DATA     0
07152  0 01 04077         BRU      NOSKIP*1
07153  0 01 04143         BRU      NOVFLO
```

```
07154  0 20*07154  XXB     %8P=    *
07155  0 46 00060          XXB
07156    11166616          DATA    11166616
07157    11166616          DATA    11166616
07160    00077707          DATA    00077707
07161    77700070          DATA    77700070
07162    77700070          DATA    77700070
07163    00077707          DATA    00077707
07164    00000000          DATA    0
07165    00000000          DATA    0
07166  5 01 04077          BRU     %8SKIP=1,5      SET OVERFLOW
07167  0 01 04154          BRU     OVFL8           OVERFLOW
07170  0 20*07170  STE     %8P=    *
07171  0 46 00122          STE
07172    11166616          DATA    11166616
07173    11166616          DATA    11166616
07174    77777377          DATA    77777377
07175    77777000          DATA    77777000
07176    77777400          DATA    77777400
07177    00000377          DATA    00000377
07200    00000000          DATA    0
07201    00000000          DATA    0
07202  1 01 04077          BRU     %8SKIP=1,1      SET OVERFLOW
07203  0 01 04154          BRU     OVFL8           OVERFLOW
```



```
07204  0 20*07204  LDE     %8P=    *
07205  0 46 00140          LDE
07206    77700070          DATA    77700070
07207    77700070          DATA    77700070
07210    77777000          DATA    77777000
07211    77777777          DATA    77777777
07212    00000777          DATA    00000777
07213    00000777          DATA    00000777
07214    00000000          DATA    0
07215    00000000          DATA    0
07216  0 01 04077          BRU     %8SKIP=1
07217  0 01 04143          BRU     %8VFL8
07220  0 20*07220  XEE     %8P=    *
07221  0 46 00160          XEE
07222    66611161          DATA    66611161
07223    66611161          DATA    66611161
07224    00077707          DATA    00077707
07225    00077070          DATA    00077070
07226    00000070          DATA    00000070
07227    77777707          DATA    77777707
07230    00000000          DATA    0
07231    00000000          DATA    0
07232  4 01 04077          BRU     %8SKIP=1,4
07233  0 01 04143          BRU     %8VFL8
```

```
CPU1    TAP.3.0                          PAGE 89

07234   0 20*07234   CNA1   NOP.     *                        HX H
07235   0 46 01000          CNA                            1232           TIME
07236     04000000          DATA     04000000               1110            T0
07237     74000000          DATA     74000000               0111            T1
07240     44433343          DATA     44433343               1111            T2 - T7
07241     44433343          DATA     44433343
07242     33344434          DATA     33344434
07243     33344434          DATA     33344434
07244     00000000          DATA     0
07245     00000000          DATA     0
07246   0 01 04077          BRU      NOSKIP-1
07247   0 01 04143          BRU      NOVFLO
07250   0 20*07250   CNA2   NOP.     *
07251   0 46 01000          CNA
07252     11111111          DATA     11111111               1100            T0 - T6
07253     66666667          DATA     66666667               1101            T7
07254     33344434          DATA     33344434
07255     33344434          DATA     33344434
07256     22255525          DATA     22255525
07257     22255525          DATA     22255525
07260     00000000          DATA     0
07261     00000000          DATA     0
07262   0 01 04077          BRU      NOSKIP-1
07263   0 01 04143          BRU      NOVFLO
```

```
CPU1    TAP.3.C                          PAGE 90

07264   0 20*07264   CNA3   NOP.     *
07265   0 46 01000          CNA
07266     22222222          DATA     22222222               1010            T0 - T6
07267     55555556          DATA     55555556               1011            T7
07270     22255525          DATA     22255525
07271     22255525          DATA     22255525
07272     11166616          DATA     11166616
07273     11166616          DATA     11166616
07274     00000000          DATA     0
07275     00000000          DATA     0
07276   0 01 04077          BRU      NOSKIP-1
07277   0 01 04143          BRU      NOVFLO
07300   0 20*07300   CNA4   NOP.     *
07301   0 46 01000          CNA
07302     33333333          DATA     33333333               1000            T0 - T6
07303     44444445          DATA     44444445               1001            T7
07304     11166616          DATA     11166616
07305     11166616          DATA     11166616
07306     00077707          DATA     00077707
07307     00077707          DATA     00077707
07310     00000000          DATA     0
07311     00000000          DATA     0
07312   0 01 04077          BRU      NOSKIP-1
07313   0 01 04143          BRU      NOVFLO
```

```
CPU1    TAP=3.C                                 PAGE 91

07314   0 20=07314  CNA5    NOP=    *
07315   0 46 01000          CNA
07316     44444444          DATA    44444444          0110        T0 + T6
07317     33333334          DATA    33333334          0111        T7
07320     00077707          DATA    00077707
07321     00077707          DATA    00077707
07322     77700070          DATA    77700070
07323     77700070          DATA    77700070
07324     00000000          DATA    0
07325     00000000          DATA    0
07326   0 01 04077          BRU     NOSKIP=1
07327   0 01 04143          BRU     NOVFLO
07330   0 20=07330  CNA6    NOP=    *
07331   0 46 01000          CNA
07332     55555555          DATA    55555555          0100        T0 + T6
07333     22222223          DATA    22222223          0101        T7
07334     77700070          DATA    77700070
07335     77700070          DATA    77700070
07336     66611161          DATA    66611161
07337     66611161          DATA    66611161
07340     00000000          DATA    0
07341     00000000          DATA    0
07342   0 01 04077          BRU     NOSKIP=1
07343   0 01 04143          BRU     NOVFLO
```

```
CPU1    TAP=3.C                                 PAGE 92

07344   0 20=07344  CNA7    NOP=    *
07345   0 46 01000          CNA
07346     66666666          DATA    66666666          0010        T0 + T6
07347     11111112          DATA    11111112          0011        T7
07350     66611161          DATA    66611161
07351     66611161          DATA    66611161
07352     55522252          DATA    55522252
07353     55522252          DATA    55522252
07354     00000000          DATA    0
07355     00000000          DATA    0
07356   4 01 04077          BRU     NOSKIP=1,4
07357   0 01 04143          BRU     NOVFLO
07360   0 20=07360  CNA8    NOP=    *
07361   0 46 01000          CNA
07362     77777777          DATA    77777777          0000        T0 + T6
07363     00000001          DATA    1                 0001        T7
07364     55522252          DATA    55522252
07365     55522252          DATA    55522252
07366     44433343          DATA    44433343
07367     44433343          DATA    44433343
07370     00000000          DATA    0
07371     00000000          DATA    0
07372   4 01 04077          BRU     NOSKIP=1,4
07373   0 01 04143          BRU     NOVFLO
```

```
CPU1    TAP=3.0                                 PAGE 93

07374   0 20*07374  BT01    NOP*    *
07375   0 22 00100          BTO
07376     52525252          DATA    52525252
07377     52525252          DATA    52525252
07400     25252525          DATA    25252525
07401     25252525          DATA    25252525
07402     70707070          DATA    70707070
07403     70707070          DATA    70707070
07404     07070707          DATA    07070707
07405     07070707          DATA    07070707
07406   1 01 04077          BRU     NOSKIP=1,1
07407   0 01 04154          BRU     OVFLO
07410   0 20*07410  BT02    NOP*    *
07411   0 22 00100          BTO
07412     25252525          DATA    25252525
07413     25252525          DATA    25252525
07414     52525252          DATA    52525252
07415     52525252          DATA    52525252
07416     07070707          DATA    07070707
07417     07070707          DATA    07070707
07420     70707070          DATA    70707070
07421     70707070          DATA    70707070
07422   0 01 04071          BRU     SKIP=1
07423   0 01 04143          BRU     NOVFLO
```

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CPU1    TAP=3.0                                 PAGE 94

07424   0 20*07424  BT03    NOP*    *
07425   0 22 00100          BTO
07426     52525252          DATA    52525252
07427     52525252          DATA    52525252
07430     25252525          DATA    25252525
07431     25252525          DATA    25252525
07432     70707070          DATA    70707070
07433     70707070          DATA    70707070
07434     07070707          DATA    07070707
07435     07070707          DATA    07070707
07436   5 01 04077          BRU     NOSKIP=1,5
07437   0 01 04154          BRU     OVFLO
07440   0 20*07440  BT04    NOP*    *
07441   0 22 00100          BTO
07442     25252525          DATA    25252525
07443     25252525          DATA    25252525
07444     52525252          DATA    52525252
07445     52525252          DATA    52525252
07446     07070707          DATA    07070707
07447     07070707          DATA    07070707
07450     70707070          DATA    70707070
07451     70707070          DATA    70707070
07452   4 01 04071          BRU     SKIP=1,4
07453   0 01 04143          BRU     NOVFLO
```

```
07454  0 20*07454  BRI1   %8P=     *
07455  0 11 04046         BRI      MEM8RY
07456    52525252         DATA     52525252
07457    52525252         DATA     52525252
07460    25252525         DATA     25252525
07461    25252525         DATA     25252525
07462    70707070         DATA     70707070
07463    70707070         DATA     70707070
07464    10004106         DATA     %8ERR=10000000
07465    10004106         DATA     %8ERR=10000000
07466  0 01 04071         BRU      SKIP=1
07467  0 01 04154         BRU      8VFL8
07470  0 20*07470  BRI2   %8P=     *
07471  2 11 03046         BRI      MEM8RY=1000,2
07472    25252525         DATA     25252525
07473    25252525         DATA     25252525
07474    52525252         DATA     52525252
07475    52525252         DATA     52525252
07476    77701000         DATA     77701000
07477    77701000         DATA     77701000
07500    00004106         DATA     %8ERR
07501    00004106         DATA     %8ERR
07502  1 01 04077         BRU      %8SKIP=1,1
07503  0 01 04143         BRU      %8VFL8
```



```
07504  0 20*07504  BRI3   %8P=     *
07505  2 11 03046         BRI      MEM8RY=1000,2
07506    25252525         DATA     25252525
07507    25252525         DATA     25252525
07510    52525252         DATA     52525252
07511    52525252         DATA     52525252
07512    77701000         DATA     77701000
07513    77701000         DATA     77701000
07514    00004106         DATA     %8ERR
07515    00004106         DATA     %8ERR
07516  0 01 04071         BRU      SKIP=1
07517  0 01 04143         BRU      %8VFL8
07520  0 20*07520  BRI4   %8P=     *
07521  0 11*04134         BRI=     TEST%
07522    77777777         DATA     77777777
07523    77777777         DATA     77777777
07524    66666666         DATA     66666666
07525    66666666         DATA     66666666
07526    33333333         DATA     33333333
07527    33333333         DATA     33333333
07530    00004106         DATA     %8ERR
07531    00004106         DATA     %8ERR
07532  0 01 04071         BRU      SKIP=1
07533  0 01 04143         BRU      %8VFL8
```

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CPU1   TAP=3.0                          PAGE 97

07534  0 20=07534  ADD1   NOP=   *
07535  0 55 04046         ADD    MEMORY          1 1 1 1 1 1 1 0   CARRY
07536    56666667         DATA   56666667        5 6 6 6 6 6 6 7   A REGISTER
07537    50123452         DATA   50123452        7 1 2 3 4 5 6 3   MEMORY
07540    11166616         DATA   11166616        0 1 2 3 4 5 6 7   TIMING
07541    11166616         DATA   11166616
07542    00077707         DATA   00077707
07543    40077707         DATA   40077707        CARRY OUT
07544    71234563         DATA   71234563
07545    71234563         DATA   71234563
07546  0 01 04077         BRU    NOSKIP=1
07547  0 01 04143         BRU    NOVFLO
07550  0 20=07550  ADD2   NOP=   *
07551  0 55 04046         ADD    MEMORY          1 1 1 1 1 1 1 0   C
07552    22333347         DATA   22333347        2 2 3 3 3 3 4 7   A
07553    12012303         DATA   12012303        6 7 4 5 6 7 3 4   M
07554    22255525         DATA   22255525
07555    22255525         DATA   22255525
07556    11166616         DATA   11166616
07557    51166616         DATA   51166616        CARRY OUT
07560    67456734         DATA   67456734
07561    67456734         DATA   67456734
07562  0 01 04077         BRU    NOSKIP=1
07563  0 01 04143         BRU    NOVFLO
```

```
CPU1   TAP=3.0                          PAGE 98

07564  0 20=07564  ADD3   NOP=   *
07565  0 55 04046         ADD    MEMORY          1 0 1 0 1 0 1 0   C
07566    43434362         DATA   43434362        4 3 4 3 4 3 6 2   A
07567    50617270         DATA   50617270        0 5 1 6 2 7 0 6   M
07570    66611161         DATA   66611161
07571    66611161         DATA   66611161
07572    77700070         DATA   77700070
07573    37700070         DATA   37700070        NO CARRY OUT
07574    05162706         DATA   05162706
07575    05162706         DATA   05162706
07576  0 01 04077         BRU    NOSKIP=1
07577  0 01 04143         BRU    NOVFLO
07600  0 20=07600  ADD4   NOP=   *
07601  0 55 04046         ADD    MEMORY          0 1 0 1 0 1 0 0   C
07602    52525250         DATA   52525250        5 2 5 2 5 2 5 0   A
07603    15263747         DATA   15263747        4 2 5 3 6 4 7 0   M
07604    11166616         DATA   11166616
07605    11166616         DATA   11166616
07606    22255525         DATA   22255525
07607    62255525         DATA   62255525        CARRY OUT
07610    42536477         DATA   42536477
07611    42536477         DATA   42536477
07612  0 01 04077         BRU    NOSKIP=1
07613  0 01 04154         BRU    OVFLO           OVERFLOW
```

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CPU1   TAP=3.C                          PAGE 99

07614  0 20*07614  ADD5   NOP*    *
07615  4 55 04046         ADD     MEMORY,4
07616    51616162         DATA    51616162          5 1 6 1 6 1 6 2   A
07617    05364757         DATA    05364757          3 3 5 4 6 5 7 5   M
07620    22255525         DATA    22255525
07621    22255525         DATA    22255525
07622    33344434         DATA    33344434
07623    73344434         DATA    73344434          CARRY OUT
07624    33546575         DATA    33546575
07625    33546575         DATA    33546575
07626  4 01 04077         BRU     NOSKIP=1,4
07627  0 01 04143         BRU     NOVFLO
07630  0 20*07630  ADD6   NOP*    *
07631  4 55 04046         ADD     MEMORY,4          0 0 0 0 0 0 0 0   C
07632    33444452         DATA    33444452          3 3 4 4 4 4 5 2   A
07633    67456754         DATA    67456754          3 4 0 1 2 3 0 2   M
07634    77700070         DATA    77700070
07635    77700070         DATA    77700070
07636    66611161         DATA    66611161
07637    26611161         DATA    26611161          NO CARRY OUT
07640    34012302         DATA    34012302
07641    34012302         DATA    34012302
07642  4 01 04077         BRU     NOSKIP=1,4
07643  0 01 04154         BRU     OVFLO             OVERFLOW
```

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CPU1   TAP=3.C                          PAGE 100

07644  0 20*07644  ADD7   NOP*    *
07645  4 55 04046         ADD     MEMORY,4          0 0 0 0 0 0 0 0   C
07646    22322335         DATA    22322335          2 2 3 2 2 3 3 5   A
07647    65532346         DATA    65532346          4 3 2 1 0 0 1 1   M
07650    66611161         DATA    66611161
07651    66611161         DATA    66611161
07652    55522252         DATA    55522252
07653    15522252         DATA    15522252          NO CARRY OUT
07654    43210011         DATA    43210011
07655    43210011         DATA    43210011
07656  4 01 04077         BRU     NOSKIP=1,4
07657  0 01 04143         BRU     NOVFLO
07660  0 20*07660  ADD8   NOP*    *
07661  4 55*04134         ADD*    TEST*,4           0 0 0 0 0 0 0 0   C
07662    00000007         DATA    00000007          0 0 0 0 0 0 0 7   A
07663    01234567         DATA    01234567          0 1 2 3 4 5 6 0   M
07664    55522252         DATA    55522252
07665    55522252         DATA    55522252
07666    44433343         DATA    44433343
07667    04433343         DATA    04433343          NO CARRY OUT
07670    01234560         DATA    01234560
07671    01234560         DATA    01234560
07672  5 01 04077         BRU     NOSKIP=1,5        SET OVERFLOW
07673  0 01 04154         BRU     OVFLO             OVERFLOW
```

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CPU1    TAP=3.0                                 PAGE 101

07674   0 20=07674  SUB1    NOP=    *
07675   0 54 04046          SUB     MEMORY      1 1 1 1 1 1 1 1   CARRY
07676     77777777          DATA    77777777    7 7 7 7 7 7 7 7   A REGISTER
07677     01234567          DATA    01234567    0 1 2 3 4 5 6 7   MEMORY
07700     66611161          DATA    66611161    0 1 2 3 4 5 6 7   TIMING
07701     66611161          DATA    66611161
07702     00077707          DATA    00077707
07703     40077707          DATA    40077707    CARRY OUT
07704     76543210          DATA    76543210
07705     76543210          DATA    76543210
07706   0 01 04077          BRU     NOSKIP=1
07707   0 01 04143          BRU     NOVFLO
07710   0 20=07710  SUB2    NOP=    *
07711   0 54 04046          SUB     MEMORY      1 1 1 1 1 1 1 1   C
07712     44455555          DATA    44455555    4 4 4 5 5 5 5 5   A
07713     43201234          DATA    43201234    7 6 5 2 3 4 5 6   M
07714     00077707          DATA    00077707
07715     00077707          DATA    00077707
07716     11166616          DATA    11166616
07717     51166616          DATA    51166616    CARRY OUT
07720     01254321          DATA    01254321
07721     01254321          DATA    01254321
07722   0 01 04077          BRU     NOSKIP=1
07723   0 01 04143          BRU     NOVFLO
```

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CPU1    TAP=3.0                                 PAGE 102

07724   0 20=07724  SUB3    NOP=    *
07725   0 54 04046          SUB     MEMORY      0 1 0 1 1 1 1 1   C
07726     45450121          DATA    45450121    4 5 4 5 0 1 2 1   A
07727     27360001          DATA    27360001    6 1 7 0 7 6 5 7   M
07730     77700070          DATA    77700070
07731     77700070          DATA    77700070
07732     22255525          DATA    22255525
07733     62255525          DATA    62255525    CARRY OUT
07734     16070120          DATA    16070120
07735     16070120          DATA    16070120
07736   0 01 04077          BRU     NOSKIP=1
07737   0 01 04154          BRU     OVFLO       OVERFLOW
07740   0 20=07740  SUB4    NOP=    *
07741   0 54 04046          SUB     MEMORY      1 0 1 0 1 0 1 1   C
07742     34343236          DATA    34343236    3 4 3 4 3 2 3 6   A
07743     40516176          DATA    40516176    0 4 1 5 2 7 3 7   M
07744     66611161          DATA    66611161
07745     66611161          DATA    66611161
07746     77700070          DATA    77700070
07747     37700070          DATA    37700070    NO CARRY OUT
07750     73625040          DATA    73625040
07751     73625040          DATA    73625040
07752   0 01 04077          BRU     NOSKIP=1
07753   0 01 04154          BRU     OVFLO       OVERFLOW
```

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CPU1    TAP*3.C                         PAGE 103

07754   0 20*07754   SUB5   NØP*        *
07755   4 54 04046          SUB         MEMØRY,4           1 1 0 1 0 1 0 1    C
07756     04716161          DATA        04716161           0 4 7 1 6 1 6 1    A
07757     71640312          DATA        71640312           6 4 7 2 2 1 3 0    M
07760     77700070          DATA        77700070
07761     77700070          DATA        77700070
07762     66611161          DATA        66611161
07763     26611161          DATA        26611161           NØ CARRY ØUT
07764     13055647          DATA        13055647
07765     13055647          DATA        13055647
07766   4 01 04077          BRU         NØSKIP*1,4
07767   0 01 04143          BRU         NØVFLØ
07770   0 20*07770   SUB6   NØP*        *
07771   4 54 04046          SUB         MEMØRY,4           0 1 0 1 0 1 0 1    C
07772     10607070          DATA        10607070           1 0 6 0 7 0 7 0    A
07773     04254653          DATA        04254653           7 3 4 4 5 5 6 2    M
07774     66611161          DATA        66611161
07775     66611161          DATA        66611161
07776     33344434          DATA        33344434
07777     73344434          DATA        73344434           CARRY ØUT
10000     04332215          DATA        04332215
10001     04332215          DATA        04332215
10002   4 01 04077          BRU         NØSKIP*1,4
10003   0 01 04143          BRU         NØVFLØ
```

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CPU1    TAP*3.C                         PAGE 104

10004   0 20*10004   SUB7   NØP*        *
10005   4 54 04046          SUB         MEMØRY,4           0 0 0 1 0 1 0 1    C
10006     56607072          DATA        56607072           5 6 6 0 7 0 7 2    A
10007     76710214          DATA        76710214           2 0 1 0 1 1 2 1    M
10010     44433343          DATA        44433343
10011     44433343          DATA        44433343
10012     55522252          DATA        55522252
10013     15522252          DATA        15522252           NØ CARRY ØUT
10014     57676656          DATA        57676656
10015     57676656          DATA        57676656
10016   4 01 04077          BRU         NØSKIP*1,4
10017   0 01 04143          BRU         NØVFLØ
10020   0 20*10020   SUB8   NØP*        *
10021   4 54*04134          SUB*        TESTM,4            0 0 0 0 0 0 0 1    C
10022     11111112          DATA        11111112           1 1 1 1 1 1 1 2    A
10023     12345673          DATA        12345673           0 1 2 3 4 5 6 0    M
10024     55522252          DATA        55522252
10025     55522252          DATA        55522252
10026     44433343          DATA        44433343
10027     04433343          DATA        04433343           NØ CARRY ØUT
10030     76543217          DATA        76543217
10031     76543217          DATA        76543217
10032   5 01 04077          BRU         NØSKIP*1,5         SET ØVERFLØW
10033   0 01 04154          BRU         ØVFLØ              ØVERFLØW
```

```
10034  0 20*10034  ADC1    NOP*     *
10035  0 57 04046          ADC      MEMORY              T0            T7
10036     56666667         DATA     56666667        1   XZ1       0   CZ
10037     50123452         DATA     50123452        1   YZ1       1   XZ3
10040     11166616         DATA     11166616        1   ADD1      1   YZ3
10041     11166616         DATA     11166616
10042     00077707         DATA     00077707        NO CARRY UN
10043     40077707         DATA     40077707        CARRY OUT
10044     71234563         DATA     71234563
10045     71234563         DATA     71234563
10046  0 01 04077          BRU      NOSKIP=1
10047  0 01 04143          BRU      NOVFLO
10050  0 20*10050  ADC2    NOP*     *
10051  2 57 15230          ADC      MEMORY=26616,2  0   XZ1       0   CZ
10052     22333347         DATA     22333347        1   YZ1       1   XZ3
10053     12012303         DATA     12012303        0   ADD1      0   YX3
10054     66611161         DATA     66611161
10055     66611161         DATA     66611161
10056     11166616         DATA     11166616        NO CARRY IN
10057     51166616         DATA     51166616        CARRY OUT
10060     67456734         DATA     67456734
10061     67456734         DATA     67456734
10062  0 01 04077          BRU      NOSKIP=1
10063  0 01 04143          BRU      NOVFLO
```



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10064  0 20*10064  ADC3    NOP*     *
10065  0 57 04046          ADC      MEMORY              1   XZ1       0   CZ
10066     43434362         DATA     43434362            0   YZ1       0   XZ3
10067     50617270         DATA     50617270            1   ADD1      0   YZ3
10070     77700070         DATA     77700070
10071     77700070         DATA     77700070
10072     22255525         DATA     22255525            NO CARRY IN
10073     22255525         DATA     22255525            NO CARRY OUT
10074     05162706         DATA     05162706
10075     05162706         DATA     05162706
10076  1 01 04077          BRU      NOSKIP=1,1          SET OVERFLOW
10077  0 01 04143          BRU      NOVFLO              TEST RESET OF PHASE 6 T7
10100  0 20*10100  ADC4    NOP*     *
10101  0 57 04046          ADC      MEMORY              1   XZ1       0   CZ
10102     52525250         DATA     52525250            1   YZ1       0   XZ3
10103     15263747         DATA     15263747            0   ADD1      1   YZ3
10104     00077707         DATA     00077707
10105     00077707         DATA     00077707
10106     33344434         DATA     33344434            NO CARRY IN
10107     73344434         DATA     73344434            CARRY OUT
10110     42536477         DATA     42536477
10111     42536477         DATA     42536477
10112  0 01 04077          BRU      NOSKIP=1
10113  0 01 04154          BRU      OVFLO               OVERFLOW
```

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10114  0 20*10114  ADC5   NBP•    •
10115  4 57 04046         ADC     MEMORY,4          1  XZ1        1  CZ
10116    77777777         DATA    77777777          0  YZ1        1  XZ3
10117    01234567         DATA    01234567          0  ADD1       1  YZ3
10120    22255525         DATA    22255525
10121    22255525         DATA    22255525
10122    44433343         DATA    44433343          CARRY IN
10123    44433343         DATA    44433343          CARRY OUT
10124    01234567         DATA    01234567
10125    01234567         DATA    01234567
10126  4 01 04077         BRU     NBSKIP•1,4
10127  0 01 04143         BRU     NBVFLB
10130  0 20*10130  ADC6   NBP•    •
10131  4 57*04134         ADC•    TESTM,4           0  XZ1        1  CZ
10132    34343236         DATA    34343236          0  YZ1        0  XZ3
10133    40516176         DATA    40516176          1  ADD1       1  YZ3
10134    55522252         DATA    55522252
10135    55522252         DATA    55522252
10136    66611161         DATA    66611161          CARRY IN
10137    26611161         DATA    26611161          NB CARRY OUT
10140    04152737         DATA    04152737
10141    04152737         DATA    04152737
10142  4 01 04077         BRU     NBSKIP•1,4
10143  0 01 04154         BRU     BVFLB             BVERFLBW
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10144  0 20*10144  ADC7   NBP•    •
10145  4 57 04046         ADC     MEMORY,4          0  XZ1        1  CZ
10146    04716161         DATA    04716161          1  YZ1        0  XZ3
10147    71640312         DATA    71640312          1  ADD1       0  YZ3
10150    33344434         DATA    33344434
10151    33344434         DATA    33344434
10152    44433343         DATA    44433343          CARRY IN
10153    04433343         DATA    04433343          NB CARRY OUT
10154    64722130         DATA    64722130
10155    64722130         DATA    64722130
10156  4 01 04077         BRU     NBSKIP•1,4
10157  0 01 04143         BRU     NBVFLB
10160  0 20*10160  ADC8   NBP•    •
10161  4 57 04046         ADC     MEMORY,4          0  XZ1        1  CZ
10162    11111112         DATA    11111112          0  YZ1        0  XZ3
10163    12345673         DATA    12345673          0  ADD1       0  YZ3
10164    44433343         DATA    44433343
10165    44433343         DATA    44433343
10166    55522252         DATA    55522252          CARRY IN
10167    15522252         DATA    15522252          NB CARRY OUT
10170    01234560         DATA    01234560
10171    01234560         DATA    01234560
10172  4 01 04077         BRU     NBSKIP•1,4
10173  0 01 04143         BRU     NBVFLB
```

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10174  0 20•10174  SUC1   N0P•    •
10175  0 56 04046         SUC     MEMORY              1   XZ1          0   CZ
10176    51616162         DATA    51616162            0   YZ1          0   XZ3
10177    05364737         DATA    05364737            0   ADD1         1   YZ3
10200    77700070         DATA    77700070
10201    77700070         DATA    77700070
10202    00077707         DATA    00077707            N0 CARRY IN
10203    40077707         DATA    40077707            CARRY 0UT
10204    44231202         DATA    44231202
10205    44231202         DATA    44231202
10206  1 01 04077         BRU     N0SKIP•1,1          SET 0VERFL0W
10207  0 01 04143         BRU     N0VFL0              TEST R 0F PHASE 6 T7
10210  0 20•10210  SUC2   N0P•    •
10211  0 56 04046         SUC     MEMORY              0   XZ1          0   CZ
10212    33444452         DATA    33444452            0   YZ1          0   XZ3
10213    67456754         DATA    67456754            1   ADD1         0   YZ3
10214    66611161         DATA    66611161
10215    66611161         DATA    66611161
10216    11166616         DATA    11166616            N0 CARRY IN
10217    11166616         DATA    11166616            N0 CARRY 0UT
10220    43765475         DATA    43765475
10221    43765475         DATA    43765475
10222  0 01 04077         BRU     N0SKIP•1
10223  0 01 04154         BRU     0VFL0               0VERFL0W
```



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10224  0 20•10224  SUC3   N0P•    •
10225  0 56 04046         SUC     MEMORY              0   XZ1          0   CZ
10226    22322335         DATA    22322335            1   YZ1          0   XZ3
10227    65532346         DATA    65532346            1   ADD1         1   YZ3
10230    55522252         DATA    55522252
10231    55522252         DATA    55522252
10232    22255525         DATA    22255525            N0 CARRY IN
10233    22255525         DATA    22255525            N0 CARRY 0UT
10234    34567766         DATA    34567766
10235    34567766         DATA    34567766
10236  0 01 04077         BRU     N0SKIP•1
10237  0 01 04143         BRU     N0VFL0
10240  0 20•10240  SUC4   N0P•    •
10241  0 56•04134         SUC•    TESTM               0   YZ1          0   CZ
10242    00000007         DATA    7                   0   YZ1          1   XZ3
10243    01234567         DATA    01234567            0   ADD1         0   YZ3
10244    44433343         DATA    44433343
10245    44433343         DATA    44433343
10246    33344434         DATA    33344434            N0 CARRY IN
10247    33344434         DATA    33344434            N0 CARRY 0UT
10250    76543217         DATA    76543217
10251    76543217         DATA    76543217
10252  1 01 04077         BRU     N0SKIP•1,1          SET 0VERFL0W
10253  0 01 04143         BRU     N0VFL0              TEST R 0F PHASE 6 T7
```

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CPU1    TAP.3.0                        PAGE 111

10254  0 20*10254  SUC5   NØP*    *
10255  4 56 04046         SUC     MEMØRY,4           1   XZ1        1   CZ
10256    44455555         DATA    44455555           1   YZ1        1   XZ3
10257    43201234         DATA    43201234           1   ADD1       0   YZ3
10260    33344434         DATA    33344434
10261    33344434         DATA    33344434
10262    44433343         DATA    44433343           CARRY IN
10263    44433343         DATA    44433343           CARRY ØUT
10264    01254321         DATA    01254321
10265    01254321         DATA    01254321
10266  4 01 04077         BRU     NØSKIP=1,4
10267  0 01 04143         BRU     NØVFLØ
10270  0 20*10270  SUC6   NØP*    *
10271  4 56 04046         SUC     MEMØRY,4           1   XZ1        1   CZ
10272    45450121         DATA    45450121           1   YZ1        1   XZ3
10273    27360001         DATA    27360001           0   ADD1       1   YZ3
10274    22255525         DATA    22255525
10275    22255525         DATA    22255525
10276    55522252         DATA    55522252           CARRY IN
10277    55522252         DATA    55522252           CARRY ØUT
10300    16070120         DATA    16070120
10301    16070120         DATA    16070120
10302  4 01 04077         BRU     NØSKIP=1,4
10303  0 01 04154         BRU     ØVFLØ              ØVERFLØW
```

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CPU1    TAP.3.0                        PAGE 112

10304  0 20*10304  SUC7   NØP*    *
10305  6 56 32665         SUC     MEMØRY.11161,6     0   XZ1        1   CZ
10306    10607070         DATA    10607070           1   YZ1        0   XZ3
10307    04254653         DATA    04254653           0   ADD1       0   YZ3
10310    11166616         DATA    11166616
10311    11166616         DATA    11166616
10312    66611161         DATA    66611161           CARRY IN
10313    66611161         DATA    66611161           CARRY ØUT
10314    04332215         DATA    04332215
10315    04332215         DATA    04332215
10316  4 01 04077         BRU     NØSKIP=1,4
10317  0 01 04143         BRU     NØVFLØ
10320  0 20*10320  SUC8   NØP*    *
10321  4 56 04046         SUC     MEMØRY,4           1   XZ1        1   CZ
10322    56607072         DATA    56607072           0   YZ1        0   XZ3
10323    76710214         DATA    76710214           1   ADD1       1   YZ3
10324    00077707         DATA    00077707
10325    00077707         DATA    00077707
10326    77700070         DATA    77700070           CARRY IN
10327    37700070         DATA    37700070           NØ CARRY ØUT
10330    57676656         DATA    57676656
10331    57676656         DATA    57676656
10332  4 01 04077         BRU     NØSKIP=1,4
10333  0 01 04143         BRU     NØVFLØ
```

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10334  0 20*10334  SKN1   NOP.    *
10335  0 53 04046         SKN     MEMORY
10336    44433343         DATA    44433343
10337    44433343         DATA    44433343
10340    11166616         DATA    11166616
10341    11166616         DATA    11166616
10342    00077707         DATA    00077707
10343    00077707         DATA    00077707
10344    70707070         DATA    70707070      TURN CO OFF AND ON EACH CLOCK
10345    70707070         DATA    70707070
10346  0 01 04071         BRU     SKIP.1        IX COULD SET IF XZ 0 0. RESULTING IN NO SKIP
10347  0 01 04143         BRU     NOVFLO        BECAUSE SSK = IX + CO (IX = CO)
10350  0 20*10350  SKN2   NOP.    *
10351  0 53*04134         SKN.    TESTM         IA
10352    33344434         DATA    33344434
10353    33344434         DATA    33344434
10354    66611161         DATA    66611161
10355    66611161         DATA    66611161
10356    77700070         DATA    77700070
10357    77700070         DATA    77700070
10360    07070707         DATA    07070707      TURN CO ON AND OFF EACH CLOCK
10361    07070707         DATA    07070707
10362  1 01 04077         BRU     NOSKIP.1,1    SET OVERFLOW = IF XZ 0 0, A SKIP COULD RESULT
10363  0 01 04154         BRU     OVFLO         OVERFLOW = BECAUSE SK = IX + CO (IX 0 CO)
```



```
10364  0 20*10364  SKN3   NOP.    *
10365  4 53 04046         SKN     MEMORY,4
10366    44433343         DATA    44433343
10367    44433343         DATA    44433343
10370    11166616         DATA    11166616
10371    11166616         DATA    11166616
10372    00077707         DATA    00077707
10373    00077707         DATA    00077707
10374    70707070         DATA    70707070      TURN CO OFF AND ON EACH CLOCK
10375    70707070         DATA    70707070
10376  4 01 04071         BRU     SKIP.1,4      IX COULD SET IF XZ 0 0. RESULTING IN NO SKIP
10377  0 01 04143         BRU     NOVFLO        BECAUSE SSK = IX + CO (IX = CO)
10400  0 20*10400  SKN4   NOP.    *
10401  4 53*04134         SKN.    TESTM,4
10402    33344434         DATA    33344434
10403    33344434         DATA    33344434
10404    66611161         DATA    66611161
10405    66611161         DATA    66611161
10406    77700070         DATA    77700070
10407    77700070         DATA    77700070
10410    07070707         DATA    07070707      TURN CO ON AND OFF EACH CLOCK
10411    07070707         DATA    07070707
10412  5 01 04077         BRU     NOSKIP.1,5    SET OVERFLOW.IF XZ 0 0,A SKIP COULD RESULT
10413  0 01 04154         BRU     OVFLO         OVERFLOW = BECAUSE SK = IX + CO (IX 0 CO)
```

```
CPU1   TAP.3.0                          PAGE 115

10414  0 20*10414  SKB1   %BP.    *
10415  0 52 04046         SKB     MEMBRY
10416    44433343         DATA    44433343
10417    44433343         DATA    44433343          C21.B21 C22.B22 C23.B23   TIME
10420    70707000         DATA    70707000          1   0   1   0   1   0     T0, T2, T4
10421    70707000         DATA    70707000          0   1   0   1   0   1     T1, T3, T5
10422    77700070         DATA    77700070          0   0   0   0   0   0     T6, T7
10423    77700070         DATA    77700070
10424    07070700         DATA    07070700
10425    07070700         DATA    07070700
10426  0 01 04071         BRU     SKIP.1
10427  0 01 04143         BRU     %BVFL0
10430  0 20*10430  SKB2   %BP.    *
10431  2 52 32665         SKB     MEMBRY.11161,2    INDEXING
10432    77700070         DATA    77700070
10433    77700070         DATA    77700070
10434    40000000         DATA    40000000          C23.B23
10435    40000000         DATA    40000000          1   1           T0
10436    66611161         DATA    66611161
10437    66611161         DATA    66611161
10440    40000000         DATA    40000000
10441    40000000         DATA    40000000
10442  0 01 04077         BRU     %BSKIP.1
10443  0 01 04143         BRU     %BVFL0
```

```
CPU1   TAP.3.0                          PAGE 116

10444  0 20*10444  SKB3   %BP.    *
10445  0 52*04134         SKB.    TEST%              IA
10446    66611161         DATA    66611161
10447    66611161         DATA    66611161
10450    20000000         DATA    20000000          C22.B22
10451    20000000         DATA    20000000          1   1           T0
10452    00077707         DATA    00077707
10453    00077707         DATA    00077707
10454    20000000         DATA    20000000
10455    20000000         DATA    20000000
10456  0 01 04077         BRU     %BSKIP.1
10457  0 01 04143         BRU     %BVFL0
10460  0 20*10460  SKB4   %BP.    *
10461  0 52 04046         SKB     MEMBRY
10462    00077707         DATA    00077707
10463    00077707         DATA    00077707
10464    10000000         DATA    10000000          C21.B21
10465    10000000         DATA    10000000          1   1           T0
10466    44433343         DATA    44433343
10467    44433343         DATA    44433343
10470    10000000         DATA    10000000
10471    10000000         DATA    10000000
10472  1 01 04077         BRU     %BSKIP.1,1        SET BVERFLBW
10473  0 01 04154         BRU     BVFLB             BVERFLBW
```

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CPU1   TAP=3,0                          PAGE 117

10474  0 20*10474  SKB5   NOP*    *
10475  4 52 04046         SKB     MEMORY,4
10476    44433343         DATA    44433343
10477    44433343         DATA    44433343          C21,B21 C22,B22 C23,B23   TIME
10500    70707000         DATA    70707000          1   0   1   0   1   0     T0, T2, T4
10501    70707000         DATA    70707000          0   1   0   1   0   1     T1, T3, T5
10502    77700070         DATA    77700070          0   0   0   0   0   0     T6, T7
10503    77700070         DATA    77700070
10504    07070700         DATA    07070700
10505    07070700         DATA    07070700
10506  4 01 04071         BRU     SKIP*1,4
10507  0 01 04143         BRU     NOVFL0
10510  0 20*10510  SKB6   NOP*    *
10511  6 52 32665         SKB     MEMORY*11161,6    INDEXING
10512    77700070         DATA    77700070
10513    77700070         DATA    77700070
10514    40000000         DATA    40000000          C23,B23
10515    40000000         DATA    40000000          1   1           T0
10516    66611161         DATA    66611161
10517    66611161         DATA    66611161
10520    40000000         DATA    40000000
10521    40000000         DATA    40000000
10522  4 01 04077         BRU     NOSKIP*1,4
10523  0 01 04143         BRU     NOVFL0
```

```
CPU1   TAP=3,0                          PAGE 118

10524  0 20*10524  SKA1   NOP*    *
10525  0 72 04046         SKA     MEMORY
10526    70707000         DATA    70707000          C21,A21 C22,A22 C23,A23   TIME
10527    70707000         DATA    70707000          1   0   1   0   1   0     T0, T2, T4
10530    66611161         DATA    66611161          0   1   0   1   0   1     T1, T3, T5
10531    66611161         DATA    66611161          0   0   0   0   0   0     T6, T7
10532    33344434         DATA    33344434
10533    33344434         DATA    33344434
10534    07070700         DATA    07070700
10535    07070700         DATA    07070700
10536  1 01 04071         BRU     SKIP*1,1          SET OVERFLOW
10537  0 01 04154         BRU     OVFL0             OVERFLOW
10540  0 20*10540  SKA2   NOP*    *
10541  0 72*04134         SKA*    TESTM             IA
10542    40000000         DATA    40000000          C23,A23
10543    40000000         DATA    40000000          1   1           T0
10544    77700070         DATA    77700070
10545    77700070         DATA    77700070
10546    66611161         DATA    66611161
10547    66611161         DATA    66611161
10550    40000000         DATA    40000000
10551    40000000         DATA    40000000
10552  0 01 04077         BRU     NOSKIP*1
10553  0 01 04143         BRU     NOVFL0
```

```
CPU1    TAP=3,0                          PAGE 119

10554   0 20=10554  SKA3    NBP=    *
10555   2 72 26321          SKA     MEMBRY=15525,2      INDEXING
10556     20000000          DATA    20000000            C22,A22
10557     20000000          DATA    20000000            1   1           TO
10560     33344434          DATA    33344434
10561     33344434          DATA    33344434
10562     22255525          DATA    22255525
10563     22255525          DATA    22255525
10564     20000000          DATA    20000000
10565     20000000          DATA    20000000
10566   0 01 04077          BRU     NBSKIP=1
10567   0 01 04143          BRU     NBVFLB
10570   0 20=10570  SKA4    NBP=    *
10571   0 72 04046          SKA     MEMBRY
10572     10000000          DATA    10000000            C23,A23
10573     10000000          DATA    10000000            1   1           TO
10574     00077707          DATA    00077707
10575     00077707          DATA    00077707
10576     11166616          DATA    11166616
10577     11166616          DATA    11166616
10600     10000000          DATA    10000000
10601     10000000          DATA    10000000
10602   0 01 04077          BRU     NBSKIP=1
10603   0 01 04143          BRU     NBVFLB
```

```
CPU1    TAP=3,0                          PAGE 120

10604   0 20=10604  SKA5    NBP=    *
10605   4 72 04046          SKA     MEMBRY,4
10606     70707000          DATA    70707000            C21,A21 C22,A22 C23,A23   TIME
10607     70707000          DATA    70707000            1   0   1   0   1   0     TO, T2, T4
10610     66611161          DATA    66611161            0   1   0   1   0   1     T1, T3, T5
10611     66611161          DATA    66611161            0   0   0   0   0   0     T6, T7
10612     33344434          DATA    33344434
10613     33344434          DATA    33344434
10614     07070700          DATA    07070700
10615     07070700          DATA    07070700
10616   5 01 04071          BRU     SKIP=1,5
10617   0 01 04154          BRU     BVFLB               BVERFLBW
10620   0 20=10620  SKA6    NBP=    *
10621   4 72=04134          SKA=    TESTM,4
10622     40000000          DATA    40000000            C23,A23
10623     40000000          DATA    40000000            1   1           TO
10624     77700070          DATA    77700070
10625     77700070          DATA    77700070
10626     66611161          DATA    66611161
10627     66611161          DATA    66611161
10630     40000000          DATA    40000000
10631     40000000          DATA    40000000
10632   4 01 04077          BRU     NBSKIP=1,4
10633   0 01 04143          BRU     NBVFLB
```

```
CPU1    TAP*3.0                          PAGE 121

10634  0 20*10634  SKG1    NOP*    *
10635  4 73 04046         SKG     MEMORY,4
10636    31553047         DATA    31553047          ADD1 XZ1 YZ1
10637    31553047         DATA    31553047          0   0   0
10640    77700070         DATA    77700070
10641    77700070         DATA    77700070
10642    66611161         DATA    66611161
10643    66611161         DATA    66611161
10644    34072615         DATA    34072615
10645    34072615         DATA    34072615
10646  4 01 04077         BRU     NOSKIP*1,4
10647  0 01 04143         BRU     NOVFLO
10650  0 20*10650  SKG2    NOP*    *
10651  4 73*04134         SKG*    TESTM,4           IA
10652    15530473         DATA    15530473          ADD1 XZ1 YZ1
10653    15530473         DATA    15530473          0   0   1
10654    00077707         DATA    00077707
10655    00077707         DATA    00077707
10656    11166616         DATA    11166616
10657    11166616         DATA    11166616
10660    40726153         DATA    40726153
10661    40726153         DATA    40726153
10662  4 01 04071         BRU     SKIP*1,4
10663  0 01 04143         BRU     NOVFLO
```

```
CPU1    TAP*3.0                          PAGE 122

10664  0 20*10664  SKG3    NOP*    *
10665  0 73 04046         SKG     MEMORY
10666    55304731         DATA    55304731          ADD1 XZ1 YZ1
10667    55304731         DATA    55304731          0   1   0
10670    66611161         DATA    66611161
10671    66611161         DATA    66611161
10672    55522252         DATA    55522252
10673    55522252         DATA    55522252
10674    07261534         DATA    07261534
10675    07261534         DATA    07261534
10676  1 01 04077         BRU     NOSKIP*1,1        SET OVERFLOW
10677  0 01 04154         BRU     OVFLO             OVERFLOW
10700  0 20*10700  SKG4    NOP*    *
10701  0 73 04046         SKG     MEMORY
10702    53047315         DATA    53047315          ADD1 XZ1 YZ1
10703    53047315         DATA    53047315          0   1   1
10704    11166616         DATA    11166616
10705    11166616         DATA    11166616
10706    22255525         DATA    22255525
10707    22255525         DATA    22255525
10710    72615340         DATA    72615340
10711    72615340         DATA    72615340
10712  0 01 04077         BRU     NOSKIP*1
10713  0 01 04143         BRU     NOVFLO
```

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CPU1     TAP.3.0                      PAGE 123

10714  0 20*10714  SKG5   NØP*    *
10715  0 73 04046         SKG     MEMØRY
10716    30473155         DATA    30473155          ADD1 XZ1 YZ1
10717    30473155         DATA    30473155          1    0   0
10720    55522252         DATA    55522252
10721    55522252         DATA    55522252
10722    44433343         DATA    44433343
10723    44433343         DATA    44433343
10724    26153407         DATA    26153407
10725    26153407         DATA    26153407
10726  1 01 04071         BRU     SKIP.1,1          SET ØVERFLØW
10727  0 01 04154         BRU     ØVFLØ             ØVERFLØW
10730  0 20*10730  SKG6   NØP*    *
10731  2 73 37412         SKG     MEMØRY.4434,2     INDEXING
10732    04731553         DATA    04731553          ADD1 XZ1 YZ1
10733    04731553         DATA    04731553          1    0   1
10734    22255525         DATA    22255525
10735    22255525         DATA    22255525
10736    33344434         DATA    33344434
10737    33344434         DATA    33344434
10740    61534072         DATA    61534072
10741    61534072         DATA    61534072
10742  0 01 04071         BRU     SKIP.1
10743  0 01 04143         BRU     NØVFLØ
```

```
CPU1     TAP.3.0                      PAGE 124

10744  0 20*10744  SKG7   NØP*    *
10745  0 73 04046         SKG     MEMØRY
10746    47315530         DATA    47315530          ADD1 XZ1 YZ1
10747    47315530         DATA    47315530          1    1   0
10750    44433343         DATA    44433343
10751    44433343         DATA    44433343
10752    33344434         DATA    33344434
10753    33344434         DATA    33344434
10754    15340726         DATA    15340726
10755    15340726         DATA    15340726
10756  0 01 04077         BRU     NØSKIP.1
10757  0 01 04143         BRU     NØVFLØ
10760  0 20*10760  SKG8   NØP*    *
10761  0 73 04046         SKG     MEMØRY
10762    73155304         DATA    73155304          ADD1 XZ1 YZ1
10763    73155304         DATA    73155304          1    1   1
10764    33344434         DATA    33344434
10765    33344434         DATA    33344434
10766    44433343         DATA    44433343
10767    44433343         DATA    44433343
10770    53407260         DATA    53407260
10771    53407260         DATA    53407260
10772  0 01 04071         BRU     SKIP.1
10773  0 01 04143         BRU     NØVFLØ
```

```
10774  0 20=10774  BRX1   NOP=    *
10775  0 41 04046         BRX     MEMORY
10776    70707070        DATA    70707070
10777    70707070        DATA    70707070
11000    77007700        DATA    77007700
11001    77007700        DATA    77007700
11002    77777777        DATA    =1
11003    00000000        DATA    0
11004  0 01 04104         BRU     NOSKIP=4
11005  0 01 04104         BRU     NOSKIP=4
11006  1 01 04077         BRU     NOSKIP=1,1
11007  0 01 04154         BRU     OVFLO
11010  0 20=11010  BRX2   NOP=    *
11011  0 41 04046         BRX     MEMORY
11012    70707070        DATA    70707070
11013    70707070        DATA    70707070
11014    77007700        DATA    77007700
11015    77007700        DATA    77007700
11016    00040000        DATA    40000
11017    00040001        DATA    40001
11020  0 20 00000         NOP
11021  0 20 00000         NOP
11022  0 01 04071         BRU     SKIP=1
11023  0 01 04143         BRU     NOVFLO
```



```
11024  0 20=11024  BRX3   NOP=    *
11025  0 41 04046         BRX     MEMORY
11026    70707070        DATA    70707070
11027    70707070        DATA    70707070
11030    77007700        DATA    77007700
11031    77007700        DATA    77007700
11032    77777777        DATA    =1
11033    00000000        DATA    0
11034  0 01 04104         BRU     NOSKIP=4
11035  0 01 04104         BRU     NOSKIP=4
11036  4 01 04077         BRU     NOSKIP=1,4
11037  0 01 04143         BRU     NOVFLO
11040  0 20=11040  BRX4   NOP=    *
11041  0 41=04046         BRX=    MEMORY
11042    77007700        DATA    77007700
11043    77007700        DATA    77007700
11044    70707070        DATA    70707070
11045    70707070        DATA    70707070
11046    00040000        DATA    40000
11047    00040001        DATA    40001
11050  0 20 04106         NOP     NOERR
11051  0 20 04106         NOP     NOERR
11052  5 01 04071         BRU     SKIP=1,5
11053  0 01 04154         BRU     OVFLO
11054  0 20=11054  BRX5   NOP=    *
11055  4 41 04046         BRX     MEMORY,4
11056    25252525        DATA    25252525
11057    25252525        DATA    25252525
11060    52525252        DATA    52525252
11061    52525252        DATA    52525252
11062    77777777        DATA    =1
11063    00000000        DATA    0
11064  0 01 04104         BRU     NOSKIP=4
11065  0 01 04104         BRU     NOSKIP=4
11066  1 01 04077         BRU     NOSKIP=1,1
11067  0 01 04154         BRU     OVFLO
```

```
CPU1    TAP*3,0                                 PAGE 127

11070  0 20*11070  BRX6    NOP*    *
11071  6 41 04103         BRX     NOSKIP*3,6
11072    52525252         DATA    52525252
11073    52525252         DATA    52525252
11074    25252525         DATA    25252525
11075    25252525         DATA    25252525
11076    00040000         DATA    40000
11077    00040001         DATA    40001
11100    77700777         DATA    77700777
11101    77700777         DATA    77700777
11102  0 01 04071         BRU     SKIP*1
11103  0 01 04143         BRU     NOVFLO
```

```
CPU1    TAP*3,0                                 PAGE 128

11104  0 20*11104  SKM1    NOP*    *
11105  0 70 04046         SKM     MEMORY
11106    00000000         DATA    0              A21 B21 C21     TIME
11107    00000000         DATA    0              0   1   1       TO
11110    40000000         DATA    40000000
11111    40000000         DATA    40000000
11112    00077707         DATA    00077707
11113    00077707         DATA    00077707
11114    40000000         DATA    40000000
11115    40000000         DATA    40000000
11116  0 01 04077         BRU     NOSKIP*1
11117  0 01 04143         BRU     NOVFLO
11120  0 20*11120  SKM2    NOP*    *
11121  0 70 04046         SKM     MEMORY
11122    00000000         DATA    0              A22 B22 C22     TIME
11123    00000000         DATA    0              0   1   1       TO
11124    20000000         DATA    20000000
11125    20000000         DATA    20000000
11126    77700070         DATA    77700070
11127    77700070         DATA    77700070
11130    20000000         DATA    20000000
11131    20000000         DATA    20000000
11132  0 01 04077         BRU     NOSKIP*1
11133  0 01 04143         BRU     NOVFLO
```

```
CPU1   TAP=3.0                          PAGE 129

11134  0 20=11134  SKM3   NOP=   *
11135  2 70 32665          SKM    MEMORY=11161,2      INDEXING
11136    00000000          DATA   0                  A23 B23 C23     TIME
11137    00000000          DATA   0                  0   1   1       TO
11140    10000000          DATA   10000000
11141    10000000          DATA   10000000
11142    66611161          DATA   66611161
11143    66611161          DATA   66611161
11144    10000000          DATA   10000000
11145    10000000          DATA   10000000
11146  0 01 04077          BRU    NOSKIP=1
11147  0 01 04143          BRU    NOVFLO
11150  0 20=11150  SKM4   NOP=   *
11151  0 70=04134          SKM=   TESTM               IA
11152    40000000          DATA   40000000           A21 B21 C21     TIME
11153    40000000          DATA   40000000           1   1   0       TO
11154    40000000          DATA   40000000
11155    40000000          DATA   40000000
11156    11166616          DATA   11166616
11157    11166616          DATA   11166616
11160    00000000          DATA   0
11161    00000000          DATA   0
11162  1 01 04077          BRU    NOSKIP=1,1          SET OVERFLOW
11163  0 01 04154          BRU    OVFLO               OVERFLOW
```

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CPU1   TAP=3.0                          PAGE 130

11164  0 20=11164  SKM5   NOP=   *
11165  0 70 04046          SKM    MEMORY
11166    20000000          DATA   20000000           A22 B22 C22     TIME
11167    20000000          DATA   20000000           1   1   0       TO
11170    20000000          DATA   20000000
11171    20000000          DATA   20000000
11172    55522252          DATA   55522252
11173    55522252          DATA   55522252
11174    00000000          DATA   0
11175    00000000          DATA   0
11176  0 01 04077          BRU    NOSKIP=1
11177  0 01 04143          BRU    NOVFLO
11200  0 20=11200  SKM6   NOP=   *
11201  0 70 04046          SKM    MEMORY
11202    10000000          DATA   10000000           A23 B23 C23     TIME
11203    10000000          DATA   10000000           1   1   0       TO
11204    10000000          DATA   10000000
11205    10000000          DATA   10000000
11206    22255525          DATA   22255525
11207    22255525          DATA   22255525
11210    00000000          DATA   0
11211    00000000          DATA   0
11212  0 01 04077          BRU    NOSKIP=1
11213  0 01 04143          BRU    NOVFLO
```

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CPU1   TAP=3.0                          PAGE 131

11214  0 20=11214  SKM7   NOP=    *
11215  0 70 04046         SKM     MEMORY
11216    70770070         DATA    70770070          A(21=23)  B(21=23)  C(21=23)  TIME
11217    70770070         DATA    70770070          1         1         1         T0
11220    77000000         DATA    77000000          0         1         0         T1
11221    77000000         DATA    77000000          1         0         1         T2
11222    44433343         DATA    44433343          1         0         0         T3
11223    44433343         DATA    44433343          0         0         1         T4
11224    70707007         DATA    70707007          0         0         0         T5
11225    70707007         DATA    70707007          1         0         0         T6
11226  0 01 04071         BRU     SKIP=1            0         0         1         T7
11227  0 01 04143         BRU     NOVFLO
11230  0 20=11230  EXU1   NOP=    *
11231  0 23 04046         EXU     MEMORY
11232    52522651         DATA    52522651
11233    67353777         DATA    67353777
11234    25253413         DATA    25253413
11235    56733775         DATA    56733775
11236    46311364         DATA    46311364
11237    77773453         DATA    77773453
11240  0 46 00674         RCH     674               XXA,XXB,XAB
11241  0 46 00674         RCH     674               XXA,XXB,XAB
11242  0 01 04077         BRU     NOSKIP=1
11243  0 01 04143         BRU     NOVFLO
```

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CPU1   TAP=3.0                          PAGE 132

11244  0 20=11244  EXU2   NOP=    *
11245  4 23 04046         EXU     MEMORY,4
11246    25231546         DATA    25231546
11247    25231737         DATA    25231737
11250    65213421         DATA    65213421
11251    65213556         DATA    65213556
11252    12112114         DATA    12112114
11253    77777567         DATA    77777567
11254  0 46 01774         RCH     1774              XXA,XXB,XAB,CNA=EXPONENT ONLY
11255  0 46 01774         RCH     1774              XXA,XXB,XAB,CNA=EXPONENT ONLY
11256  5 01 04077         BRU     NOSKIP=1,5        SET OVERFLOW
11257  0 01 04154         BRU     OVFLO             OVERFLOW
11260  0 20=11260  EXU3   NOP=    *
11261  0 23 04046         EXU     MEMORY            SAME AS SKM7
11262    70770070         DATA    70770070
11263    70770070         DATA    70770070
11264    77000000         DATA    77000000
11265    77000000         DATA    77000000
11266    70707007         DATA    70707007
11267    70707007         DATA    70707007
11270  0 70 11266         SKM     *=2
11271  0 70 11266         SKM     *=3
11272  1 01 04071         BRU     SKIP=1,1          SET OVERFLOW
11273  0 01 04154         BRU     OVFLO             OVERFLOW
```

```
11274  0 20*11274  EXU4   NOP*   *
11275  0 23*04134         EXU*   TESTM              1A = SAME AS SKN2
11276    33344434         DATA   33344434
11277    33344434         DATA   33344434
11300    66611161         DATA   66611161
11301    66611161         DATA   66611161
11302    07070707         DATA   07070707
11303    07070707         DATA   07070707
11304  0 53 11302         SKN    *-2
11305  0 53 11302         SKN    *-3
11306  0 01 04077         BRU    NOSKIP=1
11307  0 01 04143         BRU    NOVFLO
11310  0 20*11310  STA1   NOP*   *
11311  0 35 04046         STA    MEMORY
11312    77700070         DATA   77700070
11313    77700070         DATA   77700070
11314    66611161         DATA   66611161
11315    66611161         DATA   66611161
11316    11166616         DATA   11166616
11317    11166616         DATA   11166616
11320    00077707         DATA   00077707
11321    77700070         DATA   77700070
11322  1 01 04077         BRU    NOSKIP=1,1          SET OVERFLOW
11323  0 01 04154         BRU    OVFLO               OVERFLOW
```



```
11324  0 20*11324  STA2   NOP*   *
11325  4 35*04134         STA*   TESTM,4             1A
11326    00077707         DATA   00077707
11327    00077707         DATA   00077707
11330    11166616         DATA   11166616
11331    11166616         DATA   11166616
11332    66611161         DATA   66611161
11333    66611161         DATA   66611161
11334    77700070         DATA   77700070
11335    00077707         DATA   00077707
11336  4 01 04077         BRU    NOSKIP=1,4
11337  0 01 04143         BRU    NOVFLO
11340  0 20*11340  XMA1   NOP*   *
11341  0 62 04046         XMA    MEMORY
11342    55522252         DATA   55522252
11343    22255525         DATA   22255525
11344    44433343         DATA   44433343
11345    44433343         DATA   44433343
11346    33344434         DATA   33344434
11347    33344434         DATA   33344434
11350    22255525         DATA   22255525
11351    55522252         DATA   55522252
11352  0 01 04077         BRU    NOSKIP=1
11353  0 01 04143         BRU    NOVFLO
```

```
CPU1    TAP=3,C                              PAGE 135

11354   0 20=11354  XMA2    NOP=    *
11355   4 62=04134          XMA=    TESTM,4             IA
11356     22255525          DATA    22255525
11357     55522252          DATA    55522252
11360     33344434          DATA    33344434
11361     33344434          DATA    33344434
11362     44433343          DATA    44433343
11363     44433343          DATA    44433343
11364     55522252          DATA    55522252
11365     22255525          DATA    22255525
11366   5 01 04077          BRU     NOSKIP=1,5          SET OVERFLOW
11367   0 01 04154          BRU     OVFLO               OVERFLOW
11370   0 20=11370  MIN1    NOP=    *
11371   0 61 04046          MIN     MEMORY
11372     77700070          DATA    77700070
11373     77700070          DATA    77700070
11374     66611161          DATA    66611161
11375     66611161          DATA    66611161
11376     55522252          DATA    55522252
11377     55522252          DATA    55522252
11400     37777777          DATA    37777777            YZ1 ADD1
11401     40000000          DATA    40000000            0   1
11402   0 01 04077          BRU     NOSKIP=1
11403   0 01 04154          BRU     OVFLO               OVERFLOW
```

```
CPU1    TAP=3,C                              PAGE 136

11404   0 20=11404  MIN2    NOP=    *
11405   0 61=04134          MIN=    TESTM               IA
11406     00077707          DATA    00077707
11407     00077707          DATA    00077707
11410     11166616          DATA    11166616
11411     11166616          DATA    11166616
11412     22255525          DATA    22255525
11413     22255525          DATA    22255525
11414     77777777          DATA    77777777            YZ1 ADD1 CARRY (KZ) ON EVERY CLOCK
11415     00000000          DATA    0                   1   0
11416   0 01 04077          BRU     NOSKIP=1
11417   0 01 04143          BRU     NOVFLO
11420   0 20=11420  MIN3    NOP=    *
11421   6 61 03756          MIN     MEMORY=70,6         INDEXING
11422     66611161          DATA    66611161
11423     66611161          DATA    66611161
11424     11166616          DATA    11166616
11425     11166616          DATA    11166616
11426     77700070          DATA    77700070
11427     77700070          DATA    77700070
11430     00000000          DATA    00000000            YZ1 ADD1
11431     00000001          DATA    00000001            0   0
11432   5 01 04077          BRU     NOSKIP=1,5          SET OVERFLOW
11433   0 01 04154          BRU     OVFLO               OVERFLOW
```

```
CPU1   TAP=3.0                          PAGE 137

11434  0 20=11434  MIN4   NOP=   *
11435  4 61 04046         MIN    MEMORY,4
11436    11166616         DATA   11166616
11437    11166616         DATA   11166616
11440    66611161         DATA   66611161
11441    66611161         DATA   66611161
11442    00077707         DATA   00077707
11443    00077707         DATA   00077707
11444    77777776         DATA   77777776          YZ1 ADD1
11445    77777777         DATA   77777777          1   1
11446  4 01 04077         BRU    NOSKIP=1,4
11447  0 01 04143         BRU    NOVFLO
11450  0 20=11450  SKR1   NOP=   *
11451  0 60 04046         SKR    MEMORY
11452    77700070         DATA   77700070
11453    77700070         DATA   77700070
11454    66611161         DATA   66611161
11455    66611161         DATA   66611161
11456    55522252         DATA   55522252
11457    55522252         DATA   55522252
11460    00000000         DATA   0               YZ1 ADD1
11461    77777777         DATA   77777777        0   1
11462  0 01 04071         BRU    SKIP=1
11463  0 01 04143         BRU    NOVFLO
```

```
CPU1   TAP=3.0                          PAGE 138

11464  0 20=11464  SKR2   NOP=   *
11465  0 60=04134         SKR=   TESTM            IA
11466    00077707         DATA   00077707
11467    00077707         DATA   00077707
11470    11166616         DATA   11166616
11471    11166616         DATA   11166616
11472    22255525         DATA   22255525
11473    22255525         DATA   22255525
11474    00000001         DATA   1               YZ1 ADD1
11475    00000000         DATA   0               0   0
11476  1 01 04077         BRU    NOSKIP=1,1      SET OVERFLOW
11477  0 01 04154         BRU    OVFLO           OVERFLOW
11500  0 20=11500  SKR3   NOP=   *
11501  6 60 32665         SKR    MEMORY=11161,6  INDEXING
11502    44433343         DATA   44433343
11503    44433343         DATA   44433343
11504    55522252         DATA   55522252
11505    55522252         DATA   55522252
11506    66611161         DATA   66611161
11507    66611161         DATA   66611161
11510    40000000         DATA   40000000        YZ1 ADD1 CARRY (KZ) ON EVERY CLOCK
11511    37777777         DATA   37777777        1   0
11512  4 01 04077         BRU    NOSKIP=1,4
11513  0 01 04154         BRU    OVFLO
```

```
CPU1    TAP=3.0                                 PAGE 139

11514  0 20*11514  SKR4    NOP*    *
11515  4 60 04046         SKR     MEMORY,4
11516    33344434         DATA    33344434
11517    33344434         DATA    33344434
11520    22255525         DATA    22255525
11521    22255525         DATA    22255525
11522    11166616         DATA    11166616
11523    11166616         DATA    11166616
11524    77777777         DATA    77777777              YZ1 ADD1
11525    77777776         DATA    77777776              1   1
11526  4 01 04071         BRU     SKIP=1,4
11527  0 01 04143         BRU     NOVFLO
11530  0 20*11530  ADM1    NOP*    *
11531  0 63 04046         ADM     MEMORY
11532    07060504         DATA    07060504              ALTERNATELY TURN KZ ON AND OFF EACH CLOCK
11533    07060504         DATA    07060504
11534    77700070         DATA    77700070
11535    77700070         DATA    77700070
11536    66611161         DATA    66611161
11537    66611161         DATA    66611161
11540    01020304         DATA    01020304              XZ1 YZ1 ADD1
11541    10101010         DATA    10101010              0   0   0
11542  0 01 04077         BRU     NOSKIP=1
11543  0 01 04143         BRU     NOVFLO
```

```
CPU1    TAP=3.0                                 PAGE 140

11544  0 20*11544  ADM2    NOP*    *
11545  0 63*04134         ADM*    TEST*                 IA
11546    32104675         DATA    32104675
11547    32104675         DATA    32104675
11550    00077707         DATA    00077707
11551    00077707         DATA    00077707
11552    11166616         DATA    11166616
11553    11166616         DATA    11166616
11554    05673103         DATA    05673103              XZ1 YZ1 ADD1
11555    40000000         DATA    40000000              0   0   1
11556  0 01 04077         BRU     NOSKIP=1
11557  0 01 04154         BRU     OVFLO                 OVERFLOW
11560  0 20*11560  ADM3    NOP*    *
11561  2 63 10503         ADM     MEMORY=33343,2        INDEXING
11562    00000001         DATA    1
11563    00000001         DATA    1
11564    55522252         DATA    55522252
11565    55522252         DATA    55522252
11566    44433343         DATA    44433343
11567    44433343         DATA    44433343
11570    77777777         DATA    77777777              XZ1 YZ1 ADD1
11571    00000000         DATA    0                     0   1   0
11572  0 01 04077         BRU     NOSKIP=1
11573  0 01 04143         BRU     NOVFLO
```

```
11574  0 20*11574  ADM4   NOP*    *
11575  0 63 04046         ADM     MEMORY
11576    01234567         DATA    01234567          GENERATE A CARRY (KZ) EACH CLOCK
11577    01234567         DATA    01234567
11600    22255525         DATA    22255525
11601    22255525         DATA    22255525
11602    33344434         DATA    33344434
11603    33344434         DATA    33344434
11604    67777777         DATA    67777777          XZ1 YZ1 ADD1
11605    71234566         DATA    71234566          0   1   1
11606  0 01 04077         BRU     NOSKIP*1
11607  0 01 04143         BRU     NOVFLO
11610  0 20*11610  ADM5   NOP*    *
11611  4 63 04046         ADM     MEMORY,4
11612    76543210         DATA    76543210
11613    76543210         DATA    76543210
11614    77777770         DATA    77777770
11615    77777770         DATA    77777770
11616    00000007         DATA    7
11617    00000007         DATA    7                 XZ1 YZ1 ADD1
11620    01234570         DATA    01234570          1   0   0
11621    00000000         DATA    0
11622  5 01 04077         BRU     NOSKIP*1,5        SET OVERFLOW
11623  0 01 04154         BRU     OVFLO             OVERFLOW
```



```
11624  0 20*11624  ADM6   NOP*    *
11625  4 63 04046         ADM     MEMORY,4
11626    45670123         DATA    45670123          NO CARRYS (KZ OFF EVERY CLOCK)
11627    45670123         DATA    45670123
11630    00000007         DATA    7
11631    00000007         DATA    7
11632    77777770         DATA    77777770
11633    77777770         DATA    77777770
11634    32107654         DATA    32107654          XZ1 YZ1 ADD1
11635    77777777         DATA    77777777          1   0   1
11636  4 01 04077         BRU     NOSKIP*1,4
11637  0 01 04143         BRU     NOVFLO
11640  0 20*11640  ADM7   NOP*    *
11641  4 63 04046         ADM     MEMORY,4
11642    77777777         DATA    77777777
11643    77777777         DATA    77777777
11644    07777777         DATA    07777777
11645    07777777         DATA    07777777
11646    70000000         DATA    70000000
11647    70000000         DATA    70000000
11650    40000000         DATA    40000000          XZ1 YZ1 ADD1
11651    37777777         DATA    37777777          1   1   0
11652  4 01 04077         BRU     NOSKIP*1,4
11653  0 01 04154         BRU     OVFLO             OVERFLOW
```

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CPU1   TAP*3,C                          PAGE 143

11654  0 20*11454  ADM8   NOP*    *
11655  4 63 04046         ADM     MEMORY,4
11656    40000001         DATA    40000001          CARRY (KZ) EVERY CLOCK
11657    40000001         DATA    40000001
11660    70000000         DATA    70000000
11661    70000000         DATA    70000000
11662    07777777         DATA    07777777
11663    07777777         DATA    07777777
11664    77777777         DATA    77777777          XZ1 YZ1 ADD1
11665    40000000         DATA    40000000          1   1   1
11666  4 01 04077         BRU     NOSKIP*1,4
11667  0 01 04143         BRU     NOVFLO
11670  0 20*11470  BRM1   NOP*    *
11671  0 43 04046         BRM     MEMORY
11672    77700070         DATA    77700070
11673    77700070         DATA    77700070
11674    66611161         DATA    66611161
11675    66611161         DATA    66611161
11676    55522252         DATA    55522252
11677    55522252         DATA    55522252
11700  1 00 37777         HLT     37777,1
11701  1 32 04102         XIM     NOSKIP*2,1
11702  1 01 04077         BRU     NOSKIP*1,1        SET OVERFLOW
11703  0 01 04154         BRU     OVFLO             OVERFLOW
```

```
CPU1   TAP*3,C                          PAGE 144

11704  0 20*11704  BRM2   NOP*    *
11705  0 43*04134         BRM*    TESTM             IA
11706    00077707         DATA    00077707
11707    00077707         DATA    00077707
11710    11166616         DATA    11166616
11711    11166616         DATA    11166616
11712    22255525         DATA    22255525
11713    22255525         DATA    22255525
11714  1 00 07777         HLT     7777,1
11715  1 32 04074         XIM     SKIP*2,1
11716  1 01 04071         BRU     SKIP*1,1          SET OVERFLOW
11717  0 01 04154         BRU     OVFLO             OVERFLOW
11720  0 20*11720  BRM3   NOP*    *
11721  2 43 04056         BRM     MEMORY*37770,2    INDEXING
11722    07777777         DATA    07777777
11723    07777777         DATA    07777777
11724    70000000         DATA    70000000
11725    70000000         DATA    70000000
11726    77777770         DATA    77777770
11727    77777770         DATA    77777770
11730  1 00 27777         HLT     27777,1
11731  0 32 04074         XIM     SKIP*2
11732  0 01 04071         BRU     SKIP*1
11733  0 01 04143         BRU     NOVFLO
```

```
11734  0 20•11734  BRM4   N0P•    •
11735  0 43 04046          BRM     MEMORY
11736    70000000          DATA    70000000
11737    70000000          DATA    70000000
11740    07777777          DATA    07777777
11741    07777777          DATA    07777777
11742    00000007          DATA    7
11743    00000007          DATA    7
11744  1 00 17777          HLT     17777,1
11745  0 32 04102          WIM     N0SKIP•2
11746  0 01 04077          BRU     N0SKIP•1
11747  0 01 04143          BRU     N0VFL0
11750  0 20•11750  BRM5   N0P•    •
11751  4 43 04046          BRM     MEMORY,4
11752    77770000          DATA    77770000
11753    77770000          DATA    77770000
11754    77007700          DATA    77007700
11755    77007700          DATA    77007700
11756    70707070          DATA    70707070
11757    70707070          DATA    70707070
11760    00777700          DATA    00777700
11761  0 32 04074          WIM     SKIP•2
11762  4 01 04071          BRU     SKIP•1,4
11763  0 01 04143          BRU     N0VFL0
```



```
11764  0 20•11764  BRM6   N0P•    •
11765  4 43 04046          BRM     MEMORY,4
11766    77770000          DATA    77770000
11767    77770000          DATA    77770000
11770    77007700          DATA    77007700
11771    77007700          DATA    77007700
11772    70707070          DATA    70707070
11773    70707070          DATA    70707070
11774    00777700          DATA    00777700
11775  0 32 04102          WIM     N0SKIP•2
11776  4 01 04077          BRU     N0SKIP•1,4
11777  0 01 04143          BRU     N0VFL0
12000  0 20•12000  BRM7   N0P•    •
12001  4 43 04046          BRM     MEMORY,4
12002    77770000          DATA    77770000
12003    77770000          DATA    77770000
12004    77007700          DATA    77007700
12005    77007700          DATA    77007700
12006    70707070          DATA    70707070
12007    70707070          DATA    70707070
12010    00777700          DATA    00777700
12011  1 32 04074          WIM     SKIP•2,1
12012  1 01 04071          BRU     SKIP•1,1
12013  0 01 04154          BRU     0VFL0
```

```
12014  0 20*12014  P0P1   .0P*    *
12015  1 00 00000         P0PS    0
12016    77700070         DATA    77700070
12017    77700070         DATA    77700070
12020    66611161         DATA    66611161
12021    66611161         DATA    66611161
12022    55522252         DATA    55522252
12023    55522252         DATA    55522252
12024  1 00 03777         HLT     3777,1
12025  1 32*04102         AIM*    .0SKIP*2,1
12026  1 01 04077         BRU     .0SKIP*1,1          SET OVERFLOW
12027  0 01 04143         BRU     .0VFL0
12030  0 20*12030  P0P2   .0P*    *
12031  1 00 00000         P0PS    0
12032    00077707         DATA    00077707
12033    00077707         DATA    00077707
12034    11166616         DATA    11166616
12035    11166616         DATA    11166616
12036    22255525         DATA    22255525
12037    22255525         DATA    22255525
12040  1 00 00777         HLT     777,1
12041  1 32*04074         AIM*    SKIP*2,1
12042  1 01 04071         BRU     SKIP*1,1            SET OVERFLOW
12043  0 01 04143         BRU     .0VFL0
```



```
12044  0 20*12044  P0P3   .0P*    *
12045  1 00 00000         P0PS    0
12046    07777777         DATA    07777777
12047    07777777         DATA    07777777
12050    70000000         DATA    70000000
12051    70000000         DATA    70000000
12052    77777770         DATA    77777770
12053    77777770         DATA    77777770
12054  1 00 02777         HLT     2777,1
12055  0 32*04074         AIM*    SKIP*2
12056  0 01 04071         BRU     SKIP*1
12057  0 01 04143         BRU     .0VFL0
12060  0 20*12060  P0P4   .0P*    *
12061  1 00 00000         P0PS    0
12062    70000000         DATA    70000000
12063    70000000         DATA    70000000
12064    07777777         DATA    07777777
12065    07777777         DATA    07777777
12066    00000007         DATA    7
12067    00000007         DATA    7
12070  1 00 01777         HLT     1777,1
12071  0 32*04102         AIM*    .0SKIP*2
12072  0 01 04077         BRU     .0SKIP*1
12073  0 01 04143         BRU     .0VFL0
```

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CPU1   TAP*3.0                          PAGE 149

12074  0 20*12074  P8P5   N8P*    *
12075  5 00 04046         P8PS    MEMORY,4          SYSP8P
12076    77770000         DATA    77770000
12077    77770000         DATA    77770000
12100    77007700         DATA    77007700
12101    77007700         DATA    77007700
12102    70707070         DATA    70707070
12103    70707070         DATA    70707070
12104    00777700         DATA    00777700
12105  5 32*04102         *IM*    N8SKIP*2,5
12106  5 01 04077         BRU     N8SKIP*1,5
12107  0 01 04143         BRU     N8VFL8
12110  0 20*12110  P8P6   N8P*    *
12111  5 00 04046         P8PS    MEMORY,4          SYSP8P
12112    77770000         DATA    77770000
12113    77770000         DATA    77770000
12114    77007700         DATA    77007700
12115    77007700         DATA    77007700
12116    70707070         DATA    70707070
12117    70707070         DATA    70707070
12120    00777700         DATA    00777700
12121  4 32*04102         *IM*    N8SKIP*2,4
12122  4 01 04077         BRU     N8SKIP*1,4
12123  0 01 04143         BRU     N8VFL8
```

```
CPU1   TAP*3.0                          PAGE 150

12124  0 20*12124  P8P7   N8P*    *
12125  1 00 04046         P8PS    MEMORY
12126    77770000         DATA    77770000
12127    77770000         DATA    77770000
12130    77007700         DATA    77007700
12131    77007700         DATA    77007700
12132    70707070         DATA    70707070
12133    70707070         DATA    70707070
12134    00777700         DATA    00777700
12135    00777700         DATA    00777700
12136  5 01 04071         BRU     SKIP*1,5
12137  0 01 04143         BRU     N8VFL8
12140  0 20*12140  P8P8   N8P*    *
12141  1 00 00000         P8PS
12142    77770000         DATA    77770000
12143    77770000         DATA    77770000
12144    77007700         DATA    77007700
12145    77007700         DATA    77007700
12146    70707070         DATA    70707070
12147    70707070         DATA    70707070
12150    00777700         DATA    00777700
12151    00777700         DATA    00777700
12152  4 01 04077         BRU     N8SKIP*1,4
12153  0 01 04143         BRU     N8VFL8
```

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CPU1    TAP*3.0                         PAGE 151

12154  0 20*12154  FAX1    NOP*    *
12155  0 77 00000         EAX     0
12156    77700070         DATA    77700070
12157    77700070         DATA    77700070
12160    66611161         DATA    66611161
12161    66611161         DATA    66611161
12162    77777777         DATA    77777777
12163    37740000         DATA    37740000
12164    00000000         DATA    0
12165    00000000         DATA    0
12166  0 01 04077         BRU     NOSKIP*1
12167  0 01 04143         BRU     NOVFLO
12170  0 20*12170  FAX2    NOP*    *
12171  2 77 00001         EAX     1,2                 INDEXING
12172    00077707         DATA    00077707
12173    00077707         DATA    00077707
12174    11166616         DATA    11166616
12175    11166616         DATA    11166616
12176    77777777         DATA    77777777
12177    37740000         DATA    37740000
12200    00000000         DATA    0
12201    00000000         DATA    0
12202  1 01 04077         BRU     NOSKIP*1,1          SET OVERFLOW
12203  0 01 04154         BRU     OVFLO               OVERFLOW
```

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CPU1    TAP*3.0                         PAGE 152

12204  0 20*12204  EAX3    NOP*    *
12205  0 77 04046         EAX     *MEMORY
12206    66611161         DATA    66611161
12207    66611161         DATA    66611161
12210    55522252         DATA    55522252
12211    55522252         DATA    55522252
12212    77777777         DATA    77777777
12213    37744046         DATA    37740000+MEMORY
12214    44433343         DATA    44433343
12215    44433343         DATA    44433343
12216  0 01 04077         BRU     NOSKIP*1
12217  0 01 04143         BRU     NOVFLO
12220  0 20*12220  EAX4    NOP*    *
12221  2 77*34134         EAX*    TEST*10000,2        IA
12222    11166616         DATA    11166616
12223    11166616         DATA    11166616
12224    22255525         DATA    22255525
12225    22255525         DATA    22255525
12226    00010000         DATA    00010000
12227  0 00 04046         HLT     *MEMORY
12230    33344434         DATA    33344434
12231    33344434         DATA    33344434
12232  0 01 04077         BRU     NOSKIP*1
12233  0 01 04143         BRU     NOVFLO
```

```
CPU1   TAP=3.0                          PAGE 153

12234  0 20*12234  EAX5   NOP*    *
12235  4 77 04046         EAX     MEMORY,4          USER MODE EAX
12236    00770077         DATA    00770077
12237    00770077         DATA    00770077
12240    07070707         DATA    07070707
12241    07070707         DATA    07070707
12242    77770000         DATA    77770000
12243    77744046         DATA    77740000+MEMORY
12244    00777700         DATA    00777700
12245    00777700         DATA    00777700
12246  4 01 04077         BRU     NOSKIP=1,4
12247  0 01 04143         BRU     NOVFLO
12250  0 20*12250  EAX6   NOP*    *                 RELABELED EAX PUTS MODE IN XREG
12251  4 77 04046         EAX     MEMORY,4
12252    77770000         DATA    77770000
12253    77770000         DATA    77770000
12254    77007700         DATA    77007700
12255    77007700         DATA    77007700
12256    00707070         DATA    00707070
12257    40704046         DATA    40700000+MEMORY
12260    00777700         DATA    00777700
12261    00777700         DATA    00777700
12262  0 01 04077         BRU     NOSKIP=1
```

```
CPU1   TAP=3.0                          PAGE 154

12263  0 01 04143         BRU     NOVFLO
12264  0 20*12264  BRR1   NOP*    *
12265  4 51 04046         BRR     MEMORY,4
12266    77770000         DATA    77770000
12267    77770000         DATA    77770000
12270    77007700         DATA    77007700
12271    77007700         DATA    77007700
12272    70707070         DATA    70707070
12273    70707070         DATA    70707070
12274  5 01 04105         BRU     NOERR=1,5
12275  5 01 04105         BRU     NOERR=1,5
12276  4 01 04071         BRU     SKIP=1,4
12277  0 01 04154         BRU     OVFLO
12300  0 20*12300  BRR2   NOP*    *
12301  4 51 04046         BRR     MEMORY,4
12302    77770000         DATA    77770000
12303    77770000         DATA    77770000
12304    77007700         DATA    77007700
12305    77007700         DATA    77007700
12306    70707070         DATA    70707070
12307    70707070         DATA    70707070
12310  0 01 04105         BRU     NOERR=1
12311  0 01 04105         BRU     NOERR=1
12312  4 01 04071         BRU     SKIP=1,4
12313  0 01 04143         BRU     NOVFLO
```

```
12314  0 20*12314  BVT1   \BP*     *
12315  0 22 00101         BVT
12316    07070707         DATA     07070707
12317    07070707         DATA     07070707
12320    00770077         DATA     00770077
12321    00770077         DATA     00770077
12322    00007777         DATA     00007777
12323    00007777         DATA     00007777
12324    00777700         DATA     00777700
12325    00777700         DATA     00777700
12326  4 01 04071         BRU      SKIP=1,4
12327  0 01 04143         BRU      \BVFLB
12330  0 20*12330  BVT2   \BP*     *
12331  0 22 00101         BVT
12332    07070707         DATA     07070707
12333    07070707         DATA     07070707
12334    00770077         DATA     00770077
12335    00770077         DATA     00770077
12336    00007777         DATA     00007777
12337    00007777         DATA     00007777
12340    00777700         DATA     00777700
12341    00777700         DATA     00777700
12342  5 01 04077         BRU      \BSKIP=1,5
12343  0 01 04143         BRU      \BVFLB
```



```
12344  0 20*12344  BVT3   \BP*     *
12345  0 22 00101         BVT
12346    07070707         DATA     07070707
12347    07070707         DATA     07070707
12350    00770077         DATA     00770077
12351    00770077         DATA     00770077
12352    00007777         DATA     00007777
12353    00007777         DATA     00007777
12354    00777700         DATA     00777700
12355    00777700         DATA     00777700
12356  0 01 04071         BRU      SKIP=1
12357  0 01 04143         BRU      \BVFLB
12360  0 20*12360  BVT4   \BP*     *
12361  0 22 00101         BVT
12362    07070707         DATA     07070707
12363    07070707         DATA     07070707
12364    00770077         DATA     00770077
12365    00770077         DATA     00770077
12366    00007777         DATA     00007777
12367    00007777         DATA     00007777
12370    00777700         DATA     00777700
12371    00777700         DATA     00777700
12372  1 01 04077         BRU      \BSKIP=1,1
12373  0 01 04143         BRU      \BVFLB
```

```
CPU1    TAP=3.0                                 PAGE 157

12374  0 20=12374  R0V1    N0P=    *
12375  0 22 00001         R0V
12376    07070707         DATA    07070707
12377    07070707         DATA    07070707
12400    00770077         DATA    00770077
12401    00770077         DATA    00770077
12402    00007777         DATA    00007777
12403    00007777         DATA    00007777
12404    00777700         DATA    00777700
12405    00777700         DATA    00777700
12406  1 01 04077         BRU     N0SKIP=1,1
12407  0 01 04143         BRU     N0VFL0
12410  0 20=12410  R0V2    N0P=    *
12411  0 22 00001         R0V
12412    07070707         DATA    07070707
12413    07070707         DATA    07070707
12414    00770077         DATA    00770077
12415    00770077         DATA    00770077
12416    00007777         DATA    00007777
12417    00007777         DATA    00007777
12420    00777700         DATA    00777700
12421    00777700         DATA    00777700
12422  5 01 04077         BRU     N0SKIP=1,5
12423  0 01 04143         BRU     N0VFL0
```

```
CPU1    TAP=3.0                                 PAGE 158

12424  0 20=12424  R0V3    N0P=    *
12425  0 02 20001         E0M     20001           930 RESET OVERFL0W
12426    07070707         DATA    07070707
12427    07070707         DATA    07070707
12430    00770077         DATA    00770077
12431    00770077         DATA    00770077
12432    00007777         DATA    00007777
12433    00007777         DATA    00007777
12434    00777700         DATA    00777700
12435    00777700         DATA    00777700
12436  1 01 04077         BRU     N0SKIP=1,1
12437  0 01 04143         BRU     N0VFL0
```

```
CPU1   TAP=3.C                          PAGE 159

12440  0 20*12440  RE81    \8P=    *
12441  0 22 00010         RE8
12442     77700070         DATA    77700070
12443     77700070         DATA    77700070
12444     66611161         DATA    66611161
12445     66611161         DATA    66611161
12446     55522252         DATA    55522252          X14 X15
12447     55522252         DATA    55522252          0   0
12450     00000000         DATA    0
12451     00000000         DATA    0
12452  0 01 04077          BRU     \8S<IP=1
12453  0 01 04143          BRU     \8VFL8
```

```
CPU1   TAP=3.C                          PAGE 160

12454  0 20*12454  RE82    \8P=    *
12455  0 22 00010         RE8
12456     00077707         DATA    00077707
12457     00077707         DATA    00077707
12460     11166616         DATA    11166616
12461     11166616         DATA    11166616
12462     22255525         DATA    22255525          X14 X15
12463     22255525         DATA    22255525          1   1
12464     00000000         DATA    0
12465     00000000         DATA    0
12466  0 01 04077          BRU     \8S<IP=1
12467  0 01 04143          BRU     \8VFL8
12470  0 20*12470  RE83    \8P=    *
12471  0 22 00010         RE8
12472     66611161         DATA    66611161
12473     66611161         DATA    66611161
12474     55522252         DATA    55522252
12475     55522252         DATA    55522252
12476     44433343         DATA    44433343          X14 X15
12477     44433343         DATA    44433343          1   0
12500     00000000         DATA    0
12501     00000000         DATA    0
12502  4 01 04077          BRU     \8S<IP=1,4
12503  0 01 04154          BRU     8VFL8             8VERFL8.
```

```
12504  0 20*12504  RE04   NOP*    *
12505  0 22 00010         REO
12506    11166616         DATA    11166616
12507    11166616         DATA    11166616
12510    22255525         DATA    22255525
12511    22255525         DATA    22255525
12512    33344434         DATA    33344434          X14 X15
12513    33344434         DATA    33344434          0   1
12514    00000000         DATA    0
12515    00000000         DATA    0
12516  4 01 04077         BRU     NOSKIP=1,4
12517  0 01 04154         BRU     OVFLO             OVERFLOW
12520  0 20*12520  RE05   NOP*    *
12521  0 02 20010         EOM     20010         930 RECORD EXPONENT OVERFLOW
12522    07070707         DATA    07070707
12523    07070707         DATA    07070707
12524    00770077         DATA    00770077
12525    00770077         DATA    00770077
12526    00007777         DATA    00007777
12527    00007777         DATA    00007777
12530    00777700         DATA    00777700
12531    00777700         DATA    00777700
12532  1 01 04077         BRU     NOSKIP=1,1
12533  0 01 04154         BRU     OVFLO
```



```
12534  0 20*12534  RE06   NOP*    *
12535  0 02 20010         EOM     20010         930 RECORD EXPONENT OVERFLOW
12536    07070707         DATA    07070707
12537    07070707         DATA    07070707
12540    00770077         DATA    00770077
12541    00770077         DATA    00770077
12542    00000777         DATA    00000777
12543    00000777         DATA    00000777
12544    00777700         DATA    00777700
12545    00777700         DATA    00777700
12546  0 01 04077         BRU     NOSKIP=1
12547  0 01 04154         BRU     OVFLO
12550  0 20*12550  RE07   NOP*    *
12551  0 02 20010         EOM     20010         930 RECORD EXPONENT OVERFLOW
12552    07070707         DATA    07070707
12553    07070707         DATA    07070707
12554    00770077         DATA    00770077
12555    00770077         DATA    00770077
12556    00007777         DATA    00007777
12557    00007777         DATA    00007777
12560    00777700         DATA    00777700
12561    00777700         DATA    00777700
12562  0 01 04077         BRU     NOSKIP=1
12563  0 01 04143         BRU     NOVFLO
```

```
CPU1    TAP.3.0                   PAGE 163

12564  0 20*12564  E8M1   NBP.   *
12565  0 02 22000         EOM    22000            SET 940 MODE EOM
12566    07070707         DATA   07070707
12567    07070707         DATA   07070707
12570    07700770         DATA   07700770
12571    07700770         DATA   07700770
12572    00777700         DATA   00777700
12573    00777700         DATA   00777700
12574    52525252         DATA   52525252
12575    52525252         DATA   52525252
12576  0 01 04077         BRU    NBSKIP+1
12577  0 01 04143         BRU    NBVFLB
12600  0 20*12600  SKD1   NBP.   *
12601  0 74 04046         SKD    MEMORY
12602    77700070         DATA   77700070
12603    77700070         DATA   77700070
12604    65465345         DATA   65465345            B15 C15 X15 OFE
12605    65465345         DATA   65465345            0   0   0   0
12606    00077707         DATA   00077707
12607    33333032         DATA   33333032
12610    32132313         DATA   32132313            SET OFE EVERY CLOCK EXCEPT T5
12611    32132313         DATA   32132313            RESET CO EVERY CLOCK
12612  0 01 04077         BRU    NBSKIP+1
12613  0 01 04143         BRU    NBVFLB
```

```
CPU1    TAP.3.0                   PAGE 164

12614  0 20*12614  SKD2   NBP.   *
12615  0 74*04134         SKD*   TESTM               IA
12616    00077707         DATA   00077707
12617    00077707         DATA   00077707
12620    01234567         DATA   01234567            B15 C15 X15 OFE
12621    01234567         DATA   01234567            1   0   0   1
12622    77700070         DATA   77700070
12623    77667565         DATA   77667565
12624    01124354         DATA   01124354            RESET OFE EVERY CLOCK EXCEPT T5
12625    01124354         DATA   01124354            RESET CO EVERY CLOCK
12626  0 01 04071         BRU    SKIP+1
12627  0 01 04143         BRU    NBVFLB
12630  0 20*12630  SKD3   NBP.   *
12631  2 74 15230         SKD    MEMORY+26616,2      INDEXING
12632    66611161         DATA   66611161
12633    66611161         DATA   66611161
12634    54672120         DATA   54672120            B15 C15 X15 OFE
12635    54672120         DATA   54672120            0   1   0   0
12636    11166616         DATA   11166616
12637    76457266         DATA   76457266
12640    56212632         DATA   56212632            RESET OFE EVERY CLOCK
12641    56212632         DATA   56212632            SET CO EVERY CLOCK EXCEPT T5
12642  0 01 04077         BRU    NBSKIP+1
12643  0 01 04143         BRU    NBVFLB
```

```
12644  0 20=12644  SKD4   NOP=    *
12645  0 74 04046         SKD     MEMORY
12646    11166616         DATA    11166616
12647    11166616         DATA    11166616
12650    67622654         DATA    67622654          B15 C15 X15
12651    67622654         DATA    67622654          1   1   0
12652    66611161         DATA    66611161
12653    75467123         DATA    75467123          RESET OFE AND CO AT T5
12654    72133531         DATA    72133531          RESET OFE AND SET CO AT TO THRU T4
12655    72133531         DATA    72133531          SET OFE AND RESET CO AT T6 AND T7
12656  0 01 04077         BRU     NOSKIP=1
12657  0 01 04143         BRU     NOVFLO
12660  0 20=12660  SKD5   NOP=    *
12661  4 74 04046         SKD     MEMORY,4
12662    55522252         DATA    55522252
12663    55522252         DATA    55522252
12664    11232213         DATA    11232213          B15 C15 X15
12665    11232213         DATA    11232213          0   0   1
12666    22255525         DATA    22255525
12667    33233134         DATA    33233134
12670    44465347         DATA    44465347          SET OFE EVERY CLOCK EXCEPT T5
12671    44465347         DATA    44465347          SET CO EVERY CLOCK
12672  4 01 04071         BRU     SKIP=1,4
12673  0 01 04143         BRU     NOVFLO
```



```
12674  0 20=12674  SKD6   NOP=    *
12675  4 74 04046         SKD     MEMORY,4
12676    22255525         DATA    22255525
12677    22255525         DATA    22255525
12700    10234756         DATA    10234756          B15 C15 X15
12701    10234756         DATA    10234756          1   0   1
12702    55522252         DATA    55522252
12703    46667177         DATA    46667177
12704    57124155         DATA    57124155          RESET OFE EVERY CLOCK
12705    57124155         DATA    57124155          RESET CO EVERY CLOCK EXCEPT T5
12706  4 01 04071         BRU     SKIP=1,4
12707  0 01 04143         BRU     NOVFLO
12710  0 20=12710  SKD7   NOP=    *
12711  4 74 04046         SKD     MEMORY,4
12712    33344434         DATA    33344434
12713    33344434         DATA    33344434
12714    56657244         DATA    56657244          B15 C15 X15
12715    56657244         DATA    56657244          0   1   1
12716    44433343         DATA    44433343
12717    33323523         DATA    33323523
12720    23333521         DATA    23333521          SET OFE EVERY CLOCK
12721    23333521         DATA    23333521          RESET CO EVERY CLOCK EXCEPT T5
12722  4 01 04077         BRU     NOSKIP=1,4
12723  0 01 04143         BRU     NOVFLO
```

```
CPU1     TAP-3.0                            PAGE 167

12724  0 20*12724  SKD8    NOP*    *
12725  4 74 04046          SKD     MEMORY,4
12726    44433343          DATA    44433343
12727    44433343          DATA    44433343
12730    32275612          DATA    32275612        B15 C15 X15
12731    32275612          DATA    32275612        1   1   1
12732    33344434          DATA    33344434
12733    65457134          DATA    65457134        RESET OFE AND SET CO T5
12734    17754746          DATA    17754746        RESET OFE AND CO TO THRU T4
12735    17754746          DATA    17754746        SET OFE AND CO T6, T7
12736  4 01 04071          BRU     SKIP-1,4
12737  0 01 04143          BRU     NOVFLO
12740  0 20*12740  RSH1    NOP*    *
12741  0 66 00000          RSH     0               SET SK AT T1 PHASE 1
12742    40000001          DATA    40000001
12743    40000001          DATA    40000001
12744    37777776          DATA    37777776
12745    37777776          DATA    37777776
12746    77777777          DATA    77777777
12747    77777777          DATA    77777777
12750    00000000          DATA    0
12751    00000000          DATA    0
12752  0 01 04077          BRU     NOSKIP-1
12753  0 01 04143          BRU     NOVFLO
```

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CPU1     TAP-3.0                            PAGE 168

12754  0 20*12754  RSH2    NOP*    *
12755  0 66*04046          RSH*    MEMORY          IA-SD2 NEVER GOES, SET SK AT TO PHASE 3
12756    52525252          DATA    52525252
12757    65252525          DATA    65252525        AO GETS SET BY A00
12760    61616160          DATA    61616160
12761    30707070          DATA    30707070        BO GETS SET BY A23
12762    77700070          DATA    77700070
12763    77700070          DATA    77700070
12764    00000001          DATA    1
12765    00000001          DATA    1
12766  0 01 04077          BRU     NOSKIP-1
12767  0 01 04143          BRU     NOVFLO
12770  0 20*12770  RSH3    NOP*    *
12771  2 66 00765          RSH     765,2           INDEXING (2)-SD2 GOES AT T1, SET SK AT TO
12772    25252525          DATA    25252525        1ST CYCLE
12773    05252525          DATA    05252525
12774    25252525          DATA    25252525        BR1 TURNS B(0-23) ON AND OFF EACH CLOCK
12775    25252525          DATA    25252525
12776    42376015          DATA    42376015
12777    42376015          DATA    42376015
13000    00000002          DATA    2
13001    00000002          DATA    2
13002  0 01 04077          BRU     NOSKIP-1
13003  0 01 04143          BRU     NOVFLO
```

```
13004  0 20*13004  RSH4   NOP*    *
13005  0 66 00003         RSH     3
13006    40000000         DATA    40000000          SD2 GOES AT T0, SK AT TP 1ST CYCLE
13007    74000000         DATA    74000000          S14 ON AT T2 AND T1 AND TR AND OFF AT T0
13010    00000000         DATA    0                 AND TP
13011    00000000         DATA    0
13012    00077707         DATA    00077707
13013    00077707         DATA    00077707
13014    00000003         DATA    3
13015    00000003         DATA    3
13016  1 01 04077         BRU     NOSKIP=1,1        SET OVERFLOW
13017  0 01 04154         BRU     OVFLO             OVERFLOW
13020  0 20*13020  RSH5   NOP*    *                 CHECK SX48 AND ALL RELATED TERMS
13021  0 66 00060         RSH     60                SX48 GETS SET BY S9S10 AT PHASE 0 T1
13022    37777777         DATA    37777777
13023    00000000         DATA    0
13024    77777777         DATA    77777777
13025    00000000         DATA    0
13026    66611161         DATA    66611161
13027    66611161         DATA    66611161
13030    00000060         DATA    60
13031    00000060         DATA    60
13032  0 01 04077         BRU     NOSKIP=1
13033  0 01 04143         BRU     NOVFLO
```



```
13034  0 20*13034  RSH6   NOP*    *
13035  2 66 00100         RSH     100,2             SX48 GETS SET BY S8 AT PHASE 0 T1
13036    40000000         DATA    40000000
13037    77777777         DATA    77777777
13040    00000000         DATA    0
13041    77777777         DATA    77777777
13042    11166616         DATA    11166616
13043    11166616         DATA    11166616
13044    00000100         DATA    100
13045    00000100         DATA    100
13046  0 01 04077         BRU     NOSKIP=1
13047  0 01 04143         BRU     NOVFLO
13050  0 20*13050  RSH7   NOP*    *
13051  0 66 00203         RSH     203               SX48 GETS SET BY S7 AT PHASE 0 T1
13052    20000001         DATA    20000001
13053    00000000         DATA    0
13054    40000001         DATA    40000001
13055    00000000         DATA    0
13056    55522252         DATA    55522252
13057    55522252         DATA    55522252
13060    00000203         DATA    203
13061    00000203         DATA    203
13062  0 01 04077         BRU     NOSKIP=1
13063  0 01 04143         BRU     NOVFLO
```

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CPU1   TAP=3,C                                  PAGE 171

13064  0 20=13064  RSH8   %8P=   *
13065  0 66 00404         RSH    404              SX48 GETS SET BY S6 AT PHASE 0 T1
13066    40000000         DATA   40000000         TEST S REGISTER COUNT TO 48
13067    77777777         DATA   77777777
13070    00000000         DATA   0
13071    77777777         DATA   77777777
13072    22255525         DATA   22255525
13073    22255525         DATA   22255525
13074    00000404         DATA   404
13075    00000404         DATA   404
13076  0 01 04077         BRU    %8S<IP=1
13077  0 01 04143         BRU    %8VFL8
13100  0 20=13100  RSH9   %8P=   *
13101  0 66 20005         RCY    5
13102    20000001         DATA   20000001
13103    02400000         DATA   02400000         A0 SET BY B23
13104    00000001         DATA   00000001
13105    02000000         DATA   02000000         B0 SET BY A23
13106    44433343         DATA   44433343
13107    44433343         DATA   44433343
13110    00000005         DATA   5
13111    00000005         DATA   5
13112  0 01 04077         BRU    %8S<IP=1
13113  0 01 04143         BRU    %8VFL8
```

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CPU1   TAP=3,C                                  PAGE 172

13114  0 20=13114  RSH10  %8P=   *
13115  0 66 20057         RCY    57
13116    52525252         DATA   52525252         TURN A(0=23) AND B(0=23) ON AND OFF
13117    25252525         DATA   25252525         EVERY CLOCK
13120    52525252         DATA   52525252
13121    25252525         DATA   25252525
13122    33344434         DATA   33344434
13123    33344434         DATA   33344434
13124    00000057         DATA   57
13125    00000057         DATA   57
13126  0 01 04077         BRU    %8S<IP=1
13127  0 01 04143         BRU    %8VFL8
13130  0 20=13130  RSH11  %8P=   *
13131  0 66=04046         RCY=   MEMORY           IA = TEST BR1 WITH ALL COMBINATIONS OF
13132    14631463         DATA   14631463         SET BI=1=BI
13133    63146314         DATA   63146314             0    0
13134    14631463         DATA   14631463             0    1
13135    63146314         DATA   63146314             1    0
13136    11166616         DATA   11166616             1    1
13137    11166616         DATA   11166616
13140    00020056         DATA   20056
13141    00020056         DATA   20056
13142  0 01 04077         BRU    %8S<IP=1
13143  0 01 04143         BRU    %8VFL8
```

```
13004  0 20=13004  RSH4   NOP=     *
13005  0 66 00003         RSH      3
13006    40000000         DATA     40000000          SD2 GOES AT T0, SK AT TP 1ST CYCLE
13007    74000000         DATA     74000000          S14 ON AT T2 AND T1 AND TR AND OFF AT T0
13010    00000000         DATA     0                 AND TP
13011    00000000         DATA     0
13012    00077707         DATA     00077707
13013    00077707         DATA     00077707
13014    00000003         DATA     3
13015    00000003         DATA     3
13016  1 01 04077         BRU      NOSKIP=1,1        SET OVERFLOW
13017  0 01 04154         BRU      OVFLO             OVERFLOW
13020  0 20=13020  RSH5   NOP=     *                 CHECK SX48 AND ALL RELATED TERMS
13021  0 66 00060         RSH      60                SX48 GETS SET BY S9S10 AT PHASE 0 T1
13022    37777777         DATA     37777777
13023    00000000         DATA     0
13024    77777777         DATA     77777777
13025    00000000         DATA     0
13026    66611161         DATA     66611161
13027    66611161         DATA     66611161
13030    00000060         DATA     60
13031    00000060         DATA     60
13032  0 01 04077         BRU      NOSKIP=1
13033  0 01 04143         BRU      NOVFLO
```



```
13034  0 20=13034  RSH6   NOP=     *
13035  2 66 00100         RSH      100,2             SX48 GETS SET BY S8 AT PHASE 0 T1
13036    40000000         DATA     40000000
13037    77777777         DATA     77777777
13040    00000000         DATA     0
13041    77777777         DATA     77777777
13042    11166616         DATA     11166616
13043    11166616         DATA     11166616
13044    00000100         DATA     100
13045    00000100         DATA     100
13046  0 01 04077         BRU      NOSKIP=1
13047  0 01 04143         BRU      NOVFLO
13050  0 20=13050  RSH7   NOP=     *
13051  0 66 00203         RSH      203               SX48 GETS SET BY S7 AT PHASE 0 T1
13052    20000001         DATA     20000001
13053    00000000         DATA     0
13054    40000001         DATA     40000001
13055    00000000         DATA     0
13056    55522252         DATA     55522252
13057    55522252         DATA     55522252
13060    00000203         DATA     203
13061    00000203         DATA     203
13062  0 01 04077         BRU      NOSKIP=1
13063  0 01 04143         BRU      NOVFLO
```

```
CPU1     TAP*3.C                              PAGE 171

13064  0 20*13064   RSH8     NOP*      *
13065  0 66 00404            RSH       404                SX48 GETS SET BY S6 AT PHASE 0 T1
13066     40000000           DATA      40000000           TEST S REGISTER COUNT TO 48
13067     77777777           DATA      77777777
13070     00000000           DATA      0
13071     77777777           DATA      77777777
13072     22255525           DATA      22255525
13073     22255525           DATA      22255525
13074     00000404           DATA      404
13075     00000404           DATA      404
13076  0 01 04077           BRU       NOSKIP*1
13077  0 01 04143           BRU       NOVFLO
13100  0 20*13100   RSH9     NOP*      *
13101  0 66 20005            RCY       5
13102     20000001           DATA      20000001
13103     02400000           DATA      02400000           A0 SET BY B23
13104     00000001           DATA      00000001
13105     02000000           DATA      02000000           B0 SET BY A23
13106     44433343           DATA      44433343
13107     44433343           DATA      44433343
13110     00000005           DATA      5
13111     00000005           DATA      5
13112  0 01 04077           BRU       NOSKIP*1
13113  0 01 04143           BRU       NOVFLO
```

```
CPU1     TAP*3.C                              PAGE 172

13114  0 20*13114   RSH10    NOP*      *
13115  0 66 20057            RCY       57
13116     52525252           DATA      52525252           TURN A(0*23) AND B(0*23) ON AND OFF
13117     25252525           DATA      25252525           EVERY CLOCK
13120     52525252           DATA      52525252
13121     25252525           DATA      25252525
13122     33344434           DATA      33344434
13123     33344434           DATA      33344434
13124     00000057           DATA      57
13125     00000057           DATA      57
13126  0 01 04077           BRU       NOSKIP*1
13127  0 01 04143           BRU       NOVFLO
13130  0 20*13130   RSH11    NOP*      *
13131  0 66*04046            RCY*      MEMORY             IA * TEST BR1 WITH ALL COMBINATIONS OF
13132     14631463           DATA      14631463           SET BI*1*BI
13133     63146314           DATA      63146314               0     0
13134     14631463           DATA      14631463               0     1
13135     63146314           DATA      63146314               1     0
13136     11166616           DATA      11166616               1     1
13137     11166616           DATA      11166616
13140     00020056           DATA      20056
13141     00020056           DATA      20056
13142  0 01 04077           BRU       NOSKIP*1
13143  0 01 04143           BRU       NOVFLO
```

```
13144  0 20=13144  RSH12  NOP=    *
13145  4 66=04046         RCY=    MEMORY,4              IA = LOGICAL RIGHT CYCLE
13146    41414141        DATA    41414141
13147    00414141        DATA    00414141              AQ SET TO 0
13150    22222227        DATA    22222227
13151    41222222        DATA    41222222              BQ SET BY A23
13152    66611161        DATA    66611161
13153    66611161        DATA    66611161
13154    00024006        DATA    24006
13155    00024006        DATA    24006
13156  4 01 04077         BRU     NOSKIP=1,4
13157  0 01 04143         BRU     NOVFLO
13160  0 20=13160  RSH13  NOP=    *
13161  4 66 24004         LRSH    4,4                   LOGICAL RIGHT CYCLE
13162    70707070        DATA    70707070              SK SETS AT T8 2ND CYCLE
13163    03434343        DATA    03434343
13164    52525252        DATA    52525252
13165    42525252        DATA    42525252
13166    77700070        DATA    77700070
13167    77700070        DATA    77700070
13170    00004004        DATA    4004
13171    00004004        DATA    4004
13172  5 01 04077         BRU     NOSKIP=1,5            SET OVERFLOW
13173  0 01 04154         BRU     OVFLO                 OVERFLOW
```



```
13174  0 20=13174  RSH14  NOP=    *
13175  6 66=00034         RSH=    MEMORY=4012,6         IX,IA,IX=21 PLACES=CYCLE
13176    12345670        DATA    12345670
13177    65432101        DATA    65432101
13200    76543210        DATA    76543210
13201    23456707        DATA    23456707
13202    00004012        DATA    4012
13203    00004012        DATA    4012                  TEST C(0-2)=C(21-23) AT T4,T3 AND T2
13204    20020013        DATA    20020013
13205    20020013        DATA    20020013
13206  4 01 04077         BRU     NOSKIP=1,4
13207  0 01 04143         BRU     NOVFLO
13210  0 20=13210  RSH15  NOP=    *
13211  4 66 00001         RSH     1001,4
13212    40000000        DATA    40000000
13213    60000000        DATA    60000000
13214    00000002        DATA    2
13215    00000001        DATA    1
13216    00077707        DATA    00077707
13217    00077707        DATA    00077707
13220    00001001        DATA    1001
13221    00001001        DATA    1001
13222  4 01 04077         BRU     NOSKIP=1,4
13223  0 01 04143         BRU     NOVFLO
```

```
CPU1   TAP=3.C                          PAGE 175

13224  0 20=13224  LSH1   \8P=   *
13225  0 67 00000          LSH    0              SET SK AT T1 PHASE 1
13226    40000001          DATA   40000001
13227    40000001          DATA   40000001
13230    37777776          DATA   37777776
13231    37777776          DATA   37777776
13232    77700070          DATA   77700070
13233    77700070          DATA   77700070
13234    00000000          DATA   0
13235    00000000          DATA   0
13236  0 01 04077          BRU    \8SK1P=1
13237  0 01 04143          BRU    \8VFL8
13240  0 20=13240  LSH2   \8P=   *
13241  0 67 00001          LSH    1              SD2 GOES AT T1 PHASE 3
13242    65252525          DATA   65252525      SK GOES AT T0 PHASE 3
13243    52525252          DATA   52525252
13244    37070707          DATA   37070707      A23 SET BY B0
13245    76161616          DATA   76161616
13246    00077707          DATA   00077707      B23 SET TO 0
13247    00077707          DATA   00077707
13250    00000001          DATA   1
13251    00000001          DATA   1
13252  0 01 04077          BRU    \8SK1P=1
13253  0 01 04143          BRU    \8VFL8
```

```
CPU1   TAP=3.C                          PAGE 176

13254  0 20=13254  LSH3   \8P=   *
13255  0 67=04046          LSH=   MEM8RY          1A = SD2 GOES AT T1 PHASE 3
13256    40707070          DATA   40707070      SK SET AT T0 PHASE 3
13257    01616161          DATA   01616161
13260    51111111          DATA   51111111
13261    22222222          DATA   22222222
13262    66611161          DATA   66611161
13263    66611161          DATA   66611161
13264    00000001          DATA   1
13265    00000001          DATA   1
13266  0 01 04077          BRU    \8SK1P=1
13267  0 01 04154          BRU    8VFL8          8VERFL8= SET BY A00A1 AT T1 PHASE 3
13270  0 20=13270  LSH4   \8P=   *
13271  0 67 00002          LSH    2
13272    70707070          DATA   70707070
13273    43434342          DATA   43434342
13274    43434343          DATA   43434343
13275    16161414          DATA   16161614
13276    11166616          DATA   11166616
13277    11166616          DATA   11166616
13300    00000002          DATA   2
13301    00000002          DATA   2
13302  0 01 04077          BRU    \8SK1P=1
13303  0 01 04143          BRU    \8VFL8
```

```
13304  0 20*13304  LSH5   NOP*    *
13305  2 67 00153          LSH     153,2          INDEXING=SHIFT 2 PLACES
13306    12345670          DATA    12345670
13307    51627343          DATA    51627343
13310    67543201          DATA    67543201
13311    36615004          DATA    36615004
13312    00000627          DATA    00000627
13313    00000627          DATA    00000627
13314    00000002          DATA    2
13315    00000002          DATA    2
13316  0 01 04077          BRU     NOSKIP=1
13317  0 01 04154          BRU     OVFLO          OVERFLOW SET BY (A10A8)B13 AT T1 PHASE 3
13320  0 20*13320  LSH6   NOP*    *
13321  0 67 00057          LSH     57             SD2 GOES EVERY OTHER CLOCK STARTING AT
13322    00000000          DATA    0              T1 PHASE 3
13323    40000000          DATA    40000000
13324    00000001          DATA    1
13325    00000000          DATA    0
13326    55522252          DATA    55522252
13327    55522252          DATA    55522252
13330    00000057          DATA    57
13331    00000057          DATA    57
13332  0 01 04077          BRU     NOSKIP=1
13333  0 01 04154          BRU     OVFLO          OVERFLOW
```



```
13334  0 20*13334  LSH7   NOP*    *
13335  0 67 00057          LSH     57
13336    77777777          DATA    77777777
13337    40000000          DATA    40000000
13340    77777777          DATA    77777777
13341    00000000          DATA    0
13342    22255525          DATA    22255525
13343    22255525          DATA    22255525
13344    00000057          DATA    57
13345    00000057          DATA    57
13346  0 01 04077          BRU     NOSKIP=1
13347  0 01 04143          BRU     NOVFLO
13350  0 20*13350  LSH8   NOP*    *
13351  0 67 00060          LSH     60             SX48 GOES AT T2 PHASE 1
13352    77777777          DATA    77777777
13353    00000000          DATA    0
13354    77777777          DATA    77777777
13355    00000000          DATA    0
13356    44433343          DATA    44433343
13357    44433343          DATA    44433343
13360    00000060          DATA    60
13361    00000060          DATA    60
13362  0 01 04077          BRU     NOSKIP=1
13363  0 01 04154          BRU     OVFLO
```

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CPU1   TAP=3,0                          PAGE 179

13364  0 20*13364  LSH9    \8P=    *
13365  4 67*04046          LSH=    MEM8RY,4          IA = CYCLE
13366    43434340          DATA    43434340
13367    07070701          DATA    07070701          A23 SET BY B0
13370    70707070          DATA    70707070
13371    61616161          DATA    61616161          B23 SET BY A0
13372    33344434          DATA    33344434
13373    33344434          DATA    33344434
13374    00020001          DATA    00020001
13375    00020001          DATA    00020001
13376  4 01 04077          BRU     \8SKIP=1,4
13377  0 01 04143          BRU     \8VFL8
13400  0 20*13400  LSH10   \8P=    *
13401  4 67 20057          LCY     57,4              TEST AL2 WITH ALL COMBINATIONS OF
13402    03607417          DATA    03607417          SET BI=BI+2
13403    41703607          DATA    41703607              0  0
13404    03607417          DATA    03607417              0  1
13405    41703607          DATA    41703607              1  0
13406    22255525          DATA    22255525              1  1
13407    22255525          DATA    22255525
13410    00000057          DATA    57
13411    00000057          DATA    57
13412  5 01 04077          BRU     \8SKIP=1,5        SET 8VERFL8W
13413  0 01 04154          BRU     8VFL8
```

```
CPU1   TAP=3,0                          PAGE 180

13414  0 20*13414  LSH11   \8P=    *
13415  4 67 20057          LCY     57,4              TURN A(0-23) AND B(0-23) OFF AND ON
13416    14631463          DATA    14631463          EACH CLOCK
13417    46314631          DATA    46314631
13420    14631463          DATA    14631463
13421    46314631          DATA    46314631
13422    55522252          DATA    55522252
13423    55522252          DATA    55522252
13424    00000057          DATA    57
13425    00000057          DATA    57
13426  4 01 04077          BRU     \8SKIP=1,4
13427  0 01 04143          BRU     \8VFL8
13430  0 20*13430  LSH12   \8P=    *
13431  4 67*04134          LCY=    TEST=,4           SX48 GOES AT T2=INDEXING AND IA
13432    00000000          DATA    0
13433    00000000          DATA    0
13434    00000000          DATA    0                 COUNT S DOWN
13435    00000000          DATA    0                 SK GETS SET BY S REGISTER AT T6 PHASE 3
13436    00000060          DATA    48D
13437    00000060          DATA    48D
13440    40000000          DATA    40000000
13441    40000000          DATA    40000000
13442  4 01 04077          BRU     \8SKIP=1,4
13443  0 01 04143          BRU     \8VFL8
```

```
CPU1   TAP=3.0                          PAGE 181

13444  0 20*13444  N8D1   N8P=   *
13445  0 67 10000         N8D    0              SK SET AT T2 BY S(6=14)=0
13446    05436701         DATA   05436701
13447    05436701         DATA   05436701
13450    12345670         DATA   12345670
13451    12345670         DATA   12345670
13452    77777777         DATA   77777777       RF KO BC23
13453    77777777         DATA   77777777       0  0  0     T8 = TP
13454    00000000         DATA   0
13455    00000000         DATA   0
13456  0 01 04077         BRU    N8SKIP=1
13457  0 01 04143         BRU    N8VFL8
13460  0 20*13460  N8D2   N8P=   *
13461  0 67 10001         N8D    1              SK SET AT T2 BY A00A1
13462    21076543         DATA   21076543       RESET S14 AT T2 BY A00A1(N8 SHIFT AT TP)
13463    21076543         DATA   21076543
13464    01234567         DATA   01234567
13465    01234567         DATA   01234567
13466    00000000         DATA   0              RF KO BC23
13467    00000000         DATA   0              0  0  0     T8 = TP
13470    00000000         DATA   0
13471    00000000         DATA   0
13472  0 01 04077         BRU    N8SKIP=1
13473  0 01 04143         BRU    N8VFL8
```

```
CPU1   TAP=3.0                          PAGE 182

13474  0 20*13474  N8D3   N8P=   *
13475  0 67 10001         N8D    1              SD2 GOES AT T1
13476    77324500         DATA   77324500       SET SK AT T1 BY S(9=13)=0
13477    76651201         DATA   76651201       AR1 AT TP BY SKS14
13500    45601237         DATA   45601237       A23 SET BY B0
13501    13402476         DATA   13402476       B23 SET T0 0
13502    00000000         DATA   0              RF KO BC23
13503    77777777         DATA   77777777       1  1  1     T8 = TP
13504    00000001         DATA   1
13505    00000001         DATA   1
13506  0 01 04077         BRU    N8SKIP=1
13507  0 01 04143         BRU    N8VFL8
13510  0 20*13510  N8D4   N8P=   *
13511  0 67 10002         N8D    2
13512    74234560         DATA   74234560       SET SK AT T1 BY S(9,10,11,12,14)=0
13513    61162701         DATA   61162701
13514    32156701         DATA   32156701
13515    50673404         DATA   50673404
13516    77777777         DATA   77777777       RF KO BC23
13517    77777775         DATA   77777775       1  1  0     T8
13520    00000002         DATA   2              1  1  1     T7 = TP
13521    00000002         DATA   2
13522  0 01 04077         BRU    N8SKIP=1
13523  0 01 04143         BRU    N8VFL8
```

```
CPU1    TAP=3.0                                 PAGE 183

13524   0 20=13524  N8D5    N8P=    *
13525   0 67 10003          N8D     3
13526     04345670          DATA    04345670          SET SK AT T1 BY (A1•A2)(A2OA3)S13
13527     21627343          DATA    21627343          RESET S14 AT T1 BY (A1•A2)(A2OA3)S13
13530     76543201          DATA    76543201
13531     72615004          DATA    72615004
13532     00000001          DATA    1                 SAME AS N8D4
13533     77777777          DATA    77777777
13534     00000002          DATA    2
13535     00000002          DATA    2
13536   0 01 04077          BRU     N8SKIP=1
13537   0 01 04143          BRU     N8VFL8
13540   0 20=13540  N8D6    N8P=    *
13541   0 67 10004          N8D     4
13542     12345670          DATA    12345670          SET SK AT T1 BY A10A2
13543     24713561          DATA    24713561          SET S14 AT T1 BY A10A2
13544     76504321          DATA    76504321          AR1 AT TP BY SKS14
13545     75210642          DATA    75210642
13546     00000002          DATA    2                 SAME AS N8D4
13547     00000001          DATA    1
13550     00000001          DATA    1
13551     00000001          DATA    1
13552   0 01 04077          BRU     N8SKIP=1
13553   0 01 04143          BRU     N8VFL8
```

```
CPU1    TAP=3.0                                 PAGE 184

13554   0 20=13554  N8D7    N8P=    *
13555   0 67=04046          LSH=    MEMORY            IA
13556     04000000          DATA    04000000          SET SK AT T1 BY (A1•A2)(A2OA3)S12
13557     20000000          DATA    20000000          RESET S14 AT T1 BY (A1•A2)(A2OA3)S12
13560     00000000          DATA    0
13561     00000000          DATA    0
13562     00000002          DATA    2                 SAME AS N8D4
13563     00000000          DATA    0
13564     00010005          DATA    10005
13565     00010005          DATA    10005
13566   0 01 04077          BRU     N8SKIP=1
13567   0 01 04143          BRU     N8VFL8
13570   0 20=13570  N8D8    N8P=    *
13571   0 67 10011          N8D     11
13572     04000000          DATA    04000000          SET SK AT T1 BY (A1•A2)(A2OA3)S11
13573     20000000          DATA    20000000          RESET S14 AT T1 BY (A1•A2)(A2OA3)S11
13574     00000000          DATA    0
13575     00000000          DATA    0
13576     00000003          DATA    3                 SAME AS N8D4
13577     00000001          DATA    1
13600     00000002          DATA    2
13601     00000002          DATA    2
13602   0 01 04077          BRU     N8SKIP=1
13603   0 01 04143          BRU     N8VFL8
```

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CPU1    TAP=3.0                                 PAGE 185

13604  0 20=13604  N0D9    N0P=    *
13605  0 67 10021          N0D     21
13606    04000000          DATA    04000000          SET SK AT T1 BY (A1*A2)(A2+A3)S10
13607    20000000          DATA    20000000          RESET S14 AT T1 BY (A1=A2)(A2+A3)S10
13610    00000000          DATA    0
13611    00000000          DATA    0
13612    00000004          DATA    4                 SAME AS N0D4
13613    00000002          DATA    2
13614    00000002          DATA    2
13615    00000002          DATA    2
13616  0 01 04077          BRU     N0SKIP=1
13617  0 01 04143          BRU     N0VFL0
13620  0 20=13620  N0D10    N0P=    *
13621  2 67 10421          N0D     421,2             INDEXING
13622    04000000          DATA    04000000          SET SK AT T1 BY (A1*A2)(A2+A3)S9
13623    20000000          DATA    20000000          RESET S14 AT T1 BY (A1=A2)(A2+A3)S9
13624    00000000          DATA    0
13625    00000000          DATA    0
13626    37777420          DATA    37777420          SAME AS N0D4
13627    37777416          DATA    37777416
13630    00000002          DATA    2
13631    00000002          DATA    2
13632  0 01 04077          BRU     N0SKIP=1
13633  0 01 04143          BRU     N0VFL0
```

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CPU1    TAP=3.0                                 PAGE 186

13634  0 20=13634  N0D11    N0P=    *
13635  0 67 10113          N0D     113               SX48 GOES AT T2 PHASE 1
13636    74000000          DATA    74000000          SET SK, SET S14 AT TK PHASE 3
13637    40000000          DATA    40000000
13640    00000000          DATA    0
13641    00000000          DATA    0
13642    00000000          DATA    0                 RF KO BC23
13643    77777775          DATA    77777775          1  0  1     T8 PHASE 7
13644    00000003          DATA    3                 1  1  1     T7 + TP PHASE 7
13645    00000003          DATA    3
13646  1 01 04077          BRU     N0SKIP=1,1        SET OVERFLOW
13647  0 01 04154          BRU     OVFL0
13650  0 20=13650  N0D12    N0P=    *
13651  0 67 10031          N0D     31                RESET S14, SET SK AT TR PHASE 3
13652    01000000          DATA    01000000
13653    20000000          DATA    20000000
13654    00000000          DATA    0
13655    00000000          DATA    0
13656    00000000          DATA    0                 RF KO BC23
13657    77777774          DATA    77777774          1  0  0     T8 PHASE 7
13660    00000004          DATA    4                 1  1  1     T7 + TP PHASE 7
13661    00000004          DATA    4
13662  0 01 04077          BRU     N0SKIP=1
13663  0 01 04143          BRU     N0VFL0
```

```
13664  0 20*13664  N9D13  N8P*    *
13665  0 67 10404         N8D     404          SX48 AT T2 PHASE 1
13666    00400000         DATA    00400000     SET SK, SET S14 AT TP PHASE 3
13667    20000000         DATA    20000000
13670    00000000         DATA    0
13671    00000000         DATA    0
13672    00000000         DATA    0            RF KO BC23
13673    77777773         DATA    77777773     0  1  1      T8 PHASE 7
13674    00000005         DATA    5            1  1  1      T7 - TP PHASE 7
13675    00000005         DATA    5
13676  1 01 04077         BRU     N8SKIP=1,1   SET 8VERFLOW
13677  0 01 04154         BRU     8VFL8        8VERFL8W
13700  0 20*13700  N9D14  N8P*    *
13701  0 67 10031         N8D     31           SET SK, RESET S14 AT TP PHASE 3
13702    77600000         DATA    77600000
13703    40000000         DATA    40000000
13704    00000000         DATA    0
13705    00000000         DATA    0
13706    00000000         DATA    0            RF KO BC23
13707    77777771         DATA    77777771     0  1  0      T8 PHASE 7
13710    00000006         DATA    6            1  1  1      T7 - TP PHASE 7
13711    00000006         DATA    6
13712  0 01 04077         BRU     N8SKIP=1
13713  0 01 04143         BRU     N8VFL8
```



```
13714  0 20*13714  N9D15  N8P*    *
13715  4 67 10030         N8D     30,4
13716    77700000         DATA    77700000     SET SK, SET S14 AT T8 PHASE 3
13717    40000000         DATA    40000000     2ND CYCLE
13720    00000000         DATA    0
13721    00000000         DATA    0
13722    00000010         DATA    10           RF KO BC23
13723    00000000         DATA    0            0  0  1      T8 PHASE 7
13724    00000007         DATA    7            1  1  1      T7 - TP PHASE 7
13725    00000007         DATA    7
13726  4 01 04077         BRU     N8SKIP=1,4
13727  0 01 04143         BRU     N8VFL8
13730  0 20*13730  N9D16  N8P*    *
13731  4 67 10057         N8D     57,4
13732    77777777         DATA    77777777     TEST ABILITY T8 DECREMENT S(2-7) AND
13733    40000000         DATA    40000000     S(9-13) PR8PERLY WITH 8DD NUMBER
13734    77777777         DATA    77777777
13735    00000000         DATA    0
13736    00000000         DATA    0
13737    77777721         DATA    77777721
13740    00000057         DATA    57
13741    00000057         DATA    57
13742  4 01 04077         BRU     N8SKIP=1,4
13743  0 01 04143         BRU     N8VFL8
```

```
CPU1   TAP=3.0                                  PAGE 189

13744  0 20=13744  N8D17  N8P=    *
13745  4 67 10060          N8D     60,4          TEST ABILITY TO DECREMENT B(2=7) AND
13746    00000000          DATA    0             B(9=13) WITH EVEN NUMBER AND ZERO
13747    00000000          DATA    0             IN A,B=
13750    00000000          DATA    0
13751    00000000          DATA    0
13752    00000000          DATA    0
13753    77777720          DATA    77777720
13754    00000060          DATA    60
13755    00000060          DATA    60
13756  4 01 04077          BRU     N8SKIP=1,4
13757  0 01 04143          BRU     N8VFL8
13760  0 20=13760  N8D18  N8P=    *
13761  4 67=04046          L8H=    MEMORY,4
13762    77400000          DATA    77400000      SET A23=B0
13763    40000070          DATA    40000070
13764    70000000          DATA    70000000      SET B23=A0
13765    00000077          DATA    00000077
13766    00000000          DATA    0
13767    77777772          DATA    77777772      6 PLACES
13770    00030037          DATA    00030037      NORMALIZE=LEFT CYCLE
13771    00030037          DATA    00030037
13772  4 01 04077          BRU     N8SKIP=1,4
13773  0 01 04143          BRU     N8VFL8
```

```
CPU1   TAP=3.0                                  PAGE 190

13774  0 20=13774  PRIV1  N8P=    *
13775  4 45 04046          45      MEMORY,4      PRIVILEGED INSTRUCTION
13776    77770000          DATA    77770000
13777    77770000          DATA    77770000
14000    77007700          DATA    77007700
14001    77007700          DATA    77007700
14002    70707070          DATA    70707070
14003    70707070          DATA    70707070
14004    00777700          DATA    00777700
14005    00777700          DATA    00777700
14006  4 01 04071          BRU     SKIP=1,4
14007  0 01 04143          BRU     N8VFL8
14010  0 20=14010  PRIV2  N8P=    *
14011  4 44 04046          44      MEMORY,4      PRIVILEGED INSTRUCTION
14012    77770000          DATA    77770000
14013    77770000          DATA    77770000
14014    77007700          DATA    77007700
14015    77007700          DATA    77007700
14016    70707070          DATA    70707070
14017    70707070          DATA    70707070
14020    00777700          DATA    00777700
14021    00777700          DATA    00777700
14022  4 01 04071          BRU     SKIP=1,4
14023  0 01 04143          BRU     N8VFL8
```

```
14024  0 20=14024  PRIV3  XBP=   *
14025  4 34 04046         34     MEMBRY,4      PRIVILEGED INSTRUCTION
14026    77770000         DATA   77770000
14027    77770000         DATA   77770000
14030    77007700         DATA   77007700
14031    77007700         DATA   77007700
14032    70707070         DATA   70707070
14033    70707070         DATA   70707070
14034    00777700         DATA   00777700
14035    00777700         DATA   00777700
14036  4 01 04071         BRU    SKIP=1,4
14037  0 01 04143         BRU    XBVFLB
14040  0 20=14040  PRIV4  XBP=   *
14041  4 15 04046         15     MEMBRY,4      PRIVILEGED INSTRUCTION
14042    77770000         DATA   77770000
14043    77770000         DATA   77770000
14044    77007700         DATA   77007700
14045    77007700         DATA   77007700
14046    70707070         DATA   70707070
14047    70707070         DATA   70707070
14050    00777700         DATA   00777700
14051    00777700         DATA   00777700
14052  4 01 04071         BRU    SKIP=1,4
14053  0 01 04143         BRU    XBVFLB
```



```
14054  0 20=14054  PRIV5  XBP=   *
14055  4 03 04046         03     MEMBRY,4      PRIVILEGED INSTRUCTION
14056    77770000         DATA   77770000
14057    77770000         DATA   77770000
14060    77007700         DATA   77007700
14061    77007700         DATA   77007700
14062    70707070         DATA   70707070
14063    70707070         DATA   70707070
14064    00777700         DATA   00777700
14065    00777700         DATA   00777700
14066  4 01 04071         BRU    SKIP=1,4
14067  0 01 04143         BRU    XBVFLB
14070  0 20=14070  PRIV6  XBP=   *
14071  4 42 04046         42     MEMBRY,4      PRIVILEGED INSTRUCTION
14072    77770000         DATA   77770000
14073    77770000         DATA   77770000
14074    77007700         DATA   77007700
14075    77007700         DATA   77007700
14076    70707070         DATA   70707070
14077    70707070         DATA   70707070
14100    00777700         DATA   00777700
14101    00777700         DATA   00777700
14102  4 01 04071         BRU    SKIP=1,4
14103  0 01 04143         BRU    XBVFLB
```

```
14104  0 20•14104  PRIV7  NOP•    •
14105  4 31 04046         31      MEMORY,4        PRIVILEGED INSTRUCTION
14106    77770000         DATA    77770000
14107    77770000         DATA    77770000
14110    77007700         DATA    77007700
14111    77007700         DATA    77007700
14112    70707070         DATA    70707070
14113    70707070         DATA    70707070
14114    00777700         DATA    00777700
14115    00777700         DATA    00777700
14116  4 01 04071         BRU     SKIP•1,4
14117  0 01 04143         BRU     NOVFLO
14120  0 20•14120  PRIV8  NOP•    •
14121  4 24 04046         24      MEMORY,4        PRIVILEGED INSTRUCTION
14122    77770000         DATA    77770000
14123    77770000         DATA    77770000
14124    77007700         DATA    77007700
14125    77007700         DATA    77007700
14126    70707070         DATA    70707070
14127    70707070         DATA    70707070
14130    00777700         DATA    00777700
14131    00777700         DATA    00777700
14132  4 01 04071         BRU     SKIP•1,4
14133  0 01 04143         BRU     NOVFLO
```



```
14134  0 20•14134  PRIV9  NOP•    •
14135  4 21 04046         21      MEMORY,4        PRIVILEGED INSTRUCTION
14136    77770000         DATA    77770000
14137    77770000         DATA    77770000
14140    77007700         DATA    77007700
14141    77007700         DATA    77007700
14142    70707070         DATA    70707070
14143    70707070         DATA    70707070
14144    00777700         DATA    00777700
14145    00777700         DATA    00777700
14146  4 01 04071         BRU     SKIP•1,4
14147  0 01 04143         BRU     NOVFLO
```

```
14150  0 20=14150  MUL1   NBP=   *
14151  0 64 04046         MUL    MEMBRY
14152    74121733         DATA   74121733
14153    77652714         DATA   77652714
14154    00077707         DATA   00077707
14155    03224436         DATA   03224436
14156    77700070         DATA   77700070
14157    77700070         DATA   77700070
14160    01305135         DATA   01305135
14161    01305135         DATA   01305135
14162  0 01 04077         BRU    NBSKIP=1
14163  0 01 04143         BRU    NBVFLB
14164  0 20=14164  MUL2   NBP=   *
14165  0 64 04046         MUL    MEMBRY
14166    45666162         DATA   45666162
14167    02200343         DATA   02200343
14170    11166616         DATA   11166616
14171    65100504         DATA   65100504
14172    66611161         DATA   66611161
14173    66611161         DATA   66611161
14174    75175331         DATA   75175331
14175    75175331         DATA   75175331
14176  0 01 04077         BRU    NBSKIP=1
14177  0 01 04143         BRU    NBVFLB
```

FOR ALL MULTIPLY CASES

WHERE N CORRESPONDS TO THE NUMBER OF THE MULTIPLY MODULE.


```
14200  0 20=14200  MUL3   NBP=   *
14201  0 64 04046         MUL    MEMBRY
14202    76536132         DATA   76536132
14203    01225457         DATA   01225457
14204    22255525         DATA   22255525
14205    06470510         DATA   06470510
14206    55522252         DATA   55522252
14207    55522252         DATA   55522252
14210    40451332         DATA   40451332
14211    40451332         DATA   40451332
14212  0 01 04077         BRU    NBSKIP=1
14213  0 01 04143         BRU    NBVFLB
14214  0 20=14214  MUL4   NBP=   *
14215  0 64 04046         MUL    MEMBRY
14216    37124376         DATA   37124376
14217    14411426         DATA   14411426
14220    33344434         DATA   33344434
14221    44633734         DATA   44633734
14222    44433343         DATA   44433343
14223    44433343         DATA   44433343
14224    14665211         DATA   14665211
14225    14665211         DATA   14665211
14226  0 01 04077         BRU    NBSKIP=1
14227  0 01 04143         BRU    NBVFLB
```

```
CPU1    TAP=3.0                                  PAGE 197

14230   0 20*14230  MUL5    NOP*    *
14231   0 64 04046          MUL     MEMORY
14232     55340547          DATA    55340547
14233     72505325          DATA    72505325
14234     44433343          DATA    44433343
14235     45501024          DATA    45501024
14236     33344434          DATA    33344434
14237     33344434          DATA    33344434
14240     11177146          DATA    11177146
14241     11177146          DATA    11177146
14242   1 01 04077          BRU     NOSKIP=1,1          SET OVERFLOW
14243   0 01 04154          BRU     OVFLO               OVERFLOW
14244   0 20*14244  MUL6    NOP*    *
14245   0 64*04134          MUL*    TESTM               IA
14246     37252204          DATA    37252204
14247     46133723          DATA    46133723
14250     22255525          DATA    22255525
14251     57100650          DATA    57100650
14252     55522252          DATA    55522252
14253     55522252          DATA    55522252
14254     45502225          DATA    45502225
14255     45502225          DATA    45502225
14256   0 01 04077          BRU     NOSKIP=1
14257   0 01 04143          BRU     NOVFLO
```

```
CPU1    TAP=3.0                                  PAGE 198

14260   0 20*14260  MUL7    NOP*    *
14261   0 64 04046          MUL     MEMORY
14262     11565130          DATA    11565130
14263     06437742          DATA    06437742
14264     11166616          DATA    11166616
14265     35001420          DATA    35001420
14266     66611161          DATA    66611161
14267     66611161          DATA    66611161
14270     25453363          DATA    25453363
14271     25453363          DATA    25453363
14272   0 01 04077          BRU     NOSKIP=1
14273   0 01 04143          BRU     NOVFLO
14274   0 20*14274  MUL8    NOP*    *
14275   0 64 04046          MUL     MEMORY
14276     72672751          DATA    72672751
14277     04045712          DATA    04045712
14300     55522252          DATA    55522252
14301     32372146          DATA    32372146
14302     22255525          DATA    22255525
14303     22255525          DATA    22255525
14304     46470673          DATA    46470673
14305     46470673          DATA    46470673
14306   0 01 04077          BRU     NOSKIP=1
14307   0 01 04143          BRU     NOVFLO
```

```
14310  0 20*14310  MUL9   NOP*    *
14311  2 64 03756         MUL     MEMORY*70,2          INDEXING
14312    51007400         DATA    51007400
14313    10406001         DATA    10406001
14314    00077707         DATA    00077707
14315    20330000         DATA    20330000
14316    77700070         DATA    77700070
14317    77700070         DATA    77700070
14320    64114650         DATA    64114650
14321    64114650         DATA    64114650
14322  0 01 04077         BRU     NOSKIP*1
14323  0 01 04143         BRU     NOVFLO
14324  0 20*14324  MUL10  NOP*    *
14325  0 64 04046         MUL     MEMORY
14326    15447261         DATA    15447261
14327    13604526         DATA    13604526
14330    77700070         DATA    77700070
14331    64505442         DATA    64505442
14332    00077707         DATA    00077707
14333    00077707         DATA    00077707
14334    33556341         DATA    33556341
14335    33556341         DATA    33556341
14336  1 01 04077         BRU     NOSKIP*1,1           SET OVERFLOW
14337  0 01 04154         BRU     OVFLO                OVERFLOW
```



```
14340  0 20*14340  MUL11  NOP*    *
14341  2 64*32753         MUL*    TEST*11161,2         IA AND INDEXING
14342    03532233         DATA    03532233
14343    77163427         DATA    77163427
14344    11166616         DATA    11166616
14345    76765550         DATA    76765550
14346    66611161         DATA    66611161
14347    66611161         DATA    66611161
14350    71205134         DATA    71205134
14351    71205134         DATA    71205134
14352  0 01 04077         BRU     NOSKIP*1
14353  0 01 04143         BRU     NOVFLO
14354  0 20*14354  MUL12  NOP*    *
14355  0 64 04046         MUL     MEMORY
14356    22541417         DATA    22541417
14357    76723246         DATA    76723246
14360    22255525         DATA    22255525
14361    25616366         DATA    25616366
14362    55522252         DATA    55522252
14363    55522252         DATA    55522252
14364    76106725         DATA    76106725
14365    76106725         DATA    76106725
14366  0 01 04077         BRU     NOSKIP*1
14367  0 01 04143         BRU     NOVFLO
```

```
14230  0 20•14230  MUL5   NOP•     •
14231  0 64 04046         MUL      MEMORY
14232    55340547         DATA     55340547
14233    72505325         DATA     72505325
14234    44433343         DATA     44433343
14235    45501024         DATA     45501024
14236    33344434         DATA     33344434
14237    33344434         DATA     33344434
14240    11177146         DATA     11177146
14241    11177146         DATA     11177146
14242  1 01 04077         BRU      NOSKIP•1,1        SET OVERFLOW
14243  0 01 04154         BRU      OVFLO             OVERFLOW
14244  0 20•14244  MUL6   NOP•     •
14245  0 64•04134         MUL•     TESTM             IA
14246    37252204         DATA     37252204
14247    46133723         DATA     46133723
14250    22255525         DATA     22255525
14251    57100650         DATA     57100650
14252    55522252         DATA     55522252
14253    55522252         DATA     55522252
14254    45502225         DATA     45502225
14255    45502225         DATA     45502225
14256  0 01 04077         BRU      NOSKIP•1
14257  0 01 04143         BRU      NOVFLO
```



```
14260  0 20•14260  MUL7   NOP•     •
14261  0 64 04046         MUL      MEMORY
14262    11565130         DATA     11565130
14263    06437742         DATA     06437742
14264    11166616         DATA     11166616
14265    38001420         DATA     38001420
14266    66611161         DATA     66611161
14267    66611161         DATA     66611161
14270    25453363         DATA     25453363
14271    25453363         DATA     25453363
14272  0 01 04077         BRU      NOSKIP•1
14273  0 01 04143         BRU      NOVFLO
14274  0 20•14274  MUL8   NOP•     •
14275  0 64 04046         MUL      MEMORY
14276    72672751         DATA     72672751
14277    04045712         DATA     04045712
14300    55522252         DATA     55522252
14301    32372146         DATA     32372146
14302    22255525         DATA     22255525
14303    22255525         DATA     22255525
14304    46470673         DATA     46470673
14305    46470673         DATA     46470673
14306  0 01 04077         BRU      NOSKIP•1
14307  0 01 04143         BRU      NOVFLO
```

```
14310  0 20*14310  MUL9    NOP*    *
14311  2 64 03756          MUL     MEMORY*70,2          INDEXING
14312    51007400          DATA    51007400
14313    10406001          DATA    10406001
14314    00077707          DATA    00077707
14315    20330000          DATA    20330000
14316    77700070          DATA    77700070
14317    77700070          DATA    77700070
14320    64114650          DATA    64114650
14321    64114650          DATA    64114650
14322  0 01 04077          BRU     NOSKIP*1
14323  0 01 04143          BRU     NOVFLO
14324  0 20*14324  MUL10   NOP*    *
14325  0 64 04046          MUL     MEMORY
14326    15447261          DATA    15447261
14327    13604526          DATA    13604526
14330    77700070          DATA    77700070
14331    64505442          DATA    64505442
14332    00077707          DATA    00077707
14333    00077707          DATA    00077707
14334    33556341          DATA    33556341
14335    33556341          DATA    33556341
14336  1 01 04077          BRU     NOSKIP*1,1           SET OVERFLOW
14337  0 01 04154          BRU     OVFLO                OVERFLOW
```



```
14340  0 20*14340  MUL11   NOP*    *
14341  2 64*32753          MUL*    TEST**11161,2        IA AND INDEXING
14342    03532233          DATA    03532233
14343    77163427          DATA    77163427
14344    11166616          DATA    11166616
14345    76765550          DATA    76765550
14346    66611161          DATA    66611161
14347    66611161          DATA    66611161
14350    71205134          DATA    71205134
14351    71205134          DATA    71205134
14352  0 01 04077          BRU     NOSKIP*1
14353  0 01 04143          BRU     NOVFLO
14354  0 20*14354  MUL12   NOP*    *
14355  0 64 04046          MUL     MEMORY
14356    22541417          DATA    22541417
14357    76723246          DATA    76723246
14360    22255525          DATA    22255525
14361    25616366          DATA    25616366
14362    55522252          DATA    55522252
14363    55522252          DATA    55522252
14364    76106725          DATA    76106725
14365    76106725          DATA    76106725
14366  0 01 04077          BRU     NOSKIP*1
14367  0 01 04143          BRU     NOVFLO
```

```
14370  0 20*14370  MUL13  NOP*   *
14371  0 64 04046         MUL    MEMORY
14372    53451005         DATA   53451005
14373    56603537         DATA   56603537
14374    33344434         DATA   33344434
14375    21726302         DATA   21726302
14376    44433343         DATA   44433343
14377    44433343         DATA   44433343
14400    33012655         DATA   33012655
14401    33012655         DATA   33012655
14402  0 01 04077         BRU    NOSKIP=1
14403  0 01 04143         BRU    NOVFLO
14404  0 20*14404  MUL14  NOP*   *
14405  0 64 04046         MUL    MEMORY
14406    15101573         DATA   15101573
14407    77040237         DATA   77040237
14410    44433343         DATA   44433343
14411    52035164         DATA   52035164
14412    33344434         DATA   33344434
14413    33344434         DATA   33344434
14414    75556616         DATA   75556616
14415    75556616         DATA   75556616
14416  0 01 04077         BRU    NOSKIP=1
14417  0 01 04143         BRU    NOVFLO
```



```
14420  0 20*14420  MUL15  NOP*   *
14421  0 64 04046         MUL    MEMORY
14422    71042702         DATA   71042702
14423    00066032         DATA   00066032
14424    55522252         DATA   55522252
14425    51624720         DATA   51624720
14426    22255525         DATA   22255525
14427    22255525         DATA   22255525
14430    77406364         DATA   77406364
14431    77406364         DATA   77406364
14432  0 01 04077         BRU    NOSKIP=1
14433  0 01 04143         BRU    NOVFLO
14434  0 20*14434  MUL16  NOP*   *
14435  0 64 04046         MUL    MEMORY
14436    17457571         DATA   17457571
14437    03223757         DATA   03223757
14440    66611161         DATA   66611161
14441    67567714         DATA   67567714
14442    11166616         DATA   11166616
14443    11166616         DATA   11166616
14444    06577626         DATA   06577626
14445    06577626         DATA   06577626
14446  0 01 04077         BRU    NOSKIP=1
14447  0 01 04143         BRU    NOVFLO
```

```
14450  0 20•14450  MUL17  N0P•     •
14451  0 64 04046         MUL      MEMORY
14452    53075604         DATA     53075604
14453    57066216         DATA     57066216
14454    77700070         DATA     77700070
14455    56071300         DATA     56071300
14456    00077707         DATA     00077707
14457    00077707         DATA     00077707
14460    31710530         DATA     31710530
14461    31710530         DATA     31710530
14462  0 01 04077         BRU      N0SKIP•1
14463  0 01 04143         BRU      N0VFL0
14464  0 20•14464  MUL18  N0P•     •
14465  0 64 04046         MUL      MEMORY
14466    55617111         DATA     55617111
14467    12145626         DATA     12145626
14470    00077707         DATA     00077707
14471    04303070         DATA     04303070
14472    77700070         DATA     77700070
14473    77700070         DATA     77700070
14474    56055074         DATA     56055074
14475    56055074         DATA     56055074
14476  0 01 04077         BRU      N0SKIP•1
14477  0 01 04143         BRU      N0VFL0
```



```
14500  0 20•14500  MUL19  N0P•     •
14501  0 64 04046         MUL      MEMORY
14502    72447427         DATA     72447427
14503    76276151         DATA     76276151
14504    11166616         DATA     11166616
14505    24566024         DATA     24566024
14506    66611161         DATA     66611161
14507    66611161         DATA     66611161
14510    11470206         DATA     11470206
14511    11470206         DATA     11470206
14512  0 01 04077         BRU      N0SKIP•1
14513  0 01 04143         BRU      N0VFL0
14514  0 20•14514  MUL20  N0P•     •
14515  0 64 04046         MUL      MEMORY
14516    36427241         DATA     36427241
14517    71173165         DATA     71173165
14520    22255525         DATA     22255525
14521    72126104         DATA     72126104
14522    55522252         DATA     55522252
14523    55522252         DATA     55522252
14524    70726342         DATA     70726342
14525    70726342         DATA     70726342
14526  0 01 04077         BRU      N0SKIP•1
14527  0 01 04143         BRU      N0VFL0
```

```
14530  0 20•14530  MUL21  NOP•    •
14531  0 64 04046         MUL     MEMORY
14532    10150477         DATA    10150477
14533    77004325         DATA    77004325
14534    33344434         DATA    33344434
14535    77001212         DATA    77001212
14536    44433343         DATA    44433343
14537    44433343         DATA    44433343
14540    74104173         DATA    74104173
14541    74104173         DATA    74104173
14542  0 01 04077         BRU     NOSKIP•1
14543  0 01 04143         BRU     NOVFLO
14544  0 20•14544  MUL22  NOP•    •
14545  0 64 04046         MUL     MEMORY
14546    61010463         DATA    61010463
14547    65577047         DATA    65577047
14550    44433343         DATA    44433343
14551    53467714         DATA    53467714
14552    33344434         DATA    33344434
14553    33344434         DATA    33344434
14554    25712202         DATA    25712202
14555    25712202         DATA    25712202
14556  0 01 04077         BRU     NOSKIP•1
14557  0 01 04143         BRU     NOVFLO
```



```
14560  0 20•14560  MUL23  NOP•    •
14561  0 64 04046         MUL     MEMORY
14562    62111173         DATA    62111173
14563    15523762         DATA    15523762
14564    55522252         DATA    55522252
14565    54111166         DATA    54111166
14566    22255525         DATA    22255525
14567    22255525         DATA    22255525
14570    40344101         DATA    40344101
14571    40344101         DATA    40344101
14572  0 01 04077         BRU     NOSKIP•1
14573  0 01 04143         BRU     NOVFLO
14574  0 20•14574  MUL24  NOP•    •
14575  0 64 04046         MUL     MEMORY
14576    65503143         DATA    65503143
14577    67201543         DATA    67201543
14600    66611161         DATA    66611161
14601    12433276         DATA    12433276
14602    11166616         DATA    11166616
14603    11166616         DATA    11166616
14604    32774725         DATA    32774725
14605    32774725         DATA    32774725
14606  0 01 04077         BRU     NOSKIP•1
14607  0 01 04143         BRU     NOVFLO
```

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14610  0 20*14610  MUL25  NOP*     *
14611  4 64 04046         MUL      MEMORY,4
14612    57411100         DATA     57411100
14613    16425421         DATA     16425421
14614    77700070         DATA     77700070
14615    75165600         DATA     75165600
14616    00077707         DATA     00077707
14617    00077707         DATA     00077707
14620    43610437         DATA     43610437
14621    43610437         DATA     43610437
14622  4 01 04077         BRU      NOSKIP*1,4
14623  0 01 04143         BRU      NOVFLO
14624  0 20*14624  MUL26  NOP*     *
14625  4 64 04046         MUL      MEMORY,4
14626    15051535         DATA     15051535
14627    00764773         DATA     00764773
14630    00077707         DATA     00077707
14631    16360132         DATA     16360132
14632    77700070         DATA     77700070
14633    77700070         DATA     77700070
14634    02311421         DATA     02311421
14635    02311421         DATA     02311421
14636  4 01 04077         BRU      NOSKIP*1,4
14637  0 01 04143         BRU      NOVFLO
```

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14640  0 20*14440  MUL27  NOP*     *
14641  4 64 04046         MUL      MEMORY,4
14642    57330170         DATA     57330170
14643    17312204         DATA     17312204
14644    11166616         DATA     11166616
14645    00443740         DATA     00443740
14646    66611161         DATA     66611161
14647    66611161         DATA     66611161
14650    42220642         DATA     42220642
14651    42220642         DATA     42220642
14652  4 01 04077         BRU      NOSKIP*1,4
14653  0 01 04143         BRU      NOVFLO
14654  0 20*14454  MUL28  NOP*     *
14655  4 64 04046         MUL      MEMORY,4
14656    03005166         DATA     03005166
14657    00355615         DATA     00355615
14660    22255525         DATA     22255525
14661    23630064         DATA     23630064
14662    55522252         DATA     55522252
14663    55522252         DATA     55522252
14664    04737527         DATA     04737527
14665    04737527         DATA     04737527
14666  4 01 04077         BRU      NOSKIP*1,4
14667  0 01 04143         BRU      NOVFLO
```

```
14670  0 20•14670  MUL29  NOP•   *
14671  4 64 04046         MUL    MEMORY,4
14672    62761652         DATA   62761652
14673    67532402         DATA   67532402
14674    33344434         DATA   33344434
14675    10014460         DATA   10014460
14676    44433343         DATA   44433343
14677    44433343         DATA   44433343
14700    24343434         DATA   24343434
14701    24343434         DATA   24343434
14702  4 01 04077         BRU    NOSKIP•1,4
14703  0 01 04143         BRU    NOVFLO
14704  0 20•14704  MUL30  NOP•   *
14705  4 64 04046         MUL    MEMORY,4
14706    32527245         DATA   32527245
14707    06745073         DATA   06745073
14710    44433343         DATA   44433343
14711    46420734         DATA   46420734
14712    33344434         DATA   33344434
14713    33344434         DATA   33344434
14714    10253726         DATA   10253726
14715    10253726         DATA   10253726
14716  4 01 04077         BRU    NOSKIP•1,4
14717  0 01 04143         BRU    NOVFLO
```



```
14720  0 20•14720  MUL31  NOP•   *
14721  4 64 04046         MUL    MEMORY,4
14722    01242560         DATA   01242560
14723    77401510         DATA   77401510
14724    55522252         DATA   55522252
14725    42064640         DATA   42064640
14726    22255525         DATA   22255525
14727    22255525         DATA   22255525
14730    63737373         DATA   63737373
14731    63737373         DATA   63737373
14732  4 01 04077         BRU    NOSKIP•1,4
14733  0 01 04143         BRU    NOVFLO
14734  0 20•14734  MUL32  NOP•   *
14735  4 64 04046         MUL    MEMORY,4
14736    76310175         DATA   76310175
14737    00361521         DATA   00361521
14740    66611161         DATA   66611161
14741    66277232         DATA   66277232
14742    11166616         DATA   11166616
14743    11166616         DATA   11166616
14744    66471421         DATA   66471421
14745    66471421         DATA   66471421
14746  4 01 04077         BRU    NOSKIP•1,4
14747  0 01 04143         BRU    NOVFLO
```

```
14750  0 20=14750  MUL33  NOP=    *
14751  4 64 04046         MUL     MEMORY,4
14752    32300533         DATA    32300533
14753    06361472         DATA    06361472
14754    77700070         DATA    77700070
14755    36302432         DATA    36302432
14756    00077707         DATA    00077707
14757    00077707         DATA    00077707
14760    07664067         DATA    07664067
14761    07664067         DATA    07664067
14762  4 01 04077         BRU     NOSKIP=1,4
14763  0 01 04143         BRU     NOVFLO
14764  0 20=14764  MUL34  NOP=    *
14765  4 64 04046         MUL     MEMORY,4
14766    23402515         DATA    23402515
14767    63723734         DATA    63723734
14770    00077707         DATA    00077707
14771    26006610         DATA    26006610
14772    77700070         DATA    77700070
14773    77700070         DATA    77700070
14774    54127724         DATA    54127724
14775    54127724         DATA    54127724
14776  4 01 04077         BRU     NOSKIP=1,4
14777  0 01 04143         BRU     NOVFLO
```



```
15000  0 20=15000  MUL35  NOP=    *
15001  4 64 04046         MUL     MEMORY,4
15002    62360411         DATA    62360411
15003    10550561         DATA    10550561
15004    11166616         DATA    11166616
15005    33016416         DATA    33016416
15006    66611161         DATA    66611161
15007    66611161         DATA    66611161
15010    53323417         DATA    53323417
15011    53323417         DATA    53323417
15012  4 01 04077         BRU     NOSKIP=1,4
15013  0 01 04143         BRU     NOVFLO
15014  0 20=15014  MUL36  NOP=    *
15015  4 64 04046         MUL     MEMORY,4
15016    44436405         DATA    44436405
15017    30536721         DATA    30536721
15020    22255525         DATA    22255525
15021    76064526         DATA    76064526
15022    55522252         DATA    55522252
15023    55522252         DATA    55522252
15024    43154757         DATA    43154757
15025    43154757         DATA    43154757
15026  4 01 04077         BRU     NOSKIP=1,4
15027  0 01 04143         BRU     NOVFLO
```

```
15030  0 20*15030  MUL37  NOP*    *
15031  4 64 04046         MUL     MEMORY,4
15032    12254114         DATA    12254114
15033    06521556         DATA    06521556
15034    33344434         DATA    33344434
15035    21500510         DATA    21500510
15036    44433343         DATA    44433343
15037    44433343         DATA    44433343
15040    24474123         DATA    24474123
15041    24474123         DATA    24474123
15042  4 01 04077         BRU     NOSKIP=1,4
15043  0 01 04143         BRU     NOVFLO
15044  0 20*15044  MUL38  NOP*    *
15045  4 64 04046         MUL     MEMORY,4
15046    10310731         DATA    10310731
15047    07204746         DATA    07204746
15050    44433343         DATA    44433343
15051    64342230         DATA    64342230
15052    33344434         DATA    33344434
15053    33344434         DATA    33344434
15054    33534454         DATA    33534454
15055    33534454         DATA    33534454
15056  4 01 04077         BRU     NOSKIP=1,4
15057  0 01 04143         BRU     NOVFLO
```



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15060  0 20*15060  MUL39  NOP*    *
15061  4 64 04046         MUL     MEMORY,4
15062    16516613         DATA    16516613
15063    05043667         DATA    05043667
15064    55522252         DATA    55522252
15065    76312562         DATA    76312562
15066    22255525         DATA    22255525
15067    22255525         DATA    22255525
15070    13044513         DATA    13044513
15071    13044513         DATA    13044513
15072  4 01 04077         BRU     NOSKIP=1,4
15073  0 01 04143         BRU     NOVFLO
15074  0 20*15074  MUL40  NOP*    *
15075  4 64 04046         MUL     MEMORY,4
15076    03573443         DATA    3573443
15077    02073303         DATA    02073303
15100    00000000         DATA    0
15101    11151642         DATA    11151642
15102    77777777         DATA    77777777
15103    77777777         DATA    77777777
15104    22062173         DATA    22062173
15105    22062173         DATA    22062173
15106  4 01 04077         BRU     NOSKIP=1,4
15107  0 01 04143         BRU     NOVFLO
```

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15110  0 20•15110  MUL41  NOP•    •
15111  4 64 04046         MUL     MEMORY,4
15112    34330013         DATA    34330013
15113    77116344         DATA    77116344
15114    11111111         DATA    11111111
15115    30635022         DATA    30635022
15116    66666666         DATA    66666666
15117    66666666         DATA    66666666
15120    77027673         DATA    77027673
15121    77027673         DATA    77027673
15122  4 01 04077         BRU     NOSKIP•1,4
15123  0 01 04143         BRU     NOVFLO
15124  0 20•15124  MUL42  NOP•    •
15125  4 64 04046         MUL     MEMORY,4
15126    15470352         DATA    15470352
15127    02675464         DATA    02675464
15130    22222222         DATA    22222222
15131    65657500         DATA    65657500
15132    55555555         DATA    55555555
15133    55555555         DATA    55555555
15134    06577220         DATA    06577220
15135    06577220         DATA    06577220
15136  4 01 04077         BRU     NOSKIP•1,4
15137  0 01 04143         BRU     NOVFLO
```



```
15140  0 20•15140  MUL43  NOP•    •
15141  4 64 04046         MUL     MEMORY,4
15142    47453333         DATA    47453333
15143    03303112         DATA    03303112
15144    33333333         DATA    33333333
15145    44670636         DATA    44670636
15146    44444444         DATA    44444444
15147    44444444         DATA    44444444
15150    73443035         DATA    73443035
15151    73443035         DATA    73443035
15152  4 01 04077         BRU     NOSKIP•1,4
15153  0 01 04143         BRU     NOVFLO
15154  0 20•15154  MUL44  NOP•    •
15155  4 64 04046         MUL     MEMORY,4
15156    32432635         DATA    32432635
15157    05536742         DATA    05536742
15160    44444444         DATA    44444444
15161    02312574         DATA    02312574
15162    33333333         DATA    33333333
15163    33333333         DATA    33333333
15164    06664126         DATA    06664126
15165    06664126         DATA    06664126
15166  4 01 04077         BRU     NOSKIP•1,4
15167  0 01 04143         BRU     NOVFLO
```

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15170  0 20*15170  MUL45  NOP*   *
15171  4 64 04046         MUL    MEMORY,4
15172    30556344         DATA   30556344
15173    07221555         DATA   07221555
15174    55555555         DATA   55555555
15175    20577040         DATA   20577040
15176    22222222         DATA   22222222
15177    22222222         DATA   22222222
15200    11334744         DATA   11334744
15201    11334744         DATA   11334744
15202  4 01 04077         BRU    NOSKIP=1,4
15203  0 01 04143         BRU    NOVFLO
15204  0 20*15204  MUL46  NOP*   *
15205  4 64 04046         MUL    MEMORY,4
15206    11430455         DATA   11430455
15207    04002564         DATA   04002564
15210    66666666         DATA   66666666
15211    42550272         DATA   42550272
15212    11111111         DATA   11111111
15213    11111111         DATA   11111111
15214    15330761         DATA   15330761
15215    15330761         DATA   15330761
15216  4 01 04077         BRU    NOSKIP=1,4
15217  0 01 04143         BRU    NOVFLO
```



```
15220  0 20*15220  MUL47  NOP*   *
15221  4 64 04046         MUL    MEMORY,4
15222    75513000         DATA   75513000
15223    00006074         DATA   00006074
15224    77777777         DATA   77777777
15225    35126000         DATA   35126000
15226    00000000         DATA   0
15227    00000000         DATA   0
15230    77654641         DATA   77654641
15231    77654641         DATA   77654641
15232  4 01 04077         BRU    NOSKIP=1,4
15233  0 01 04143         BRU    NOVFLO
15234  0 20*15234  MUL48  NOP*   *
15235  4 64 04046         MUL    MEMORY,4
15236    06431271         DATA   06431271
15237    00404502         DATA   00404502
15240    01234567         DATA   01234567
15241    17747764         DATA   17747764
15242    76543210         DATA   76543210
15243    76543210         DATA   76543210
15244    02371312         DATA   02371312
15245    02371312         DATA   02371312
15246  4 01 04077         BRU    NOSKIP=1,4
15247  0 01 04143         BRU    NOVFLO
```

```
15250  0 20*15250  MUL49  NOP*    *
15251  4 64 04046         MUL     MEMORY,4
15252    33330610         DATA    33330610
15253    02216520         DATA    02216520
15254    76543210         DATA    76543210
15255    77651600         DATA    77651600
15256    01234567         DATA    01234567
15257    01234567         DATA    01234567
15260    02521270         DATA    02521270
15261    02521270         DATA    02521270
15262  4 01 04077         BRU     NOSKIP=1,4
15263  0 01 04143         BRU     NOVFLO
15264  0 20*15264  MUL50  NOP*    *
15265  4 64 04046         MUL     MEMORY,4
15266    62512352         DATA    62512352
15267    74002276         DATA    74002276
15270    77777777         DATA    77777777
15271    11743170         DATA    11743170
15272    00000000         DATA    0
15273    00000000         DATA    0
15274    11445546         DATA    11445546
15275    11445546         DATA    11445546
15276  4 01 04077         BRU     NOSKIP=1,4
15277  0 01 04143         BRU     NOVFLO
```



```
15300  0 20*15300  MUL51  NOP*    *
15301  4 64 04046         MUL     MEMORY,4
15302    40000000         DATA    40000000
15303    40000000         DATA    40000000
15304    00000000         DATA    0
15305    00000000         DATA    0
15306    77777777         DATA    77777777
15307    77777777         DATA    77777777
15310    40000000         DATA    40000000
15311    40000000         DATA    40000000
15312  4 01 04077         BRU     NOSKIP=1,4
15313  0 01 04154         BRU     OVFLO           OVERFLOW
15314  0 20*15314  MUL52  NOP*    *
15315  0 64 04046         MUL     MEMORY
15316    40000000         DATA    40000000
15317    40000000         DATA    40000000
15320    00000000         DATA    0
15321    00000000         DATA    0
15322    77777777         DATA    77777777
15323    77777777         DATA    77777777
15324    40000000         DATA    40000000
15325    40000000         DATA    40000000
15326  0 01 04077         BRU     NOSKIP=1
15327  0 01 04154         BRU     OVFLO           OVERFLOW
15330  0 20*15330  DIV1   NOP*    *
15331  0 65 04046         DIV     MEMORY
15332    37777777         DATA    37777777
15333    40000000         DATA    40000000
15334    00000000         DATA    0
15335    00000000         DATA    0
15336    77700070         DATA    77700070
15337    77700070         DATA    77700070
15340    37777777         DATA    37777777
15341    37777777         DATA    37777777
15342  0 01 04077         BRU     NOSKIP=1
15343  0 01 04154         BRU     OVFLO           OVERFLOW
```

```
15344  0 20*15344  DIV2   NOP*    *
15345  0 65 04046         DIV     MEMORY
15346    37777777         DATA    37777777
15347    40000000         DATA    40000000
15350    00000002         DATA    2
15351    00000001         DATA    1
15352    66611161         DATA    66611161
15353    66611161         DATA    66611161
15354    37777777         DATA    37777777
15355    37777777         DATA    37777777
15356  0 01 04077         BRU     NOSKIP+1
15357  0 01 04154         BRU     OVFLO               OVERFLOW
15360  0 20*15360  DIV3   NOP*    *
15361  0 65 04046         DIV     MEMORY
15362    37777777         DATA    37777777
15363    40000000         DATA    40000000
15364    00000000         DATA    0
15365    00000000         DATA    0
15366    55522252         DATA    55522252
15367    55522252         DATA    55522252
15370    40000001         DATA    40000001
15371    40000001         DATA    40000001
15372  0 01 04077         BRU     NOSKIP+1
15373  0 01 04143         BRU     NOVFLO
```



```
15374  0 20*15374  DIV4   NOP*    *
15375  0 65 04046         DIV     MEMORY
15376    37777777         DATA    37777777
15377    40000000         DATA    40000000
15400    00000002         DATA    2
15401    00000001         DATA    1
15402    44433343         DATA    44433343
15403    44433343         DATA    44433343
15404    40000001         DATA    40000001
15405    40000001         DATA    40000001
15406  0 01 04077         BRU     NOSKIP+1
15407  0 01 04154         BRU     OVFLO               OVERFLOW
15410  0 20*15410  DIV5   NOP*    *
15411  0 65 04046         DIV     MEMORY
15412    40000000         DATA    40000000
15413    37777777         DATA    37777777
15414    00000002         DATA    2
15415    00000000         DATA    0
15416    52222222         DATA    52222222
15417    52222222         DATA    52222222
15420    37777777         DATA    37777777
15421    37777777         DATA    37777777
15422  0 01 04077         BRU     NOSKIP+1
15423  0 01 04154         BRU     OVFLO               OVERFLOW
```

```
15424  0 20*15424  DIV6   NOP*   *
15425  0 65 04046         DIV    MEMORY
15426    40000000         DATA   40000000
15427    40000001         DATA   40000001
15430    00000002         DATA   2
15431    00000000         DATA   0
15432    33344434         DATA   33344434
15433    33344434         DATA   33344434
15434    40000001         DATA   40000001
15435    40000001         DATA   40000001
15436  0 01 04077         BRU    NOSKIP*1
15437  0 01 04154         BRU    OVFLO                OVERFLOW
15440  0 20*15440  DIV7   NOP*   *
15441  0 65 04046         DIV    MEMORY
15442    40000000         DATA   40000000
15443    40000001         DATA   40000001
15444    00000000         DATA   0
15445    00000000         DATA   0
15446    22255525         DATA   22255525
15447    22255525         DATA   22255525
15450    00000000         DATA   0
15451    00000000         DATA   0
15452  0 01 04077         BRU    NOSKIP*1
15453  0 01 04154         BRU    OVFLO                OVERFLOW
```



```
15454  0 20*15454  DIV8   NOP*   *
15455  0 65 04046         DIV    MEMORY
15456    37777776         DATA   37777776
15457    37777777         DATA   37777777
15460    00000002         DATA   2
15461    00000000         DATA   0
15462    11166616         DATA   11166616
15463    11166616         DATA   11166616
15464    37777777         DATA   37777777
15465    37777777         DATA   37777777
15466  0 01 04077         BRU    NOSKIP*1
15467  0 01 04143         BRU    NOVFLO
15470  0 20*15470  DIV9   NOP*   *
15471  0 65 04046         DIV    MEMORY
15472    37777777         DATA   37777777
15473    40000001         DATA   40000001
15474    00000002         DATA   2
15475    00000001         DATA   1
15476    00077707         DATA   00077707
15477    00077707         DATA   00077707
15500    40000000         DATA   40000000
15501    40000000         DATA   40000000
15502  0 01 04077         BRU    NOSKIP*1
15503  0 01 04143         BRU    NOVFLO
```

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15504  0 20=15504  DIV10  NOP=   *
15505  0 65 04046         DIV    MEMORY
15506    40000001         DATA   40000001
15507    40000001         DATA   40000001
15510    00000002         DATA   2
15511    40000002         DATA   40000002
15512    00000000         DATA   0
15513    00000000         DATA   0
15514    37777777         DATA   37777777
15515    37777777         DATA   37777777
15516  0 01 04077         BRU    NOSKIP=1
15517  0 01 04143         BRU    NOVFLO
15520  0 20=15520  DIV11  NOP=   *
15521  0 65 04046         DIV    MEMORY
15522    40000001         DATA   40000001
15523    37777777         DATA   37777777
15524    00000002         DATA   2
15525    40000002         DATA   40000002
15526    77777777         DATA   77777777
15527    77777777         DATA   77777777
15530    40000001         DATA   40000001
15531    40000001         DATA   40000001
15532  0 01 04077         BRU    NOSKIP=1
15533  0 01 04143         BRU    NOVFLO
```

```
CPU1   TAP=3,0                              PAGE 226

15534  0 20=15534  DIV12  NOP=   *
15535  0 65=04134         DIV=   TESTM                IA
15536    40000001         DATA   40000001
15537    40000000         DATA   40000000
15540    00000000         DATA   0
15541    00000000         DATA   0
15542    01234567         DATA   01234567
15543    01234567         DATA   01234567
15544    37777777         DATA   37777777
15545    37777777         DATA   37777777
15546  0 01 04077         BRU    NOSKIP=1
15547  0 01 04143         BRU    NOVFLO
15550  0 20=15550  DIV13  NOP=   *
15551  2 65 04047         DIV    MEMORY=37777,2       INDEXING
15552    40000001         DATA   40000001
15553    40000000         DATA   40000000
15554    00000000         DATA   0
15555    00000000         DATA   0
15556    77777777         DATA   77777777
15557    77777777         DATA   77777777
15560    40000001         DATA   40000001
15561    40000001         DATA   40000001
15562  0 01 04077         BRU    NOSKIP=1
15563  0 01 04154         BRU    OVFLO                OVERFLOW
```

```
CPU1    TAP=3,C                          PAGE 227

15564  0 20=15564  DIV14  NOP=   *
15565  2 65=24135          DIV=   TEST=17777,2
15566    40000000          DATA   40000000
15567    37777777          DATA   37777777
15570    00000001          DATA   1
15571    77777777          DATA   77777777
15572    77757777          DATA   77757777
15573    77757777          DATA   77757777
15574    37777777          DATA   37777777
15575    37777777          DATA   37777777
15576  0 01 04077          BRU    NOSKIP=1
15577  0 01 04154          BRU    OVFLO                  OVERFLOW
15600  0 20=15600  DIV15  NOP=   *
15601  0 65 04046          DIV    MEMORY
15602    37777771          DATA   37777771
15603    37777777          DATA   37777777
15604    00000000          DATA   0
15605    00000010          DATA   10
15606    56673214          DATA   56673214
15607    56673214          DATA   56673214
15610    40000010          DATA   40000010
15611    40000010          DATA   40000010
15612  0 01 04077          BRU    NOSKIP=1
15613  0 01 04154          BRU    OVFLO                  OVERFLOW
```

```
CPU1    TAP=3,C                          PAGE 228

15614  0 20=15614  DIV16  NOP=   *
15615  0 65 04046          DIV    MEMORY
15616    37777720          DATA   37777720
15617    37777760          DATA   37777760
15620    00000000          DATA   0
15621    00002000          DATA   2000
15622    75321700          DATA   75321700
15623    75321700          DATA   75321700
15624    40000100          DATA   40000100
15625    40000100          DATA   40000100
15626  0 01 04077          BRU    NOSKIP=1
15627  0 01 04154          BRU    OVFLO                  OVERFLOW
15630  0 20=15630  DIV17  NOP=   *
15631  0 65 04046          DIV    MEMORY
15632    37777400          DATA   37777400
15633    37777400          DATA   37777400
15634    00000000          DATA   0
15635    00400000          DATA   400000
15636    61111111          DATA   61111111
15637    61111111          DATA   61111111
15640    40001000          DATA   40001000
15641    40001000          DATA   40001000
15642  0 01 04077          BRU    NOSKIP=1
15643  0 01 04154          BRU    OVFLO                  OVERFLOW
```

```
15644  0 20*15644  DIV18  NOP*    *
15645  0 65 04046         DIV     MEMORY
15646    37777777         DATA    37777777
15647    40000000         DATA    40000000
15650    00000001         DATA    1
15651    00000000         DATA    0
15652    70000000         DATA    70000000
15653    70000000         DATA    70000000
15654    40000001         DATA    40000001
15655    40000001         DATA    40000001
15656  0 01 04077         BRU     NOSKIP*1
15657  0 01 04154         BRU     OVFLO                OVERFLOW
15660  0 20*15660  DIV19  NOP*    *
15661  0 65 04046         DIV     MEMORY
15662    37777777         DATA    37777777
15663    40000000         DATA    40000000
15664    00000004         DATA    4
15665    00000002         DATA    2
15666    77777770         DATA    77777770
15667    77777770         DATA    77777770
15670    40000001         DATA    40000001
15671    40000001         DATA    40000001
15672  0 01 04077         BRU     NOSKIP*1
15673  0 01 04154         BRU     OVFLO                OVERFLOW
```



```
15674  0 20*15674  DIV20  NOP*    *
15675  0 65 04046         DIV     MEMORY
15676    17777777         DATA    17777777
15677    40000002         DATA    40000002
15700    00000002         DATA    2
15701    00000001         DATA    1
15702    66666661         DATA    66666661
15703    66666661         DATA    66666661
15704    60000000         DATA    60000000
15705    60000000         DATA    60000000
15706  0 01 04077         BRU     NOSKIP*1
15707  0 01 04143         BRU     NOVFLO
15710  0 20*15710  DIV21  NOP*    *
15711  0 65 04046         DIV     MEMORY
15712    60000001         DATA    60000001
15713    37777776         DATA    37777776
15714    00000000         DATA    0
15715    00000000         DATA    0
15716    55555552         DATA    55555552
15717    55555552         DATA    55555552
15720    60000000         DATA    60000000
15721    60000000         DATA    60000000
15722  0 01 04077         BRU     NOSKIP*1
15723  0 01 04143         BRU     NOVFLO
```

```
CPU1    TAP=3.C                                  PAGE 231

15724   0 20*15724  DIV22   NOP*    *
15725   0 65 04046          DIV     MEMORY
15726     60000002          DATA    60000002
15727     37777774          DATA    37777774
15730     00000000          DATA    0
15731     00000000          DATA    0
15732     44444443          DATA    44444443
15733     44444443          DATA    44444443
15734     60000000          DATA    60000000
15735     60000000          DATA    60000000
15736   0 01 04077          BRU     NOSKIP=1
15737   0 01 04143          BRU     NOVFLO
15740   0 20*15740  DIV23   NOP*    *
15741   0 65 04046          DIV     MEMORY
15742     60000004          DATA    60000004
15743     37777770          DATA    37777770
15744     00000000          DATA    0
15745     00000000          DATA    0
15746     33333334          DATA    33333334
15747     33333334          DATA    33333334
15750     60000000          DATA    60000000
15751     60000000          DATA    60000000
15752   0 01 04077          BRU     NOSKIP=1
15753   0 01 04143          BRU     NOVFLO
```

```
CPU1    TAP=3.C                                  PAGE 232

15754   0 20*15754  DIV24   NOP*    *
15755   0 65 04046          DIV     MEMORY
15756     60000010          DATA    60000010
15757     37777760          DATA    37777760
15760     00000000          DATA    0
15761     00000000          DATA    0
15762     22222225          DATA    22222225
15763     22222225          DATA    22222225
15764     60000000          DATA    60000000
15765     60000000          DATA    60000000
15766   0 01 04077          BRU     NOSKIP=1
15767   0 01 04143          BRU     NOVFLO
15770   0 20*15770  DIV25   NOP*    *
15771   0 65 04046          DIV     MEMORY
15772     60000020          DATA    60000020
15773     37777740          DATA    37777740
15774     00000000          DATA    0
15775     00000000          DATA    0
15776     11111116          DATA    11111116
15777     11111116          DATA    11111116
16000     60000000          DATA    60000000
16001     60000000          DATA    60000000
16002   0 01 04077          BRU     NOSKIP=1
16003   0 01 04143          BRU     NOVFLO
```

```
CPU1    TAP=3.0                                 PAGE 233

16004   0 20=16004  DIV26   NOP=    *
16005   0 65 04046          DIV     MEMORY
16006     60000040          DATA    60000040
16007     37777700          DATA    37777700
16010     00000000          DATA    0
16011     00000000          DATA    0
16012     00000007          DATA    7
16013     00000007          DATA    7
16014     60000000          DATA    60000000
16015     60000000          DATA    60000000
16016   0 01 04077          BRU     NOSKIP=1
16017   0 01 04143          BRU     NOVFLO
16020   0 20=16020  DIV27   NOP=    *
16021   0 65 04046          DIV     MEMORY
16022     60000100          DATA    60000100
16023     37777600          DATA    37777600
16024     00000000          DATA    0
16025     00000000          DATA    0
16026     77777707          DATA    77777707
16027     77777707          DATA    77777707
16030     60000000          DATA    60000000
16031     60000000          DATA    60000000
16032   0 01 04077          BRU     NOSKIP=1
16033   0 01 04143          BRU     NOVFLO
```

```
CPU1    TAP=3.0                                 PAGE 234

16034   0 20=16034  DIV28   NOP=    *
16035   0 65 04046          DIV     MEMORY
16036     60000200          DATA    60000200
16037     37777400          DATA    37777400
16040     00000000          DATA    0
16041     00000000          DATA    0
16042     66666616          DATA    66666616
16043     66666616          DATA    66666616
16044     60000000          DATA    60000000
16045     60000000          DATA    60000000
16046   0 01 04077          BRU     NOSKIP=1
16047   0 01 04143          BRU     NOVFLO
16050   0 20=16050  DIV29   NOP=    *
16051   0 65 04046          DIV     MEMORY
16052     60000400          DATA    60000400
16053     37777000          DATA    37777000
16054     00000000          DATA    0
16055     00000000          DATA    0
16056     55555525          DATA    55555525
16057     55555525          DATA    55555525
16060     60000000          DATA    60000000
16061     60000000          DATA    60000000
16062   0 01 04077          BRU     NOSKIP=1
16063   0 01 04143          BRU     NOVFLO
```

```
16064  0 20*16064  DIV30  %BP=   *
16065  0 65 04046         DIV    MEMORY
16066    60001000         DATA   60001000
16067    37776000         DATA   37776000
16070    00000000         DATA   0
16071    00000000         DATA   0
16072    44444434         DATA   44444434
16073    44444434         DATA   44444434
16074    60000000         DATA   60000000
16075    60000000         DATA   60000000
16076  0 01 04077         BRU    %BSKIP=1
16077  0 01 04143         BRU    %BVFLB
16100  0 20*16100  DIV31  %BP=   *
16101  0 65 04046         DIV    MEMORY
16102    60002000         DATA   60002000
16103    37774000         DATA   37774000
16104    00000000         DATA   0
16105    00000000         DATA   0
16106    33333343         DATA   33333343
16107    33333343         DATA   33333343
16110    60000000         DATA   60000000
16111    60000000         DATA   60000000
16112  0 01 04077         BRU    %BSKIP=1
16113  0 01 04143         BRU    %BVFLB
```



```
16114  0 20*16114  DIV32  %BP=   *
16115  0 65 04046         DIV    MEMORY
16116    60004000         DATA   60004000
16117    37770000         DATA   37770000
16120    00000000         DATA   0
16121    00000000         DATA   0
16122    22222252         DATA   22222252
16123    22222252         DATA   22222252
16124    60000000         DATA   60000000
16125    60000000         DATA   60000000
16126  0 01 04077         BRU    %BSKIP=1
16127  0 01 04143         BRU    %BVFLB
16130  0 20*16130  DIV33  %BP=   *
16131  0 65 04046         DIV    MEMORY
16132    60010000         DATA   60010000
16133    37760000         DATA   37760000
16134    00000000         DATA   0
16135    00000000         DATA   0
16136    11111161         DATA   11111161
16137    11111161         DATA   11111161
16140    60000000         DATA   60000000
16141    60000000         DATA   60000000
16142  0 01 04077         BRU    %BSKIP=1
16143  0 01 04143         BRU    %BVFLB
```

```
16144  0 20*16144  DIV34  NOP*    *
16145  0 65 04046         DIV     MEMORY
16146    60020000         DATA    60020000
16147    37740000         DATA    37740000
16150    00000000         DATA    0
16151    00000000         DATA    0
16152    00000070         DATA    70
16153    00000070         DATA    70
16154    60000000         DATA    60000000
16155    60000000         DATA    60000000
16156  0 01 04077         BRU     NOSKIP=1
16157  0 01 04143         BRU     NOVFLO
16160  0 20*16160  DIV35  NOP*    *
16161  0 65 04046         DIV     MEMORY
16162    60040000         DATA    60040000
16163    37700000         DATA    37700000
16164    00000000         DATA    0
16165    00000000         DATA    0
16166    77777077         DATA    77777077
16167    77777077         DATA    77777077
16170    60000000         DATA    60000000
16171    60000000         DATA    60000000
16172  0 01 04077         BRU     NOSKIP=1
16173  0 01 04143         BRU     NOVFLO
```



```
16174  0 20*16174  DIV36  NOP*    *
16175  0 65 04046         DIV     MEMORY
16176    60100000         DATA    60100000
16177    37600000         DATA    37600000
16200    00000000         DATA    0
16201    00000000         DATA    0
16202    66666166         DATA    66666166
16203    66666166         DATA    66666166
16204    60000000         DATA    60000000
16205    60000000         DATA    60000000
16206  1 01 04077         BRU     NOSKIP=1,1          SET OVERFLOW
16207  0 01 04154         BRU     OVFLO               OVERFLOW
16210  0 20*16210  DIV37  NOP*    *
16211  0 65 04046         DIV     MEMORY
16212    60200000         DATA    60200000
16213    37400000         DATA    37400000
16214    00000000         DATA    0
16215    00000000         DATA    0
16216    55555255         DATA    55555255
16217    55555255         DATA    55555255
16220    60000000         DATA    60000000
16221    60000000         DATA    60000000
16222  0 01 04077         BRU     NOSKIP=1
16223  0 01 04143         BRU     NOVFLO
```

```
16224  0 20*16224  DIV38  NBP*    *
16225  0 65 04046         DIV     MEMBRY
16226    60400000         DATA    60400000
16227    37000000         DATA    37000000
16230    00000000         DATA    0
16231    00000000         DATA    0
16232    44444344         DATA    44444344
16233    44444344         DATA    44444344
16234    60000000         DATA    60000000
16235    60000000         DATA    60000000
16236  0 01 04077         BRU     NBSKIP*1
16237  0 01 04143         BRU     NBVFLB
16240  0 20*16240  DIV39  NBP*    *
16241  0 65 04046         DIV     MEMBRY
16242    61000000         DATA    61000000
16243    36000000         DATA    36000000
16244    00000000         DATA    0
16245    00000000         DATA    0
16246    33333433         DATA    33333433
16247    33333433         DATA    33333433
16250    60000000         DATA    60000000
16251    60000000         DATA    60000000
16252  0 01 04077         BRU     NBSKIP*1
16253  0 01 04143         BRU     NBVFLB
```



```
16254  0 20*16254  DIV40  NBP*    *
16255  4 65 04046         DIV     MEMBRY,4
16256    62000000         DATA    62000000
16257    34000000         DATA    34000000
16260    00000000         DATA    0
16261    00000000         DATA    0
16262    22222522         DATA    22222522
16263    22222522         DATA    22222522
16264    60000000         DATA    60000000
16265    60000000         DATA    60000000
16266  4 01 04077         BRU     NBSKIP*1,4
16267  0 01 04143         BRU     NBVFLB
16270  0 20*16270  DIV41  NBP*    *
16271  4 65 04046         DIV     MEMBRY,4
16272    64000000         DATA    64000000
16273    30000000         DATA    30000000
16274    00000000         DATA    0
16275    00000000         DATA    0
16276    11111611         DATA    11111611
16277    11111611         DATA    11111611
16300    60000000         DATA    60000000
16301    60000000         DATA    60000000
16302  4 01 04077         BRU     NBSKIP*1,4
16303  0 01 04143         BRU     NBVFLB
```

```
16304  0 20=16304  DIV42  NOP=   *
16305  4 65 04046         DIV    MEMORY,4
16306    70000000         DATA   70000000
16307    20000000         DATA   20000000
16310    00000000         DATA   0
16311    00000000         DATA   0
16312    00000700         DATA   700
16313    00000700         DATA   700
16314    60000000         DATA   60000000
16315    60000000         DATA   60000000
16316  4 01 04077         BRU    NOSKIP=1,4
16317  0 01 04143         BRU    NOVFLO
16320  0 20=16320  DIV43  NOP=   *
16321  4 65 04046         DIV    MEMORY,4
16322    60000000         DATA   60000000
16323    20000000         DATA   20000000
16324    00000000         DATA   0
16325    00000000         DATA   0
16326    77770777         DATA   77770777
16327    77770777         DATA   77770777
16330    40000000         DATA   40000000
16331    40000000         DATA   40000000
16332  4 01 04077         BRU    NOSKIP=1,4
16333  0 01 04143         BRU    NOVFLO
```



```
16334  0 20=16334  DIV44  NOP=   *
16335  4 65 04046         DIV    MEMORY,4
16336    44542115         DATA   44542115
16337    11640050         DATA   11640050
16340    71160352         DATA   71160352
16341    63164415         DATA   63164415
16342    66661666         DATA   66661666
16343    66661666         DATA   66661666
16344    20100711         DATA   20100711
16345    20100711         DATA   20100711
16346  4 01 04077         BRU    NOSKIP=1,4
16347  0 01 04154         BRU    OVFLO          OVERFLOW
16350  0 20=16350  DIV45  NOP=   *
16351  4 65 04046         DIV    MEMORY,4
16352    55440464         DATA   55440464
16353    05153205         DATA   5153205
16354    51761317         DATA   51761317
16355    70242676         DATA   70242676
16356    55552555         DATA   55552555
16357    55552555         DATA   55552555
16360    12021725         DATA   12021725
16361    12021725         DATA   12021725
16362  4 01 04077         BRU    NOSKIP=1,4
16363  0 01 04154         BRU    OVFLO          OVERFLOW
```

```
16364  0 20*16364  DIV46  %8P=   *
16365  4 65 04046         DIV    MEMORY,4
16366    56763275         DATA   56763275
16367    17503715         DATA   17503715
16370    02710031         DATA   2710031
16371    52670641         DATA   52670641
16372    44443444         DATA   44443444
16373    44443444         DATA   44443444
16374    00727427         DATA   727427
16375    00727427         DATA   727427
16376  4 01 04077         BRU    %8SKIP=1,4
16377  0 01 04154         BRU    8VFL8              8VERFL8%
16400  0 20*16400  DIV47  %8P=   *
16401  4 65 04046         DIV    MEMORY,4
16402    00704547         DATA   704547
16403    77047436         DATA   77047436
16404    35534245         DATA   35534245
16405    24263720         DATA   24263720
16406    33334333         DATA   33334333
16407    33334333         DATA   33334333
16410    41254457         DATA   41254457
16411    41254457         DATA   41254457
16412  4 01 04077         BRU    %8SKIP=1,4
16413  0 01 04143         BRU    %8VFL8
```



```
16414  0 20*16414  DIV48  %8P=   *
16415  4 65 04046         DIV    MEMORY,4
16416    16657605         DATA   16657605
16417    60202004         DATA   60202004
16420    72043476         DATA   72043476
16421    17350247         DATA   17350247
16422    22225222         DATA   22225222
16423    22225222         DATA   22225222
16424    41653276         DATA   41653276
16425    41653276         DATA   41653276
16426  4 01 04077         BRU    %8SKIP=1,4
16427  0 01 04143         BRU    %8VFL8
16430  0 20*16430  DIV49  %8P=   *
16431  4 65 04046         DIV    MEMORY,4
16432    21002075         DATA   21002075
16433    46227270         DATA   46227270
16434    00010113         DATA   10113
16435    05612335         DATA   5612335
16436    11116111         DATA   11116111
16437    11116111         DATA   11116111
16440    16152677         DATA   16152677
16441    16152677         DATA   16152677
16442  4 01 04077         BRU    %8SKIP=1,4
16443  0 01 04154         BRU    8VFL8              8VERFL8%
```

```
16444  0 20•16444  DIV50  NOP•     •
16445  4 65 04046         DIV      MEMORY,4
16446    11412441         DATA     11412441
16447    63420721         DATA     63420721
16450    75316651         DATA     75316651
16451    13535047         DATA     13535047
16452    00007000         DATA     7000
16453    00007000         DATA     7000
16454    47440035         DATA     47440035
16455    47440035         DATA     47440035
16456  4 01 04077         BRU      NOSKIP•1,4
16457  0 01 04143         BRU      NOVFLO
16460  0 20•16460  DIV51  NOP•     •
16461  4 65 04046         DIV      MEMORY,4
16462    77471243         DATA     77471243
16463    76072766         DATA     76072766
16464    15235633         DATA     15235633
16465    74455603         DATA     74455603
16466    77707777         DATA     77707777
16467    77707777         DATA     77707777
16470    06455137         DATA     6455137
16471    06455137         DATA     6455137
16472  4 01 04077         BRU      NOSKIP•1,4
16473  0 01 04143         BRU      NOVFLO
```



```
16474  0 20•16474  DIV52  NOP•     •
16475  4 65 04046         DIV      MEMORY,4
16476    62577376         DATA     62577376
16477    56002562         DATA     56002562
16500    14460725         DATA     14460725
16501    61556456         DATA     61556456
16502    66616666         DATA     66616666
16503    66616666         DATA     66616666
16504    27440716         DATA     27440716
16505    27440716         DATA     27440716
16506  4 01 04077         BRU      NOSKIP•1,4
16507  0 01 04143         BRU      NOVFLO
16510  0 20•16510  DIV53  NOP•     •
16511  4 65 04046         DIV      MEMORY,4
16512    03423023         DATA     3423023
16513    04363677         DATA     4363677
16514    22540776         DATA     22540776
16515    30736776         DATA     30736776
16516    55525555         DATA     55525555
16517    55525555         DATA     55525555
16520    31222477         DATA     31222477
16521    31222477         DATA     31222477
16522  4 01 04077         BRU      NOSKIP•1,4
16523  0 01 04143         BRU      NOVFLO
```

```
16524  0 20*16524  DIV54  NOP*    *
16525  4 65 04046          DIV     MEMORY,4
16526    74576514          DATA    74576514
16527    74520707          DATA    74520707
16530    52404733          DATA    52404733
16531    47016161          DATA    47016161
16532    44434444          DATA    44434444
16533    44434444          DATA    44434444
16534    37111644          DATA    37111644
16535    37111644          DATA    37111644
16536  4 01 04077          BRU     NOSKIP•1,4
16537  0 C1 04143          BRU     NOVFLO
16540  0 20*16540  DIV55  NOP*    *
16541  4 65 04046          DIV     MEMORY,4
16542    33130202          DATA    33130202
16543    41676363          DATA    41676363
16544    14073355          DATA    14073355
16545    31043510          DATA    31043510
16546    33343333          DATA    33343333
16547    33343333          DATA    33343333
16550    43107232          DATA    43107232
16551    43107232          DATA    43107232
16552  4 01 04077          BRU     NOSKIP•1,4
16553  0 C1 04143          BRU     NOVFLO
```



```
16554  0 20*16554  DIV56  NOP*    *
16555  4 65 04046          DIV     MEMORY,4
16556    04417370          DATA    4417370
16557    72014004          DATA    72014004
16560    71706720          DATA    71706720
16561    13437770          DATA    13437770
16562    22252222          DATA    22252222
16563    22252222          DATA    22252222
16564    47574674          DATA    47574674
16565    47574674          DATA    47574674
16566  4 01 04077          BRU     NOSKIP•1,4
16567  0 C1 04143          BRU     NOVFLO
16570  0 20*16570  DIV57  NOP*    *
16571  4 65 04046          DIV     MEMORY,4
16572    12257535          DATA    12257535
16573    23676546          DATA    23676546
16574    73604361          DATA    73604361
16575    10403014          DATA    10403014
16576    11161111          DATA    11161111
16577    11161111          DATA    11161111
16600    20517362          DATA    20517362
16601    20517362          DATA    20517362
16602  4 01 04077          BRU     NOSKIP•1,4
16603  0 C1 04143          BRU     NOVFLO
```

```
16604  0 20*16604  DIV58  NOP*    *
16605  4 65 04046         DIV     MEMORY,4
16606    42262332         DATA    42262332
16607    60034171         DATA    60034171
16610    30122704         DATA    30122704
16611    71272720         DATA    71272720
16612    00070000         DATA    70000
16613    00070000         DATA    70000
16614    54202442         DATA    54202442
16615    54202442         DATA    54202442
16616  4 01 04077         BRU     NOSKIP*1,4
16617  0 01 04154         BRU     OVFLO              OVERFLOW
16620  0 20*16620  DIV59  NOP*    *
16621  4 65 04046         DIV     MEMORY,4
16622    66562553         DATA    66562553
16623    03305057         DATA    3305057
16624    54177240         DATA    54177240
16625    47476622         DATA    47476622
16626    77077777         DATA    77077777
16627    77077777         DATA    77077777
16630    03070242         DATA    3070242
16631    03070242         DATA    3070242
16632  4 01 04077         BRU     NOSKIP*1,4
16633  0 01 04154         BRU     OVFLO              OVERFLOW
```



```
16634  0 20*16634  DIV60  NOP*    *
16635  4 65 04046         DIV     MEMORY,4
16636    02377223         DATA    2377223
16637    74660235         DATA    74660235
16640    45265627         DATA    45265627
16641    21636425         DATA    21636425
16642    66166666         DATA    66166666
16643    66166666         DATA    66166666
16644    46523256         DATA    46523256
16645    46523256         DATA    46523256
16646  4 01 04077         BRU     NOSKIP*1,4
16647  0 01 04143         BRU     NOVFLO
16650  0 20*16650  DIV61  NOP*    *
16651  4 65 04046         DIV     MEMORY,4
16652    32272650         DATA    32272650
16653    40444131         DATA    40444131
16654    71430106         DATA    71430106
16655    04571155         DATA    4571155
16656    55255555         DATA    55255555
16657    55255555         DATA    55255555
16660    31716246         DATA    31716246
16661    31716246         DATA    31716246
16662  4 01 04077         BRU     NOSKIP*1,4
16663  0 01 04154         BRU     OVFLO              OVERFLOW
```

```
16664  0 20*16664  DIV62  %8P*    *
16665  4 65 04046         DIV     MEMORY,4
16666    45641207         DATA    45641207
16667    65653241         DATA    65653241
16670    70677650         DATA    70677650
16671    65317434         DATA    65317434
16672    44344444         DATA    44344444
16673    44344444         DATA    44344444
16674    60336670         DATA    60336670
16675    60336670         DATA    60336670
16676  4 01 04077         BRU     %8SKIP*1,4
16677  0 01 04154         BRU     8VFL8              8VERFL8*
16700  0 20*16700  DIV63  %8P*    *
16701  4 65 04046         DIV     MEMORY,4
16702    62311602         DATA    62311602
16703    14027473         DATA    14027473
16704    73170133         DATA    73170133
16705    41214356         DATA    41214356
16706    33433333         DATA    33433333
16707    33433333         DATA    33433333
16710    00753715         DATA    753715
16711    00753715         DATA    753715
16712  4 01 04077         BRU     %8SKIP*1,4
16713  0 01 04154         BRU     8VFL8              8VERFL8*
```



```
16714  0 20*16714  DIV64  %8P*    *
16715  4 65 04046         DIV     MEMORY,4
16716    67745772         DATA    67745772
16717    12231200         DATA    12231200
16720    01721272         DATA    1721272
16721    64527135         DATA    64527135
16722    22522222         DATA    22522222
16723    22522222         DATA    22522222
16724    46770716         DATA    46770716
16725    46770716         DATA    46770716
16726  4 01 04077         BRU     %8SKIP*1,4
16727  0 01 04143         BRU     %8VFL8
16730  0 20*16730  DIV65  %8P*    *
16731  4 65 04046         DIV     MEMORY,4
16732    50253200         DATA    50253200
16733    26042655         DATA    26042655
16734    53333102         DATA    53333102
16735    46425510         DATA    46425510
16736    11611111         DATA    11611111
16737    11611111         DATA    11611111
16740    01160135         DATA    1160135
16741    01160135         DATA    1160135
16742  4 01 04077         BRU     %8SKIP*1,4
16743  0 01 04154         BRU     8VFL8              8VERFL8*
```

```
CPU1    TAP=3.0                          PAGE 253

16744   0 20=16744  DIV66   NOP=    *
16745   4 65 04046          DIV     MEMORY,4
16746     00312075          DATA    312075
16747     76212415          DATA    76212415
16750     33376625          DATA    33376625
16751     00414240          DATA    414240
16752     00700000          DATA    700000
16753     00700000          DATA    700000
16754     70544122          DATA    70544122
16755     70544122          DATA    70544122
16756   4 01 04077          BRU     NOSKIP=1,4
16757   0 01 04143          BRU     NOVFLO
16760   0 20=16760  DIV67   NOP=    *
16761   4 65 04046          DIV     MEMORY,4
16762     34230727          DATA    34230727
16763     72062320          DATA    72062320
16764     24317475          DATA    24317475
16765     76225116          DATA    76225116
16766     70777777          DATA    70777777
16767     70777777          DATA    70777777
16770     14254051          DATA    14254051
16771     14254051          DATA    14254051
16772   4 01 04077          BRU     NOSKIP=1,4
16773   0 01 04154          BRU     OVFLO               OVERFLOW
```

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CPU1    TAP=3.0                          PAGE 254

16774   0 20=16774  DIV68   NOP=    *
16775   4 65 04046          DIV     MEMORY,4
16776     06662624          DATA    6662624
16777     11565411          DATA    11565411
17000     32035730          DATA    32035730
17001     20731660          DATA    20731660
17002     61666666          DATA    61666666
17003     61666666          DATA    61666666
17004     26415534          DATA    26415534
17005     26415534          DATA    26415534
17006   4 01 04077          BRU     NOSKIP=1,4
17007   0 01 04143          BRU     NOVFLO
17010   0 20=17010  DIV69   NOP=    *
17011   4 65 04046          DIV     MEMORY,4
17012     02425672          DATA    2425672
17013     75175170          DATA    75175170
17014     02176161          DATA    2176161
17015     05337450          DATA    5337450
17016     52555555          DATA    52555555
17017     52555555          DATA    52555555
17020     42360576          DATA    42360576
17021     42360576          DATA    42360576
17022   4 01 04077          BRU     NOSKIP=1,4
17023   0 01 04143          BRU     NOVFLO
```

```
17024  0 20*17024  DIV70  %8P=   *
17025  4 65 04046         DIV    =EM8RY,4
17026    11631731         DATA   11631731
17027    15626505         DATA   15626505
17030    22222044         DATA   22222044
17031    12777521         DATA   12777521
17032    43444444         DATA   43444444
17033    43444444         DATA   43444444
17034    26570515         DATA   26570515
17035    26570515         DATA   26570515
17036  4 01 04077         BRU    %8SKIP=1,4
17037  0 01 04143         BRU    %8VFL8
17040  0 20*17040  DIV71  %8P=   *
17041  4 65 04046         DIV    =EM8RY,4
17042    67352527         DATA   67352527
17043    70505773         DATA   70505773
17044    55464166         DATA   55464166
17045    71775561         DATA   71775561
17046    34333333         DATA   34333333
17047    34333333         DATA   34333333
17050    77253076         DATA   77253076
17051    77253076         DATA   77253076
17052  4 01 04077         BRU    %8SKIP=1,4
17053  0 01 04154         BRU    8VFL8              8VERFL8W
```



```
17054  0 20*17054  DIV72  %8P=   *
17055  4 65 04046         DIV    =EM8RY,4
17056    00156137         DATA   156137
17057    77421446         DATA   77421646
17060    76543640         DATA   76543640
17061    01563506         DATA   1563506
17062    25222222         DATA   25222222
17063    25222222         DATA   25222222
17064    61144207         DATA   61144207
17065    61144207         DATA   61144207
17066  4 01 04077         BRU    %8SKIP=1,4
17067  0 01 04143         BRU    %8VFL8
17070  0 20*17070  DIV73  %8P=   *
17071  4 65 04046         DIV    =EM8RY,4
17072    56106526         DATA   56106526
17073    36762602         DATA   36762602
17074    41641171         DATA   41641171
17075    74640044         DATA   74640044
17076    16111111         DATA   16111111
17077    16111111         DATA   16111111
17100    55427614         DATA   55427614
17101    55427614         DATA   55427614
17102  4 01 04077         BRU    %8SKIP=1,4
17103  0 01 04143         BRU    %8VFL8
```

```
17104  0 20*17104  DIV74  N0P*    *
17105  4 65 04046         DIV     MEMORY,4
17106    74711330         DATA    74711330
17107    74170301         DATA    74170301
17110    12011202         DATA    12011202
17111    57266103         DATA    57266103
17112    07000000         DATA    7000000
17113    07000000         DATA    7000000
17114    32317176         DATA    32317176
17115    32317176         DATA    32317176
17116  4 01 04077         BRU     N0SKIP+1,4
17117  0 01 04143         BRU     N0VFL0
17120  0 20*17120  DIV75  N0P*    *
17121  4 65 04046         DIV     MEMORY,4
17122    37404050         DATA    37404050
17123    50274231         DATA    50274231
17124    31755437         DATA    31755437
17125    11150140         DATA    11150140
17126    07777777         DATA    07777777
17127    07777777         DATA    07777777
17130    06174407         DATA    6174407
17131    06174407         DATA    6174407
17132  4 01 04077         BRU     N0SKIP+1,4
17133  0 01 04154         BRU     0VFL0           0VERFL0W
```



```
17134  0 20*17134  DIV76  N0P*    *
17135  4 65 04046         DIV     MEMORY,4
17136    16141140         DATA    16141140
17137    77764213         DATA    77764213
17140    70702140         DATA    70702140
17141    23655013         DATA    23655013
17142    16666666         DATA    16666666
17143    16666666         DATA    16666666
17144    07054017         DATA    7054017
17145    07054017         DATA    7054017
17146  4 01 04077         BRU     N0SKIP+1,4
17147  0 01 04154         BRU     0VFL0           0VERFL0W
17150  0 20*17150  DIV77  N0P*    *
17151  4 65 04046         DIV     MEMORY,4
17152    22130502         DATA    22130502
17153    06705260         DATA    6705260
17154    64012150         DATA    64012150
17155    76657624         DATA    76657624
17156    25555555         DATA    25555555
17157    25555555         DATA    25555555
17160    71531776         DATA    71531776
17161    71531776         DATA    71531776
17162  4 01 04077         BRU     N0SKIP+1,4
17163  0 01 04154         BRU     0VFL0           0VERFL0W
```

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17164  0 20*17164  DIV78  NOP*    *
17165  4 65 04046          DIV     MEMORY,4
17166    32777271          DATA    32777271
17167    22571422          DATA    22571422
17170    57217524          DATA    57217524
17171    52402376          DATA    52402376
17172    34444444          DATA    34444444
17173    34444444          DATA    34444444
17174    72121446          DATA    72121446
17175    72121446          DATA    72121446
17176  4 01 04077          BRU     NOSKIP=1,4
17177  0 01 04154          BRU     OVFLO               OVERFLOW
17200  0 20*17200  DIV79  NOP*    *
17201  4 65 04046          DIV     MEMORY,4
17202    40751345          DATA    40751345
17203    25145043          DATA    25145043
17204    44374146          DATA    44374146
17205    75317137          DATA    75317137
17206    43333333          DATA    43333333
17207    43333333          DATA    43333333
17210    27153034          DATA    27153034
17211    27153034          DATA    27153034
17212  4 01 04077          BRU     NOSKIP=1,4
17213  0 01 04154          BRU     OVFLO               OVERFLOW
17214  0 20 06404          NOP     NOP1
```



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17215    52641200  UIM    BCD     ' U 01 * CPU EXERCISERS 2.0'
17216    01124012
17217    23476412
17220    25672551
17221    23316225
17222    51621202
17223    33003712
17224    52121212  UAM    BCD     '      THIS UNIT CONTAINS THE CPU EXERCISERS'
17225    12126330
17226    31621264
17227    45316312
17230    23464563
17231    21314562
17232    12633025
17233    12234764
17234    12256725
17235    51233162
17236    25516212
17237    52266445          BCD     ' FUNCTION 0 IS AN INSTRUCTION EXAMINER,'
17240    23633146
17241    45120012
17242    31621221
17243    45123145
17244    62635164
17245    23633146
17246    45122567
17247    21443145
17250    25513312
17251    52266445          BCD     ' FUNCTION 1 IS A ADD EXERCISER'
17252    23633146
17253    45120112
17254    31621221
17255    12212424
17256    12256725
17257    51233162
17260    25511212
```

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17261    52266445          BCD     ' FUNCTION 2 IS A SHIFT EXERCISER'
17262    23633146
17263    45120312
17264    31621221
17265    12623231
17266    26631225
17267    67255123
17270    31622551
17271    52266445          BCD     ' FUNCTION 3 IS A MULTIPLY EXERCISER'
17272    23633146
17273    45120312
17274    31621221
17275    12446443
17276    63314743
17277    70122567
17300    25512331
17301    62255112
17302    52266445          BCD     ' FUNCTION 4 IS A DIVIDE EXERCISER'
17303    23633146
17304    45120412
17305    31621221
17306    12243165
17307    31242512
17310    25672551
17311    23316225
17312    51121212
17313    52266445          BCD     ' FUNCTION 22 IS A MULTIPLY ANALYZER'
17314    23633146
17315    45120202
17316    12316212
17317    21124464
17320    43633147
17321    43701221
17322    45214370
17323    71255112
17324    52266445          BCD     ' FUNCTION 23 IS A DIVIDE ANALYZER''
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17325    23633146
17326    45120203
17327    12316212
17330    21122431
17331    65312425
17332    12214521
17333    43707125
17334    51371212
17335    52121212  UVM     BCD     '    FAW !'
17336    26216652
17337    37121212
17340    52261200  FIMO    BCD     ' F 00 • FULL INSTRUCTION EXAMINER''
17341    00124012
17342    26644343
17343    12314562
17344    63516423
17345    63314445
17346    12256721
17347    44314525
17350    51371212
17351    52121212  FAMO    BCD     '      THIS FUNCTION IS SIMILAR TO THE 8LD'
17352    12126330
17353    31621226
17354    64452363
17355    31464512
17356    31621262
17357    31443143
17360    21511263
17361    46126330
17362    25124643
17363    24121212
17364    52110300          BCD     ' 930 INSTRUCTION EXAMINER•  IT TESTS ALL'
17365    12314562
17366    63516423
17367    63314445
17370    12256721
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17371    44314525
17372    51331212
17373    31631263
17374    25626362
17375    12214343
17376    52633025          BCD     ' THE CPU INSTRUCTIONS BY CHECKING THE '
17377    12234764
17400    12314562
17401    63516423
17402    63314645
17403    62122270
17404    12233025
17405    23423145
17406    27126330
17407    25121212
17410    52512527          BCD     ' REGISTERS, MEMORY AND OVERFLOW FOR THE'
17411    31626325
17412    51627212
17413    44234446
17414    51701221
17415    45241246
17416    65255126
17417    43466612
17420    26465112
17421    63302512
17422    52475146          BCD     ' PROPER RESULT.'
17423    47255112
17424    51256264
17425    43633212
17426    52121212          BCD     '      THE FUNCTION VARIABLES CONTAIN THE'
17427    12126330
17430    25122664
17431    45236331
17432    46451265
17433    21513121
17434    22432562
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17435    12234645
17436    63213145
17437    12633025
17440    52512527          BCD     ' REGISTERS BEFORE THE INSTRUCTION, THE'
17441    31626325
17442    51621222
17443    25264651
17444    25126330
17445    25123145
17446    62635164
17447    23633146
17450    45731263
17451    30251212
17452    52314562          BCD     ' INSTRUCTION EXECUTED, AND THE FUNCTION'
17453    63516423
17454    63314645
17455    12256725
17456    23646325
17457    24731221
17460    45241263
17461    30251226
17462    64452363
17463    31464512
17464    52316325          BCD     ' ITERATION WORD.'
17465    51216331
17466    46451266
17467    46512433
17470    52121212          BCD     '      IF A MULTIPLY OR DIVIDE ERROR OCCURS,'
17471    12123126
17472    12211244
17473    64436331
17474    47437712
17475    46511224
17476    31653124
17477    25122551
17500    51465112
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17501    46232364
17502    51627312
17503    52211222          BCD     ' A BREAKDOWN BY T TIMES MAY BE PRINTED BY'
17504    51252142
17505    24466645
17506    12227212
17507    63126331
17510    44256212
17511    44217212
17512    22251247
17513    51314563
17514    25241222
17515    70121212
17516    52635121          BCD     ' TRANSFERING TO FUNCTION 22 OR FUNCTION 23'
17517    45622625
17520    51314527
17521    12634612
17522    26644523
17523    63314445
17524    12020212
17525    46511226
17526    64452363
17527    31464512
17530    62031212
17531    52512562          BCD     ' RESPECTIVLY. AFTER THE OUTPUT, CONTROL IS'
17532    47252363
17533    31654370
17534    33122126
17535    63255112
17536    63302512
17537    46646347
17540    64637312
17541    23464563
17542    51464312
17543    31621212
17544    52512563          BCD     ' RETURNED, AND YOU MAY RETURN TO THE FAILING'
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17545    64514525
17546    24731221
17547    45241270
17550    46641244
17551    21701251
17552    25636451
17553    45126346
17554    12633225
17555    12262131
17556    43314527
17557    52632562          BCD     ' TEST BY TYPING F 01T.  SETTING BP1 BEFORE'
17560    63122270
17561    12637247
17562    31452712
17563    26120001
17564    63331212
17565    62256363
17566    31452712
17567    22470112
17570    22252646
17571    51251212
17572    52637047          BCD     ' TYPING THE T WILL LOOP ON THE FAILING TEST.''
17573    31452712
17574    63302512
17575    63126631
17576    43431243
17577    46464712
17600    46451263
17601    30251226
17602    21314331
17603    45271263
17604    25626233
17605    37121212
17606    52121212  FVMO    BCD     '   FIN     CREG     AREG     BREG     XREG     INST ''
17607    26316412
17610    12121212
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17611    23512527
17612    12121212
17613    12215125
17614    27121212
17615    12122251
17616    25271212
17617    12121267
17620    51252712
17621    12121212
17622    31456263
17623    52371212
17624    52761200  FIM1   BCD     ' F 01 = ADD EXERCISER'
17625    01124012
17626    21242412
17627    25677551
17630    23316225
17631    51371212
17632    52321212  FAM1   BCD     '       THIS FUNCTION GENERATES RANDOM ADDS AND'
17633    12121263
17634    36316212
17635    26644523
17636    63314445
17637    12272545
17640    25512163
17641    25621251
17642    21452446
17643    44122124
17644    24621221
17645    45241212
17646    52234644          BCD     ' COMPARES THE RESULT WITH SIMULATED ADDS.'
17647    47215125
17650    62126330
17651    25125125
17652    62644263
17653    12663163
17654    30126231
```



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17655    44644321
17656    63252412
17657    21242462
17660    33121212
17661    52633025          BCD     ' THE SIMULATION MAKES USE OF THE ADDER OR THE'
17662    12623144
17663    64432163
17664    31464512
17665    44214225
17666    62124546
17667    12646325
17670    12462612
17671    63302512
17672    21242425
17673    51124651
17674    12633025
17675    52623031          BCD     ' SHIFT LOGIC.'
17676    26631243
17677    46273123
17700    33121212
17701    52121212          BCD     '       THERE ARE FIVE FUNCTION VARIABLES FIW,'
17702    12126330
17703    25512512
17704    21512512
17705    26316525
17706    12266445
17707    23633146
17710    45126521
17711    51312122
17712    43256212
17713    26316673
17714    52235125          BCD     ' CREG, AREG, BREG, AND XREG.  FIW IS THE'
17715    27731221
17716    51252773
17717    12225125
17720    27731221
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17721    45241267
17722    51252733
17723    12122631
17724    66123162
17725    12633025
17726    52456444          BCD     ! NUMBER OF ITERATIONS FOR ONE PASS.!
17727    22255112
17730    46261231
17731    63255121
17732    63314645
17733    62122646
17734    51124645
17735    25124721
17736    62623312
17737    52633025          BCD     ! THE REGISTERS REPRESENT THE STARTING CONDITIONS!
17740    12512527
17741    31626325
17742    51621251
17743    25475125
17744    62254563
17745    12633025
17746    12626321
17747    51633145
17750    27122346
17751    45243163
17752    31464562
17753    52264451          BCD     ! FOR THE PRESENT TEST CASE.!!
17754    12633025
17755    12475125
17756    62254563
17757    12632562
17760    63122321
17761    62253337
17762    52121212  FVM1    BCD     !    FIW      CREG     AREG     BREG     XREG !!
17763    26316412
17764    12121212
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17765    12235125
17766    27121212
17767    12122151
17770    25271212
17771    12121222
17772    51252712
17773    12121212
17774    67512527
17775    52371212
17776    52261200  FIM2    BCD     ! F 02 - SHIFT EXERCISER!!
17777    02124212
20000    62303126
20001    63122567
20002    25512331
20003    62255137
20004    52121212  FAM2    BCD     !      THIS FUNCTION GENERATES RANDOM SHIFTS!
20005    12126330
20006    31621226
20007    64452363
20010    31464512
20011    27254525
20012    51216325
20013    62125121
20014    45244444
20015    12623031
20016    26636212
20017    52214524          BCD     ! AND COMPARES THE RESULT WITH SIMULATED SHIFTS.!
20020    12234644
20021    47215125
20022    62126330
20023    25125125
20024    62644363
20025    12663163
20026    30126231
20027    44644321
20030    63252412
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20031    62303126
20032    63623312
20033    52633025          BCD     ' THE SIMULATION USES THE LOGICAL INSTRUCTIONS AND'
20034    12623144
20035    64432163
20036    31464512
20037    64622562
20040    12633025
20041    12434627
20042    31232143
20043    12314562
20044    63516423
20045    63314445
20046    62122145
20047    24121212
20050    52624222          BCD     ' SKB.  THERE IS NO USE OF THE ADDER. '
20051    33121263
20052    30255125
20053    12316212
20054    45461264
20055    62251246
20056    26126330
20057    25122124
20060    24255133
20061    12121212
20062    52121212          BCD     '       THERE ARE SEVEN FUNCTION VARIABLES,'
20063    12126330
20064    25512512
20065    21512512
20066    62256525
20067    45122664
20070    45236331
20071    46451265
20072    21513121
20073    22432562
20074    73121212
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20075    52263166          BCD     ' FIN, CREG, AREG, BREG, XREG, AND INST.'
20076    73122351
20077    25277312
20100    21512527
20101    73122251
20102    25277312
20103    67512527
20104    73122145
20105    24123145
20106    62633312
20107    52263166          BCD     ' FIN IS THE NUMBER OF ITERATIONS PER PASS.  THE REGISTERS'
20110    12316212
20111    63302512
20112    45644422
20113    25511246
20114    26123163
20115    25512163
20116    31464562
20117    12472551
20120    12472162
20121    62331212
20122    63302512
20123    51252731
20124    62632551
20125    62121212
20126    52215125          BCD     ' ARE THE STARTING CONDITIONS OF THE PRESENT TEST'
20127    12633025
20130    12626321
20131    51633145
20132    27122346
20133    45243163
20134    31464562
20135    12462612
20136    63302512
20137    47512562
20140    25456312
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20141   63256263
20142   52232162        BCD     ' CASE.  INST IS THE SHIFT INSTRUCTION BEING TESTED.'
20143   25331212
20144   31456263
20145   12316212
20146   63302512
20147   62303126
20150   63123145
20151   62635164
20152   23633146
20153   45122225
20154   31452712
20155   63256263
20156   25243312
20157   52371212        BCD     ' ''
20160   52121212 FVM2   BCD     '   FIM      CREG     AREG     BREG     XREG     INST ''
20161   26316612
20162   12121212
20163   12235125
20164   27121212
20165   12122151
20166   25271212
20167   12121222
20170   51252712
20171   12121212
20172   67512527
20173   12121212
20174   12314562
20175   63523712
20176   52261200 FIM3   BCD     ' F 03 • MULTIPLY EXERCISER''
20177   03124012
20200   44644363
20201   31474370
20202   12256725
20203   51233162
20204   25513712
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20205   52121212 FAM3   BCD     '     THIS FUNCTION GENERATES RANDOM MULTIPLIES AND'
20206   12633031
20207   62122664
20210   45236331
20211   46451227
20212   25452551
20213   21632562
20214   12512145
20215   24464412
20216   44644363
20217   31474331
20220   25621221
20221   45241212
20222   52234644        BCD     ' COMPARES THE RESULT WITH SIMULATED MULTIPLIES,  THE'
20223   47215125
20224   62126330
20225   25125125
20226   62644363
20227   12663163
20230   30126231
20231   44644321
20232   63252412
20233   44644363
20234   31474331
20235   25623312
20236   12633025
20237   52623144        BCD     ' SIMULATION USES THE LOGICAL INSTRUCTIONS.'
20240   64432163
20241   31464512
20242   64622562
20243   12633025
20244   12434627
20245   31232143
20246   12314562
20247   63516423
20250   63314445
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20251    62331212
20252    52454612          BCD     ' NO USE OF THE ADDER OR SHIFTS ARE MADE.'
20253    64622512
20254    46261263
20255    30251221
20256    24242551
20257    12466112
20260    62303126
20261    63621221
20262    51251244
20263    21242533
20264    52121212          BCD     '      THERE ARE FIVE FUNCTION VARIABLES FIW,'
20265    12126330
20266    65512512
20267    21512512
20270    26316525
20271    12266445
20272    23633146
20273    45126521
20274    51312122
20275    43256212
20276    26316673
20277    52235125          BCD     ' CREG, AREG, BREG, AND XREG.  FIW IS THE'
20300    27731221
20301    51252773
20302    12225125
20303    27731221
20304    45241267
20305    51252733
20306    12122631
20307    66123162
20310    12633025
20311    52456444          BCD     ' NUMBER OF ITERATIONS FOR ONE PASS.'
20312    22255112
20313    46261231
20314    63255121
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20315    63314645
20316    62122646
20317    51124645
20320    25124721
20321    62623312
20322    52633025          BCD     ' THE REGISTERS REPRESENT THE STARTING CONDITIONS'
20323    12512527
20324    31626325
20325    51621251
20326    25475125
20327    62254563
20330    12633025
20331    12626321
20332    51633145
20333    27122346
20334    45243163
20335    31464562
20336    52264651          BCD     ' FOR THE PRESENT TEST CASE.'
20337    12633025
20340    12475125
20341    62254563
20342    12632562
20343    63122321
20344    62253312
20345    52312612          BCD     ' IF THERE IS AN ERROR, YOU MAY GET A REGISTER'
20346    63302551
20347    25123162
20350    12214512
20351    25515146
20352    51731270
20353    46641244
20354    21701227
20355    25631221
20356    12512527
20357    31626325
20360    51121212
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20361    52225125          BCD     ' BREAKDOWN BY T TIMES, BY TYPING •F 22T'
20362    21422446
20363    66451222
20364    70126312
20365    63314425
20366    62731222
20367    70126370
20370    47314527
20371    12402612
20372    02026312
20373    52234445          BCD     ' CONTROL WILL BE RETURNED AFTER THE OUTPUT, AND'
20374    63514443
20375    12663143
20376    43122225
20377    12512563
20400    64514525
20401    24122126
20402    63255112
20403    63302512
20404    46646347
20405    64637312
20406    21452412
20407    52704664          BCD     ' YOU MAY RETURN TO THE ERROR CASE BY TYPING'
20410    12442170
20411    12512563
20412    64514512
20413    63461263
20414    30251225
20415    51514651
20416    12232162
20417    25122270
20420    12637047
20421    31452712
20422    52402612          BCD     ' •F 3T•  SETTING BP1 BEFORE TYPING THE T'
20423    03633312
20424    12622563
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20425    63314527
20426    12224701
20427    12222526
20430    46512512
20431    63704731
20432    45271263
20433    30251263
20434    52663143          BCD     ' WILL HOLD THE EXERCISER IN THE TEST LOOP.!'
20435    43123046
20436    43241263
20437    30251225
20440    67255123
20441    31622551
20442    12314512
20443    63302512
20444    63256263
20445    12434646
20446    47333712
20447    52261200  FIM4    BCD     ' F 04 • DIVIDE EXERCISER!'
20450    04124212
20451    24316531
20452    24251225
20453    67255123
20454    31622551
20455    37121212
20456    52121212  FAM4    BCD     '     THIS FUNCTION GENERATES RANDOM DIVIDES AND'
20457    12633031
20460    62122664
20461    45236331
20462    46451227
20463    25452551
20464    21632562
20465    12512145
20466    24464412
20467    24316531
20470    24256212
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20471    21452412
20472    52234444          BCD     ' COMPARES THE RESULT WITH SIMULATED DIVIDES.  THE'
20473    47215125
20474    62126330
20475    25125125
20476    62644363
20477    12663163
20500    30126231
20501    44644321
20502    63252412
20503    24316531
20504    24256033
20505    12126330
20506    25121212
20507    52623144          BCD     ' SIMULATION USES THE LOGICAL INSTRUCTIONS.'
20510    64432163
20511    31464512
20512    64622562
20513    12633025
20514    12434627
20515    31232143
20516    12314562
20517    63516423
20520    63314445
20521    62331212
20522    52454612          BCD     ' NO USE OF THE ADDER OR SHIFTS ARE MADE.'
20523    64622512
20524    46261263
20525    30251221
20526    24242551
20527    12465112
20530    62303126
20531    63621221
20532    51251244
20533    21242533
20534    52121212          BCD     '      THERE ARE FIVE FUNCTION VARIABLES FIW,'
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20535    12126330
20536    25512512
20537    21512512
20540    26316525
20541    12266445
20542    23633146
20543    45126521
20544    51312122
20545    43256212
20546    26316673
20547    52235125          BCD     ' CREG, AREG, BREG, AND XREG. FI. IS THE'
20550    27731221
20551    51252773
20552    12225125
20553    27731221
20554    45241267
20555    51252733
20556    12263166
20557    12316212
20560    63302512
20561    52456 44          BCD     ' NUMBER OF ITERATIONS FOR ONE PASS.'
20562    22255112
20563    46261231
20564    63255121
20565    63314445
20566    62122446
20567    51124445
20570    25124721
20571    62623312
20572    52633025          BCD     ' THE REGISTERS REPRESENT THE STARTING CONDITIONS'
20573    12512527
20574    31626325
20575    51621251
20576    25475125
20577    62254563
20600    12633025
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20601    12626321
20602    51633145
20603    27122346
20604    45243163
20605    31464562
20606    52264651          BCD     ! FOR THE PRESENT TEST CASE.!
20607    12633025
20610    12475125
20611    62254563
20612    12632562
20613    63122321
20614    62253312
20615    52312612          BCD     ! IF THERE IS AN ERROR, YOU MAY GET A REGISTER!
20616    63302551
20617    25123162
20620    12214512
20621    25515146
20622    51731270
20623    46641244
20624    21701227
20625    25631221
20626    12512527
20627    31626325
20630    51121212
20631    52225125          BCD     ! BREAKDOWN BY T TIMES, BY TYPING •F 23T!
20632    21422446
20633    66451222
20634    70126312
20635    63314425
20636    62731222
20637    70126370
20640    47314527
20641    12402612
20642    02036312
20643    52234645          BCD     ! CONTROL WILL BE RETURNED AFTER THE OUTPUT, AND!
20644    63514643
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20645    12663143
20646    43122225
20647    12512563
20650    64514525
20651    24122126
20652    63255112
20653    63302512
20654    46646347
20655    64637312
20656    21452412
20657    52704664          BCD     ! YOU MAY RETURN TO THE ERROR CASE BY TYPING!
20660    12442170
20661    12512563
20662    64514512
20663    63461263
20664    30251225
20665    51514651
20666    12232162
20667    25122270
20670    12637047
20671    31452712
20672    52402612          BCD     ! •F 4T•  SETTING BP1 BEFORE TYPING THE T!
20673    04633312
20674    12622563
20675    63314527
20676    12224701
20677    12222826
20700    46512512
20701    63704731
20702    45271263
20703    30251263
20704    52663143          BCD     ! WILL HOLD THE EXERCISER IN THE TEST LOOP.!!
20705    43123046
20706    43241263
20707    30251225
20710    67255123
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20711    31622551
20712    12314512
20713    63302512
20714    63256263
20715    12434446
20716    47333712
20717    52261202  FIM22  BCD     ' F 22 = MULTIPLY ANALYZER'
20720    52124212
20721    44644363
20722    31474370
20723    12214521
20724    43737125
20725    51371212
20726    52121212  FAM22  BCD     '      THIS FUNCTION GENERATES THE INTERMEDIATE'
20727    12126330
20730    31621226
20731    64452363
20732    31464512
20733    47254525
20734    51214225
20735    62126330
20736    45123145
20737    63255144
20740    45243121
20741    63251212
20742    52621325          BCD     ' STEPS OF A MULTIPLY INSTRUCTION.'
20743    47621246
20744    46122112
20745    44644363
20746    31474370
20747    12314562
20750    63516423
20751    63634445
20752    53121212
20753    52121212          BCD     '      UPON ENTERING THIS FUNCTION, CONTROL WILL'
20754    12126447
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20755    44451225
20756    45632551
20757    31452712
20760    63303162
20761    12266445
20762    23633146
20763    45731223
20764    46456351
20765    46431266
20766    31434312
20767    52222512          BCD     ' BE RETURNED TO THE TTY.  THEN SET THE FUNCTION'
20770    51256364
20771    51452524
20772    12634612
20773    63302512
20774    63637033
20775    12126330
20776    25451262
20777    25631263
21000    31251226
21001    64452363
21002    31464512
21003    52652151          BCD     ' VARIABLES.  THE VARIABLES ARE PRESET TO THE LAST'
21004    31212243
21005    25623712
21006    12633025
21007    12652151
21010    31212243
21011    25621221
21012    51251247
21013    51256225
21014    63126346
21015    12633025
21016    12432162
21017    63121212
21020    52256725          BCD     ' EXERCISER CASE AND MAY BE USED AS THEY ARE TO'
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21021    51233162
21022    25511223
21023    21622512
21024    21452412
21025    44217012
21026    22251264
21027    62252412
21030    21621263
21031    30257012
21032    21512512
21033    63461212
21034    52214521          BCD     ' ANALYZE THAT CASE.'
21035    43707125
21036    12633021
21037    63122321
21040    62253312
21041    52121212          BCD     '      CONTROL IS RETURNED FOLLOWING THE OUTPUT'
21042    12122346
21043    45635146
21044    43123162
21045    12512563
21046    64514525
21047    24122646
21050    43434666
21051    31452712
21052    63302512
21053    46646347
21054    64631212
21055    52312612          BCD     ' IF YOU CAME FROM FUNCTION 3 TO ANALYZE AN '
21056    70466412
21057    23214425
21060    12265146
21061    44122664
21062    45236331
21063    46451203
21064    12634612
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21065    21452143
21066    70712512
21067    21451212
21070    52255151          BCD     ' ERROR, SET BP1 AND TYPE GF 3T.'
21071    46517312
21072    62256312
21073    22470112
21074    21452412
21075    63704725
21076    12402612
21077    03633312
21100    52633031          BCD     ' THIS WILL LOOP ON THE SAME TEST CASE THAT'
21101    62126631
21102    43431243
21103    46464712
21104    46451263
21105    30251262
21106    21442512
21107    63256263
21110    12232162
21111    25126330
21112    21631212
21113    52633225          BCD     ' THE ERROR OCCURED ON.  SIMILARLY IF YOU CAME'
21114    12255151
21115    46511246
21116    23236451
21117    25241246
21120    45331212
21121    62314431
21122    43215143
21123    70123126
21124    12704664
21125    12232144
21126    25121212
21127    52266146          BCD     ' FROM FUNCTION 0, YOU MAY RETURN TO THE SAME'
21130    44122664
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21131    45236331
21132    46451200
21133    73127046
21134    64124421
21135    70125125
21136    63645145
21137    12634612
21140    63302512
21141    62214425
21142    52232162          BCD     ' CASE BY TYPING *F QT.!!
21143    25122270
21144    12637047
21145    31452712
21146    40261200
21147    63333712
21150    52121223  FVM22   BCD     '   CREG     AREG     BREG     XREG !!
21151    51252712
21152    12121212
21153    21512527
21154    12121212
21155    12225125
21156    27121212
21157    12126751
21160    25275237
21161    52261202  FIM23   BCD     ' F 23 * DIVIDE ANALYZER!!
21162    03124212
21163    24316531
21164    24231221
21165    45214370
21166    71255137
21167    52121212  FAM23   BCD     '      THIS FUNCTION GENERATES AND DISPLAYS THE!
21170    12126330
21171    31621226
21172    64452363
21173    31464512
21174    27254525
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21175    51216325
21176    62122145
21177    24122431
21200    62474321
21201    70621263
21202    30251212
21203    52314563          BCD     ' INTERMEDIATE STEPS OF A DIVIDE INSTRUCTION.!
21204    25514425
21205    24312163
21206    25126263
21207    25476212
21210    46261221
21211    12243165
21212    31242512
21213    31456263
21214    51642363
21215    31464533
21216    52121212          BCD     '      UPON ENTERING THIS FUNCTION, CONTROL WILL!
21217    12126447
21220    46451225
21221    45632551
21222    31452712
21223    63303162
21224    12266445
21225    23633146
21226    45731223
21227    46456351
21230    46431266
21231    31434312
21232    52222512          BCD     ' BE RETURNED TO THE TTY.  THEN SET THE FUNCTION!
21233    51256364
21234    51452824
21235    12634612
21236    63302512
21237    63637033
21240    12126330
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21241    25451262
21242    25631263
21243    30251226
21244    64452343
21245    31464512
21246    52652151          BCD     ' VARIABLES,  THE VARIABLES ARE PRESET TO THE LAST'
21247    31212243
21250    25623312
21251    12633025
21252    12652151
21253    31212243
21254    25621221
21255    51251247
21256    51256225
21257    63126346
21260    12633025
21261    12432162
21262    63121212
21263    52256725          BCD     ' EXERCISER CASE AND MAY BE USED AS THEY ARE TO'
21264    51233162
21265    25511223
21266    21622512
21267    21452412
21270    44217212
21271    22251264
21272    62252412
21273    21621263
21274    30257012
21275    21512512
21276    63461212
21277    52214521          BCD     ' ANALYZE THAT CASE.'
21300    43707125
21301    12633021
21302    63122321
21303    62253312
21304    52121212          BCD     '      CONTROL IS RETURNED FOLLOWING THE OUTPUT'
```



```
21305    12122346
21306    45635146
21307    43123162
21310    12512563
21311    64514525
21312    24122646
21313    43434666
21314    31452712
21315    63302512
21316    46646347
21317    64631212
21320    52312612          BCD     ' IF YOU CAME FROM FUNCTION 4 TO ANALYZE AN '
21321    70466412
21322    23214425
21323    12265146
21324    44122664
21325    45236331
21326    46451204
21327    12634612
21330    21452143
21331    70712512
21332    21451212
21333    52255151          BCD     ' ERROR, SET BP1 AND TYPE =F 4T.'
21334    46517312
21335    62256312
21336    22470112
21337    21452412
21340    63704725
21341    12402612
21342    04633312
21343    52633031          BCD     ' THIS WILL LOOP ON THE SAME TEST CASE THAT'
21344    62126631
21345    43431243
21346    46464712
21347    46451263
21350    30251262
```

```
21351    21442512
21352    63256263
21353    12232162
21354    25126330
21355    21631212
21356    52633025          BCD     ! THE ERROR OCCURED ON.  SIMILARLY IF YOU CAME!
21357    12255151
21360    46511246
21361    23236451
21362    25241246
21363    45331212
21364    62314431
21365    43215143
21366    70123126
21367    12704664
21370    12232144
21371    25121212
21372    52265146          BCD     ! FROM FUNCTION 0, YOU MAY RETURN TO THE SAME!
21373    44122664
21374    45236331
21375    46451200
21376    73127046
21377    64124421
21400    70125125
21401    63645145
21402    12634612
21403    63302512
21404    62214425
21405    52232162          BCD     ! CASE BY TYPING =F 0T.!!
21406    25122270
21407    12637047
21410    31452712
21411    40261200
21412    63333712
21413    52121223  FV=23   BCD     !   CREG     AREG     BREG     XREG !!
21414    51252712
```



```
21415    12121212
21416    21612527
21417    12121212
21420    12225125
21421    27121212
21422    12126751
21423    25275237
21424    52211251  AADD    BCD     ! A REGISTER ERROR DURING ADD!!
21425    25273162
21426    63255112
21427    25515146
21430    51122464
21431    51314527
21432    12212424
21433    37121212
21434    52221251  BADD    BCD     ! B REGISTER ERROR DURING ADD!!
21435    25273162
21436    63255112
21437    25515146
21440    51122464
21441    51314527
21442    12212424
21443    37121212
21444    52671251  XADD    BCD     ! X REGISTER ERROR DURING ADD!!
21445    25273162
21446    63255112
21447    25515146
21450    51122464
21451    51314527
21452    12212424
21453    37121212
21454    52466525  OFADD   BCD     ! OVERFLOW ERROR DURING ADD!!
21455    51264346
21456    66122551
21457    51465112
21460    24645131
```

```
21461    45271221
21462    24243712
21463    52211251  ASFT   BCD     ! A REGISTER ERROR DURING SHIFT!!
21464    25273162
21465    63255112
21466    25515146
21467    51122464
21470    51314527
21471    12623031
21472    26633712
21473    52221251  BSFT   BCD     ! B REGISTER ERROR DURING SHIFT!
21474    25273162
21475    63255112
21476    25515146
21477    51122464
21500    51314527
21501    12623031
21502    26633752
21503    12121212
21504    52671251  XSFT   BCD     ! X REGISTER ERROR DURING SHIFT!
21505    25273162
21506    63255112
21507    25515146
21510    51122464
21511    51314527
21512    12623031
21513    26633752
21514    12121212
21515    52466525  OFSFT  BCD     ! OVERFLOW ERROR DURING SHIFT!!
21516    51264346
21517    66122551
21520    51465112
21521    24645131
21522    45271262
21523    30312663
21524    37121212
```



```
21525    52211251  AMUL   BCD     ! A REGISTER ERROR DURING MULTIPLY!!
21526    25273162
21527    63255112
21530    25515146
21531    51122464
21532    51314527
21533    12446443
21534    63314743
21535    70371212
21536    52221251  BMUL   BCD     ! B REGISTER ERROR DURING MULTIPLY!!
21537    25273162
21540    63255112
21541    25515146
21542    51122464
21543    51314527
21544    12446443
21545    63314743
21546    70371212
21547    52671251  XMUL   BCD     ! X REGISTER ERROR DURING MULTIPLY!!
21550    25273162
21551    63255112
21552    25515146
21553    51122464
21554    51314527
21555    12446443
21556    63314743
21557    70371212
21560    52466525  OFMUL  BCD     ! OVERFLOW ERROR DURING MULTIPLY!!
21561    51264346
21562    66122551
21563    51465112
21564    24645131
21565    45271244
21566    64436331
21567    47437037
21570    52211251  ADIV   BCD     ! A REGISTER ERROR DURING DIVIDE!!
```

```
21571    25273162
21572    63255112
21573    25515146
21574    51122464
21575    51314527
21576    12243165
21577    31242537
21600    52221251  BDIV   BCD     ' B REGISTER ERROR DURING DIVIDE!!
21601    25273162
21602    63255112
21603    25515146
21604    51122464
21605    51314527
21606    12243165
21607    31242537
21610    52671251  XDIV   BCD     ' X REGISTER ERROR DURING DIVIDE!!
21611    25273162
21612    63255112
21613    25515146
21614    51122464
21615    51314527
21616    12243165
21617    31242537
21620    52466525  OFDIV  BCD     ' OVERFLOW ERROR DURING DIVIDE!!
21621    51264346
21622    66122551
21623    51465112
21624    24645131
21625    45271224
21626    31653124
21627    25371212
21630    52121231  ISSBX  BCD     '   IS       S/B      XREG   OVERFLOW  ERRORS !!
21631    62121212
21632    12121212
21633    62612212
21634    12121212
```



```
21635    12675128
21636    27121212
21637    46652551
21640    26434666
21641    12122551
21642    51465162
21643    52371212
21644    52314562  SKPER  BCD     ' INSTRUCTION FAILED TO SKIP!!
21645    63516423
21646    63314645
21647    12262131
21650    43252412
21651    63461262
21652    42314737
21653    52314562  NSKPER BCD     ' INSTRUCTION ERRONEOUSLY SKIPPED!!
21654    63516423
21655    63314645
21656    12255151
21657    46432546
21660    64624370
21661    12624231
21662    47472524
21663    37121212
21664    52211251  AERROR BCD     ' A REGISTER ERROR!!
21665    25273162
21666    63255112
21667    25515146
21670    51371212
21671    52221251  BERROR BCD     ' B REGISTER ERROR!!
21672    25273162
21673    63255112
21674    25515146
21675    51371212
21676    52671251  XERROR BCD     ' X REGISTER ERROR!!
21677    25273162
21700    63255112
```

```
21701    25515146
21702    51371212
21703    52442544  MERROR BCD      ' MEMORY ERROR!!
21704    46517012
21705    25515146
21706    51371212
21707    52466525  NOVERR BCD      ' OVERFLOW ERRONEOUSLY SET!!
21710    51264346
21711    66122551
21712    51464525
21713    46646243
21714    70126225
21715    63371212
21716    52466525  MERROR BCD      ' OVERFLOW ERRONEOUSLY RESET!!
21717    51264346
21720    66122551
21721    51464525
21722    46646243
21723    70125125
21724    62256337
21725    12125237  CARRET BCD      '  !!
21726    52121212  MTITLE BCD      '    AREG     BREG     CREG     AOO      BOO       BC    OVERFLOW !!
21727    21512527
21730    12121212
21731    12225125
21732    27121212
21733    12235125
21734    27121212
21735    12122100
21736    00121212
21737    12121222
21740    00001212
21741    12121212
21742    12222312
21743    12121246
21744    65255126
```



```
21745    43466652
21746    37121212
21747    32526330  RESULT BCD      '  THE CORRECT RESULT SHOULD BE!!
21750    25122346
21751    51512523
21752    63125125
21753    62644363
21754    12623046
21755    64432412
21756    22251512
21757    52121221          BCD    '   AREG     BREG     XREG   OVERFLOW  ERRORS !!
21760    51252712
21761    12121212
21762    22512527
21763    12121212
21764    12675125
21765    27121212
21766    46652551
21767    26434666
21770    12122551
21771    51465162
21772    52371212
21773    52624764  SPIT   BCD      ' SPURIOUS INTERRUPT OT TRAP!!
21774    51314664
21775    62123145
21776    63255151
21777    64476312
22000    46631263
22001    51214737
```

```
CPU1    TAP=3,0                                 PAGE 299

                        * UNIT TABLE
22002  0 20 17215  UPT      NOP     UIM
22003  0 20 17284           NOP     UAM
22004  0 20 17335           NOP     UVM
22005  0 01 22007           ONE     FAW
22006    20000000           DATA    20000000        UNIT ID
22007    76000000  FAW      DATA    76000000
```

```
CPU1    TAP=3,C                                 PAGE 300

                        * FUNCTION TABLE
22010  0 20 17340  FPT0     NOP     FIM0
22011  0 20 17351           NOP     FAM0
22012  0 20 17606           NOP     FVM0
22013  0 06 22062           SIX     FIW
22014  0 00 04172           PZE     FUNC1
22015    40000000           DATA    40000000
22016  0 20 17624  FPT1     NOP     FIM1
22017  0 20 17632           NOP     FAM1
22020  0 20 17762           NOP     FVM1
22021  0 05 22062           FIVE    FIW
22022  0 00 04303           PZE     FUNC2
22023    20000000           DATA    20000000
22024  0 20 17776  FPT2     NOP     FIM2
22025  0 20 20004           NOP     FAM2
22026  0 20 20160           NOP     FVM2
22027  0 05 22062           FIVE    FIW
22030  0 00 04433           PZE     FUNC3
22031    10000000           DATA    10000000
22032  0 20 20176  FPT3     NOP     FIM3
22033  0 20 20205           NOP     FAM3
22034  0 20 17762           NOP     FVM1
22035  0 05 22062           FIVE    FIW
22036  0 00 04546           PZE     FUNC4
22037    04000000           DATA    04000000
22040  0 20 20447  FPT4     NOP     FIM4
22041  0 20 20456           NOP     FAM4
22042  0 20 17762           NOP     FVM1
22043  0 05 22062           FIVE    FIW
22044  0 00 04661           PZE     FUNC22
22045    02000000           DATA    02000000
```

```
22046  0 20 20717  FPT22  NOP     FIM22
22047  0 20 20726         NOP     FAM22
22050  0 20 21150         NOP     FVM22
22051  0 04 22063         FOUR    CCC
22052  0 00 04717         PZE     FUNC23
22053    00000002         DATA    00000002
22054  0 20 21161  FPT23  NOP     FIM23
22055  0 20 21167         NOP     FAM23
22056  0 20 21413         NOP     FVM23
22057  0 04 22063         FOUR    CCC
22060  0 00 04755         PZE     FUCEND
22061    00000001         DATA    00000001
```



```
                  * FUNCTION VARIABLES
22062    00000200  FIw    DATA    200          FUNCTION ITERATION WORD
22063  0 00 00000  CCC    PZE
22064  0 00 00000  AAA    PZE
22065  0 00 00000  BBB    PZE
22066  0 00 00000  XXX    PZE
22067  0 00 00000  INST   PZE
```

```
                        * BURST DISPLAY
22070  0 00 00000  A2       PZE
22071  0 00 00000  B2       PZE
22072  0 00 00000  C2       PZE
22073  0 00 00000  A00DSP   PZE
22074  0 00 00000  B00DSP   PZE
22075  0 00 00000  BCREG    PZE
22076  0 00 00000  LINE8    PZE
```



```
22077  0 00 00000  TIMOUT   PZE
22100  0 00 00000  A1       PZE
22101  0 00 00000  B1       PZE
22102  0 00 00000  C1       PZE
22103  0 00 00000  X1       PZE
22104  0 00 00000  X2       PZE
22105  0 00 00000  A3       PZE
22106  0 00 00000  B3       PZE
22107  0 00 00000  X3       PZE
22110  0 00 00000  A4       PZE
22111  0 00 00000  B4       PZE
22112  0 00 00000  C4       PZE
22113  0 00 00000  X4       PZE
22114  0 00 00000  A5       PZE
22115  0 00 00000  B5       PZE
22116  0 00 00000  A00      PZE
22117  0 00 00000  B00      PZE
22120  0 00 00000  BZO      PZE
22121  0 00 00000  CZ       PZE
22122  0 00 00000  RF       PZE
22123  0 00 00000  IX       PZE
22124  0 00 00000  KO       PZE
22125  0 00 00000  9FLAG    PZE
22126  0 00 00000  FORMAT   PZE
22127  0 00 00000  WK30     PZE
22130  0 00 00000  WK31     PZE
22131  0 00 00000  WK32     PZE
22132  0 00 00000  WK33     PZE
22133  0 00 00000  WK34     PZE
22134  0 00 00000  WK35     PZE
22135  0 00 00000  WK36     PZE
22136  0 00 00000  WK40     PZE
22137  0 00 00000  WK20     PZE
22140  0 00 00000  9F       PZE
22141  0 00 00000  AAAA     PZE
22142  0 00 00000  AIS      PZE
```

```
22143  0 00 00000  ASB     PZE
22144  0 00 00000  BBBB    PZE
22145  0 00 00000  BIS     PZE
22146  0 00 00000  BSB     PZE
22147  0 00 00000  CARRY   PZE
22150  0 00 00000  CRYOUT  PZE
22151  0 00 00000  IW      PZE
22152  0 00 00000  OFIS    PZE
22153  0 00 00000  OFSB    PZE
22154  0 00 00000  SUM     PZE
22155  0 00 00000  TEMP    PZE
22156    77777777  OUTFLG  DATA    -1
22157  0 00 00000  XIS     PZE
22160  0 00 00000  XSB     PZE
22161  0 00 00000  XXXX    PZE
22162  0 00 00000  IFLG    PZE
22163  0 20-06404  MODULE  NOP-    NOP1
22164  0 00 00000  XSAVE   PZE
```



```
22165    63105237  MTIME   BCD     'T8 'T7 'T6 'T5 'T4 'T3 'T2 'T1 'T0 'TR 'TP ''
22166    63075237
22167    63065237
22170    63055237
22171    63045237
22172    63035237
22173    63025237
22174    63015237
22175    63005237
22176    63515237
22177    63475237
22200    63105237          BCD     'T8 'T7 'T6 'T5 'T4 'T3 'T2 'T1 'T0 'TR 'TP ''
22201    63075237
22202    63065237
22203    63055237
22204    63045237
22205    63035237
22206    63025237
22207    63015237
22210    63005237
22211    63515237
22212    63475237
22213    63105237          BCD     'T8 'T7 'T6 'TP ''
22214    63075237
22215    63065237
22216    63475237
22217    63105237  DTIME   BCD     'T8 'T5 'T2 'TR 'T7 'T4 'T1 'TP 'T6 'T3 'T0 ''
22220    63055237
22221    63025237
22222    63515237
22223    63075237
22224    63045237
22225    63015237
22226    63475237
22227    63065237
22230    63035237
```

```
22231    63005237
22232    63105237          BCD     'T8 'T5 'T2 'TR 'T7 'T4 'T1 'TP 'T6 'T3 'T0 ''
22233    63055237
22234    63025237
22235    63515237
22236    63075237
22237    63045237
22240    63015237
22241    63475237
22242    63065237
22243    63035237
22244    63005237
22245    63105237          BCD     'T8 'T5 'T2 'TP ''
22246    63055237
22247    63025237
22250    63475237
                           END
LITERALS USED:
22251    00000004
22252    00010003
22253    04050407
22254    00037777
22255    00000261
22256    00000100
22257    00000077
22260    40000000
22261    00000000
22262    00000001
22263    06720777
22264    06600000
22265    00007700
22266    06710000
22267    00000600
22270    06624000
22271    06734277
22272    77777777
```



```
22273    37777777
22274    53577045
22275    00000777
22276    00000060
22277    00100000
22300    00037000
22301    00004000
22302    00077000
22303    00010000
22304    66666666
22305    11111111
22306    00000002
22307    00000177
22310    00000237
22311    00000273
22312    00000377
22313    00000020
22314    00000161
22315    00000003
22316    77777750
22317    77777776
22320    70000000
```

22321 CELLS USED BY PROGRAM

LOCAL SYMBOLS USED =

```
ADD          22116+    ADDDSP       22073+    A1           22100+
A2           22070+    A3           22105+    A4           22110+
A5           22114+    AAA          22064+    AAAA         22141+
AADD         21424+    ABC     N     7044+    ADC1    N    10034+
ADC2    N    10050+    ADC3    N    10064+    ADC4    N    10100+
```

ADC5	N	10114#	ADC6	N	10130#	ADC7	N	10144#
ADC8	N	10160#	ADD1	N	7534#	ADD2	N	7550#
ADD3	N	7564#	ADD4	N	7600#	ADD5	N	7614#
ADD6	N	7630#	ADD7	N	7644#	ADD8	N	7660#
ADDSIM		4756#	ADIV		21570#	ADLUP		5001#
ADM1	N	11530#	ADM2	N	11544#	ADM3	N	11560#
ADM4	N	11574#	ADM5	N	11610#	ADM6	N	11624#
ADM7	N	11640#	ADM8	N	11654#	AERROR		21664#
AGAIN0		4025#	AGAIN1		4201#	AGAIN2		4312#
AGAIN3		4444#	AGAIN4		4557#	AIS		22142#
AL2		5632#	AMUL		21525#	AR1		5604#
AREG	N	410	ASB		22143#	ASFT		21463#
B00		22117#	B00DSP		22074#	B1		22101#
B2		22071#	B3		22106#	B4		22111#
B5		22115#	BAC	N	7030#	BADD		21434#
BBB		22065#	BBBB		22144#	BCREG		22075#
BDIV		21600#	BEGIN		6276#	BERROR		21671#
BIGPOP		5757#	BIS		22145#	BIT0		5471#
BIT1		5472#	BIT10		5503#	BIT11		5504#
BIT12		5505#	BIT13		5506#	BIT14		5507#
BIT15		5510#	BIT16		5511#	BIT17		5512#
BIT18		5513#	BIT19		5514#	BIT2		5473#
BIT20		5515#	BIT21		5516#	BIT22		5517#
BIT23		5520#	BIT3		5474#	BIT4		5475#
BIT5		5476#	BIT6		5477#	BIT7		5500#
BIT8		5501#	BIT9		5502#	BMUL		21536#
BR1		5612#	BREG	N	411	BRI1	N	7454#
BRI2	N	7470#	BRI3	N	7504#	BRI4	N	7520#
BRM1	N	11670#	BRM2	N	11704#	BRM3	N	11720#
BRM4	N	11734#	BRM5	N	11750#	BRM6	N	11764#
BRM7	N	12000#	BRR1	N	12264#	BRR2	N	12300#
BRX1	N	10774#	BRX2	N	11010#	BRX3	N	11024#
BRX4	N	11040#	BRX5	N	11054#	BRX6	N	11070#
BSB		22146#	BSFT		21473#	BT0AR1		5246#
BT0AL1		5361#	BZ0		22120#	C1		22102#
C2		22072#	C4		22112#	CAB	N	6764#

CARRY		22147#	CARRET		21725#	CAX	N	7074#
CBA	N	7000#	CBX	N	7124#	CCC		22063#
CLA	N	6720#	CLB	N	6734#	CLEAR		6013#
CLENUP	N	6130#	CLR	N	6750#	CLROF		6146#
CLX	N	6704#	CNA1	N	7234#	CNA2	N	7250#
CNA3	N	7264#	CNA4	N	7300#	CNA5	N	7314#
CNA6	N	7330#	CNA7	N	7344#	CNA8	N	7360#
CNASIM		5045#	COMMON		5775#	CRYOUT		22150#
CXA	N	7060#	CXB	N	7140#	CZ		22121#
DIV1	N	15330#	DIV10	N	15504#	DIV11	N	15520#
DIV12	N	15534#	DIV13	N	15550#	DIV14	N	15564#
DIV15	N	15600#	DIV16	N	15614#	DIV17	N	15630#
DIV18	N	15644#	DIV19	N	15660#	DIV2	N	15344#
DIV20	N	15674#	DIV21	N	15710#	DIV22	N	15724#
DIV23	N	15740#	DIV24	N	15754#	DIV25	N	15770#
DIV26	N	16004#	DIV27	N	16020#	DIV28	N	16034#
DIV29	N	16050#	DIV3	N	15360#	DIV30	N	16064#
DIV31	N	16100#	DIV32	N	16114#	DIV33	N	16130#
DIV34	N	16144#	DIV35	N	16160#	DIV36	N	16174#
DIV37	N	16210#	DIV38	N	16224#	DIV39	N	16240#
DIV4	N	15374#	DIV40	N	16254#	DIV41	N	16270#
DIV42	N	16304#	DIV43	N	16320#	DIV44	N	16334#
DIV45	N	16350#	DIV46	N	16364#	DIV47	N	16400#
DIV48	N	16414#	DIV49	N	16430#	DIV5	N	15410#
DIV50	N	16444#	DIV51	N	16460#	DIV52	N	16474#
DIV53	N	16510#	DIV54	N	16524#	DIV55	N	16540#
DIV56	N	16554#	DIV57	N	16570#	DIV58	N	16604#
DIV59	N	16620#	DIV6	N	15424#	DIV60	N	16634#
DIV61	N	16650#	DIV62	N	16664#	DIV63	N	16700#
DIV64	N	16714#	DIV65	N	16730#	DIV66	N	16744#
DIV67	N	16760#	DIV68	N	16774#	DIV69	N	17010#
DIV7	N	15440#	DIV70	N	17024#	DIV71	N	17040#
DIV72	N	17054#	DIV73	N	17070#	DIV74	N	17104#
DIV75	N	17120#	DIV76	N	17134#	DIV77	N	17150#
DIV78	N	17164#	DIV79	N	17200#	DIV8	N	15454#
DIV9	N	15470#	DIVERT		450	DIVSIM		6175#

D8NE		452	OSCSIZ	N	404	DTIME		22217•
EAX1	N	12154•	EAX2	N	12170•	EAX3	N	12204•
EAX4	N	12220•	EAX5	N	12234•	EAX6	N	12250•
E[illegible]		434	E8M1	N	12564•	E8R1	N	6624•
E8R2	N	6640•	E8R3	N	6654•	E8R4	N	6670•
ERR8R		460	ERR8RS		414	ETR1	N	6464•
ETR2	N	6500•	ETR3	N	6514•	ETR4	N	6530•
ETRIT		6337•	EXU1	N	11230•	EXU2	N	11244•
EXU3	N	11260•	EXU4	N	11274•	FAM0		17351•
FAM1		17632•	FAM2		20004•	FAM22		20726•
FAM23		21167•	FAM3		20205•	FAM4		20456•
FA[illegible]		22007•	FD8NE		456	FIM0		17340•
FIM1		17624•	FIM2		17776•	FIM22		20717•
FIM23		21161•	FIM3		20176•	FIM4		20447•
FINISH		6344•	FIN		22062•	FLAGS	N	332
FORMAT		22126•	FPT0		22010•	FPT1		22016•
FPT2		22024•	FPT22		22046•	FPT23		22054•
FPT3		22032•	FPT4		22040•	FUCEND		4755•
FU[illegible]		424	FUNC0	N	4006•	FUNC1		4172•
FUNC2		4303•	FUNC22		4661•	FUNC23		4717•
FUNC3		4433•	FUNC4		4546•	FVM0		17606•
FV[illegible]1		17762•	FVM2		20160•	FVM22		21150•
FV[illegible]23		21413•	I30T44		5765•	I31	N	243
I88	N	247	I56174		5764•	IEXT		5751•
IFLG		22162•	ILLEXT		6027•	IMSG		6055•
INST		22067•	INT31	N	242	INT33	N	246
ISSBX		21630•	ITABLE		6023•	IW		22151•
IX		22123•	K0		22124•	LAST		6402•
LCYA31		5445•	LC		5165•	LDE	N	7204•
LEFT		5155•	LINE8		22076•	L8CKS	N	402
LHS		5147•	LRSHA1		5441•	LSH1	N	13224•
LSH10	N	13400•	LSH11	N	13414•	LSH12	N	13430•
LSH2	N	13240•	LSH3	N	13254•	LSH4	N	13270•
LSH5	N	13304•	LSH6	N	13320•	LSH7	N	13334•
LSH8	N	13350•	LSH9	N	13364•	LSHAB1		5326•
M[illegible]MBRY		4046•	MERR8R		21703•	MIN1	N	11370•

MIN2	N	11404•	MIN3	N	11420•	MIN4	N	11434•
M8DLOP		4026•	M8DULE		22163•	MRG1	N	6544•
MRG2	N	6560•	MRG3	N	6574•	MRG4	N	6610•
MTIME		22165•	MTITLE		21726•	MUL1	N	14150•
MUL10	N	14324•	MUL11	N	14340•	MUL12	N	14354•
MUL13	N	14370•	MUL14	N	14404•	MUL15	N	14420•
MUL16	N	14434•	MUL17	N	14450•	MUL18	N	14464•
MUL19	N	14500•	MUL2	N	14164•	MUL20	N	14514•
MUL21	N	14530•	MUL22	N	14544•	MUL23	N	14560•
MUL24	N	14574•	MUL25	N	14610•	MUL26	N	14624•
MUL27	N	14640•	MUL28	N	14654•	MUL29	N	14670•
MUL3	N	14200•	MUL30	N	14704•	MUL31	N	14720•
MUL32	N	14734•	MUL33	N	14750•	MUL34	N	14764•
MUL35	N	15000•	MUL36	N	15014•	MUL37	N	15030•
MUL38	N	15044•	MUL39	N	15060•	MUL4	N	14214•
MUL40	N	15074•	MUL41	N	15110•	MUL42	N	15124•
MUL43	N	15140•	MUL44	N	15154•	MUL45	N	15170•
MUL46	N	15204•	MUL47	N	15220•	MUL48	N	15234•
MUL49	N	15250•	MUL5	N	14230•	MUL50	N	15264•
MUL51	N	15300•	MUL52	N	15314•	MUL6	N	14244•
MUL7	N	14260•	MUL8	N	14274•	MUL9	N	14310•
MULSIM		6067•	MULT1		6165•	MULT2		6125•
MULT3		6170•	MULT4		6114•	ND		5175•
N8D1	N	13444•	N8D10	N	13620•	N8D11	N	13634•
N8D12	N	13650•	N8D13	N	13664•	N8D14	N	13700•
N8D15	N	13714•	N8D16	N	13730•	N8D17	N	13744•
N8D18	N	13760•	N8D2	N	13460•	N8D3	N	13474•
N8D4	N	13510•	N8D5	N	13524•	N8D6	N	13540•
N8D7	N	13554•	N8D8	N	13570•	N8D9	N	13604•
N8D8NE		5214•	N8ERR		4106•	N8P1		6404•
N8P2	N	6420•	N8P3	N	6434•	N8P4	N	6450•
N8SKIP		4100•	N8VERR		21707•	N8VFL8		4143•
NSKPER		21653•	OBJECT		430	OERR8R		21716•
OFADD		21454•	OFDIV		21620•	OFIS		22152•
OFLAG		22125•	OFMUL		21560•	OFSB		22153•
OFSFT		21515•	OF		22140•	OK		4163•

8T81	N	7374+	8T82	N	7410+	8T83	N	7424+
8T84	N	7440+	8UT1		5677+	8UT2		5703+
8UTFLG		22156+	8VFL8		4154+	8VRFL8	N	413
8VT1	N	12314+	8VT2	N	12330+	8VT3	N	12344+
8VT4	N	12360+	P8P		4050+	P8P1	N	12014+
P8P2	N	12030+	P8P3	N	12044+	P8P4	N	12060+
P8P5	N	12074+	P8P6	N	12110+	P8P7	N	12124+
P8P8	N	12140+	P8PED		6042+	P8PTST		4061+
PRIV1	N	13774+	PRIV2	N	14010+	PRIV3	N	14024+
PRIV4	N	14040+	PRIV5	N	14054+	PRIV6	N	14070+
PRIV7	N	14104+	PRIV8	N	14120+	PRIV9	N	14134+
RADSIZ	N	403	RAND8M		5053+	RCYAB1		5457+
RC		5137+	REG8UT		5665+	RE81	N	12440+
RE82	N	12454+	RE83	N	12470+	RE84	N	12504+
RE85	N	12520+	RE86	N	12534+	RE87	N	12550+
REP8RT		454	RESULT		21747+	RETURN		440
RF		22122+	RIGHT	N	5127+	RL1		415
RL2		416	RL4	N	417	R8V1	N	12374+
R8V2	N	12410+	R8V3	N	12424+	RSA		5522+
RSH1	N	12740+	RSH10	N	13114+	RSH11	N	13130+
RSH12	N	13144+	RSH13	N	13160+	RSH14	N	13174+
RSH15	N	13210+	RSH2	N	12754+	RSH3	N	12770+
RSH4	N	13004+	RSH5	N	13020+	RSH6	N	13034+
RSH7	N	13050+	RSH8	N	13064+	RSH9	N	13100+
RSHAB1		5221+	SEED		406	SETBZ0		5656+
SETB0		6237+	SFTBL	N	5521+	SFT8K		5106+
SFTSIN		5071+	SHIFT1		4350+	SHIFT2		4364+
SKA1	N	10524+	SKA2	N	10540+	SKA3	N	10554+
SKA4	N	10570+	SKA5	N	10604+	SKA6	N	10620+
SKB1	N	10414+	SKB2	N	10430+	SKB3	N	10444+
SKB4	N	10460+	SKB5	N	10474+	SKB6	N	10510+
SKD1	N	12600+	SKD2	N	12614+	SKD3	N	12630+
SKD4	N	12644+	SKD5	N	12660+	SKD6	N	12674+
SKD7	N	12710+	SKD8	N	12724+	SKG1	N	10634+
SKG2	N	10650+	SKG3	N	10664+	SKG4	N	10700+
SKG5	N	10714+	SKG6	N	10730+	SKG7	N	10744+

SKG8	N	10760+	SKIP		4072+	SKM1	N	11104+
SKM2	N	11120+	SKM3	N	11134+	SKM4	N	11150+
SKM5	N	11164+	SKM6	N	11200+	SKM7	N	11214+
SKN1	N	10334+	SKN2	N	10350+	SKN3	N	10364+
SKN4	N	10400+	SKPER		21644+	SKR1	N	11450+
SKR2	N	11464+	SKR3	N	11500+	SKR4	N	11514+
SPIT	N	21773+	SPRINT		6046+	SPUR		5731+
SPURI		5736+	STA1	N	11310+	STA2	N	11324+
STATUS		401	STE	N	7170+	SUB1	N	7674+
SUB2	N	7710+	SUB3	N	7724+	SUB4	N	7740+
SUB5	N	7754+	SUB6	N	7770+	SUB7	N	10004+
SUB8	N	10020+	SUC1	N	10174+	SUC2	N	10210+
SUC3	N	10224+	SUC4	N	10240+	SUC5	N	10254+
SUC6	N	10270+	SUC7	N	10304+	SUC8	N	10320+
SUM		22154+	SYSIZE	N	405	T40		261
TEMP		22155+	TESTX	N	4126+	TESTA	N	4113+
TESTAC		6267+	TESTB	N	4120+	TESTBC		6264+
TESTM		4134+	TIME	N	407	TIMOUT		22077+
UAM		17224+	UAW	N	400	UIM		17215+
UNIT		420	UPT		22002+	UVM		17335+
WK20		22137+	WK30		22127+	WK31		22130+
WK32		22131+	WK33		22132+	WK34		22133+
WK35		22134+	WK36		22135+	WK40		22136+
X1		22103+	X2		22104+	X3		22107+
X4		22113+	XAB	N	7014+	XADD		21444+
XDIV		21610+	XEE	N	7220+	XERROR		21676+
XIS		22157+	XMA1	N	11340+	XMA2	N	11354+
XMUL		21547+	XREG	N	412	XSAVE	N	22164+
XSB		22160+	XSFT		21504+	XXA	N	7110+
XXB	N	7154+	XXX		22066+	XXXX		22161+